



.calm

Low Fidelity Prototype

## Introduction & Mission Statement

Anxiety disorders are among the most common mental health disorders in the United States. They can be chronic, debilitating, and incapacitating for those who suffer from them.

.calm aims to support those living with anxiety by encouraging self-awareness through the use of cognitive behavioral therapy.

.calm—it's CBT in your pocket.

# Prototype Description

For our low-fidelity prototype (see Figure 1), we created a paper iPhone frame and a set of removable paper screens that can be swapped out depending on where our participants navigate to during testing. Our prototype includes two types of sliders made from paper (see Figures 2, 3) —both of which the participants can adjust—and a set of overlay messages (see Figure 4), which will pop up when necessary during a testing session. These interactive elements allow our participants to experience what it might be like to interact with our software on a responsive touch screen.

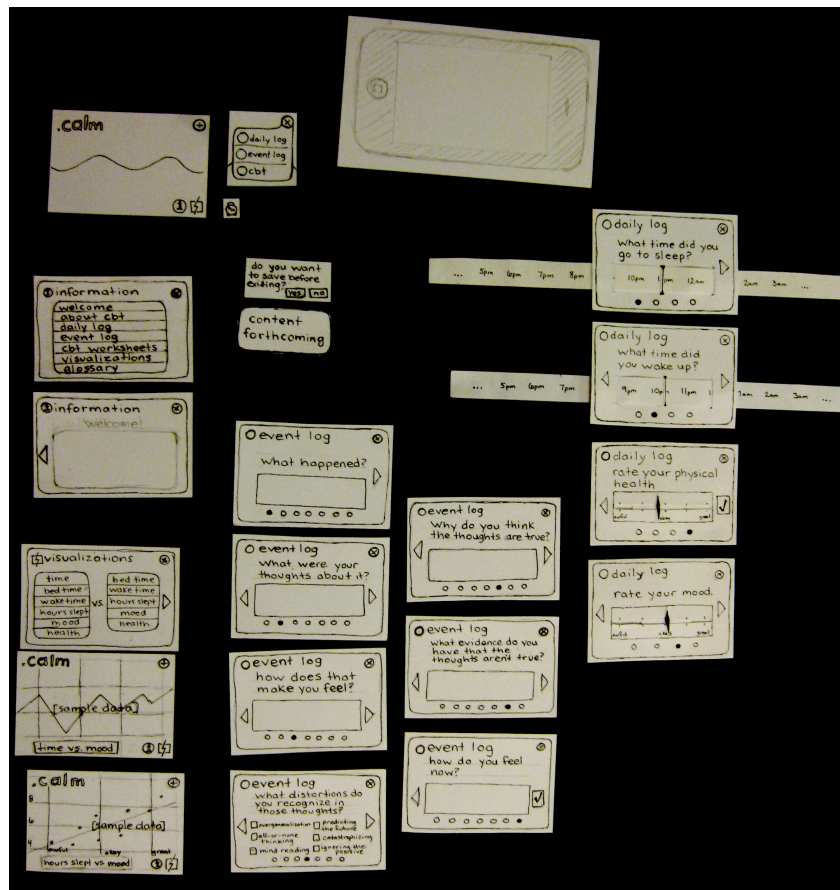


Figure 1: Entire Prototype

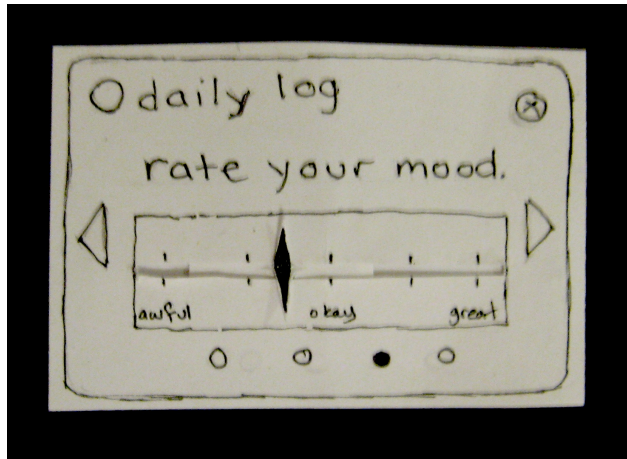


Figure 2: Mood Slider

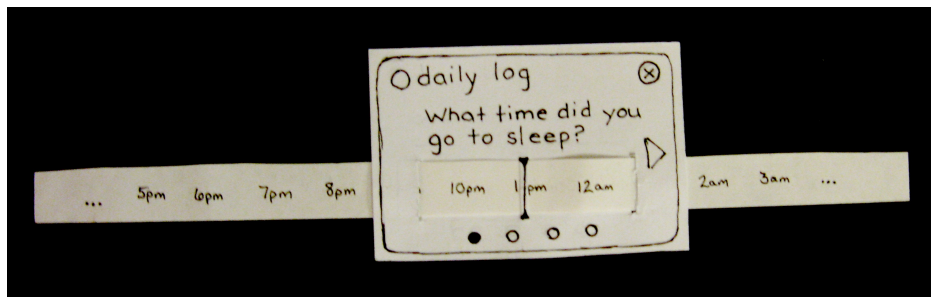


Figure 3: Sleep Slider

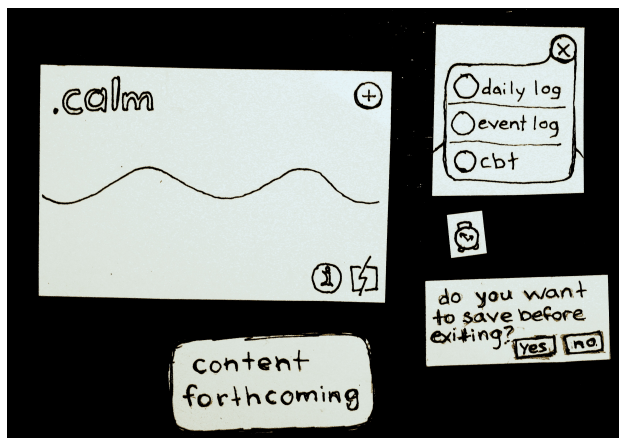


Figure 4: Pop-Up Messages

Our prototype supports the following tasks:

- Filling out a daily log
- Logging information for a specific anxiety event
- Toggling between timeline view and visualizations
- Accessing the help center

We opted not to include the CBT worksheet section in this prototype because we have not yet developed CBT content and because the interface and interactions for the CBT worksheet section are identical to both the daily log and the event log. We intend to collaborate with a mental health professional in developing sample worksheets for the CBT worksheet section. If a participant navigates to the CBT worksheet section during a testing session, they will encounter a “Content Forthcoming” pop-up message.

## Method

### Participants

We selected three volunteers, all of whom currently suffer from anxiety or have suffered from anxiety in the past. In order to find our volunteers, we solicited our extended social networks, posted flyers in a mental health clinic (see Appendix A) and posted an advertisement on Craigslist.

Participant 1 is a young caucasian male. He suffers from anxiety as well as other comorbid conditions, is very familiar with CBT and has worked with therapists extensively.

Participant 2 is also a young caucasian male. He has suffered from social anxiety for several years and has used medication and therapy as tools to manage his anxiety.

Participant 3 is an older African-American female. She suffers from anxiety and has explored CBT in a workbook context. She also expressed interest in finding a local CBT support group.

### Environment

In order to ensure a safe environment for our participants, the usability tests were all performed in places that the participants selected. The participants selected personal homes, either their own or a close friend's house. In two cases, our participants elected to have close friends attend the session as well so that they felt more comfortable.

The paper prototyping materials were kept in a large binder so the participant would not see the screens before they interacted with them. To set up for the testing session, we all gathered around a large table. The “computer” sat to one side of the participant and the moderator sat to the other side. Every effort was made to ensure the comfort of the test participant.

### Tasks

#### **Task 1: Create a daily log**

Imagine that this is the first time you've used [.calm](#) and you want to fill out a daily log. Use [.calm](#) to create a log.

### **Task 2: Visualizations**

Imagine that you've been using [.calm](#) for several weeks and you want to see graphs of your information. Use [.calm](#) to view first time vs. mood and then hours slept vs. mood.

### **Task 3: Event log**

Imagine you just finished a job interview and you don't think it went well. Use [.calm](#) to create an event log about that experience.

## Procedure

We maintained the same roles for all of the usability test sessions. Megan was the facilitator, Brian and Clint were note-takers, and Alexis was the computer.

We began with Megan reading a script to the participant (see Appendix B). The script described everyone's roles and what was expected of the participant. Megan then answered any questions that the participant had and requested that the participant sign a consent form (see Appendix C).

Before beginning the tasks, Megan demonstrated the sliders to the participant. Megan then read one task at a time to the participant, asking questions about their expectations and experience as needed as they interacted with the prototype (see Appendix D). As the participant touched interactive portions of the prototype Alexis would swap out the screen.

When all tasks were completed we dropped our roles went on to part two, a participatory design session. We discussed specific questions (see Appendix E) and generally discussed the participant's thoughts about the device and anxiety management. We ended by giving a thank you gift to each of our participants.

## Test Measures

Our test was intended to measure interface problems in a qualitative rather than quantitative way. We encouraged the participant to use think-aloud protocol while our two observers wrote down details of significant interface problems. In addition to encouraging our participants to talk about the interface as they used it, we asked them questions about what had just happened (i.e. "Is that what you expected? Why or why not?"), so that we might begin to understand what they thought they were accomplishing with the tool.

## Results

The following results were extracted from our raw data (see Appendix F).

### Welcome Screen

The Welcome Screen, which is one of the Information Screens, was very confusing for all participants. No one knew how to proceed from the welcome screen to the other tasks. Everyone expected the icons to be buttons rather than static text. Once they eventually did navigate to the Home Screen, no one remembered what each icon represented, so the information given in the Welcome Screen served no purpose.

### Daily Log

The Daily Log was mostly intuitive, though two of our participants requested text fields in order to customize the information collected, as opposed to rating everything on a generic scale. One of our participants exited after visiting only the first of four screens.

### Home Screen

All of the participants felt that the buttons were not intuitive, but because there were so few of them the familiarization process would be short. The participants navigated through process of elimination, not intuitively. Though one participant did not understand what dots on the home screen represented, two participants understood intuitively that they represented completed logs.

### Visualizations

The Visualization Screen was confusing to all of our participants. It wasn't clear what the different lists were for, or that they were meant as buttons. Two of our participants understood the concept better once the graph appeared on screen.

### Event Log

Our participants were mostly pleased with the Event Log Screens. There were minor concerns regarding what would happen if the text boxes were left blank, and a desire for more customization, especially for the check boxes. Everyone commented that the ability to fill out an event log in the moment was exactly the kind of thing they were looking for.

## Discussion

We came away from the usability tests with four areas in need of improvement. First, we need a better introductory setting for new users. All of the participants felt that once they figured out what the icons did, they could navigate the application easily, but the initial welcome screen was very confusing and made the participants a little hesitant to explore the application. Second, all of our participants had a desire for customization that we are not currently fulfilling. The participants wanted more text fields and the ability to add their own CBT worksheets. This concern is connected to our next area for improvement. Participants want to be able to access additional resources directly from the application. The kinds of resources we could add to the information portion of the application include downloadable CBT worksheets (specifically for use without the involvement of a therapist), and also links to website resources for someone interested in support groups, more information, or therapy. Lastly, the visualization settings screen needs a complete overhaul.

The largest changes will be in two areas, Welcome and Visualizations. Instead of starting first-time users in the information screens, we are considering a pop-up that inquires whether or not they want to go to the information screens, or possibly even an embedded welcome note on the Home Screen that functions as a first-time walkthrough. For the Visualizations we are considering integrating the x- and y-axis choices directly onto the Home Screen in a way that shows a more immediate correlation between action and graph. Instead of going to a new screen where you choose X from one column and Y from another column, then are taken back to the Home Screen with a graph in place, X and Y would be chosen from drop-downs on the graph axes themselves. The graph would update dynamically as the drop-down choices are changed.

Several other changes will be made, though they are minor in comparison. Text fields will be added to some of the screens to allow clients to make free-form comments where previously only sliders existed. The order of the Daily Log Screens will be adjusted, with a text field first, then mood, health, then sleep. The checkbox screen in the Event Log will be modified to allow the user to create their own fields, and possibly a menu of options from a drop-down (instead of checkboxes) so that more choices can fit in the space.



Long range changes include more information in the Information Screens, the ability to import custom CBT worksheets with or without a therapist's involvement, and a way to export the data in a spreadsheet to access on one's home computer.

There were two questions for which we were unable to get answers. The first question is out of the scope of interface testing, but is still vital to the purpose of [.calm](#). This experiment could not reveal to us whether or not our tool will actually help those who suffer from anxiety. Though all of our participants liked the content, especially of the Event Log, and all said they would use the tool were it developed, the actual efficacy of [.calm](#) cannot be measured with these kinds of tests. Our second question is more in line with interface testing, but still could not be ascertained in the scope of this testing format. Since the tasks covered all of the non-therapist portions of the interface, we have no way of knowing if a client would actually find all of the functionality on their own. Additional, less structured testing is needed to know whether or not users could discover all of the functionality without being guided to do so.

## Appendix A: Flyer

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We are seeking volunteers to help us test the interface for a computerized anxiety management tool called [.calm](#). This project is for a UW computer science class.

If you suffer from anxiety or depression (or have suffered from these conditions in the past) and would be willing to help us test our design, we would love to hear from you.

You can contact us at [lebrian@u.washington.edu](mailto:lebrian@u.washington.edu). For your participation, we are offering a \$5 Starbucks gift card.

Thank you,  
[.calm](#) design team

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## Appendix B: Script

Today we are asking for your help in testing [.calm](http://mydotcalm.com/), an interactive anxiety-management tool. Your feedback is very valuable to us and we really appreciate your help.

I am Megan, and I will be the facilitator of this session. As we work through the tasks, Brian and Clint will be taking notes about what works and what doesn't work about our interface. This is Alexis, and she will be playing computer for us today, swapping out screens and trying to make the process as interactive as possible.

This prototype is intended to simulate a touch screen interface. If you come across any text boxes, we are providing you with a pencil to write in them to simulate the act of typing. There are two different kinds of slider-like interfaces. I will show you how to use them before we begin. You may also encounter checkboxes. Feel free to mark these with your pencil.

This session will consist of two different parts.

In the first half of the session, we will be asking you to help us test the specifics of our interface. To do this, we are asking you to use a technique called "think-aloud." While you are completing the three tasks, please explain the steps you are following and your reasoning behind your decisions. I will be asking you some questions as you go along. Feel free to ask me any questions you may have, but keep in mind we are trying to see how intuitive our interface is to a first-time user and I may not be able to respond to your questions very directly. We are testing the quality of our design solution, and not your ability to figure it out. Any confusion you may have will be very valuable to us and will help us understand the flaws in our design.

In the second half of the session, we would like to have a participatory design session if you feel comfortable doing so. Participatory design is approach to design wherein we actively involve potential users in the design conversation. We have used this method throughout the design process and would love to hear your input as well. This session is much less structured than the interface testing session. We invite you to share any of your opinions regarding our design, the problem space in general, or the testing process. We would love to have a conversation with you. If you'd like, we have a set of prepared questions and activities we can use to get the conversation started, but the dialogue can be as free-formed as you are comfortable with; we intend

to break out of the roles I initially described to have a more relaxed conversation. You can also feel free to sketch anything that comes to mind.

Our software is designed to collect personal information relating to anxiety, emotions, and perception. For the purposes of this test, if you do not feel comfortable sharing any of this information with us, please feel free to make up a scenario, or draw a squiggly line in the box instead of writing text.

If you ever need a break, or there is something you are not comfortable doing, please let us know and we will accommodate you.

If you have any questions about anything, you can ask us those now.

If you don't have any further questions, we'd like to ask you to sign this consent form, which states that your participation is voluntary and explains how we will use the data collected today.

# Appendix C: Consent Form

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The [.calm](#) application is being produced as part of the coursework for the University of Washington Computer Science course "CSE 440: Introduction to Human-Computer Interaction". Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of [.calm](#). Data will be collected by interview, observation, and questionnaire.

Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers (Alexis Hope, Megan Langley, Brian Le, and Clint Tseng) or with Professor James Fogarty, the instructor of CSE 440:

James A. Fogarty  
Computer Science & Engineering  
University of Washington  
206-685-8081  
jfogarty at cs.washington.edu

Participant anonymity will be provided by the separate storage of names from data. Data will only be identified by participant number. No identifying information about the participants will be available to anyone except the researchers and their supervisors.

I hereby acknowledge that I have been given an opportunity to ask questions about the nature of the experiment and my participation in it. I give my consent to have data collected on my usage and opinions in relation to the [.calm](#) experiment. I understand I may withdraw my permission at any time.

Name \_\_\_\_\_

Date \_\_\_\_\_

Signature \_\_\_\_\_

Witness name \_\_\_\_\_

Witness signature \_\_\_\_\_

## Appendix D: Tasks

### Task 1: Create a daily log

Imagine that this is the first time you've used [.calm](#) and you want to fill out a daily log. Use [.calm](#) to create a log.

### Task 2: Home Screen

- Can you tell me what your initial impressions of the home screen are?
- What do you think the dot is?
- Go ahead and touch the dot. Is that what you expected to see? What does this information represent?
- What do you expect to happen if you add more information to [.calm](#)?

### Task 3: Visualizations

Imagine that you've been using [.calm](#) for several weeks and you want to see graphs of your information. Use [.calm](#) to explore the visualization section and select a graph you'd like to see.

- What does this information mean to you?
- Is this what you expected to see? Why or why not?

### Task 4: Event log

Imagine you just finished a job interview and you don't think it went well. Use [.calm](#) to create an event log about that experience.

## Appendix E: Participatory Design Questions

- What are your general impressions of the interface?
- Do you have any ideas for improving any of the tasks?
- Do you think you would actually use this software?
- How do you think this tool compares to other anxiety management tools you are aware of?
- Can you describe how using [.calm](#) made you feel?
- Is there anything missing from [.calm](#) that you'd like to see?
- Is there anything about [.calm](#) that you would get rid of?
- Do you have any feedback about the visualization section in particular?

## Appendix F: Raw Data

Test	Part	Type	Detail
1	Home	Good	"It's nice that [the dot info box] has an edit button"
1	Home	Good	Interface for filling daily log appears to be intuitive enough
1	Procedural	Misc	Task 1 should probably have been less specific; it's contradictory to the UI we present first.
1	Welcome	Interface Error	Touched new logs, but it is not a button
1	Welcome	Misc	Subject says: Ask to view the help rather than presenting in on first-run; makes it obvious what the user is doing if it is their choice
1	Home	Misc	When have bubble infos open on timeline, should have arrows back/forth between timeline events
1	Forms	Good	Confirm-on-cancel not necessarily necessary (x button)
1	Forms	Interface Error	Dots not obviously visible, though it's clear what they mean. Not a large issue.
1	Forms	Misc	Write/import own worksheets would be useful.
1	Forms	Concept Error	Might as well add a misc comments field to all logs/worksheets?
1	Daily Log	Concept Error	Mood is just a slider; might be nice to offer the option to be more specific.
1	General	Misc	Export
1	Home	Good	Tapping on dot seems to be intuitive; information is self-evident.
1	General	Misc	Wants lightweight options. Seems we're on the right track.
1	Daily Log	Concept Error	Wants comments in daily log.



Test	Part	Type	Detail
1	Forms	Interface Error	Wanted to be able to input own data for checkbox options rather than preexisting.
1	Forms	Interface Error	Unclear whether there were more checkbox options on the following page (on event log).
1	General	Interface Error	Buttons/icons need more concrete definition.
1	Forms	Concept Error	Left a field blank (couldn't think of anything to say). Should there be interaction here telling the user it's okay?
1	Forms	Interface Error	One of the CBT pages is too cluttered, took a long time to parse.
1	Viz	Interface Error	Time is highlighted, so that's the visualization seen — not certain he's aware of the fact that he's already seeing it, or what "time" means in context (days vs bedtime, etc)
1	Viz	Interface Error	Wanted to visualize mood, so highlighted mood on the left; nothing on the right, which is invalid state.
1	Welcome	Concept Error	The concept of the welcome screen is not clearly defined.
1	Welcome	Concept Error	Information screen is not helpful, not obviously a help screen rather than the main interface.
2	Welcome	Interface Error	Expecting icons on the help screen to do things (eg be buttons) rather than be informational
2	General	Interface Error	Went back into information to add daily log
2	Forms	Concept Error	x'd out of daily log rather than pressing next to go on after first question
2	Task	Misc	Did not finish first daily log
2	Home	Concept Error	Thought dot was a bedtime rather than daily log time (most likely due to the fact that subject didn't finish daily log)

Test	Part	Type	Detail
2	Home	Interface Error	Having trouble finding the visualizations button
2	Viz	Good	X vs Y interface presented no problems
2	Forms	Good	Checkboxes seem not as confusing compared to subject 1
2	General	Interface Error	"I would probably forget what the symbols meant"
2	General	Good	"It's better because it can respond immediately after an event that you feel bad about"
3	Welcome	Concept Error	"kind of wondering what the point is."
3	Welcome	Interface Error	(On pressing back arrow) "wouldn't have thought that that's what would happen."
3	Welcome	Good	Did in fact expect a drop down menu when hitting the + button, even if it was on the wrong screen.
3	Forms	Misc	"When I think of a log, I'd think of somewhere I could type information."
3	Forms	Concept Error	Makes more sense to put the rate your mood first.
3	Forms	Interface Error	Not sure why the last button is a checkmark instead of an arrow; not sure what that button is for.
3	Home	Interface Error	Dot == mood?
3	Home	Concept Error	Expects a list of daily logs rather than more dots for logs.
3	Home	Misc	Don't know what day (but that's because we forgot to add the day lines/divisions in the prototype).
3	Home	Interface Error	Couldn't tell that the icons at the bottom right were in fact buttons.
3	Viz	Misc	Wants the graph to be automatic somehow.
3	Viz	Concept Error	Not clear that the home screen == the viz screen.

Test	Part	Type	Detail
3	Forms	Good	The event log was what she expected, even though it took her a while to get there; they were exactly what she wanted out of the app.
3	Forms	Good	Likes being able to express why she feels the way she does.
3	General	Misc	If a person really had anxiety, the interface frustrations might add to it.
3	General	Misc	Would like a built-in list of other resources.
3	Viz	Concept Error	Not sure what the viz screen is asking for.