L.A.U.G.H. App for iPad

Case Study

Teaching Kids Mindfulness in the Digital Age

Challenges

Hours of screen time each day can leave kids feeling anxious and disconnected

The National Institute of Health's Medline Plus reports that the average kid spends 3 hours per day watching television and 5-7 hours total on screens. Another study from the American Academy of Pediatrics, states that 7 hours per day is the average that kids spend on entertainment media including televisions, computers, phones and other electronic devices.

All this screen time can leave kids feeling anxious and disconnected. As parents, we can try our best to limit screen time, but digital devices are increasingly becoming a part of daily life. To combat this trend, Catherine Mayer of The Catherine Mayer Foundation had a vision to create the L.A.U.G.H. App, nicknamed "The Un-App App®". This iPad® app would combine the visual arts, music, movement and breathing exercises to create calming and positive energies for kids.

Re-aligning an Artist's Vision

Nine months into design and development by another agency, it appeared that their output was not in alignment with Mayer's vision, and their capabilities were being tested. It became clear that she would need a new partner and Mayer turned to UpTop to pick up the pieces of the project.

> *"I approached UpTop because of their expertise in user-centered design and development, but also because of my prior working relationship with their UX Manager, Michael Woo," said Mayer. "I knew that the synergy of this partnership would make communicating much easier and allow for more creative moments to happen."*

Besides delivering a fully functional app that aligned with her vision, there were two other important objectives that UpTop would need to address. First, the app needed preparation for a series of clinical studies at the Seattle Children's Research Institute that would ultimately result in the evidence supporting the app's effectiveness. The qualitative and quantitative findings of these studies would be key in shaping the direction of the app. Second, a product strategy and roadmap for the app needed to be developed and all it's possible future enhancements.

Approach

Translating an Artist's Ideas Into Tech

We kicked off this project by getting into Mayer's headspace as best we could through a series of interviews to best understand the problem she is trying to solve. It is our job to help clarify and articulate the vision of our clients. As a visual artist by trade whose work is not based in technology, Mayer knew exactly what she wanted to accomplish and how it should look and feel, but translating these ideas into an app was challenging.
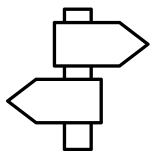
Key Components

From our discovery process, we learned that the core of the app was comprised of the following components.
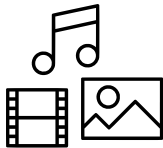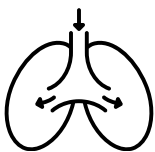
Multi-sensory Experience
Carefully orchestrated visuals, movements, music and sound is generated on each screen tuning into psychological triggers to help maintain that mindfulness state.

Guided Path
Guided Path - The user is meant to follow a guided experience, led by Ambi Ant®, to achieve a mindfulness state that has been clinically proven.

Breathing Exercises
These exercises are core to most health apps and are tailored to the user and biometrically proven to calm the user

Interactive Exercises
A fundamental goal of Mayer's is to enable individuals to express free-flowing creativity creating positive energies

"The app is unlike most apps and philosophically goes against many of the traditional UX design and marketing principles that we would use to encourage user engagement," said Michael Woo, UX Manager.
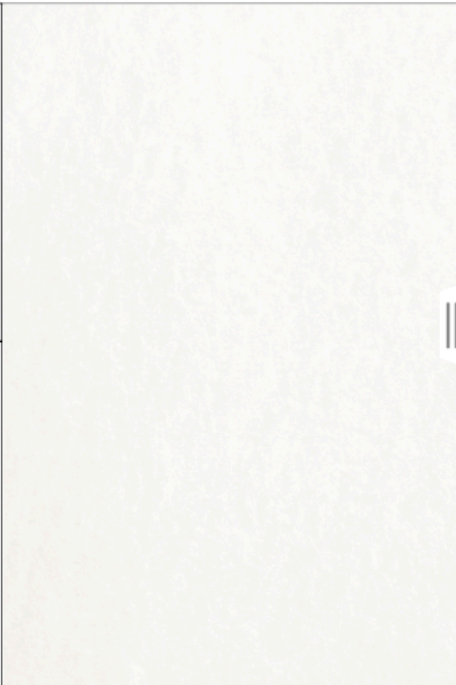
Picking Up the Pieces and Pushing Forward

Once the projects assets were in our hands, we completed a thorough audit of the existing app to document all of its components including images, audio, video, code and script.

Ambi Kids Script 12/15/2014
Script A

AMBI: See the waves. Hear the birds? Feel the sand! Keep breathing in and keep breathing here. Again let's go over here. Breathe in, and breathe out.

Mute   Save   Clear Can

Tools   Color

Recent Colors

AMBI: Are you ready? Pick from any of the objects here and draw them as you want. There is no right or wrong way. You can experiment with different tools and different colors if you like. Remember, keep imagining that I'm crawling around each one and follow with your line as I go. Go slowly and have fun...Breathing in and breathing out. Look at each object like you've never seen one before. Each shape, each color. Really look and really see.

Have fun, there are no rules. Draw as many as you like! Breathing in-Breathing out. Use your eyes. Follow me as I move. Go slowly. See every shape. Are you having fun?

L.A.U.G.H. App Audio

| App Sections	Page(s) Reference in PDF	Voice Over Track
Opening Splash	2-6	01 - Ambi Splash Introduction.wav
Intro	7	02 - Ambi Application Intro.wav
Breathing Exercise 1	8-9	03 - Ambi Breathing Exercise 1.wav
Breathing Exercise 2	10	04 - Ambi Breathing Exercise 2.wav
Apple Tutorial	11-13	05 - Ambi Apple Tutorial.wav
Apple Tutorial Drawing	14-15	05 - Ambi Apple Tutorial.wav
Drawing Exercise 1 – Apple	16-17	06 - Ambi Apple Exercise.wav
Drawing Exercise 2 – Fish	18	07 - Ambi Fish.wav
Drawing Exercise 3 – Butterfly	19	08 - Ambi Butterfly.wav
Beach/Free Draw	20-21	09 - Ambi Beach Free Draw.wav (will have some wave, bird sound effects overlayed throughout)
Outro	22	10 - Ambi Sign Off.wav

In parallel, we put together a screen interaction map with recommended changes for the two A/B variants that were in-flight. The goal was to optimize the flow of both test variants ahead of the clinical study.
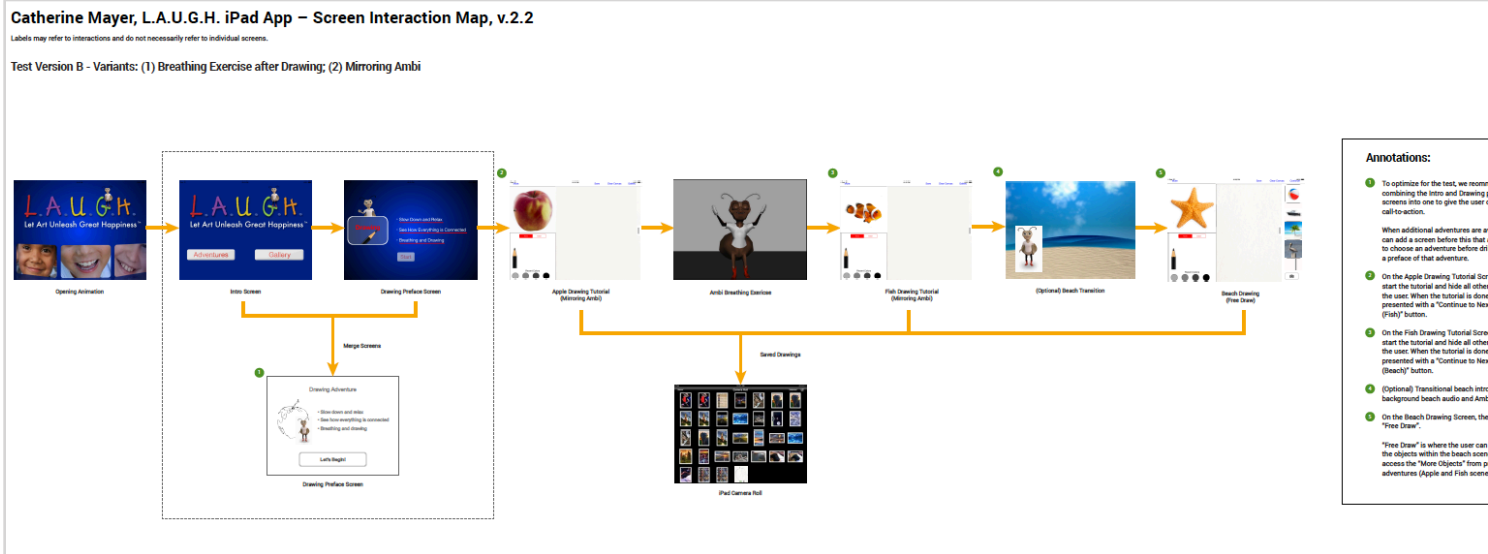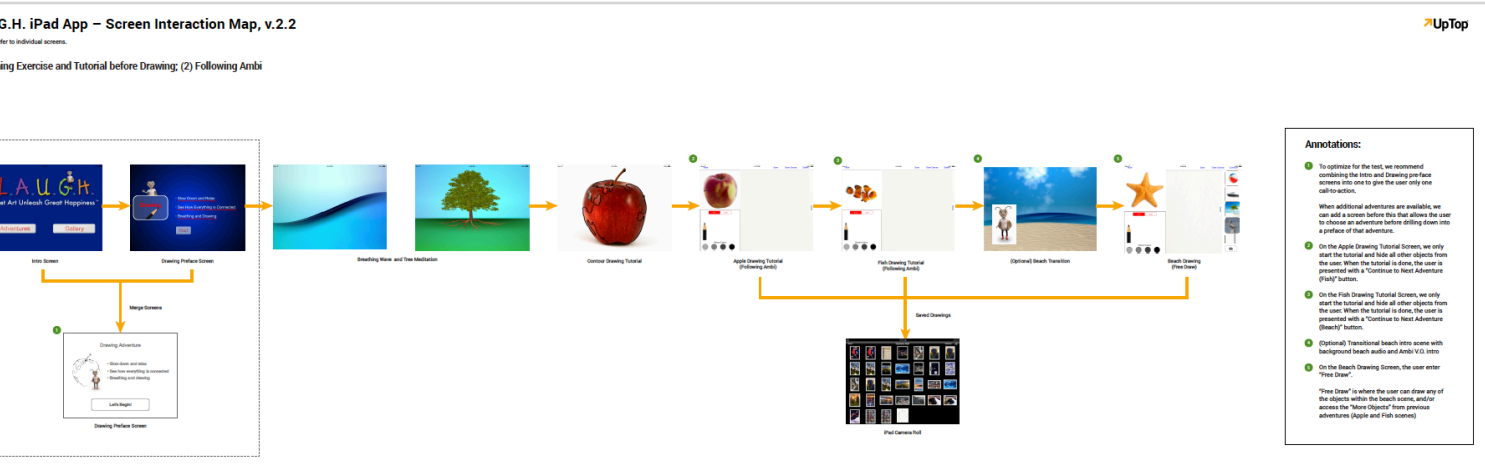
Prototyping the App Experience

After receiving approval from Mayer, we deliberated on the best way to communicate the test variants to the Seattle Children's Research Institute for preliminary review before investing time and resources into building out experiences for the actual study. We decided to use Keynote to best simulate a multimedia experience, leveraging the existing media components from the original design with basic UI updates to relay the general concept. Members of the institute were shocked by how realistic the prototype appeared when they discovered what they were viewing wasn't an app.
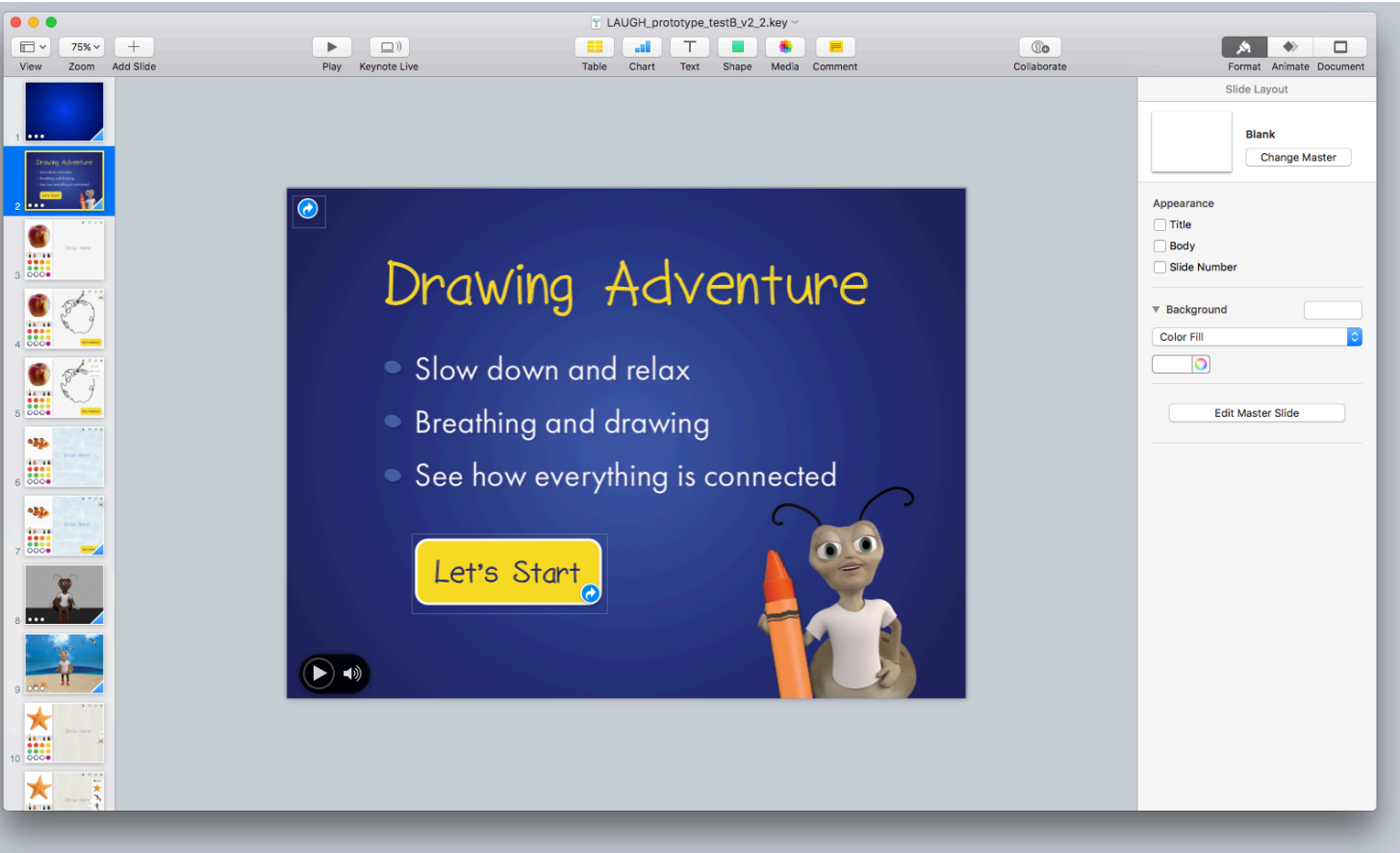
Course Work Required

In preparation for the study, members of the UpTop team were required to complete a Human Subjects Training Course because of our participation in the clinical study process (preparing the test app and recorded observation of participants using the app).

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COURSEWORK TRANSCRIPT REPORT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Michael Woo (ID: 4857096)
- **Email:** mwoo@uptopcorp.com
- **Institution Affiliation:** Seattle Children's Research Institute (ID: 922)
- **Phone:** 2063039922

- **Curriculum Group:** CITI Human Subject Research
- **Course Learner Group:** Social/Behavioral Research Course
- **Stage:** Stage 1 - Basic Course
- **Description:** Choose this group to satisfy CITI training requirements for Investigators and staff involved primarily in Social/Behavioral Research with human subjects.

- **Report ID:** 16182275
- **Report Date:** 07/09/2015
- **Current Score**:** 91

| REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Students in Research (ID:1321)	07/09/15	8/10 (80%)
History and Ethical Principles - SBE (ID:490)	07/09/15	5/5 (100%)
Defining Research with Human Subjects - SBE (ID:491)	07/09/15	4/5 (80%)
Belmont Report and CITI Course Introduction (ID:1127)	07/09/15	3/3 (100%)
The Federal Regulations - SBE (ID:502)	07/09/15	4/5 (80%)
Assessing Risk - SBE (ID:503)	07/09/15	5/5 (100%)
Informed Consent - SBE (ID:504)	07/09/15	5/5 (100%)

Design Exploration of the Lead Character

While the study was underway, the design team continued to explore UI direction and concepts of Ambi Ant®, who is a prevalent tour guide in the app. We believed that the original Ambi Ant character was a bit off the mark in terms of the specific target audience and that she was not easily scalable because she required 3D rendering.

From a general UI standpoint, we had to consider psychology of color, imagery, movement, sounds and how these elements might affect the end user - a child. We wanted to make sure that design choices were carefully orchestrated to invoke a certain feeling or state of mind.

A mood board was created with a range of known ant character renderings to consider for the new Ambi. We included both 2D and 3D options and clearly stated the pros and cons for each, like 2D being easier to scale. An informed choice was made by the client per our recommendation to go down the 2D road. We sketched and explored different options for this 2D character, layering on the personality that Mayer had envisioned. We incorporated guerrilla testing with kids to see how they responded to the new Ambi vs the old. Once enough information was gathered, we confidently moved forward with animation.

Draw Here!
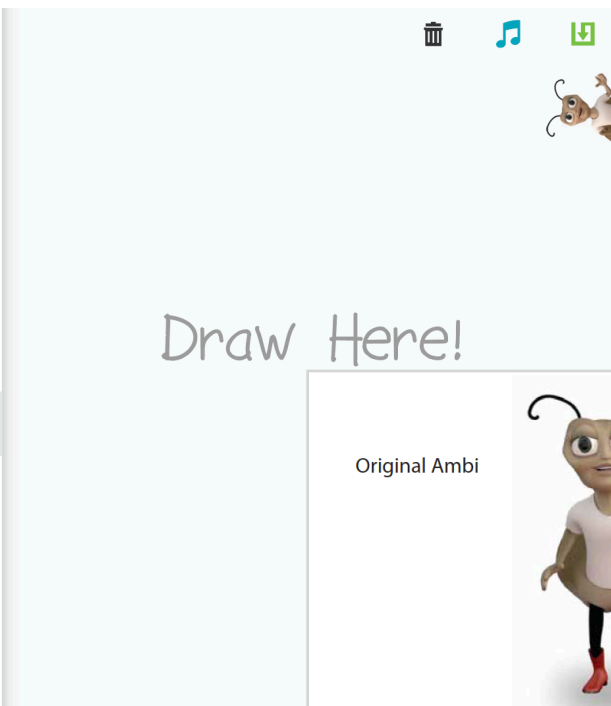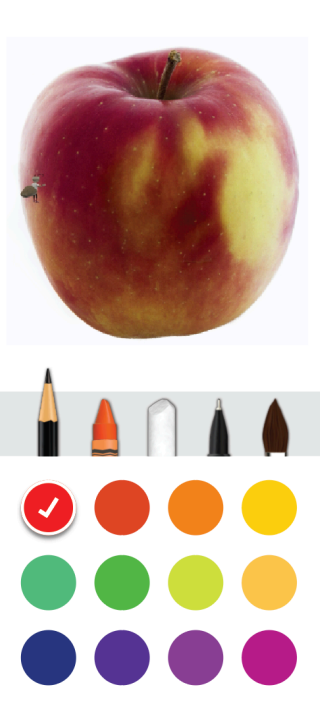
Original Ambi
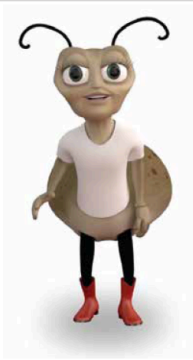
New AmbiAnt direction

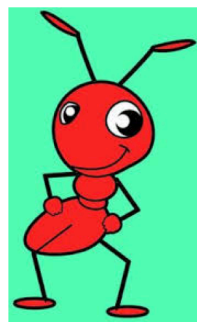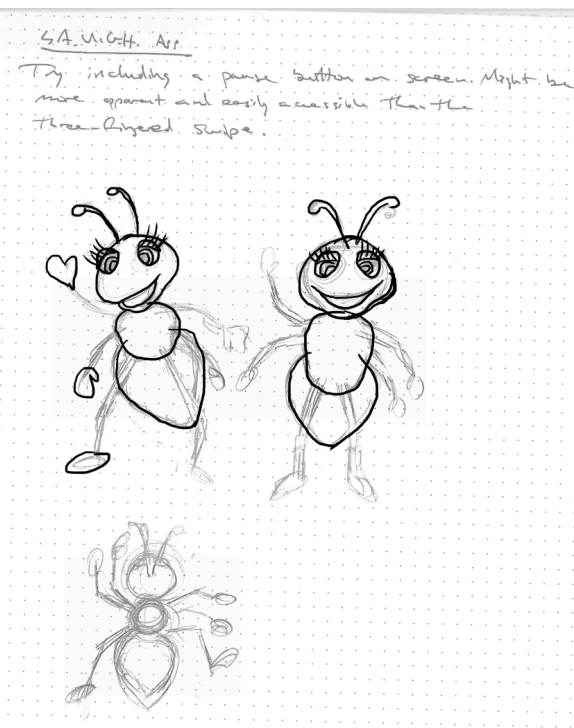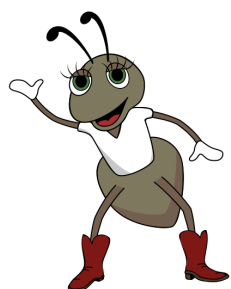Note: This is not final but a trace of an ant style found online.

2D Examples

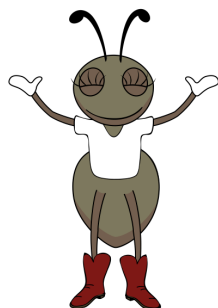3D Examples

The Star of the Show is Animated

Once we honed in on an appropriate look for Ambi, we worked to communicate the necessary profiles and expressions to our animator so he could begin building the keyframes for her movement.

Ambi 3/4

This will be used when Ambi is addressing the viewer.

Her arms can move and potentially her eyes and legs (if she walks at all).

Ambi Overhead

This will be used when Ambi crawls along objects for the viewer to follow/trace.

Just arms and legs need to move to create crawling motion as she follows a path.

Lines are much thicker because she needs to be seen at a much smaller size on varying backgrounds.

Ambi Full 1

This will mainly be used during the breathing exercises.

She breathes in and out while her arms go up and down.

Ambi Full 2

Same as above, but her arms are down at bottom of her breath.

1295_03BreathEx1_PREVIEW_ 01.mov
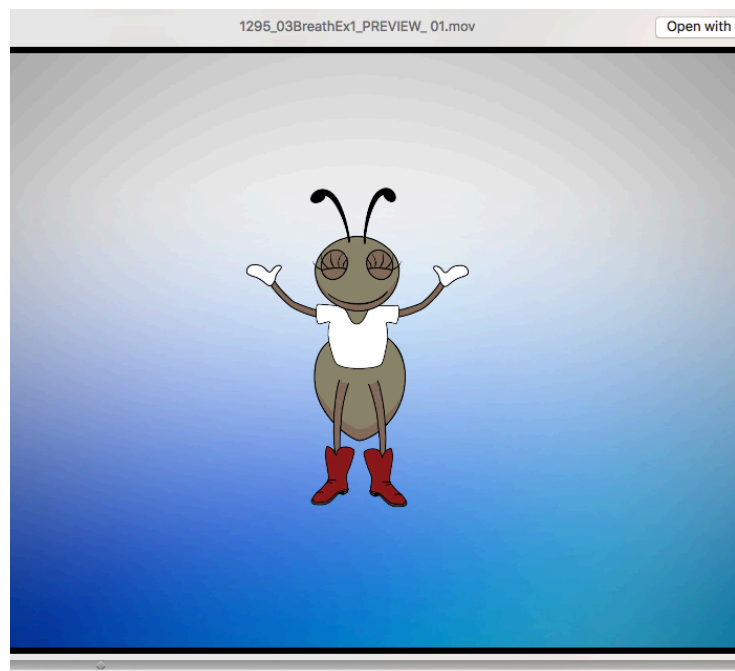
Validating Our Hypothesis

Once the projects assets were in our hands, we completed a thorough audit of the existing app to document all of its components including images, audio, video, code and script.

	Version A (N = 7)				Version B (N = 8)				Differences Significant?
	Duration (sec)	Mean HR	Lowest HR	Time to Lowest HR	Duration (sec)	Mean HR	Lowest HR	Time to Lowest HR	
Baseline	-	89	-	-	-	80	-	-	
Breathing	226	88	85	114	179	76	73	82	Duration
Tutorial	139	87	85	51	137	79	76	59	
Contour1	247	88	85	118	130	78	77	51	Duration, Time to lowest HR
Contour2	248	89	87	92	141	79	76	33	Duration, Time to lowest HR
Free Draw	512	90	84	276	515	80	76	88	

During the study, the initial test was conducted as formative research measuring the effects on physiological markers of relaxation and concentration between two test variants. A breathing exercise was not included in Version A, while it was included in Version B, to test whether this exercise would statistically have an impact on the app. The results were almost the same statistically for both versions, but it was determined that relaxation may be at its greatest during the breathing section. This outcome aligned to our original hypothesis that this exercise was critical to achieving a mindfulness state.

Armed with this new insight, we began storyboarding the specific animation sequences appearing throughout the app as we we entered the second phase of the study. We made the necessary adjustments, replacing all the old material that was re-used during initial testing.

Applying the Finishing Touches

By this time, the team had pulled together a working app of the ideal experience for final testing with participants. We decided to use the RITE (Rapid Iterative Testing and Evaluation) testing method because it's a lean method that allows for rapid changes to obvious issues and allows quick arrival at the desired state. This method required us to incorporate any obvious findings as swiftly as we could into the next round of participants.

Internally, we took to prototyping within InVision to more rapidly validate our designs before pushing out a new build. InVision allows simulation of workflows and basic interactivity. It is quick, easy and effective in terms of visualizing an experience.
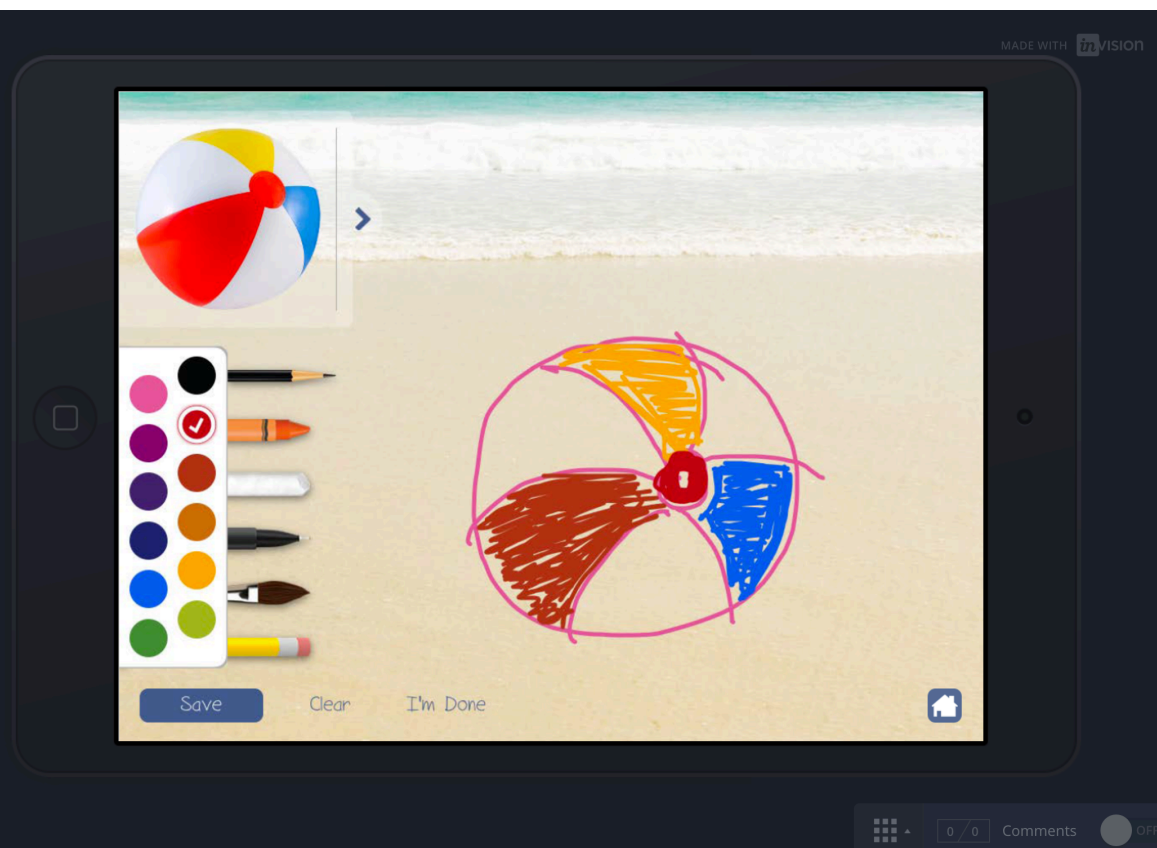
Unlearning Best Practices

Several times throughout the project, we were challenged to stop and rethink our natural design inclinations. For example, we would try to make it easier for users to get to certain parts of the app. But we were kept in check by the feedback we received from Mayer that this process is not about making it easy for a user to jump to a specific activity, but rather allow them to go through the "Guided Experience", as proven by the evidence based findings. We had to remind ourselves that the app is unlike most apps and philosophically goes against many of the traditional UX design and marketing principles that we would use to encourage user engagement.

> *"As designers, we were challenged to unlearn a lot of the techniques that we've been practicing for years, which made this project unique and interesting,"* said Woo.

Future Thinking

At the conclusion of this project, we challenged our team to brainstorm future possibilities for this app. The entire design team congregated for an hour to brainstorm "How Might We…" questions. The ideas were grouped using affinity diagramming and presented back to the client. The best ideas were then prioritized by impact vs effort, added into the roadmap and broken into phases. Specific technology ideas that came out of the brainstorm session were filed as potential patents for the app.

Release

The L.A.U.G.H. App for iPad was released to the Apple App Store in March of 2017. UpTop supported the PR blitz surrounding this event (See the coverage from KOMO News and King 5 News). We are also working with The Catherine Mayer Foundation on additional post launch testing opportunities with Kindering, a Seattle Public Schools Montessori classroom and the University of Washington Research Program to gather additional insights for future iteration.

Additionally, a version of the L.A.U.G.H. App for Adults is underway for the iPad. Although the target audience is different, the fundamental goal is the same. Stay tuned for more.

Appendix

Reports & Studies

National Institute of Health's Medline Plus
https://medlineplus.gov/ency/patientinstructions/000355.htm

American Academy of Pediatrics
https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/pages/media-and-children.aspx

Press

Komo 4 News
http://komonews.com/news/healthworks/seattle-artist-creates-app-to-teach-kids-mindfulness-through-creativity

King 5 News
http://www.king5.com/news/health/childrens-healthlink/local-artist-teams-up-with-seattle-childrens-to-develop-app/448002343

Project Collaborators

The Catherine Mayer Foundation - http://www.thecatherinemayerfoundation.org/
UpTop - https://www.uptopcorp.com/