Porchsit: A Community Affair

Exploring Participatory Design Methods to Engage with Older Adults

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ABSTRACT

The population of older adults has one of the most diverse set of needs and priorities among user populations that engage with technology. Our project participant (C1) was an 80-year-old woman residing alone in northern Baltimore. By completing a problem-understanding interview, we identified multiple key difficulties for C1. We narrowed our scope to tackling the social burden that comes with having to ask for help from friends, neighbors, and family. We were particularly inspired by the concept of "porch-sitting", which C1 described as a spontaneous and casual gathering of neighbors to visit someone on their porch.

C1 participated in a participatory design session with our team at her residence. We shared low-fidelity prototypes, completed a design critique, and brainstormed new ideas & designs for the problem. The best design iteration from that session was a concept for a mobile app called, "Porchsit: A Community Affair". This app facilitates the natural social practice of exchanging favors for quality time, conversation, or shared experience. We shared our high-fidelity mockups with C1 for final feedback. Porchsit can be used by individuals who need assistance and generally rely on their personal community of people for support.

Author Keywords
participatory design; older adults; inclusive design;

CCS Concepts
• **Human-centered computing -> Participatory design**; *HCI design and evaluation methods.*

PROBLEM DESCRIPTION

Our participant (C1) suffers from social discomfort when she asks for help with household tasks from her neighbors and friends. She regularly encounters tasks that need to be completed that she cannot do without assistance. Her current method of approaching this is to handwrite a "to-do" list and use it as a reference when her friends and neighbors visit. She sometimes forgets to ask them for assistance when they stop by spontaneously or subconsciously avoids asking because it makes her uncomfortable. Her daily life is negatively affected when these household tasks are neglected, however, she is often not willing to put the obligatory strain on her vital social relationships.

FINAL SOLUTION

Porchsit is a mobile application that facilitates the natural social practice of exchanging favors for quality time, shared experiences, or goods. The purpose of Porchsit is to take the awkwardness out of asking for help for older adults and those who rely on assistance. The application capitalizes on the strong local community with whom the users can share their experiences in return for a favor or help. A link to the interactive prototype on InVision is provided below — projects.invisionapp.com/prototype/porchsit
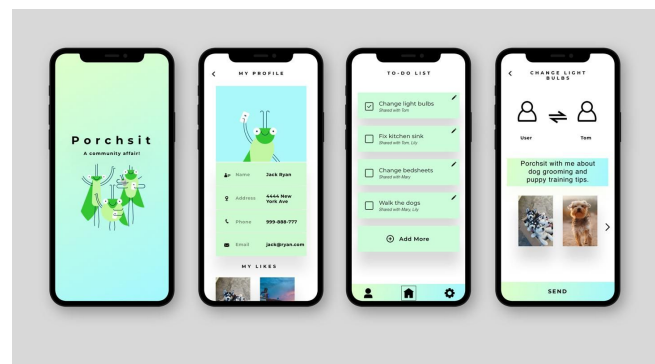

Figure 1. A high-fidelity mockup of the Porchsit app

It tackles the social burden that comes with having to ask for help by digitizing the process, using whimsical characters, and maintaining the user's privacy and dignity. Profiles created on Porchsit can be registered through Facebook to auto-populate likes and interests. By removing the cognitive load of building a list of interests, Porchsit allows people to focus more on their "to-do list" and get more done. Tasks on the to-do list can be shared with people in the user's network. The requestor is prompted to suggest an experience that they can provide in return for the task, thus removing the "feeling of burden" commonly experienced by older adults seeking support from their community [2].

Concept Reflection
During the pilot testing phase of our initial concepts, the Porchsit design idea received reactions that doubted its usefulness. It seemed unnecessary to create an application to facilitate a social interaction that is already happening. Especially in C1's case, friends and neighbors were already offering assistance with her daily tasks without her having to regularly ask or needing anything in return.

An example of this working well (in the absence of Porchsit) for C1 is the case of carrying heavy items into her house from a shopping trip. Her younger neighbors can relate to the discomfort of carrying heavy and awkward items, so they offer help without prompting. Additionally, C1 does not feel like she burdened her neighbor because they offered to help without an expectation of reciprocation.

However, the underlying discovery from our work with C1 is that there is a gap between what people will organically offer to help with, and what someone requiring assistance actually needs. She expressed that since her friends and neighbors do not share her limitations, they do not offer to help with certain tasks. For example, her younger neighbors do not intrinsically know to offer to help her get things out from under her bed, because they do not realize that getting up from the floor is difficult for C1. The social burden falls to C1 to ask for specific help in cases like this, which can be awkward and makes her feel like she needs to offer them something in return.

"One of the key components of human social interaction is cooperation or the exchange of favor or goods between individuals for the attainment of mutual benefit" (van den Bos, 2009) [4].

With the above example and quote in mind, we designed the mobile app to effectively remove the awkwardness of having to ask for specific help. The app makes it easier to offer something in return for the help provided and creates a more empathetic understanding of others' lived experiences.

Generalizability of the Design
'Porchsit: A Community Affair' was created based on the idea that asking for a favor should not be an uncomfortable interaction for anyone. C1 is an older adult who lives alone and this solution was helpful for her to get the help that she needed and more importantly, to identify what valuable experiences she had to offer to those who help her. This application can benefit anyone in need of assistance and a network of individuals they trust.

It could be particularly useful for those who are new to needing assistance. The social burden is the heaviest during this period because the individual and those in their network are not used to the new social dynamics. A temporary disability, like knee surgery, can often lead people to feel awkward about asking for help. "Humans are hardwired for reciprocity, and it can be difficult to ask for something if you have nothing to offer in return" (Jeremy Deaton 2017) [3].

With Porchsit, the reciprocity is streamlined by the app with suggestions about experiences to offer in return that are practical for the giver and receiver.

Feedback from the Participant
C1 evaluated high-fidelity mockups on her personal phone to understand the potential interactions on Porchsit. The screens were sent as individual photos that she could save on her phone. Our design follows a linear process of on-boarding, creating a to-do list, and assigning people to help with individual tasks. By having the images in that specific order, she was able to reproduce the intended process.
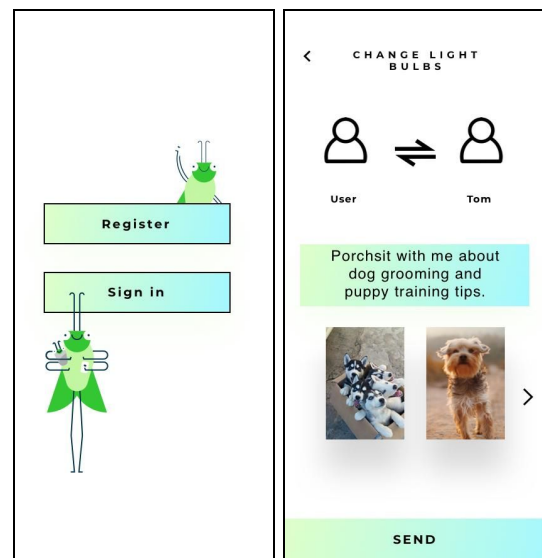

Figure 2. Example of high-fidelity screens of Porchsit that received feedback from C1

She gave us feedback for each of the screens shared. This critique was communicated back to us through text messages. The feedback was unanimously positive.

"Oh dear it's wonderful!! These are good!! Personal, reflects me, lighthearted and a gentle request." (C1)

A key piece of constructive feedback was to expand the whimsy we generated in the interface of the application into the imagery for the help request. She

would like the help request to have an informal tone and aesthetic.

"I'd like the other pictures to reflect in a whimsical way what help I'm needing. I see the cute little creature, I like him!" (C1)

Her critique attested to the fact that products designed for older adults can incorporate playful designs and delight the intended audience. We designed to eliminate the frustration expressed by Don Norman in a Fast Company article. "When products are developed for the elderly, they tend to be ugly and an unwanted signal of fragility. As a result, people who need walkers or canes often resist. Once upon a time, a cane was stylish: Today it is seen as a medical device." [1]

METHODS
We used participatory design and contextual inquiry to achieve the results for the concept of Porchsit.

A session protocol was drafted prior to meeting our participant. We conducted a pilot participatory design session in class and received feedback from people in our cohort. This feedback was incorporated in the final session protocol that was used to conduct a participatory design session with C1 at her residence.

Participatory Design Session
The participatory design process with C1 was very successful. By being able to present three different design ideas in the form of storyboards and sketches we ascertained the main concept she liked. The design mockups were critiqued by C1 using the Plus, Minus, Interesting (PMI) strategy with sticky notes.

Figure 3. In-situ photo of the participatory design session during the PMI phase of one of the low-fidelity prototypes

This encouraged all of us to examine the insights and experiences from multiple perspectives. This process physically and mentally engaged C1 while helping us bring insights into our final design. The part of the process where C1 was expected to sketch along with us did not work as expected. She preferred to verbalize her ideas instead of putting the pen to paper. This resulted in an impromptu contextual inquiry involving C1 showing us how she sits on her couch and writes her list of errands every day. The ideas that were enticing to her during the phone interview process did not appeal to her once they were situated in a day-to-day context. For example, she liked the idea of being able to see her list of errands on her TV but when she sat on her couch and picked up her diary, she felt that her TV does not play a role in this part of her daily life. It would have been helpful to conduct the contextual inquiry before the participatory design session in order to do more idea generation instead of reactions.

Process Reflection
One of the biggest surprises was that C1 does not socially or logistically rely on her family. Our assumptions about a close-knit community involved lots of family members. In C1's case, her community is her friends and neighbors. C1 did express some physical limitations with household tasks. However, she was able to specify what was and was not within her abilities. There were activities that we assumed she could not do that she could and vice versa. We also assumed that she did not have proficiency with most digital technology. However, she demonstrated and explained her skills and limitations. She is comfortable texting, making calls, using social media, and navigating her smart TV and tablet.

During the participatory design session, we assumed that she would be interested in sketching along with the team to feel included in the process. Instead, she preferred to verbalize her ideas and have us draw the storyboards she was articulating. We spent time helping her make sense of this process and understand how her opinions shape the designs.

During the feedback session, she was reluctant to share honest feedback about the designs. Once we explained the process and the temporary nature of low-fidelity prototypes, she became open to sharing her opinions about the features of our designs that she would not feel compelled to use.

Learnings
There are a number of design method changes that we would enact for future iterations with more resources, time, and financial backing. Toward the end of our participatory design session, we completed a brief contextual inquiry of how C1 spends her downtime in her space at home. This was very informative about how she operates and we could likely have benefited from a longer session of contextual inquiry, including observing and interaction

between her and a neighbor or friend where a help request takes place.

During the participatory design session, we did not have a significant amount of new design ideas from our C1. She seemed more comfortable reacting to designs and iterating on them than creating new ones. We would likely have investigated further methods of participatory design (beyond PMI, the big picture, and design critiques) and implemented them in a follow-up participatory design session in order to encourage C1 to be creative. In general, we would have had to spend more time and money being relentless in the search for a more engaging method for our unique co-designer.

We considered the potential positive impact of doing a diary study of her daily tasks and challenges for a week, but that was too much work for C1 at this time. It would make vital improvements to our product to co-design with potential users who would be offering their help on this application. And lastly, our final feedback would likely have been more insightful if we had demonstrated the application in person to C1 to receive less filtered reactions.

FUTURE WORK
The idea of experience exchange may not be as appealing to those in different cultures. This design does not account for cultural barriers within diverse communities. Networks outside of Northern Baltimore may have had different customs surrounding helping older adults or people who need assistance. We did not user-test the universal interpretation of the phrase "porch-sit". This phrase evoked a community-based congregation for neighbors and friends in our participants and team. However, this concept requires future tests with other populations.

In future iterations, this application could be made useful for people who lack an existing network of people in their local community to assist with favors. In terms of a range of abilities, Porchsit does not account for health-related favors such as medicine tracking, custodial care, skilled nursing care, etc.

A gap in our design methods was that we did not co-design or consult with the other people in C1's network who would also be using the app. The context on whether they found the exchanges currently burdensome or awkward is not available to us. By gathering information on their needs, habits, patterns, or wishes for this app, this app can be made more relevant to this community.

For future iterations of Porchsit, we will conduct participatory design sessions with both types of users, those creating their list of tasks and those who provide help to them. Future variations of this app could also have unique editions to address the cultural differences seen around the world. It would also be interesting to design a version that addresses the relationship between formal caregivers and their dependents.

REFERENCES
[1] Don Norman 2019. I wrote the book on user-friendly design. What I see today horrifies me. fastcompany.com/90338379

[2] Cahill, E., Lewis, L. M., Barg, F. K., & Bogner, H. R. (2009). "You don't want to burden them": older adults' views on family involvement in care. Journal of family nursing, 15(3), 295–317. doi:10.1177/1074840709337247

[3] Jeremy Deaton 2017. Asking for help can be awkward. But it doesn't have to be. headspace.com/blog/2017/09/08/asking-for-help

[4] Van den Bos, W., van Dijk, E., Westenberg, M., Rombouts, S. A., & Crone, E. A. (2009). What motivates repayment? Neural correlates of reciprocity in the Trust Game. Social cognitive and affective neuroscience, 4(3), 294–304. doi:10.1093/scan/nsp009