
Virtual Garden Community for Clinical Volunteers

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Abstract

We are designing a virtual community application for cell phones, for clinical volunteers in medical clinics that provide care to the homeless people. We chose to design for this population, owing to the extreme importance of health in a person's life and the high number of volunteers who work in this field across the US. Our design uses online communities and the effect of plants on human psychology as a motivating factor to make volunteer spend more time at medical clinics. As a result of this, we feel the volunteers will be able to spend more time with the organizations and hence working with the homeless to a larger extent. This would lead to a greater human-human interaction and provide the homeless with the personal care that is so often missing in their lives.

Keywords

Persuasive technology, Online and virtual communities, Goals setting, Volunteers, Medical Care

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

The homeless often depend on public services and support for food, shelter, medicine, and other forms of necessary assistance and guidance. Health is a primary concern for everyone. Through our research we found that health care was often the start of a downward spiral for increasing homelessness [1]. Homeless who are given proper health care along with other assertive community treatment are found to be better adapted at reducing homelessness [2]. Without one's health, even things vital to self-sustainability, getting and holding a job for example, seem less significant. Our approach to combating this issue looks at volunteers and motivation.

Why Volunteers?

People volunteer because it provides opportunities for personal achievement, allows volunteers to make new discoveries about themselves and others, and enables them to feel they are forming social bonds and strengthening their community [3]. There are more than 60 million people who volunteer in the USA every year [4]. Medical volunteers are required by numerous organizations in order to provide better health care for the homeless.

Current Situation

In our interviews with the Director of Volunteers in Medicine, Bloomington, we found that a medical organization spends around 40 hours in training volunteers to be proficient at their jobs, and most volunteers spend only roughly less than 5 hours per week in the organization. Hence the productivity of the volunteers is hampered due to this. A report published by the National Health Care for the Homeless Council also showed that there is a retention issue with clinical

volunteers across at least 30% of the organizations [5]. We wanted to find the cause of the issue and address it effectively, namely by providing a positive, satisfying experience to motivate those individuals who volunteer to return for longer periods over the short and long term. This was supported by research that said that a satisfied volunteer is likely to increase both hours and long term dedication [3].

Why Communities and Virtual Community?

In our fly-on the wall observations we noticed a community among the homeless. There was also a sense of community between the homeless and the volunteers at the shelter houses. Psychologically a sense of community is defined as the members' of it feeling a shared emotional attachment, belonging, influence, and the integration and fulfillment of needs that makes the community different from simply a group of individuals [6]. Love of community inspires many to donate their time and energy to others [7]. Turkle mentions in an article that the internet today links millions of people in new spaces and is thus changing the way we look at communities [8]. We also found that in the virtual behavior settings framework, the setting program is important and it is the set of behaviors in which members engage that keep the virtual community functioning [9].

Why Plants and Greenhouse?

Insights from some research show that plants often have a positive effect on the human mind [10]. Also it was found that a digitally replicated view of nature is just as beneficially effective to humans as a true view of nature [11].

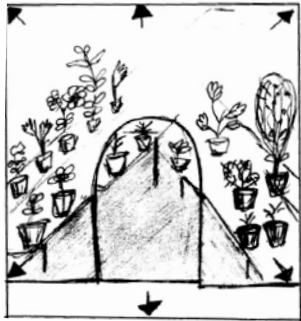


Figure 1. Virtual Garden

ADD A NEW TASK		
SELECT CATEGORY		
MEDICINE		
SELECT A SUBCATEGORY		
FLU SHOTS		
ADD A TARGET NUMBER TO THE TASK		
10		
BACK	CLEAR	SET TASK

Figure 2. Goal setting

Research Goals

Our research is concerned with how community building among medical volunteers can increase their productivity and retain their knowledge and experience, to achieve our ultimate goal of providing efficient support for the homeless in medical clinics. More specifically, we wish to determine if plants and goal-setting can be used as tools to build the same community to create a satisfying experience for medical volunteers and in turn retain experience.

Design Process

We began our user-centered design process by studying the medical organizations and volunteers of these organizations to see how we could help them in serving the homeless. In a survey conducted by the National Health Care for the Homeless Council, 24% percent of the organizations that responded indicated that retention of volunteers was a major concern[5]. As mentioned earlier, the Executive Director of Volunteers in Medicine (VIM) Monroe County indicated that about 98% of the volunteers in her organization dedicate less than 5 hrs per week. She also stated that it took about 40 hrs to fully train a volunteer, which led us to believe that retaining experience for longer periods was extremely valuable since it would cut costs of training a new volunteer and provide better health care for the homeless.

Redefined Problem statement

To find a way to retain knowledge and experience within health organizations that serve the homeless.

Concept

Inspired by a study on the use of goal setting as a motivational tool to encourage physical activity led by

Sunny Consolvo[12], we did further research on the use of plants and goal-setting to affect human behavior. Hence, we produced a concept that would involve a community of plants or a greenhouse (see Figure 1). Each community of virtual plants would belong to a single health organization, where each plant represents a volunteer of that organization.

The volunteers would use the interface to take care of their plants. They would set real time goals (see Figure 2) to be achieved that when attained would allow the plant would grow and gain health. Negligence on the part of the volunteer in achieving goals would cause the health of the plant to deteriorate. During the informal interview with the VIM director, we also came to know that volunteers in health care organizations often have a specific role, i.e. nurse or doctor. Setting and realizing the goals for each of these roles would depend on the organization and specific role, therefore we included this feature in our design. During the initial setup of the application, the user will be asked to choose a specific role and associated plant.

Using the interface the volunteers can monitor their own plants and also view the organization's garden. This, we feel would give them a sense of belonging to a community and provide motivation to keep their plant healthy. In the process, we attempt to increase the satisfaction level of their volunteering experience and aim at retaining their knowledge and work experience for the organization.

Our initial concept was a device with which volunteers would be able to take care of their virtual plants and see their plant among the other plants of the organization in a virtual garden. When we presented

our concept to a group of volunteers during an informal session, we quickly found that volunteers would not be motivated enough to carry a separate device. This directed us toward exploring other media, such as building a mobile phone application with a similar interface.

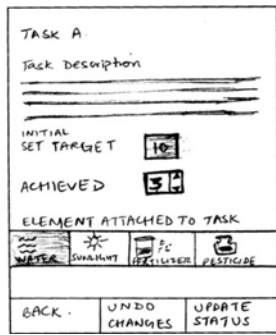


Figure 3. Goal-update screen with the elements feature.

Our initial design also included a feature we called elements. While setting goals, users would be able to attach one of four elements, “water”, “sunlight”, “fertilizers” and “pesticides” to each goal. We intended for volunteers to be able to symbolically connect their goals to their plant. For example, achieving a goal that was assigned the element water would mean that they are watering their plant. During pilot testing, we found that this feature confused our users, and hence we removed it in our subsequent design (see Figures 3 & 4).

Evaluation

Concept Evaluation

In order to validate our concept, as highlighted in the research goals, our primary aim is to determine if our design will indeed motivate volunteers to take care of their plants and increase a sense of community, thus causing them eventually to dedicate more of their time. In order to do this, our evaluation strategy consists of three steps: a pre-test questionnaire, simulation of the experience and a post-test questionnaire.

Step 1

An initial questionnaire will be distributed to collect background information on volunteers, such as the number of hours they serve the homeless and if they own a cell phone.

Step 2

Our next step is to simulate the experience a volunteer would get from our design. For this purpose, we will request the participants carry a paper, pen and a set of 10 folded pieces of paper. Each piece of paper contains a scenario which gives the current health status of their plant, and a set of goals that they have hypothetically set for themselves.

The participants will be requested to note down the date and time whenever they have done the following:

- Thought of viewing their plant.
- Thought of viewing their organization's community garden.
- Picked up a random piece of paper and read the status of their plant and goals.

Along with the date and time, we will also request the participants to note down their feelings or inclinations towards performing an action such as “Now I feel like doing ... ”.

The objective of asking the participants to perform the above tasks is to obtain a quantitative measure of how often a medical volunteer will be inclined to use our device and a qualitative sense of their emotions and behavior during the process. We plan that the participants will perform this activity for three days.

Step 3

After three days, we will collect the data and request the participants to fill out a post-test questionnaire which contains questions about our concept and testing experience. Through this exercise we aim at detecting changes in inclinations and feelings toward their

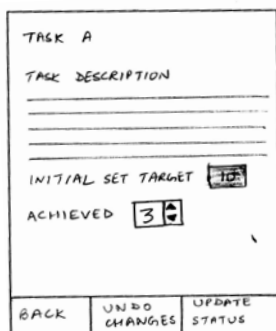


Figure 4. Goal-update screen without the elements feature.

volunteering experience at the medical organization serving the homeless.

Using all the data collected above, we aim to evaluate the concept and validate our presumptions.

Prototyping and Usability testing

Since our concept is a mobile phone application, to test the interface of our design, we plan to mock our concept using paper prototypes which represent the look and feel of a mobile phone. The test participant will hold a mobile phone made of cardboard. The screen portion of the mobile phone will be a placeholder for paper screens representing our interface and one of the testers will attach the appropriate screen based on user response.

During the testing process, we will present the user with scenarios and tasks that have to be performed and observe the users actions. For example,

Scenario: You are a nurse volunteer in your organization.

Task1. Choose your role and plant.

Task2. Set yourself the following goal: "Give flu shots to 10 homeless".

Task3. You have given 10 flu shots out. Update your goal.

Task4. Determine the health of your plant.

Our aim of the exercise will be to determine if the users are able to understand the different features and

functionality of the application and be able to use them without guidance from another source. In the same exercise, we plan to test different versions of our interface to get a sense of what users will be most comfortable with.

Conclusion

Retaining volunteer experience and knowledge is of extreme importance in the medical field while serving homeless. Our concept, the Virtual Garden Community attempts to give an increased value of experience for volunteers in these medical clinics and in the process aims at retaining volunteers and their knowledge for longer periods over the short and long term.

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