

# Navigating the Social Terrain with Google Latitude

Xinru Page, Alfred Kobsa  
Donald Bren School of Information  
and Computer Sciences  
University of California, Irvine  
Irvine, CA 92617 USA

[xpage@uci.edu](mailto:xpage@uci.edu)

## ABSTRACT

Although researchers have been building location-based social services for some time now, sharing one's location has only recently been introduced to the more general population. This paper examines real-world adoption of and resistance to Google Latitude, a social mobile-device application for people to share their locations. We report findings from an analysis of semi-structured interviews with 21 participants using grounded theory. Our research reveals how interviewees perceive the social affordances of location-sharing applications to be conceptually intertwined with the conventions of other social networking and communication technologies; Our findings emphasize that many participants felt pressured to not only adopt social applications such as location-sharing, but also to be responsive and accessible at all times. Participants perceived technology-mediated social interactions (such as "friending" someone) as highly symbolic, and as problematic if they did not strictly adhere to the established social etiquette. We also found that participants' perception of the social norms around using Latitude varied widely, affecting how and whether participants used the system.

## Categories and Subject Descriptors

K.4.2 [Computing Milieux]: Computers and Society – *Social Issues*. H.5.2 [Information Systems]: Information interfaces and presentation – *User Interfaces: Evaluation/methodology*.

## General Terms

Human Factors.

## Keywords

Google Latitude, Location-based services, Facebook, Twitter, Instant Messaging, Social Networking, Adoption, Social Norms, Symbolism, Mobile Devices

## 1. INTRODUCTION

In February 2009, Google launched Latitude, a real-time location-sharing feature within Google Maps that has been adopted by over a million mobile phone and laptop users [17]. Also gaining popularity are other location-sharing products such as Loopt, GyPSii, Whrrl and Foursquare. Researchers point to the benefits of disclosing location in cell phone conversations, including creating social or process awareness, coordinating meetings, and signaling availability, caring, or need for help [3]. On the other hand, though, concerns have been raised about stalkers, abusive spouses and a panoptic Big Brother. Heated arguments over these issues as well as cautionary media reaction reinforce the importance of understanding people's attitudes towards location-

tracking and their adoption or rejection of this technology. This is specifically in regards to real-time location-sharing that broadcasts location continuously or frequently.

Our previous research showed that people's attitudes towards Google Latitude are deeply connected to their use of other social networking technologies [13]. In fact, they perceive location-sharing social applications as an additional type of social networking technology, and hence its use cannot be studied in isolation. Since recent studies point to the psychological benefits and social capital gained by participating in social networking [9], it is vital to investigate the reasons why people do and do not participate. However, little is known about who is and is not using social network technologies [6], let alone social location sharing. Thus, this report describes people's real world attitudes towards adopting social location-sharing applications, with many findings also being relevant to other social networking technologies.

Our analysis reveals that the most salient factors surrounding adoption are social influences (both real and imagined) and not so much the popularized privacy or security issues. We identified the following three factors: 1) social pressure to use this technology, 2) the symbolic meaning behind technology-mediated social interactions, and 3) users' understanding of the social etiquette surrounding technology use.

## 2. Previous Research

Much location-tracking research within the location-based services literature emphasizes privacy concerns. By probing hypothetical scenarios via questionnaires, experiments and experience sampling methods, researchers found that people's willingness to disclose their location depends largely on who is requesting it, and also why [11, 8]. However, stated privacy attitudes often differ from actual behavior [18]. Thus, a few studies looked at location-tracking usage of prototypes [10], including real-time disclosure with small social units (e.g. group of friends) who volunteered to use it [15, 1, 7, 19]. These studies showed that location awareness facilitates coordinating meetings, checking on loved ones, and social connectedness. However, studies of location tracking within real world social connections have been few.

Sociological studies on online technology use in people's pre-existing social networks revealed that usage is shaped by pre-existing motivations [5]. However, theories that characterize modern day social networks (e.g. Wellman's "individualized networking" theory) still lack empirical validation [5] and may not extend to social networking technology. Many "personal network" studies look at only a subset of ego's complete network (e.g., the strongest relationships) [20], due to the cost and difficulty in generating a complete social network. In researching how people use social networking technology, it is crucial to consider weak relationships that outnumber strong ones in friend lists [9].

Some ethnographic studies focus on social communication technologies such as instant messaging [12], but little research has looked at technologies that convey locational presence information rather than mainly serving communication purposes.

### 3. Methods and Sample

This report is based on semi-structured interviews with 21 individuals, conducted mostly one-on-one and face-to-face (participants beyond driving distance were phone interviewed, and a husband and wife pair was only available for a joint interview). Informed by theories of innovation diffusion [16], framing [2], privacy [14], and trust [4], we crafted open-ended questions to ask about their experiences with Latitude, their feelings towards using it with various contacts and contexts, and about alternative ways in which they connect with others. Because little is known about who is and who is not using social networking technologies [6], we recruited 10 interviewees who had not used Latitude and 11 interviewees who had used it. Since Latitude was new and likely to have attracted the attention of those more technically inclined, we recruited participants through student discussion lists in Information and Computer Sciences at UC Irvine, through non-academic personal contacts from various locations in the United States, and through subsequent snowball sampling.

The interviewees consisted of 4 females and 17 males with ages ranging from 21 to 40's (averaging 28). Of the 10 interviewees who had not used Latitude, 7 had decided not to use it and 3 wanted to but did not own a supported device. Of the 11 interviewees who had used Latitude, 7 were still using it and 4 had abandoned it. In terms of other social technologies, all but one interviewee used Facebook or Orkut, instant messenger was similarly popular, and about a third used Twitter. With regard to their relationship status, 13 were single, 2 living with a significant other, 1 in a long distance relationship, and 5 married with children. Their professions ranged from graduate student (some having previously worked in industry), software developer, product marketing manager, lawyer, and construction project manager, to housewife. 15 participants were either born in the United States or had lived here for five or more years. 6 participants were originally from Asia (mainly India) and had been here one year or less.

### 4. Results

Oftentimes reported attitudes were very similar across participants. Sometimes though, a bifurcation arose between about half of participants who were largely optimistic about using Latitude to improve their lives, and the other half who believed location sharing would be a burden. In this paper we refer to the former as the *optimists* and the latter as the *pessimists*. What surprised us is that this division in attitudes does not align with participants' usage of Latitude: some were reluctant to use Latitude but still tried it out, while others were optimistic about it but had abandoned it. In the remainder of this paper we will therefore distinguish between the *optimists* and *pessimists* rather than partition interviewees by their use of Latitude. We believe an understanding of the underlying motivations and attitudes with regard to Latitude sheds more light on the adoption question than do micro-level reasons for using or not using these technologies.

We analyzed our interview transcripts using grounded theory and open coding. In this paper, we report on three significant themes: social pressure and technology addiction, symbolic importance of social interactions, and understanding and construction of social

etiquette surrounding location-tracking technology. We note that differences in attitudes between different genders, cultures, occupations or fields of study, age groups, and relationship status were not as poignant to these three themes, but were relevant for themes that we will discuss in a future paper.

#### 4.1 Latitude: The next BlackBerry?

*Optimists* often used Latitude just because it was new, and couldn't wait for a critical mass of other adopters to really make use of the technology. "Tirtha", a graduate student using Latitude on his laptop, lamented, "I send so many invites, and nobody's responding to it, so it's like feeling 'aw... nobody is going to see me, why should I update [my location]'". *Pessimists* were divided: There were those like "Chris", formerly the product marketing manager of a major tech company, who wants "there to be some critical mass" so as not to "waste my time on sorting out the weaknesses of" new technologies. On the other hand, there were those who dreaded reaching a critical mass: "I feel like it's where we're headed. There's enough people that will just say yes to all of it – to Twitter to Latitude," begrudged "Elizabeth", a graduate student.

Once a technology hits critical mass, interviewees felt compelled to stay on it. As "Jared", who had often bought the latest gadgets when he was in industry, recounted: "I started on twitter mostly because it was new and I wanted to try it out. Same with Facebook. And then everyone got on it, so you stay on it." Elizabeth elaborated on the social pressure to stay on: "Twittering is more like the kind of pressure I might feel if people were using Latitude. Or Facebook. It's like if you don't exist... on Facebook, you don't exist in this place and you're not part of this place... there's all kinds of questions why doesn't this person exist."

Both *optimists* and *pessimists* felt pressure to convey their location responsibly. "Jake", a graduate student, expressed his dismay at finding that his friend was not using Latitude to represent his true location: "...if I see a person toy with an application, I just won't pay attention to them on it. So it's like my confidence in how well they use it. So once it's broken, I'm not going to pay attention after that." Similarly, another student "Lee" lamented how his perception of Latitude changed because it allows users to manually set their location; Lee believed this meant that "it's often not accurate [and] becomes this irrelevant piece of trivia. This is what someone [says] where they are, not actual... It reminds me of Twitter if you were just to get random Twitter posts from a bunch of people and put it on a page."

Furthermore, interviewees felt the pressure to engage fully in the technology. One interviewee compared this responsibility to how she recently started using a calendaring application and "now it's like if I forgot this [meeting], it's a greater slight than it was before when I just used to be late all the time." "Dan", a software developer, describes his resistance to Latitude as the same as for instant messengers: "Somebody can always look and see whether I'm online or not... IM expects you to respond immediately if they know you're online." Interviewees even described themselves as poor users when they did not keep location or status up-to-date or check their wall posts often enough.

Interviewees often used the word "addiction". Chris was actively working on not crossing the thin line from BlackBerry user to BlackBerry addict (as Chris describes it, someone who feels compelled to constantly use the technology). Dan described how

his teenage son could not turn off his phone despite tiring of the constant texts:

“Sometimes he'd just put his phone to the side and walk away from it. He got tired of responding to text and he felt like he couldn't turn it off for some reason. It had to be on, so he wouldn't miss a text but he just didn't want to do it. He was having friends text in the middle of the night, so he was having trouble sleeping. So when he lost his phone, I think that he decided that it was a good time to take a break.”

Many *pessimists* were worried about being sucked into a new technology that they would have to maintain and engage in fully. Some even avoided Latitude in consideration of others. “Noah”, a construction project manager asserted: “If I didn't always want them to know where I am, I'm not comfortable with always knowing where they are. Or I wouldn't want to walk in with the same issues with them - I wouldn't want to walk in on... [their] business meeting, in a family gathering, or whatever.” “Ankur”, a graduate student, put it more strongly: “I'm kind of banking if they want to get in touch with me, they'll call me themselves. I wouldn't want to force somebody to meet me.”

Other *pessimists* used new social networking and communication technologies but fought against social pressures by minimizing participation and maintaining a wallflower-like online presence. Lee limited his Facebook posts to others' walls in order to slow down friends' posting to his. He even stopped using status in instant messenger because it invited friends to interrupt him.

## 4.2 Friending as a Handshake

The importance of social interactions in Latitude and other social technologies rests in their symbolic meanings. By and large, interviewees went to great lengths in order not to offend others, including changing their own technology use and behavior.

The most common example of changing behavior was that of friending someone on Facebook or Latitude, i.e. requesting someone to accept you as a friend in their friend list. Elizabeth explained her first experience with receiving a friend request: “my gut reaction was that it would be bad to not accept... it's like a handshake. Friending someone is like putting out your hand, and saying no is like not shaking their hand... And now you're in this long, you've started this thing where you are now friends. And now you have to deal with all the stuff that that is.” The symbolic gesture of accepting a friend request is so strong that participants overwhelmingly reported an eclectic mix of contacts in their friend lists, dominated by weak ties.

Furthermore, in social networking technologies these weak ties are symbolically on par with strong ties. They're accorded the same privileges and require upkeep. “Derin”, a graduate student using Latitude, illustrated this by pointing out that even though “you can choose people to see your location in the city level, but probably they can understand you're sharing your location at the city level because it's not accurate. You don't want people to see that you're not sharing your information... It's kind of rude. It will basically make them question your relationship or friendship.”

However, giving the appearance of being friends on technologies like Facebook was often a sufficient symbolic gesture. Many interviewees granted partial profile access to weak ties in a way that those ties could not visually differentiate it from full access. For the most part this sufficed. However, interviewees occasion-

ally ran into problems when an acquaintance would overstep his bounds and try to use restricted features. As a result, some interviewees resorted to the lesser of two evils and instead ignored friend requests. Others went with “the lowest common denominator” of disclosure, i.e. they disclosed merely that information about themselves that everyone may see. Still others elevated the privileges of weak ties and put up with the consequences:

“I mean it's funny, I actually get annoyed by [happy birthday posts] because people...write you a quick note, and then now I feel like...I have to respond [and] I have to make every single one unique because I don't want to just paste one thing for everyone and make it look like a thoughtless person. I just feel like it introduces this load of work which is totally unnecessary and just has no real end.”

While these practices around friend etiquette were prevalent, married participants in our sample were an exception; they were not as concerned about the symbolic meanings of friending, although they still did engage in lowest common denominator disclosure.

Another symbolic interpretation involved ones' willingness to use Latitude. Interviewees commonly equated using Latitude as a statement of trust, or of having nothing to hide. Ravi explained, “I'm thinking, as the common man, if someone is skeptical of using that device...what's the problem he's facing that he doesn't want to use the technology. So I'm not a criminal, and I don't have those sort of feelings.” Elizabeth further related her significant other's unsuccessful attempts for them to use Latitude together: “it became an issue of trust. [Bobby] said to me, ‘why wouldn't you let me. I wouldn't abuse it.’” “Fei”, a corporate lawyer, also recognized the symbolic significance for her relationship. But when she installed Latitude in the company of someone she had just started dating, she did not feel compelled to friend him: “I think there was a mutual understanding that we didn't want to know where each other were all the time. Like we weren't in that phase of our relationship.” Interestingly, none of these interviewees were concerned about the symbolic meaning of using or not using Latitude with their closest relationships, but many dreaded acquaintances and superiors who may want to connect. “Eric”, a computer programmer, bemoaned, “That would be a really hard decision. I'd probably just add them just based on the fact that they're my manager.”

Furthermore, some interviewees also considered a request to use Latitude as symbolizing that the requester wants you to know the minutia of his or her real-time location. This seemed egotistical for those beyond very close friends or family. Sam limited sharing his location to a small group of techie friends so he wouldn't appear “egotistical”. *Pessimists* complained of being overwhelmed by others egotistically sending out status and minutia from Facebook, Twitter and even instant messaging status. Chris complained, “People abuse Twitter and Facebook...I want to know how friends are, but I don't want to know that they're at the movies with their son, right? It's like, status update doesn't mean I want to know exactly what you're doing at all times of every day...Latitude's got the same problem.” This egoism caused many *pessimists* to avoid new technologies such as Latitude.

### 4.3 The Salad Fork Goes Where?

Lastly, we discuss interviewees' understanding of social etiquette. Some *pessimists* expressed uncertainty and angst over the social etiquette of new technologies. This manifested as a lack of knowledge about what others were doing. Fei explained how she stopped using Latitude as soon as it asked her to add friends:

"I wasn't sure what would happen after I started adding friends. If it would be weird. I didn't really know the etiquette with Latitude. It's sort of like twitter. I didn't really know how to use twitter. I know from a technical perspective. But I just don't know the etiquette of it... I wouldn't have known when it would become weird for like an acquaintance-level friend to get this type of invitation from me. Because I've never gotten an invitation to join from anyone."

Elizabeth expressed uncertainty over whether what she saw was the same as what others were seeing:

"I don't really know what everyone's doing. Because I don't know what other people see because it's not reciprocal. If somebody else's settings are different, so if I make a judgment based on the norms I see, it's so inflected by my settings. If it turns out that everyone these days who signs up for Facebook goes in and sets all the parameters in a certain way because that's the sort of etiquette to set, then I'm already seeing a weird version of Facebook because of my setting. I don't know it's so complicated."

While some were searching for this social imaginary, other *pessimists* drew from past experience with social networking technology to project norms in the new technology. Depending on the type of technology from which they drew, and their individualized experience of it, this understanding of the social norm differed from person to person. This often led to angst that the projected social etiquette would have undesirable consequences.

*Optimists* on the other hand, often confidently conveyed what they imagined to be the social norms. Many based this understanding on their own actual or projected behaviors. However, we saw that these behaviors differed from person to person. For example, Jared explained the norm of Facebook stalking:

"so you know there's a newsfeed; it's yelling at you in an Internet sense. It's kind of stalkerish but everyone does it so it's not so weird. Yeah, but that's how you keep track of, lets me know what my friends are doing up north more than other mediums. Or actually rather than talking to them, hey what are you doing this week, and you can see, oh he went to the cherry blossom festival, and here's the photos, and here's the video."

In stark contrast, Jake asserted:

"So then I go and see how their page is updated. Although I don't look too much, because then I feel creepy looking around at their pictures. So I'll just look at some random stuff. Oh they're working at this company now. Oh so and so wrote on their page. There's something creepy about going in and looking at a whole bunch of their pictures for hours... it just feels weird. They gave their Facebook. And so the way I use it is just go through some pictures of stuff that's happened. And so I realize that's how they use it too. And so just because they gave me their Facebook, it feels kind of weird looking into all the stuff that they did without actually asking them about it."

With all of these various conceptions of social etiquette and norms, there was not a single common social norm for any of these technologies. Rather, individuals each came up with their own understandings and acted upon it.

## 5. Conclusion

We found that various social pressures guided people's adoption decisions for social location-sharing applications as well as for other social networking technologies, namely:

- 1) Once technologies gained a critical mass, interviewees felt social pressure to join. Moreover, once they joined they felt obligated to fully participate, being accessible and responsive. This led to some *pessimists* resisting social pressure to use Latitude and other technologies.
- 2) The symbolic meaning of friending someone and of using Latitude greatly shaped how participants use these technologies, sometimes leading people to outright reject them.
- 3) Interviewees had different understandings of the social etiquette surrounding these technologies. *Pessimists* were either uncertain about norms or drew from their past experiences of other technologies to project norms. *Optimists* often derived norms based on their own behavior, which varied considerably from person to person.

We recommend that developers of location-based social services consider addressing these social pressures in order to attract a broader audience and help existing users participate in social networking more fully. We plan to continue studying social location-sharing technology adoption as it gains popularity, including the continued impact of social influences on its use. We are also developing design proposals for addressing people's concerns with Latitude by drawing on other findings from this study.

## 6. ACKNOWLEDGMENTS

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## 7. REFERENCES

- [1] L. Barkhuus et al., "From awareness to repartee: sharing location within social groups," Proc. of the twenty-sixth annual SIGCHI conf. on human factors in computing systems, Florence, Italy: ACM, 2008, pp. 497-506.
- [2] R.D. Benford and D.A. Snow, "Framing Processes and Social Movements: An Overview and Assessment," Annual Review of Sociology, vol. 26, 2000, pp. 611-639.
- [3] F. Bentley and C. Metcalf, "Location and activity sharing in everyday mobile communication," CHI '08 extended abstracts on human factors in computing systems, Florence, Italy: ACM, 2008, pp. 2453-2462.
- [4] G.A. Bigley and J.L. Pearce, "Straining for Shared Meaning in Organization Science: Problems of Trust and Distrust," The Academy of Management Review, vol. 23, Jul. 1998, pp. 405-421.
- [5] J. Boase and B. Wellman, "Personal Relationships: On and Off the Internet," in D. Perlman & A.L. Vangelisti eds.

Handbook of Personal Relations, Cambridge: University Press, 2006.

- [6] D.M. Boyd and N.B. Ellison, "Social Network Sites: Definition, History, and Scholarship," *Journal of Computer-Mediated Communication*, vol. 13, 2007, pp. 210-230.
- [7] B. Brown et al., "Locating Family Values: A Field Trial of the Whereabouts Clock," *Proceedings of UbiComp 2007*, Innsbruck, Austria: Springer, 2007, pp. 354-371.
- [8] Consolvo et al., "Location disclosure to social relations: why, when, & what people want to share," *Proc. of the SIGCHI conference on human factors in computing systems*, Portland, OR: 2005, pp. 81-90.
- [9] N.B. Ellison, C. Steinfield, and C. Lampe, "The Benefits of Facebook "Friends:" Social Capital and College Students' Use of Online Social Network Sites," *Journal of Computer-Mediated Communication*, vol. 12, 2007, pp. 1143-1168.
- [10] G. Iachello, I. Smith, S. Consolvo, M. Chen, and G.D. Abowd, "Developing privacy guidelines for social location disclosure applications and services," *Proceedings of the 2005 symposium on usable privacy and security*, Pittsburgh, Pennsylvania: ACM, 2005, pp. 65-76.
- [11] S. Lederer, J. Mankoff, and A.K. Dey, "Who wants to know what when? Privacy preference determinants in ubiquitous computing," *CHI '03 extended abstracts*, ACM, 2003, pp. 724-725.
- [12] B. Nardi, "Beyond Bandwidth: Dimensions of Connection in Interpersonal Communication," *Computer Supported Cooperative Work*, vol. 14, 2005, pp. 91-130.
- [13] X. Page, A. Kobsa, "The Circles of Latitude: Adoption and Usage of Location Tracking in Online Social Networking," *IEEE International Conference on Computational Science and Engineering*, Vancouver, Canada: 2009, pp. 1027-1030, DOI 10.1109/CSE.2009.195.
- [14] L. Palen and P. Dourish, "Unpacking "Privacy" for a Networked World," *Proc. CHI 2003*, 2003, pp. 129-136.
- [15] M. Raento and A. Oulasvirta, "Designing for privacy and self-presentation in social awareness," *Personal and Ubiquitous Computing*, vol. 12, 2008, pp. 527-542.
- [16] E.M. Rogers, *Diffusion of Innovations*, Free Press, 2003.
- [17] M. Siegler, "While people worry about Facebook photos, a million users let Google know exactly where they are," *VentureBeat*, Feb. 2009.
- [18] S. Spiekermann, J. Grossklags, and B. Berendt, "E-privacy in 2nd generation E-commerce: privacy preferences versus actual behavior," *Proceedings of the 3rd ACM conference on Electronic Commerce*, Tampa, Florida, USA: ACM, 2001, pp. 38-47.
- [19] R. Want, A. Hopper, V. Falcão, and J. Gibbons, "The active badge location system," *ACM Transactions on Information Systems*, vol. 10, 1992, pp. 91-102.
- [20] B. Wellman, "The network is personal: Introduction to a special issue of *Social Networks*," *Social Networks*, vol. 29, Jul. 2007, pp. 349-356.