

Phase 5: High Tech Usage by Homeless

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I. Introduction:

Our problem space is related to mobile phones and other technology used by the homeless. Our research aims to shed light on the issues faced by this group with respect to how they use technology. We want to understand the role that it plays in their lives and use this information to create technology that is inexpensive, accessible and comprehensive and will simplify their day-to-day activities. Based on our past research of the literature, we can infer that providing the homeless with technology can make everyday tasks easier and extend their reach with regard to finding jobs, connecting with service providers, staying in touch with family and so on. However, past research has also indicated that the homeless face issues when using technology. For instance, they have difficulty in adapting to technologies or in coping with the price of maintaining a mobile phone. We hope to learn about specific issues facing the homeless and how mobile apps can help them deal with these issues.

Our research aims to answer the following questions:

- What role does technology play in the lives of the homeless?
- What challenges do the homeless face in general and when using technology?
- How can we improve homeless people's ability to interact with computers and access information?
- What are some activities done by the homeless that can be simplified by using technology?

Information from these questions will give us a better understanding of our target users and learn about hardships they may face with regard to technology.

II. Method:

We employed two instruments to gather data to help answer the research questions listed above. The first was indirect observation and the second was a questionnaire. They both provided a wealth of information about our problem space and target users.

a) Indirect Observation:

We did **indirect, emergent observation**, to study the experiences of individual homeless people who wrote about what it was like to be homeless. This indirect observation was done online on the Reddit website. We collected the data without having any confirmation bias about what we were expecting and allowed patterns to emerge from the data itself. This instrument changed considerably from our original plan of doing covert observation at a physical location. Our results from direct, covert observation were essentially meaningless since we could only see that our target users were using a mobile phone and not what they were doing on the phone. As a result, we abandoned this instrument in favour of indirect observation. This method was suggested by the instructor. Our observations come from subreddits.

We observed a total of **13** people who identified as homeless at least at some point in their lives due to reasons such as debt or mental illness. They were from various subgroups and categories of homeless individuals such as male, female, university students, people with disabilities and so on. As a results we were able to get wide range of experiences and insight into the lives of the homeless.

b) Questionnaire:

The second instrument that we used was an in-depth questionnaire. This too was a change from our original plan of doing a semi-structured interview. We approached a couple of homeless individuals in an attempt to perform an interview. However, they were not receptive to the idea and responded negatively to our questions. As a result, we decided to change our instrument to a questionnaire. Admittedly, a questionnaire is not as informative as an interview but there was a better chance of it being answered than an interview and thus was a better method to collect data. Our questionnaire was administered online using Google docs. It was posted online on different reddit forums for homeless people. Our questionnaire was comprehensive and we were able to gather a total of **33** responses. **We summarised the consent form to a couple of lines and added it to the first page of the questionnaire, which Velian recommended** due to our target audience being unreceptive to long and complicated research.

III. Result and Discussion:

We found out that many people still find it preferable to access information through traditional means such as face-to-face chatting and newspapers. They preferred this information to information accessed through the internet. 73% of the respondents believed that information accessed through traditional methods is more focused and more relevant to their area of residence.

With regard to tech ownership, 75% of the people who answered the questionnaire owned a smartphone, 37.5% owned a tablet and 50% owned a computer. 87.5% used the internet 4 or more times in a single day. 90% used a library computer to access the internet, if not on their own machine. These stats indicate that our target users have access to technology and the internet. However, the questionnaire and the observation was conducted online and therefore the results of this question are biased. The actual percentage of homeless would theoretically be lower. Our literature review has the number at around 60%.

One common complaint across both instruments was the dangers of going to a shelter. Some preferred to avoid shelters altogether. One individual went as far as to say that, "jail is better than shelter." Another individual stated, "shelters are a joke. Use shelters if you want all your possessions stolen."

More than 80% of our target users used the internet for browsing, staying in touch with family and friends or searching for jobs. Contrastingly, only 60% said they used it to search for shelter or food. Our solution can potentially help the homeless augment their ability to use tech devices to find this information. Several respondents also stated that they used it for entertainment purposes. The biggest complaint about using current technology is the price (61%) and that devices are not geared for the homeless in terms of services offered (57%). Another common response that was specified in the 'Other' section was the battery life of devices and the difficulty in finding a place to charge the battery. This was a difficulty that we did not foresee. It is something we took for granted but it is a top concern among the homeless. One of the respondents stated that issue, "could not be stressed enough." In response to the question, "Which of these services are difficult to use with current tech?" searching for food or shelter had the highest response with 80% of respondents selecting this option. Searching for jobs (40%), browsing the internet (20%) and staying in contact with friends and family (15%) were the other options selected. There were a total of 20 responses to this question.

IV. Conclusion:

Our research pointed out that homeless people are comfortable using modern technology to access the internet. However they still encounter some difficulties when trying to use these devices to satisfy their primary needs - finding food, job and shelter. The most common reason for this is the lack of technology targeted for this marginalized group and secondly, the lack of information about these resources in the digital world as well as a belief that traditional communication methods like word-of-mouth, flyers etc provide more focused and accurate information. Many homeless people browse the internet in spite of believing that non-internet sources of information are still relevant and useful. If we can find a way to interface traditional information sources (that aren't already available on the internet) with modern communications technologies, we can allow the homeless to more effectively access the information they need.

Based on our research, the problem that we are interested in solving is, "How can technology be used to help the homeless locate services they deem important?" and relatedly, "How can this information be made available online?" Our target audience are people who are homeless regardless of age and gender.

The user requirements that our solution has to meet are as follows:

- The solution should cater to both those in possession of a personal electronic device and those without one.
- The solution should be intuitive and someone with next to no tech background should be able to grasp it immediately.
- Our target audience should be able to search and find resources that they deem important - food, shelter etc.
- The solution should be affordable and accessible.
- It should be able to provide localized information. For example, shelters in the neighbourhood.