Mobile Social Software: Facilitating Serendipity or Encouraging Homogeneity?

Jennifer Thom-Santelli
Cornell University
HCI Group and CEmCom
301 College Avenue
Ithaca, NY 14850
jt17@cornell.edu

ABSTRACT
Mobile social software is currently designed and conceived to afford serendipitous social interactions in densely populated urban environments. In this paper, I argue that these systems create a more homogeneous representation of the city by encouraging users to socialize more exclusively with those they already know and by privileging a type of urban experience based on consumption and entertainment. I describe several design strategies drawn from the arts that might help these systems offer a more heterogeneous view of the city.

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INTRODUCTION
The urban landscape is often represented in pervasive computing as a space full of social opportunities and cultural landmarks that can provide users with an enriching or educational experience, and as a result, earlier work in urban computing focuses on systems such as tour guides or augmented maps. The recent development of mobile social software also draws on a similar optimistic vision of the city. Mobile social software allows users to connect to a social network, usually embedded with location or temporal context, usually through mobile phones. These systems attempt to facilitate serendipitous social connections between users by helping them to broadcast their locations to a group of contacts in the hopes that face-to-face interaction will then result. Mobile social software have been largely targeted to cities, on the assumption that urban areas provide a sufficient density of people that users may serendipitously encounter as they go about their everyday lives.

In this paper, I will argue that the design of mobile social systems privileges a certain type of urban experience that is centered upon an idealized category of users. Next, I draw from arts-inspired practices to suggest design strategies that might help mobile social software widen their representations of the urban experience. Why do I use the arts for inspiration? Upon first glance, arts practice may seem far removed from the engineering of technology. But, as I will detail in this paper, there is an established tradition of arts practices focused on the creation of new technologies. These traditions use the development of new technologies to ask and answer critical questions about the social and cultural implications of technology design. I will argue that methods drawing from the arts can help uncover and alter the closed loop of relatively youthful and affluent users built into mobile social software, drawing on three themes: critical awareness of what is being designed into and out of these systems; use of interventions to not only respond to articulated user needs but to open space for new user practices; and encouraging flexible interpretation to allow multiple kinds of appropriation to emerge among unexpected stakeholders.

CONFIGURING AN IDEALIZED USER
It is not a new idea to suggest that the designers do not operate in an objective vacuum in which values play no role in how a system is conceived. One such way in which values shape the uptake of a technology is in the configuration of an ideal user group, so that designers set constraints on the system according to the ways in which these imagined users are likely to appropriate it [16]. In the United States, the Pew Internet Project [10] reports that more than 195 million Americans, spanning all demographic categories, use mobile phones, and higher penetration levels have long been reported in Asia and Europe as well. Despite the acceptance of this ICT by a large proportion of society, recent market research suggests that teenage users and students are the most avid users of

mobile social software [8]. Have younger users simply appropriated an available technology according to their needs and desires, or have designers made the technology only appropriate for younger users?

In the process of configuring a target user group, designers employ design methodologies, such as personas, on younger users to make certain assumptions to develop user requirements describing the types of activities that would need to be afforded by mobile social software. Systems, such as Dodgeball [3], are designed to facilitate dates by allowing users to set up your buddy lists so that they can indicate other members of their social network on whom they have a crush. By explicitly encouraging this form of connection, the designers of these mobile social systems seem to be trying to attract the younger user who traverses the city to meet prospective romantic partners while out and about.

If the system focuses on dating and facilitating romantic encounters, the types of urban locations that are being served by mobile social software will be of a particular category, especially when taken in combination with the relative youth of the user. From that perspective, mobile social software presents a view of the city that is dominated by its nightlife by drawing attention to its bars, clubs, cafes and restaurants, as shown by the venue reviews on Dodgeball [3] and the focus on arranging social meetups in Mixd [9]. The diversity of the city becomes less celebrated as users seek out homogenous experiences that are facilitated by the design of the mobile social software.

The desire to visit places that have been vetted by your social circle to encounter other people who are just like you can be illustrated by the widely observed sociological phenomenon of homophily, the tendency to affiliate with those with whom you are similar. In [14]'s study on adult friendships in two cities, one American (Detroit) and one German (Altenuestadt), the bias to seek out same status friends is highest among those with higher levels of education, in their twenties, and in occupations of high prestige [14]. When users announce their location using Dodgeball [3] or arrange a meetup using Mixd [9], the selective aspects of the chosen recipients of these broadcasts encourages homophily to the point that serendipitous interactions are only really possible with those who probably have similar interests as you, at locations that have been pre-approved by those who are just like you.

WIDENING THE DESIGN SPACE

If the current incarnations of mobile social software value a certain type of user and experience with the urban environment, how can designers leave space for alternative interactions to occur? First, designers can expand the conception of the configured mobile social software user and look beyond those who are already using the technology. Recognition of the non-user and study of their motivations to resist, reject or feel excluded from the technology should provide a fuller picture of the available design opportunities [17]. If current mobile social software tend to attract younger users, as suggested by [8], why, for example, are older mobile phone users avoiding these systems when they could just as easily be appropriating them to arrange for their grandchildren's playdates?

Economic opportunities exist when resisters' objections are incorporated into system design, such as the negotiated acceptance of the automobile into the fabric of American rural life after its initial introduction to affluent urban users [7]. In another case, Dodgeball and Mixd highlight venues for consumption of food, drink and entertainment, but they are defined in these systems solely by reviews of the venues' customers. There is almost no recognition of the first-hand experience of those who work at these places as any depiction of the staff within the design of the system involves the mobile social software user's view of the service that he or she was provided. Disenchanted waitstaff have begun to use the Internet to keep track of badly behaved customers who leave inadequate gratuities so one could imagine a mobile social system serving a similar function [2].

Drawing from Critical Practice & Tactical Intervention

Arts-inspired design practices are an existing resource that can help to widen the range of spaces that are affected by mobile social software. From an HCI perspective, there has been some traction in the attempt to use the lens of design noir [4] to turn a critical eye on the interplay between technology and the role that it plays in further marginalizing the spaces and social actors who are not part of the desired mainstream. This sensibility, termed Exurban Noir [1], also draws attention to the networked infrastructures, such as utilities and transportation, that exert an important force in the way the power geometries of the city are formed. By focusing on the exurban and the sprawl that forms at the edge of city, awareness is drawn to the area of the urban landscape that are not postcard-ready yet are the fastest-growing sections in a city, often populated by those who may not have the economic resources to live in the traditional urban center. Because these neighborhoods may not contain valued entertainment venues, such as nightclubs and cafes, they are rendered almost invisible in these types of current mobile social software, even as they grow in area and population.

To seriously attempt to include overlooked inhabitants and underserved spaces of the city, we propose that designers draw more deeply from the critical tradition of the arts to examine the use of tactical interventions, which may provide a mechanism to expose social, political and cultural questions that might be left unexplored in an engineering-based practice of system design. Tactical intervention, in this context, is the practice of deploying a real world design which subverts, challenges and re-negotiates accepted meanings and existing power structures [13]. I am not necessarily suggesting that designers should necessarily co-

opt tactical intervention as an institutionalized method but that posing difficult questions, such as who might be ignored in a specific system, early in the design process may provide a better picture of the non-users and the resisters.

For example, Wodiczko's *Homeless Vehicle* [13], a modified shopping cart that provides shelter and storage, focuses on those who reside on the streets of the city and draws attention to a constituency that is often overlooked and purposefully ignored. The artists considered the specific type of mobility that the homeless experience, in that many of their movements are in response to the actions of the police, which is quite different than the relative freedom of movement experienced by other urban dwellers. *Homeless Vehicle* highlights the vast inequities between the different populations of the city by addressing the pressing needs of shelter and storage of those who reside on the streets and illustrates how other urban computing systems, such as mobile social software, are built upon the assumption that urban mobility is largely active and discretionary.

Leveraging homophily for diversity

In order to bring the hidden users, non-users and resisters to the foreground, I draw inspiration from a sociological technique called snowball sampling, where the participants needed for an intervention of some kind would be drawn by referrals starting from one starting group of participants [5]. Again, this technique relies on the assumption of homophily so that each new referral would be similar in some desired characteristic to the referrer. The difference, however, is that the initial group, in this case, would not be the typical mobile social software user described previously.

Snowball sampling would then be used to as a methodology to find those who might be willing to participate in a tactical intervention. Preemptive Media's AIR took a similar approach to introducing a system consisting of portable air quality monitoring devices allowing users to collect data about the pollutants that are found in the urban areas [11]. To ensure a diverse seed group, the designers encouraged participation by setting up distribution tables on New York city streets, holding open office hours at the project headquarters in downtown New York and by encouraging people to sign up for participation through the project website. More importantly, they asked each of the users of the AIR device to keep it for only 24 hours and to pass it on to someone that they knew. By decentralizing the distribution mechanism, AIR's designers attempted to spread the intervention out to as many users and spaces as possible creating a wider portrait of the city while providing a way for urban residents to reflect upon their environmental surroundings.

In working from a position of relative economic and social privilege, there exists the danger, especially in arts-inspired systems, that the tactical intervention becomes an inside joke that only certain groups will understand. The framing of the interaction, especially with those who are less familiar with technology, should be approached carefully to lessen the possibility of condescension or intimidation. In the case of AIR, as the mobile monitoring device was passed on, the more experienced user was asked to show the new user exactly how it worked and to show him or her how easy it was to operate. By operating in the context of an existing social relationship, this procedure might conceivably lessen the fear of the all-knowing experimenter.

Designing for multiple interpretations

Finally, I draw from Sengers and Gaver's approach in allowing for enough flexibility so that multiple levels of interpretation are possible and multiple meanings can emerge through as individual users appropriate the technology [12]. By supporting diverse interpretations through design, the resulting system openness may encourage unexpected stakeholders to take up mobile social software in ways not originally envisioned by the designers. Here I discuss an example that draws mainly from the following strategy: supporting usability by not constraining use. Such a system might provide clear usability in how it should be controlled and operated but its ultimate meanings and purpose is open for interpretation by those who choose to use it.

This example is TXTmob, a text message broadcast system used in a variety of ways to communicate and coordinate during decentralized protest activities during the 2004 United States Democratic and Republican conventions [6]. Users could create their own groups and specify whether or not they were public or private, and moderated or unmoderated. Because TXTmob was so structurally flexible, the system was taken up by a variety of complex stakeholders, while originally intended to serve activists as an organizational tool. While designed mainly for activists, TXTmob was deliberately left open enough for other users and even resisters to the activism, such as law enforcement agencies and the media, to use the system as a tool to monitor protests, or even figure out where traffic would develop during actions.

Designers should consider the different existing levels of user interpretation during their process and recognize that the assumption that user interpretation should be fully controlled by the designer may not be always correct in all situations. TXTmob is a mobile social software that left enough space for individual users to define their own meanings and ultimately became a useful technology to a wider group of stakeholders beyond the initially envisioned core group of activists and organizers. Because of this flexibility, TXTmob supported a more multi-layered view of the city. For the activists engaged in organizing and coordinating protests, the city was the stage for the expression of public dissent. For law enforcement, TXTmob provided insight into what they termed as illegal

breaches upon public places within the city that should remain orderly and protected at all times. For non-activists residents of the affected cities, the system provided a way for them to be aware of the locations of protest activity so that they could go smoothly about their daily lives without too much disruption of their routines.

Besides suggesting a variety of interpretations, it is also just as important for the system to provide users with the license to reinterpret the system's behavior by downplaying the authority of the system to provide a preferred interpretation. This can be a useful strategy to employ when trying to extend a representation of the city that may not have been originally envisioned by the system designers. One such way in which mobile social software might limit the type of urban location that is worthy of review is the exclusive reliance of street maps delineated by postal addresses. In excluding locations not represented on a postal map, users may not be able to use mobile social software to comment on places that are integral to their urban experience.

By allowing users the ability to finely control what they believe are meaningful locations, mobile social software might be able to move beyond representing the city as a series of buildings and towards the interpretative and cultural view of the urban space [15]. An example of one such system is Yellowarrow [18], an international multi-city system where users place stickers to leave annotations about various physical locations that can be accessed by other users through SMS. Yellowarrow allows its users to ascribe meaning to ephemera such as flyers on telephone poles or other sites not necessarily shown on a street map, such as a favored tree, and in effect, encourages an individualized micro-level representation of the city.

CONCLUSION

I offer this alternate view of mobile social software as a call to challenge the designers of these systems to broaden their conception of what a city can be and to recognize that current systems may reinforce a limited view of the urban experience. By encouraging homophily, mobile social software runs the risk of encouraging a smaller world, not a more expansive one as designers might hope or expect. At the same time, designers of mobile social software should realize that the choices they make have lasting political consequences in the power geometries that form; for example, by spotlighting and encouraging the consumption of resources that hastens gentrification. As mobile phones have become a widely accepted ICT at all walks of life, it seems shortsighted to ignore the possibilities that might be afforded by a mobile social system that presents a more inclusive view of the city.

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