

# Social connectedness online / offline. Needs of some vulnerable populations in a digital world. The homeless population case

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## ABSTRACT

We are witness to unprecedented opportunities for information discovery thanks to hypertextual linking and Web technologies. Advantages for citizens are numerous, opening opportunities with a single click. We can not only re-find or discover information but it has become the default media for a rich social networking experience, making possible links among information objects and its producers and consumers. It is becoming our main tool to satisfy basic information needs related to health, housing, job seeking, education, research, entertainment, shopping. Equally or even more important are the possibilities of connectedness offered by social media systems and technologies in terms of peer and or emotional support. Unfortunately these technologies can also increase the inequity for those populations who don't have access to them. Factors that influence "access" include having network connectivity, equipment (computer, cell phones) and different kinds of literacy (informational, technology & digital literacy).

Our paper discusses the research problem, related studies, methodology and preliminary findings of an ongoing project to better understand the use of computers, mobile phones, and social network sites for social connectedness and support among the homeless. Our goal is to present information that may be used to orient Information and Communications Technologies (ICT) agendas of researchers, government, non-profit, educators, etc.

## Categories and Subject Descriptors

H [Information systems] / H1.2 User Machine systems

## General Terms

Design, Human Factors

## Keywords

Social media; social capital; social networking; homeless; semantic modeling; linked data

## 1. INTRODUCTION / CONCEPTUAL FRAMEWORK

Homelessness is best understood as a complex and perilous life situation. In 2010, the U.S. Department of Housing and Urban Development estimated that 649,917 individuals were homeless on one winter night. 1,593,150 individuals stayed at least one night in an emergency shelter or other transitional housing arrangement in 2010. Federal definitions of homelessness have expanded beyond simply losing one's residence to also describe individuals and families living in survival situations such as fleeing violence. In this regard, homelessness can be "described as a poverty issue, housing issue, job-skills issue, and health care issue" (Swenson Miller et al., 2005).

For the homeless, life on the margin of society should severely limit the opportunities to access and use information communication technologies (ICTs). Le Dantec (2008) argues that the homeless are on the verge of further marginalization by being on the wrong side of technology-mediated urban social interactions.

"As the mainstream becomes more engrossed in new social interactions across a variety of technologies, the effective gap between the mainstreams and the margins increases, and the visibility of those at the margins becomes obscured by the creative ways in which we reconstitute our world through these rich technologies"(p. 27).

However, a growing body of research especially in the fields of human-computer interaction and social work suggests that the homeless do perceive the importance of technology and utilize it to address everyday needs (Le Dantec et al., 2010; Karabanow & Naylor, 2010; Rice, 2010). Attempts to address diversity in design motivate human-computer interaction to build inclusive systems that acknowledge the tensions between assumptions and values held by the homeless, researchers, and other stakeholders.

In addition, recent work in public health, social work, and Internet studies examine mobile phone and social media use by homeless populations. In order to add to this literature, we take a sociotechnical perspective as an intellectual tool that recognizes the use of ICTs by the homeless is embedded within a complex set of technologies, people and social settings. To understand online

and offline social connectedness among homeless individuals, we will discuss the importance of social context of ICT use.

## 2. RELATED RESEARCH

### Social context in the use of ICTs

According to Hargittai (2011), technical resources and social circumstances comprise the context for how an individual engages with ICTs. Access to more advanced technologies enable a wider range of uses than outdated equipment and slow connections. In addition, tablets and mobile phones encourage a passive consumption-driven Internet experience in comparison with laptop or desktop computers (Mossberger, Tolbert, & Hamilton, 2012). Social circumstances refer to the social context of one's Internet experience. This mainly consists of the social network that can help to navigate the Web (Kiesler et al., 2000). Internet users gain benefits through troubleshooting and the "know-hows passed along informally in everyday life from those networks" (Hargittai, 2011, p. 234). As result, the technical and social aspects are important factors for examining Internet use among homeless individuals.

Besides context, we need to also consider the factors related to the individual. This includes the social position of the user as well as the skills they possess. Much of the research on the digital divide has demonstrated the importance of demographics for bridging the access issue of the digital divide along with the more recent skills and usage divides. Many users lack skills that limit how they can use the Internet to better their social condition (Buente & Robbin, 2008; van Dijk, 2005, van Deursen & van Dijk, 2009). We adapt Hargittai's (2011) representation to summarize these factors for homeless individuals (p. 235). See Figure 1 below.

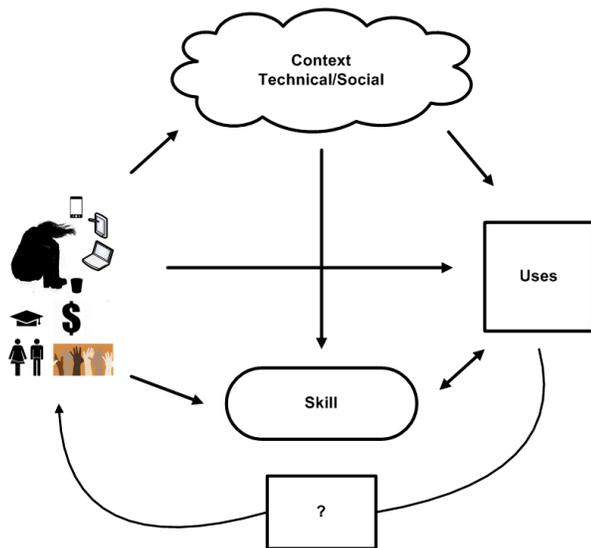


Figure 1 Factors that influence Internet use

“One's demographic characteristics and socio-economic background are likely to influence the technical and social contexts of usage in addition to one's skills. These all, in turn, have implications for how one uses information and

communication technologies. Finally, usage feeds back into additional skills leading to a potentially reinforcing effect” (Hargittai, 2011, p. 235).

### Support social network construction

The Second Chilean Homeless Census (En Chile todos contamos. Segundo catastro nacional de personas en situación de calle) (Ortiz and Gallegos, eds. 2012) is work done at a national level with the collaboration of the Ministry of Social Development, university researchers and community groups. It was aimed at addressing the problem of social exclusion among the homeless by understanding their realities and needs regarding the main areas of government policies: work, education, health and housing. 12,255 homeless people were interviewed by more than 9,000 volunteers.

The homeless situation was found as a gradual and deep process of social detachment. In spite of their difficulties, many homeless individuals hope for opportunities to rehabilitate, contradicting the stereotype of idleness and laziness. Affective dimensions, such as social connectedness and companionship, sharing memories and experiences, and a need for feeling part of the community (listening and discussing news, music), were mentioned as more important than money. Maintaining social networks was a fundamental surviving strategy. The typology of networks the homeless constructed was characterized according to size (number of connections), density (localized, diffuse), practices, and activities (passive, active). Although the census report focused on person to person communication, some of the stories mentioned the role of ICTs to provide social network support, such as one testimony stating that “the only one friend out of the shelter, is one that I maintain using Internet”.

In the study presented in this paper, the focus is on the use of social media ICTs as mechanisms for providing homeless with networking support and empowerment.

As noted by Eyrich-Garg (2011), one of the primary purposes for using computers by homeless individuals is to maintain and increase social connectedness. In her study, she determined that participants used social network sites, dating sites, chat rooms, and email to fulfill social connections. These connections provide important benefits for homeless individuals by bolstering physical and mental health (Hwang et al., 2009). Based on her findings, she suggests that social network sites "could potentially be one venue to help people experiencing homelessness meet some of their social needs, providing them with a stable space in their ever-changing lives" (p. 301).

Work by Rice and colleagues have begun to address the impact of social network sites on homeless individuals specifically among emerging adults. One of the most important findings is that social networking technologies (Internet, mobile phones, texting) help homeless young adults connect to their home-based peers and positive social networks (Rice, 2010; Rice, Kurzban & Ray, 2011; Rice, Milburn & Monro, 2011). By connecting to home-based ties, Rice and colleagues consistently found that ICTs played a significant factor in reducing risky sexual behavior, substance abuse, and depression.

### 3. METHODOLOGY

#### Survey and interviews

To determine the contextual factors that examine social connectedness with various ICTs used among homeless individuals, we developed a relationship with two homeless shelters in Honolulu, HI. Based on previous research conducted on the homeless and ICTs, we constructed a survey that examines the following measures: demographics, computer use, mobile phone acquisition and use, social network site (Facebook) use, Internet skills, and online / offline social support. Table 1 summarizes our variables of interest and the measure chosen. Whenever possible, we have selected measures that have been referenced in the literature.

**Table 1 Homeless Use of ICTs Survey Measures**

Variable	Relevant Study
<b>Demographic variables</b>	Age, gender, & ethnicity
<b>Computer Use</b>	
Location where participants used computers	Eyrich-Garg, 2011
Time spent on the computer	Eyrich-Garg, 2011
Web-use skills	Hargittai & Hsieh, 2012
<b>Mobile Phone Use</b>	
Own Mobile Phone	Eyrich-Garg, 2010
Communication Patterns	Eyrich-Garg, 2010
Purpose of Communication	Eyrich-Garg, 2010
<b>Social Network Sites</b>	
Facebook Intensity of Use	Ellison et al., 2011
Social Capital Measures	Ellison, Steinfeld, & Lampe, 2011
Number of Total Friends	Vitak, 2012
Number of Actual Friends	Vitak, 2012
Type and Diversity of Friends	Vitak, 2012, Rice, Milburn, & Monroe, 2011

For data collection, we followed Stennett et al. (2012) recommendation to make a verbal announcement at meal time rather than posting a notice at the shelter. This is the best way to reach the largest amount of homeless people since many shelter participants attend facilities during dinner time. In addition, Stennett et al observed that at least 60% of the homeless participants in their study sometimes or never checked the bulletin boards for new information. As a result, we recruited participants for our survey and interviewed them during the free meal times at the two Honolulu shelter locations.

### 4. PRELIMINARY RESULTS

We are still analyzing the data from the survey interviews; in total we conducted 150 interviews with homeless individuals; each interview took place near or inside a shelter, with an average duration of 45 minutes. We include now only those results that were very evident during the interviewing process.

**Demographics:** The sample was equally distributed by gender with 54% male, 46% female, and one transgender respondent. Ages ranged from 18 to 70 years old but reflect mainly an older population. Almost two out of every three respondents (68%)

were over 40 years old. Race and ethnicity mirror the diversity of the islands with a variety of Native Hawaiians (32%), Whites (18%), Other Asians (Japanese, Chinese, Koreans) (11%), Filipinos (9%), Hispanics (8%), and other Pacific Islanders (7%). Most are Hawaii residents (92%) but many came to Hawaii from the mainland and a few from European countries.

**Education:** 43% of the respondents had a high school education. 32% had two years of college or less. 7% had a college degree with 2 respondents completing post-graduate education.

**Social support:** Subjects were somewhat divided about their perceptions of the support that they could receive from family and friends. For example, when asked if they knew someone who could provide an emergency loan of \$100, 39% disagreed with this statement but 56% agreed. For finding a ride to a doctor's appointment, 54% disagreed with this statement yet 39% agreed that they did know someone. During the survey, some subjects did not perceive having someone to turn to; however, their reasons for these perceptions revealed that in fact they would not request assistance from others because they prefer to maintain their personal privacy of their current life situation.

**Mobile devices:** As expected most of the subjects had access to cell phones (70%), which were considered the main instrument for maintaining social relationships. Respondents used it every day to maintain contact with family, friends, social workers, and health care providers.

**Internet:** Some subjects used social service agencies to go online (13%). For example, the shelter provided computer labs where they received instruction for required and useful tasks, specifically writing resumes and job applications. Some shelter guests found access online at the public library (17%) yet many were not aware of additional services that public libraries provide such as information and technology literacy.

**Social network sites:** 47% of respondents used social network sites. Their active use, reading and posting, was more common in younger people; some others had a more reactive attitude by reading only postings of their close family. A little more than half of the shelter guests do not use social network sites for reasons that include not having access but also because of privacy concerns.

**Connectedness needs:** Our next step will be to examine the relationship between social network site use and social connectedness and social networks. We believe our results will be consistent with other research determining that homeless individuals need and make use of social networks offline & online. It is part of their daily activity and strategy for finding resources to satisfy their needs of health, education, work, housing, and emotional support.

### 5. IMPLICATIONS / RESEARCH AGENDA / EXAMPLES

**Information in context:** Our work agrees with related research suggesting the possibilities of ICTs resources to support connectedness as a way to empower homeless populations. We are conducting a deeper qualitative analysis of the data collected, which so far is pointing to a rich variety of dimensions not only in demographics but also in situations and contexts. Solutions need to move from existing beliefs and stereotype of homeless. For example, solutions should take in consideration not only

acquisition of technology literacy skills but technologies and applications appropriated to people with disabilities / special needs regarding, for example, to health, vision, hearing, learning style, age.

**Information stakeholder collaboration:** We are also identifying opportunities for short and long term research to facilitate collaboration among the different stakeholders involved in the homelessness problem, starting by the homeless themselves, their social connection, the government and community based agencies and service providers as well as the research community, creating task forces, joining efforts and avoiding work duplication. As example is the current work and efforts in different academic units where students, faculty and researchers are working on the homelessness problem, in topics related to health, urban development, education, family center, social work, library science, information science, communication departments.

**Ontological modeling:** A main goal will be to identify and develop mechanisms to allow information sharing among those stakeholders similar to what a web portal architecture could offer providing a hybrid model that allows entering data not only by agencies but by users (social web) as well as delivering filtered personalized information in context based on individual profiles (the personalized semantically linked web). Technologies being developed by the semantic web project (<http://www.w3.org/standards/semanticweb/>) offer possibilities for ontological, semantically linked data modeling and mapping at three different levels: data resources, users and uses. Each one of these levels of the information architecture will be aligned with homeless services, homeless needs, and homeless social network support. In this way information can be linked to allow federated services. This ontological model can be used, for example, to identify solutions that have a local or regional scope. Special care should be given to user modeling, semantic technologies and personalized information services based on individual profiling, personal ontologies (Quiroga, 2009).

**Specific homeless populations:** Next step in our research will try to collect data from the youth population given their potential role due to frequent use of ICTs. We have postponed this work due to concerns about collecting data from a double vulnerable population, i.e. youth and homeless. This brings research issues on privacy, security and confidentiality

**Literacy programs:** Another needed research relates to the role of information agencies such as public libraries and community centers designing information digital literacy programs which make homeless aware of benefits and precautions when using social media technologies.

**Participatory photography:** This is research area where there is the need to link ontological model of photos, testimonies (social networking element), and user profiles to maintain a knowledge base / semantically annotated digital library. The aim is to study homelessness directly from the praxis i.e. while living in the street, which is a challenge, as it requires a change in both the methodological approach and methods. Participatory photograph (Radley et al 2005) emerges as a tool to observe the phenomena through the eyes of those who use the street as a place to live. It allows changing the emphasis from the lack of a place to live, to what the street can offer as place to live (Piña 2013). It is not research about the lack of housing, work rejection, but about a diverse population able to adapt to the society in many ways, among them using the communication channels that Internet and mobile phones make available. In a second analysis step, information collected through participatory photography is

transformed into a systematized knowledge or database (Piña 2014). In this step information is gathered, used, analyzed, and offered as a service for subsequent analysis, in a vicious circle initiated and ended in the subjects themselves. The research will be done in two regions in Chile (Santiago and Arica) and two regions in Uruguay (Montevideo and Paysandú) allowing a comparative analysis by location, space, regions.

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## 7. REFERENCES

- [1] Buente, W., & Robbin, A. 2008. Trends in Internet information behavior, 2000-2004. *Journal of the American Society for Information Science and Technology*, 59(11), 1743-1760.
- [2] Ellison, N. B., Lampe, C., Steinfield, C., & Vitak, J. 2011. With a little help from my friends: How social network sites affect social capital processes. In Z. Papacharissi (Ed.), *A networked self: Identity, community, and culture on social network sites* (pp. 124-145). Routledge, New York, NY.
- [3] Ellison, N. B., Steinfield, C., & Lampe, C. 2011. Connection strategies: Social capital implications of Facebook-enabled communication practices. *New Media & Society*, 13, 6 (2011), 873-892. doi: 10.1177/1461444810385389
- [4] Eyrich-Garg, K. M. 2011. Sheltered in cyberspace? Computer use among the unsheltered 'street' homeless. *Computers in Human Behavior*, 27, 1 (2011), 296-303.
- [5] Hargittai, E. 2011. Minding the digital gap: Why understanding digital inequality matters. In S. Papathanassopoulos (Ed.), *Media perspectives for the 21st century: Concepts, topics and issues*. Routledge, New York, NY, 231-240.
- [6] Hargittai, E., & Hsieh, Y. P. 2012. Succinct survey measures of web-use skills. *Social Science Computer Review*, 30, 1 (2012), 95-107. doi: 10.1177/0894439310397146
- [7] Hwang, S., Kirst, M., Chiu, S., Tolomiczenko, G., Kiss, A., Cowan, L., et al. 2009. Multidimensional social support and the health of homeless individuals. *Journal of Urban Health*, 86, 5 (2009), 791-803.
- [8] Karabanow, J., & Naylor, T. D. 2010. "Being hooked up": Exploring the experiences of street youth and information technologies. In E. D. Looker & T. D. Naylor (Eds.), *Digital diversity: Youth, equity, and information technology*. Wilfrid Laurier University Press Waterloo, ON, Canada, 161-178.
- [9] Kiesler, S., Zdaniuk, B., Lundmark, V., & Kraut, R. 2000. Troubles with the Internet: The dynamics of help at home. *Human-Computer Interaction*, 15, 4 (2000), 323-351. doi: 10.1207/S15327051HCI1504\_2
- [10] Le Dantec, C. A. 2008. Life at the margins: Assessing the role of technology for the urban homeless. *Interactions*, 15, 5 (date), 24-27.
- [11] Le Dantec, C.A. 2010. Exploring mobile technologies for the urban homeless. In *Proceedings of the 28th International Conference on Human Factors in Computing Systems, CHI 2010, Extended Abstracts Volume* (Atlanta, Georgia, April 10-15, 2010).

- [12] Mossberger, K., Tolbert, C. J., & Hamilton, A. 2012. Broadband adoption| measuring digital citizenship: Mobile access and broadband. *International Journal of Communication*, 6 (2012).
- [13] Ortiz, M. and Gallegos, F., (Eds). 2012. En Chile todos contamos. Segundo catastro nacional de personas en situación de calle 2011. Chile, Ministerio de Desarrollo Social, Santiago.
- [14] Papathanassopoulos, S., ed. 2011. Media perspectives for the 21st century: *Concepts, topics and issues*. Routledge, New York, NY.
- [15] Piña, L., 2013. Calle y casa. La situación de calle como fenómeno de frontera. Puerto Montt, avances para una comprensión desde sus actores. Tesis doctoral en antropología, Universidad de Tarapacá y Universidad Católica del Norte, Arica, San Pedro de Atacama.
- [16] Piña, L. 2014. Pupilas vacías o el acto de observar puertas adentro de la calle. Un estudio comparativo de fotografía participativa, representaciones sociales y situación de calle. Proyecto de investigación presentado al Concurso Nacional de Proyectos Fondecyt, Chile (No. 11140871).
- [17] Quiroga, L. M. 2009. Using personal ontologies as a context based user modeling tool for bridging information filtering (IF) and personal information management (PIM) research. [Short paper / Extended abstract]. In: *ACM RecSys'09 Workshop on Context-Aware Recommender Systems (CARS-2009)*, October 22-25, 2009, New York, NY. <http://ids.csom.umn.edu/faculty/gedas/cars2009/Quiroga-cars2009-abstract.pdf>
- [18] Radley, A., Hodgetts, D. & A. Cullen, 2005. Visualizing Homelessness: a study in photography and estrangement. *Journal of Community & Applied Social Psychology* 15 (2005): 273-295.
- [19] Rice, E. 2010. The positive role of social networks and social networking technology in the condom-using behaviors of homeless young people. *Public Health Reports*, 125, 4 (2010), 588-595
- [20] Rice, E., Kurzban, S., & Ray, D. 2011. Homeless but connected: The role of heterogeneous social network ties and social networking technology in the mental health outcomes of street-living adolescents. *Community Mental Health Journal*, (2011), 1-7.
- [21] Rice, E., Milburn, N., & Monro, W. 2011. Social networking technology, social network composition, and reductions in substance use among homeless adolescents. *Prevention Science*, 12, 1 (2011), 80-88.
- [22] Stennett, C. R., Weissenborn, M. R., Fisher, G. D., & Cook, R. L. 2012. Identifying an effective way to communicate with homeless populations. *Public Health*, 126, 1 (2012), 54-56. doi: 10.1016/j.puhe.2011.09.020
- [23] Swenson Miller, K., Bunch-Harrison, S., Brumbaugh, B., Kutty, R. S., & FitzGerald, K. 2005. The meaning of computers to a group of men who are homeless. *AJOT: American Journal of Occupational Therapy*, 59, 2 (Mar. 2005), 191-197.
- [24] van Deursen, A. J. A. M., & van Dijk, J. A. G. M. 2009. Improving digital skills for the use of online public information and services. *Government Information Quarterly*, 26, 2 (2009), 333-340. doi: DOI: 10.1016/j.giq.2008.11.002
- [25] van Dijk, J. A. G. M. 2005. *The deepening divide: Inequality in the information society*. Sage Pub, Thousand Oaks, Calif.
- [26] Vitak, J. 2012. The impact of context collapse and privacy on social network site disclosures. *Journal of Broadcasting & Electronic Media*, 56, 4 (2012), 451-470. doi: 10.1080/08838151.2012.732140