

# Peace of Mind

Design Specification

**Audience:** Web designers and developers



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## Design Problem

America has a fast-growing aging population and with older age, the risk of getting dementia is elevated. Research shows that the number of people living with dementia in the US is projected to increase over time (Alzheimer's Association, 2016). People living with dementia need caregivers to take care of them, but caregiving is no easy task. Caregivers face many stressors in their lives such as social isolation, lack of time for self, friends, and friends, interruptions in their careers, financial stress, and unrelieved physical labor in caregiving (Archbold, 1982).

The stress faced by caregivers could also worsen over time; a one-year longitudinal study found that dementia patients had a significant worsening of self-care, memory, and behavioral problems and with that the average hours per week spent caregiving increased from 62 to 83 hours (Pratt, Schmall, Wright, & Cleland, 1985). Caregivers without social support and good coping mechanisms are also at an increased risk for poor mental and physical health outcomes (Pratt, Schmall, Wright, & Cleland, 1985; Goode, Haley, Roth, Ford, 1998; Neudorfer, 1991; Haley et al, 1996).

## Design Goal

Build a website to help improve the quality of life among caregivers of people with dementia and help them better assist their care receivers.

## Research Approach

In order to learn about the experiences and difficulties of caregivers and care receivers, we used two different types of research method. Due to the sensitivity and legal procedures for conducting research to our target audience, we were not able to expand our research methods to a broader audience. We focused on studying target users as people with dementia from early to mid stage and their direct / indirect caregivers including family members, hired caregivers, and volunteers.

## Research Methods

- **Interviews** with 4 caregivers and 1 care receiver. We chose one-on-one interviews to learn about caregivers' and care receivers' experiences first-hand. We conducted the interview with several caregivers and one care receiver in an open-ended conversation style to foster trust and

empathy. In order to find interviewees in a short time span, we used convenience sampling.

- **Literature Review** to identify stressors and coping mechanisms amongst caregivers and people with dementia. We chose this method because there is a rich amount of empirical data from well-cited studies published in peer-reviewed scientific journals in this area. Our research aimed at answering the following two questions:
  1. What are the stressors faced by caregivers of people with dementia and their coping methods?
  2. What are the stressors faced by people with dementia and their coping methods?

The studies we found ranged from being cited 95 times to 745 times, which indicates that they have a high impact factor on the field. The sample sizes in the studies ranged from 60 to 240 caregivers of people with dementia and 92 to 135 people with dementia, which is a lot more people than we can recruit for our first study method given the short amount of time and sensitivity of the topic.

## Research Findings

- **Interview Findings**

### *Caregivers*

In our interviews with caregivers, it was apparent that they all had unique solutions to helping out their care receivers. For example, two caregivers used a word document to keep track of their care receiver's symptoms and medical results. Another found a solution online and used pleasant sounding door chimes to alert her when her husband left the home. One tech-savvy caregiver used Philips Hue lights to change the color of his mom's room whenever he wanted her to call him. However, not all of the caregivers we interviewed had high-tech solutions; one of the caregivers only used a television and radio to support their care receiver.

### *Person with Dementia*

In our interview with an early-stage dementia patient, we found that she had to stop using most electronics over time due to their complexity. For example, her telephone and TV remote have become too complex for her to operate. The only electronic device she uses are a talking watch that says the time out loud at regular intervals and an audiobook player that has a very large "play/pause" button that she can find by touch.

- **Literature Review Findings**

*Caregivers*

The stressors faced by caregiver include helping their care recipient with self-care tasks that they're unable to perform independently anymore (e.g., bathing, feeding, and managing finances) and dealing with their care recipient's behavioral problems (e.g., angry, dangerous, or embarrassing behavior) and memory impairments (disorientation, wandering, and repetitive questions) (Goode, Haley, Roth, & Ford, 1998).

Caregivers who use good coping mechanisms to handle their stress are often better off. In a longitudinal study, researchers found that who count their blessings and have a positive outlook on life had less caregiver burden (Vitaliano, P.P., Russo, J., Young, H., Teri, L., & Maiuro, R.D.). Having social support, especially from family, was associated with better physical health outcomes over time and lower caregiver burden (Pratt, Schmall, Wright, & Cleland, 1985; Goode, Haley, Roth, Ford, 1998).

*People with Dementia*

Problems in daily functioning often are the reason for a decrease in quality of life in dementia patients (Graff et al., 2007). In addition, people with dementia often have psychiatric problems such as anxiety, depression, and psychosis - up to 90% of people with dementia have psychiatric comorbidities (Plassman et al., 2007).

Information and emotional support improves the quality of life of patients and their caregivers (Graff et al., 2007). Researchers also found that cognitive stimulation could help improve dementia patient's cognitive outcomes (e.g. delayed memories and problem solving) (Quayhagen et al., 2000).

## **Design Decision**

The research findings helped us gain insights on both caregivers and care receivers. While we originally decided to design a solution for both caregivers and their receivers, we changed our design direction because it was apparent through our research that care receivers' daily life function depends greatly on their caregivers' support and performance. Helping to improve the quality of life for caregivers can consequently help them provide better care for their care receivers. How to design something that better suits caregivers' needs was the biggest design challenge we faced.

## Our Solution

*Peace of Mind* is a website that provides caregivers of people with dementia with an online platform to connect and share solutions with each other. In the website, caregivers can gain and give social support and advice about unique caregiving situations.

It has a community forum where caregivers could ask and answer questions and a social support feature where caregivers can send private messages to each other. The website also has a "How To" feature where caregivers can learn about unique technical solutions and projects to better assist their care receivers. It also has a store section where caregivers can read about and purchase products for their care receivers. Additionally, it has a journal for caregivers to keep track of their care receiver's medication, monitor their homes, plan fun events, record their own daily mood and to-dos, and write about what they are grateful for each day (gratitude diary). Users are encouraged to use the website with "Karma Points" - the more they use the website, the more points they can gain.

## Users

**Primary Users** - Familial caregivers of people with dementia. This is most commonly a spouse or adult daughter who oversees day-to-day caregiving.

**Secondary Users** - Hired caregivers who are recurrent participants in caregiving, volunteers who are recurrent participants in caregiving, or caregivers in assisted living homes.

## UI Explanation

Because our audience skews older, the UI of the website is intended to be bright, and legible, and easy to navigate. We chose an easy-to-read Arial black font against a white background, large headers, and simple, square buttons throughout our site. Photographs are neutral to positive in tone, and feature older families and individuals. Iconography is intended to be playful and inviting.

A playful and relaxed cursive font is used for certain title fonts, including the font of our logo. Accent colors are intended to be cool and calming. Copy is intended to be warm and inviting without appearing artificial and contrived.

## Project Scope

Our final product contained basic functionality of our core features that met our user needs. Core features included creating a profile, a community section for interacting with other caregivers; a store, how-to, and search section for solving problems; and a journal section for expressing gratitude.

Advanced functionality within these features was not included due to lack of available production time and lower prioritization.

### Features In Scope

- **General:** Navigate to main areas of the site, create an account, upload a profile photo, view profile
- **Community:** View the community forum, view individual community forum posts, create a community forum post, message another user
- **Store:** View Store home, view individual product page for Philips Hue light
- **How to:** View How To home page, view How To category page, view individual How To page for setting up a Philips Hue light
- **Journal:** View medical records, home monitor, planning (calendar), gratitude diary, to-do list, and mood.
- **Search:** Search for a sample topic and view result page.

### Features Out of Scope

- **General:** Adjust settings, edit profile, premade avatar options, screen name generator, privacy features, animated interactions
- **Community:** Add a friend, earn Karma points, “like” a forum post, comment on a forum post, full chat functionality,
- **Store:** Sort by “works with” or use case, affiliate marketing checkout
- **How to:** Add a How To article, view articles by tag, sort articles
- **Journal:** Add and edit entries, share gratitude journal entries
- **Search:** Filter search results

## Design Rationale

While our initial idea was to build an artificial intelligence system for dementia patients, our user research led us to understand that we could better help dementia patients by helping their caregiver(s). In our research, it also became obvious that dementia patients struggle with using technology. Their symptoms

change so dramatically and suddenly that designing an AI system that meets the needs of most dementia patients would be difficult, if not impossible.

This led us to the idea of building a support community for dementia caregivers so that they can empower and learn from one another. A website (as opposed to a smartphone app) was necessary to meet our user needs because only 42% of seniors over the age of 65 own a smartphone, while 67% of those same seniors have a home internet connection (Anderson & Perrin, 2017). Because our primary audience is familial caregivers, especially spouses of patients, we wanted to make our product as accessible to older audiences as possible.

Based on research findings, we created five primary sections of the website to meet the user needs and six sub-features under Journal, shown below in the following charts.



## Core Feature Chart

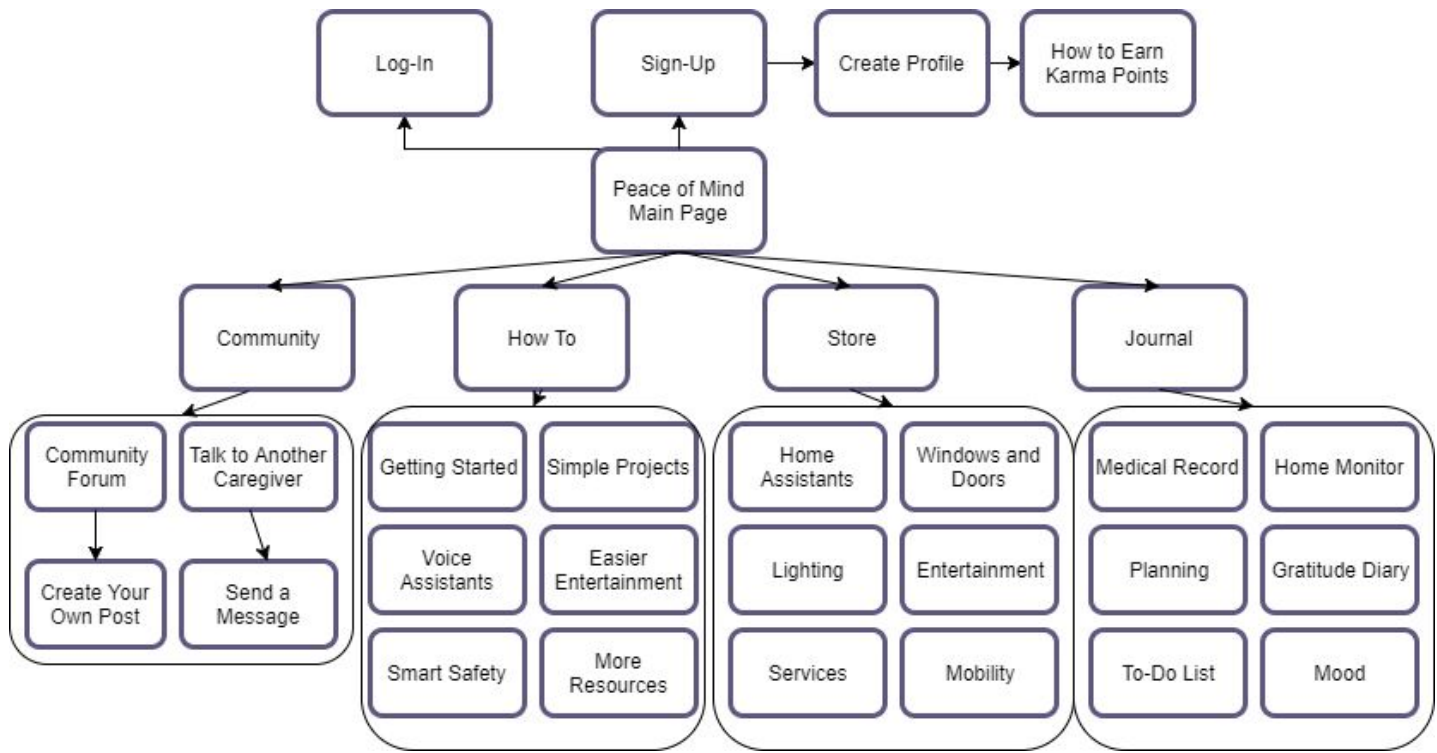
Feature	User need met	Supporting Research
Community	Emotional support	<p>One of the caregivers we interviewed was not in any emotional support groups, but she found strength by attending church weekly, praying, and having support from her husband and hired caregiver.</p> <p>Furthermore, literature review findings showed that caregivers with high levels social support initially had better physical health outcomes over time. (Goode, K. T., Haley, W. E., Roth, D. L., &amp; Ford, G. R.)</p>
How to	Problem solving	<p>Based on our interviews with the caregivers, we found out that caregivers have their own solutions for specific problems that their care receivers had.</p> <p>Caregivers needed a platform where they can exchange information and share experiences on ways to solve specific questions.</p>
Store	Problem solving	<p>One of the caregivers we interviewed used the Philips Hue as a tool to remind his care receiver for specific task. We were inspired by this finding and wanted to introduce products that could potentially help our target users such as smart home assistant, lighting therapy.</p>
Journal	Problem solving	<p>Based on our interview findings, caregivers need to technology products that will help them track their care receiver's activities.</p> <p>For example, one of the caregivers that we interviewed was using Word Document to keep her notes and filled in more details she could remember later. From then on, she included anything and everything that could be relevant, highlighting particularly important points.</p>
Search	Problem solving	<p>Based on our interviews with the caregivers, we found out that caregivers have their own solutions for specific problems that their care receivers had. Caregivers needed a feature to search for specific problem related information.</p>

## Journal Feature Chart

<b>Feature</b>	<b>User need met</b>	<b>Supporting Research</b>
Medical Record	Problem solving - Tracking	Based on our interview findings, caregivers need to technology products that will help them track their care receiver's activities.
Home Monitor	Solve problems in daily functioning	<p>Compensatory strategies were used to adapt activities of daily living to the disabilities of patients, and environmental strategies were used to adapt the patient's' environment to their cognitive disabilities.</p> <p>Community occupational therapy should be advocated both for dementia patients and their caregivers, because it improves their mood, quality of life, and health status and caregivers' sense of control over life. Effects were still present at follow-up. (Graff, M. J. L., Vernooij-Dassen, M. J. M., Thijssen, M., Dekker, J., Hoefnagels, W. H. L., OldeRikkert, M. G. M.)</p>
Planning	Problem solving - Tracking / Reduce depression	Behavioral therapy: pleasant event which involves planning, and executing pleasant events showed significant improvement in depression symptoms. (Teri, L., Logsdon, R.G., Uomoto, J., McCurry, S.M.)
Gratitude Diary	Counting blessing to reduce caregivers burden	Based on our literature review findings, counting one's blessings (i.e., comparing myself to others who are less fortunate) and having a positive outlook on life were associated with less caregiver burden at both baseline and follow-up. (Vitaliano, P.P., Russo, J., Young, H., Teri, L., & Maiuro, R.D.)
To-Do List	Problem solving - Tracking	Based on our interview findings, caregivers need to technology products that will help them track their care receiver's activities.
Mood	Problem solving - Tracking	Based on our interview findings, caregivers need to technology products that will help them track their care receiver's activities.

## Process Flows

The process flow diagram below shows the high-level navigation of the website.



## User Tasks

1. Sign up and create a profile
2. Find and “Like” Jane Smith’s Community Forum post
3. Create a Community Forum Post
4. Visit the Community Talk to Another Caregiver page and send a message to Jane Smith
5. Learn to set up a Philips Hue light in the Getting Started area of How To
6. View Philips Hue in the Store
7. Visit the Store Home
8. Visit Journal and explore the six types of logging
9. Return to the homepage and perform a search

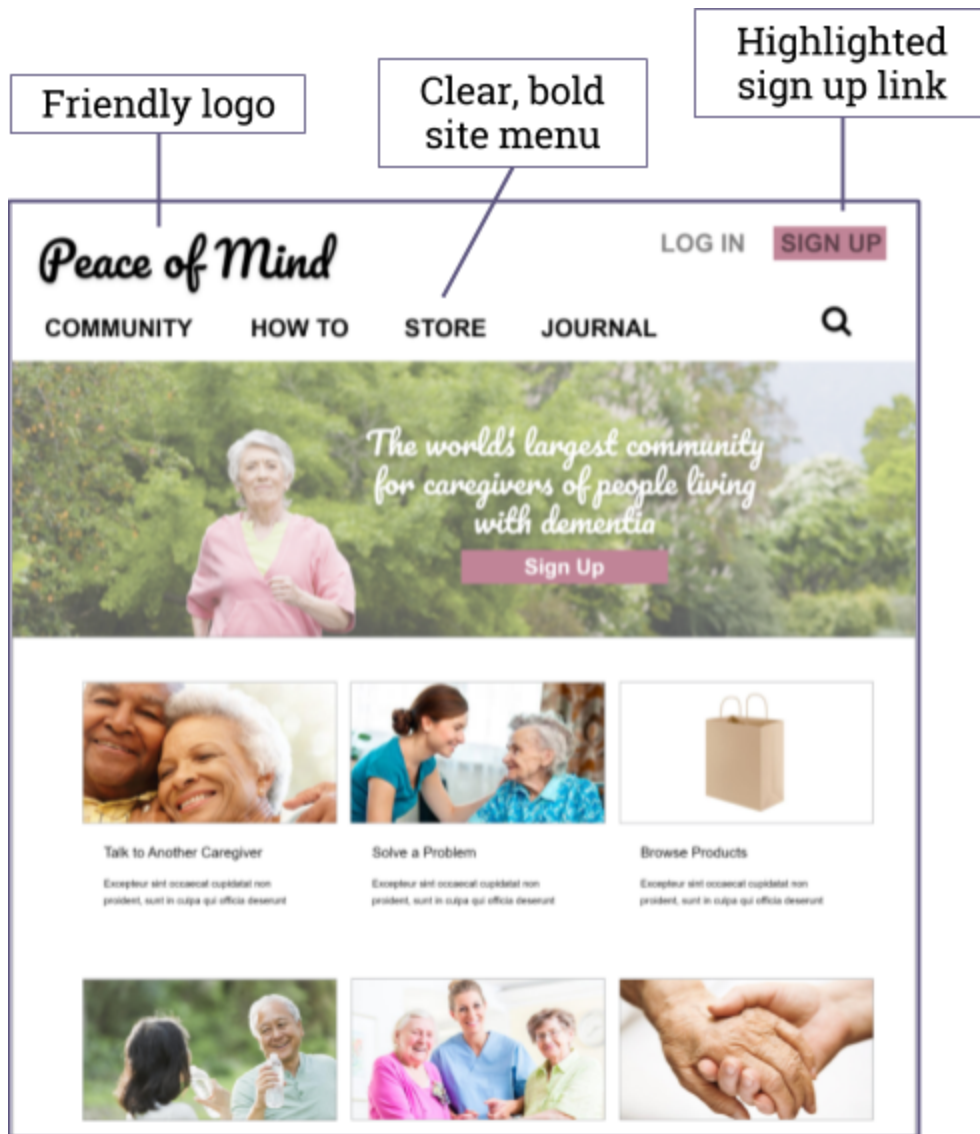
## Functional Prototype

The prototype can be found at this link:

<https://xd.adobe.com/view/d987d949-d3b0-476f-9e39-32e61f2c277c/>

# Annotated Webpages

## Peace of Mind Homepage



## Sign Up Process

The screenshot shows the top navigation bar with the logo 'Peace of Mind' on the left, and 'LOG IN' and 'SIGN UP' buttons on the right. Below the navigation are links for 'COMMUNITY', 'HOW TO', 'STORE', and 'JOURNAL', along with a search icon. The breadcrumb 'Home > Sign Up' is visible. The main form is titled 'Sign Up' and contains three input fields: 'Name' (with 'John Doe' entered), 'E-mail' (with 'john@mal.com' and a checkmark), and 'Password' (with '\*\*\*\*\*' and an 'X' icon). A 'Next' button is at the bottom.

Testers liked that most fields were optional; they could choose how much personal info to share


The page is titled 'Create Your Profile' and includes a congratulatory message: 'Congratulations for signing up for Peace of Mind! Please fill out the following information to create your online profile. Your profile is only visible to other registered users'. The form is divided into two columns. The left column has four optional fields: 'Name' (John Doe), 'Preferred Screen Name (optional)' (John\_D), 'Age (optional)' (MMDD/YYYY), and 'Interests (optional)' (e.g. knitting, hiking, and reading). The right column has two optional fields: 'About Me (optional)' (a text area with a sample bio) and 'Location (optional)' (City, State). A 'Next' button is at the bottom right.

The page is titled 'Select a Profile Picture (optional)'. It features a large grey circle on the left containing an upload icon. To the right, the text reads: 'Select a picture for your profile photo. Drag and Drop any photo from your computer to the circle on the left to upload your profile photo.' At the bottom, there are 'Back' and 'Finish' buttons.

# Peace of Mind

[COMMUNITY](#)   [HOW TO](#)   [STORE](#)   [JOURNAL](#)

Congratulations for creating your Peace of Mind profile! You have just earned **25 karma points** for completing this task. The more you interact with this website, the more karma points you can earn.



**John Doe**  
**Screen Name:** John\_Doe  
**Age:** 64  
**Location:** Seattle, WA

### Biography


I am a caregiver to my wife, who has Alzheimer's Disease. Even though it is stressful sometimes to care for my wife, I still very much enjoy her company and find ways to help her with her daily tasks and remembering things.

We both enjoy weekly short hikes at the scenic lake by our home and spending time with our kids and grandkids.

### Interests

- Knitting
- Hiking
- Reading

### Karma Points

 **25 Karma Points**

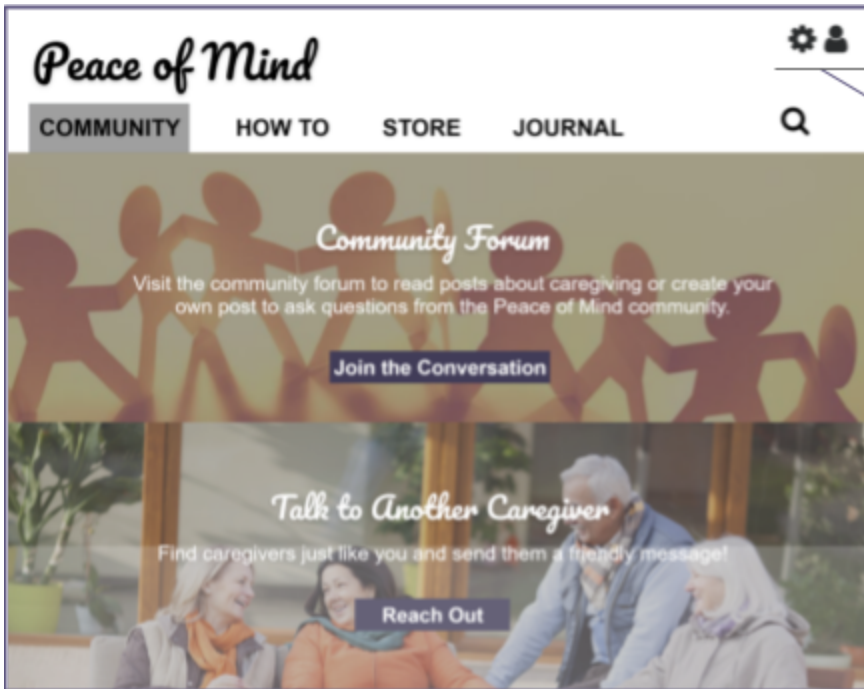
[How to Earn Karma Points](#)

[Edit Profile](#)

- You can earn Karma Points from the following activities:**
- 1 Posting on the Community Forum
  - 2 Getting likes on your Community Forum posts
  - 3 Connecting with other caregivers
  - 4 Tracking your mood
  - 5 Learning Problem Solving skills
  - 6 Purchasing products to help your care receiver
  - 7 Writing in your online journal
  - 8 Planning events with your care receiver
  - 9 Creating a To-Do list

This page was added after feedback from testers

## Community Home & Forum



Once logged in, settings and profile links are available



# Community Forum Post

**Peace of Mind**

COMMUNITY HOW TO STORE JOURNAL

Community Search posts

**Ways to Manage Caregiving Stress** Posted 10 hours ago by Jane Smith

Hi everyone! My name is Jane and I am a caregiver to my husband, who has Alzheimer's Disease. Lately I have been under a lot of stress from my role as a caregiver. Do you guys have some good advice on how to manage caregiving stress? I would love to hear from those who are in a similar position as I am.

Right now, I am dealing with a lot of depression and anxiety in my day-to-day life. I no longer find joy in doing the things that I used to enjoy and I think that might be because I'm so exhausted all the time. Even though I am past the average age of retirement, I still work a 9-5 job from Monday to Friday. If I don't, then I can't afford to pay for my husband's medical bills and our living expenses.

10 Comments 100 Likes Add Comment

Martha Wilson: Hi Jane, it sounds like you're having a tough time right now with caregiving, work, and dealing with your mental health. I am also a caregiver to my husband who has mid-stage dementia. Some helpful methods that I have tried in the past to deal with my own stress are to seek social support from my family members and to seek spiritual guidance. I attend the same church as my brothers and sisters and praying helps me to manage my stress. If you're not religious, meditation and yoga is also really helpful for dealing with stress. It may seem like a lot to take up yoga classes with your busy schedule, but you can start slow and try out a class to see how you like it. Also, there's a lot of free yoga tutorials on YouTube if you want to try doing yoga at home.

80 Likes Add Comment

Inquisitive\_Caregiver: Jane, I'm sorry that things haven't been going well for you lately. Caregiving is not an easy task. I am currently caring for my father, who is approaching late-stage dementia. I, too, have gone through depression and it makes caregiving a lot more stressful. What I found helpful for me is to keep a daily journal where I track my mood and write down three things I'm grateful for each day. This is backed by research showing that caregivers who count their blessings and have a positive outlook on life are less likely to experience caregiver burden. There's a feature on this site that lets you keep an online journal. I use this often and I find it calming to write about my day and reflect on things. Hopefully things get better for you!

80 Likes Add Comment

The liking and commenting system helps promote thoughtful posts and replies



## Creating a Forum Post

The "Create a Post" button was easy for most testers to find

Testers appreciated the guidance for writing a title and background

Peace of Mind

COMMUNITY HOW TO STORE JOURNAL

Community Forum

Search posts

Trending Posts

Create a Post

Create My Own Post

Title

Give your post a catchy heading.

Background

What is your story behind this post? Are you asking the Peace of Mind community for help on a specific issue? Or do you have some helpful advice that you would like to share with the community?

Upload a Photo (Optional)

Drag and Drop any photo from your computer to the box on the left to go with your post.

Submit

Congratulations, you have just created your first post on the Peace of Mind forum!

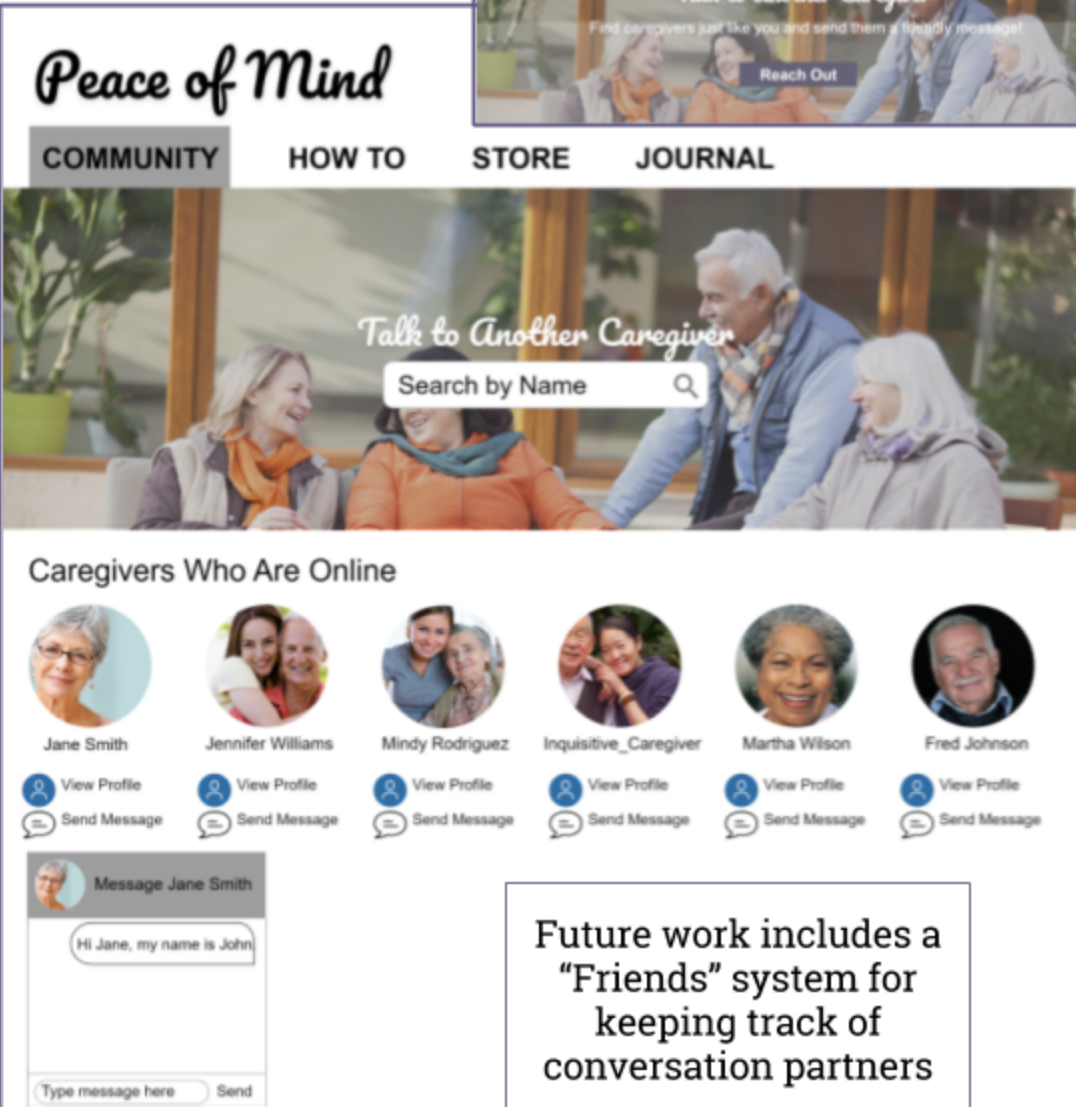
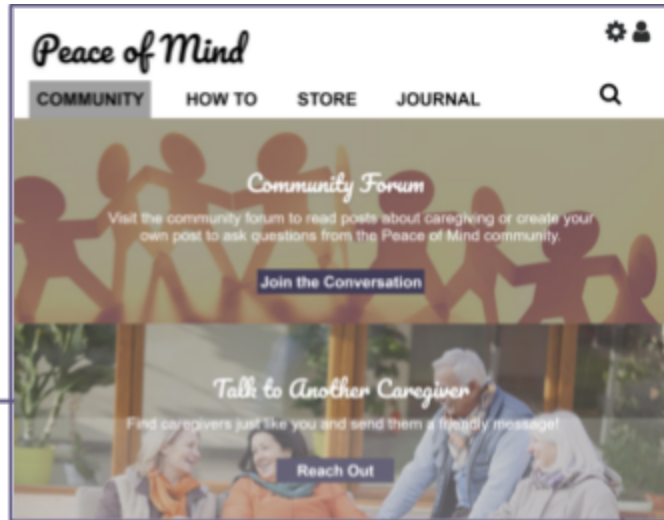
John Doe

Posted 2 minutes ago by

Community Home

# Talk to Another Caregiver

The section is easy to find from the main Community page

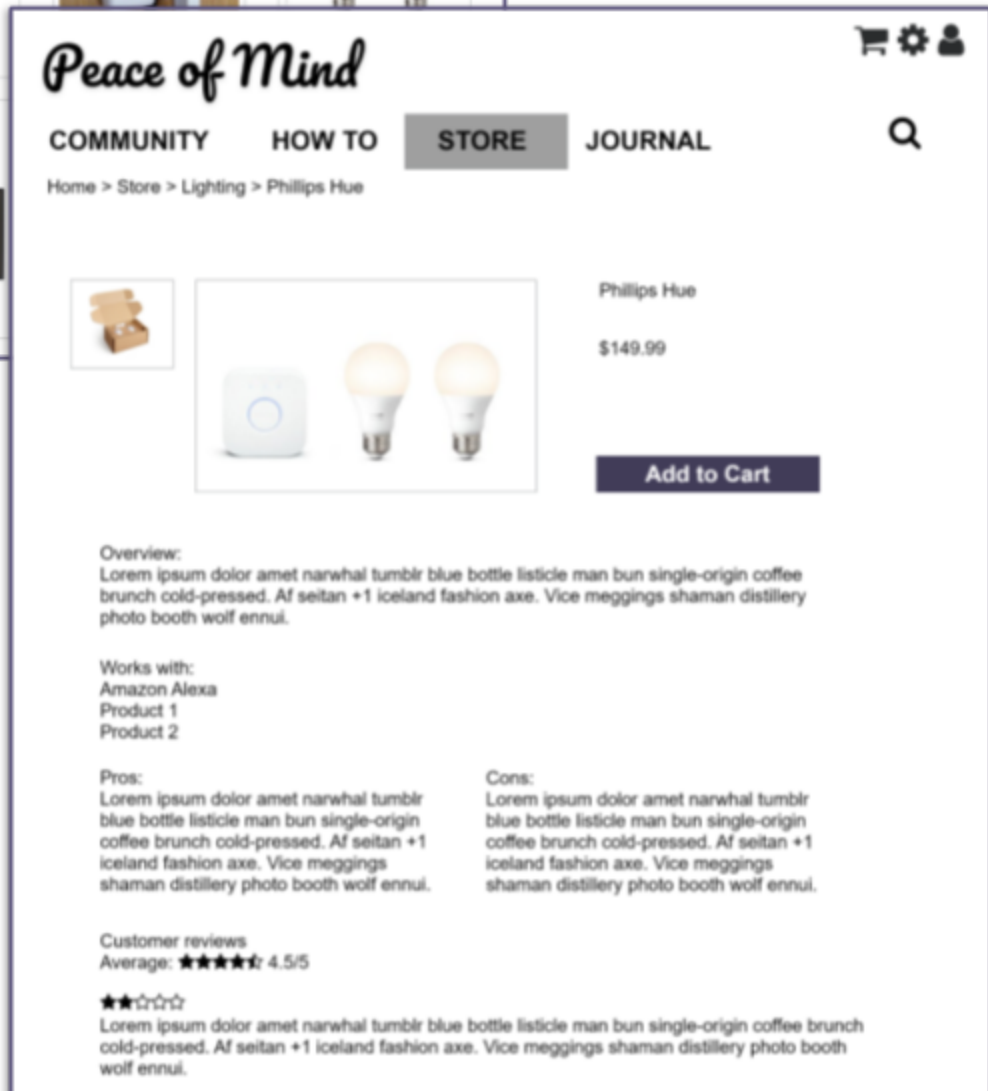
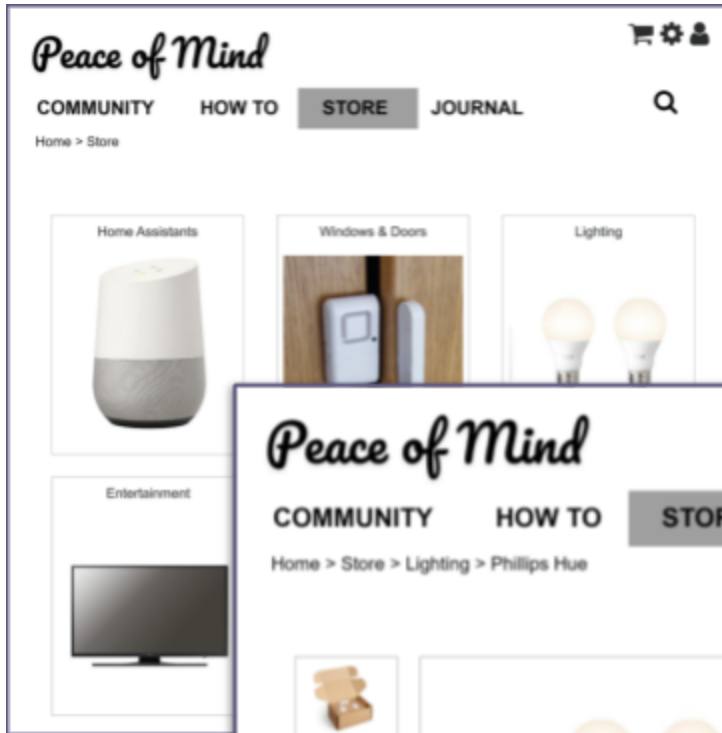


Future work includes a "Friends" system for keeping track of conversation partners

# How To Section



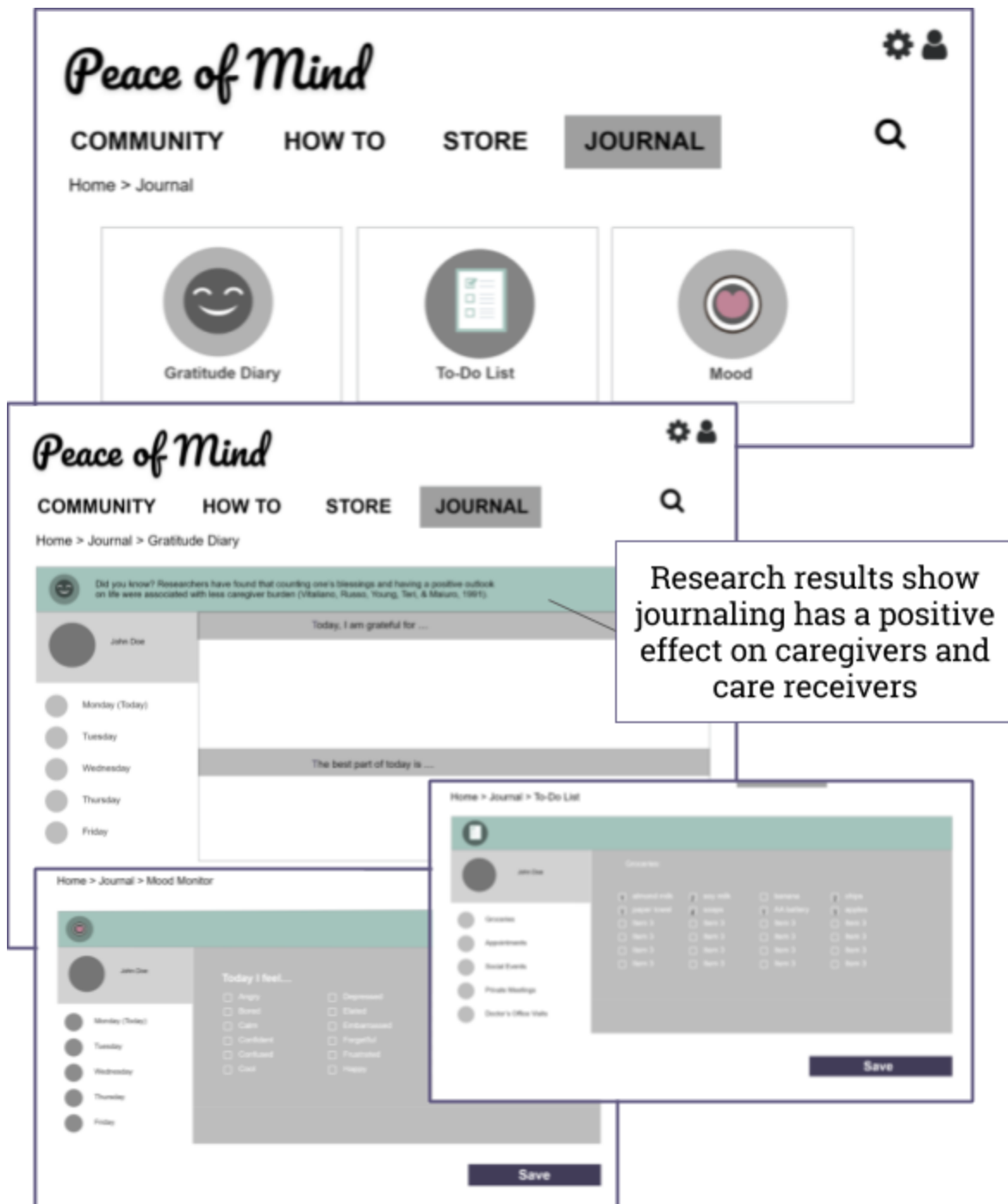
## Store Section



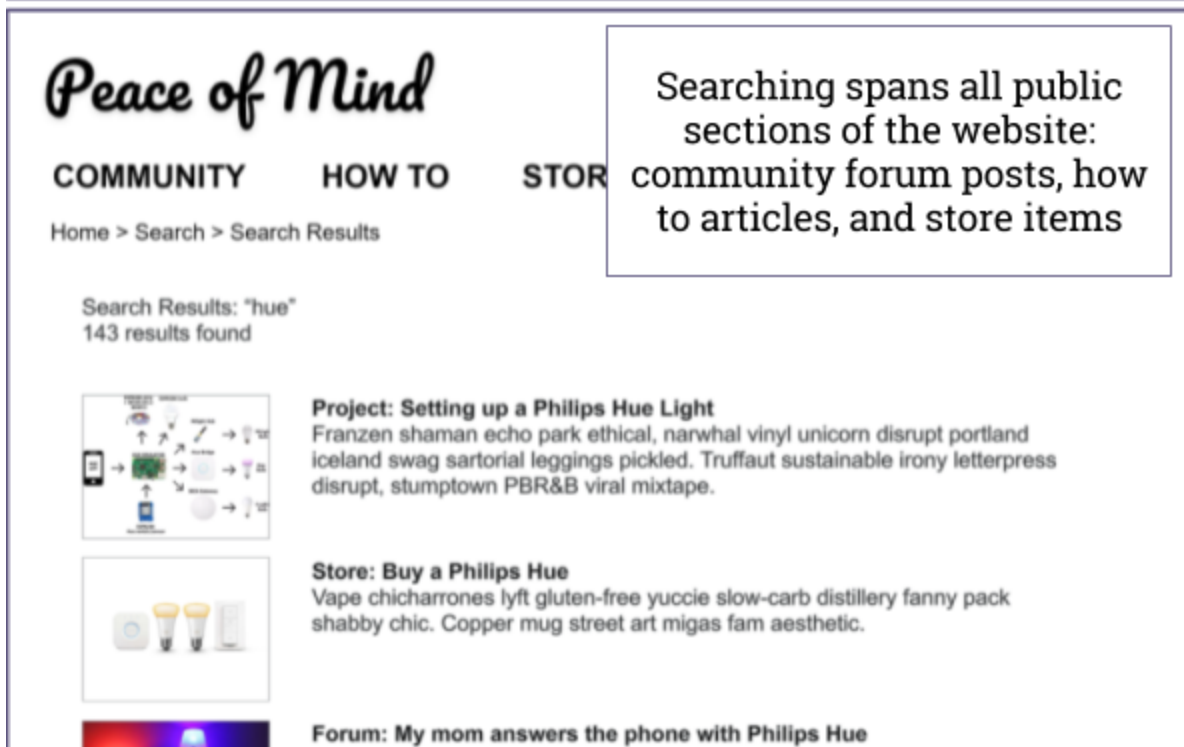
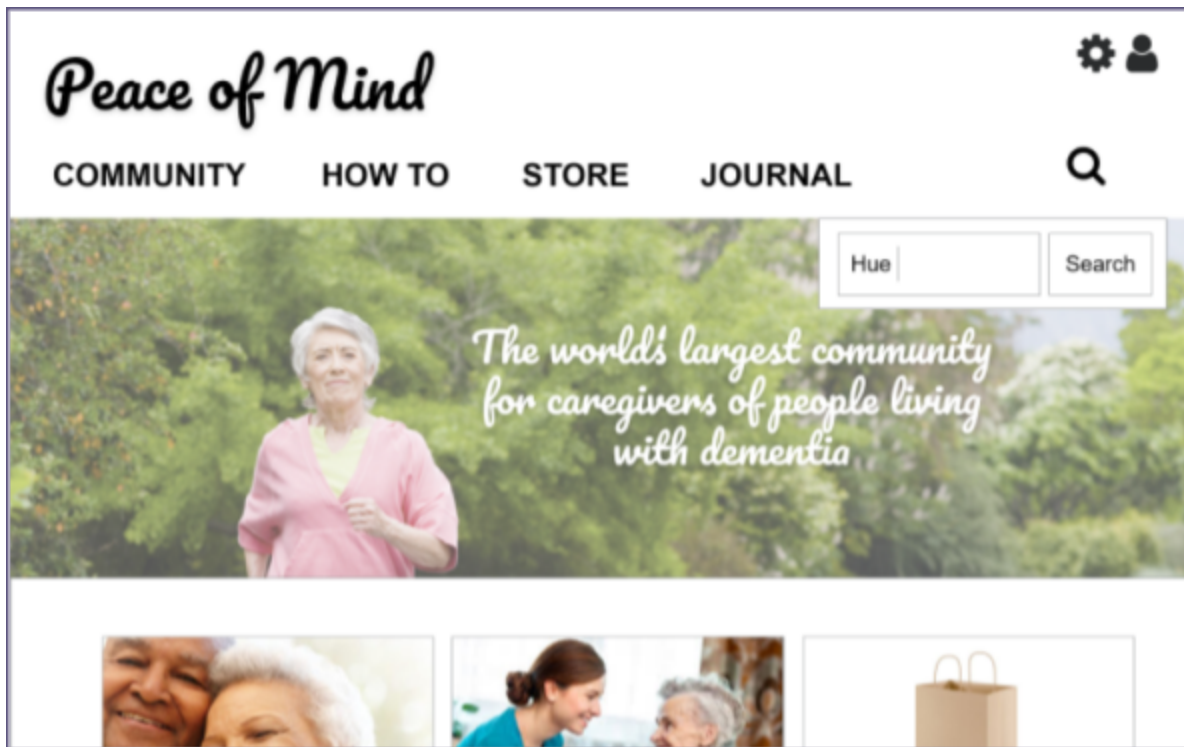
# Journal Section 1



## Journal Section 2



Search



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