The Translucence of Twitter

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Erickson and Kellogg's construction of social translucence suggests that collaboration tools can be designed more effectively by balancing elements of visibility and awareness among members of the user community to instill a norm of accountability. This paper questions whether the microblogging tool, Twitter, fits these criteria. Building on interview and artifactual data, I find that although Twitter use affords ample visibility of individuals' networks, thoughts and movements, it is less effective at supporting awareness. Despite this, evidence suggests that accountability can be achieved via indirect awareness maneuvers and around critical incident to yield a form of peripheral translucence. The paper concludes with considerations of how ethnography might best address and evaluate questions of community, accountability, and translucence in future research.

INTRODUCTION

To make something visible connotes either the proactive prevention of hiding or the creative drawing into the light. Scholars of work have pursued both agendas in their study of informal interaction[1] in the workplace. When informal exchanges were first documented and legitimized by early organizational theorists such as Blau (1955), Selznick (1957), and Roy (1959), a new stream of research was established that has continued to shine brightly ever since. The large-scale introduction of communication technologies into the workplace in the 1980s provided scholars with a new opportunity to highlight informal work practice, this time mediated by tools like email (e.g., Sproull and Kiesler 1986). Later research emphasized the use of instant messaging, or chat, for its ability to provide a synchronous means of contact among distributed colleagues (e.g., Bradner, et al. 1999). Backchanneling, a type of chat that entails having a private conversation among a closed set of individuals during an open presentation or meeting, was also identified by researchers as a means for informal dialogue, particularly when used as a tool for collective critique and commentary (e.g., Cogdill, et al. 2001). Very recently, scholars have begun to investigate both employee blogging (e.g., Jackson, et al. 2007) and corporate social networking practices (e.g., DiMicco and Millen 2007) to understand how these tools' combination of persistence and open-ended expression may be enabling informal interaction in new ways.

Within this corpus, Erickson and Kellogg introduced the notion of 'social translucence' as a design goal for efficacious socio-technical systems, both formal and informal (Erickson, et al. 2002; Erickson and Kellogg 2000; Erickson and Kellogg 2003; Kellogg and Erickson 2002). Building on a qualitative study of the diagrammatic chat application, Babble, the authors articulated "the belief that it is possible to design digital systems such that people's presence and activity, made appropriately perceptible, will create accountability and more easily coordinated action" (Kellogg and Erickson 2002, p.1). A combination of visibility,

[1] Here I would follow on the ideas of Dourish and Bly (1992) in defining informal interaction as that which is typically indirect, non-engaged and occurs in the background to the main tasks at hand.

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awareness, and accountability, socially translucent designs are meant to act like the window in a door—revealing clues to what might be ahead, but without full detail.

The authors describe the combination of visibility, awareness and accountability using the example of organizing book chapters for an upcoming edited volume. In this case, a group of co-located people move about a room putting various chapters under what they perceive to be the appropriate section headings. *Visibility* is characterized by the unobstructed view everyone has of everyone else in the room—it is possible to see where groups form or conversations break out, or where certain individuals linger and for how long. As Erickson and Kellogg put it (2000, p. 63), " . . . as in the case of the door, the participants could see what was happening, and thus awareness and accountability came into play." Joint engagement brings individuals into *awareness* of one another triggering a sense of socially appropriate behavior as well as an acknowledgement of mutual visibility: "Awareness brings our social roles into play to govern our actions. . . "(200, p. 40). Finally, knowing that one's visible actions assessable via the awareness of others engenders *accountability*. Accountability is an outcome of the mutual awareness and visibility afforded by socially translucent design: individuals choose to adhere to normative standards of speech and behavior because they know that their words and actions will noticed and assessed. [2]

In the example of the windowed door, the view provided by the window tends to make one feel accountable for any injury caused by abruptly opening the door onto someone. This works in the following way. The fact that there is a window allows a person to see whether or not anyone else is on the other side, and, if they are, not only alerts the potential injurer to the fact that they are there, but also informs them that they have been seen by the person on the other side of the pane. It is this awareness of both seeing and being seen that results in accountability. A door without a window would not provide visibility to either party and as a result erases the accountability of either party. The information and viewpoint that the window provides enacts accountability, or, as Erickson and Kellogg note (2000, p. 62): " . . . translucence stands in more generally for the power of constraints."

[2] Kellogg and Erickson do not explicitly reference ethnomethodologist Harold Garfinkel in their use of the term 'accountability', but I believe their notion is strongly correlated with his given the common emphasis on visibility. The parallels are especially striking in Heritage's (1984, p. 117) assessment of Garfinkelian accountability: "With respect to the production of normatively appropriate conduct, all that is required is that the actors have, and attribute to one another, a reflexive awareness of the normative accountability of their actions. For actors who, under these conditions, calculate the consequences of their actions in reflexively transforming the circumstances and the relationships in which they find themselves, will routinely find that their interests are well served by normatively appropriate conduct. With respect to the anarchy of interests, the choice is not between normatively organized co-operative conduct and the disorganized pursuit of interests. *Rather, normative accountability is the 'grid' by reference to which whatever(it) is done will become visible and assessable. And, subject to this condition of visible accountability, conduct undertaken for whatever objectives will tend to become designed and shaped responsively to the constraints imposed by this visibility* (cf. Mills, 1940; Skinner, 1978: xii-xiii). In this sense, normative accountability can best be viewed as organizing, channeling, and, in a sense, 'domesticating' the ways in which interests may be realized." {Emphasis added}

These researchers take pains to avoid the prescription of a panoptical system where one's feelings of accountability are borne from repression instead of being willingly adopted as a social norm. Their prescription for social translucence seeks only a window-sized gaze onto the conversations and behaviors of others. Yet this window must be more than a controlled screen, which presents only that view that the observed mandates. For example, Babble allowed users to select the color of the dot that represented them within the system, but they could not control the drift toward the outer edge of the conversation circle that indicated their inactivity. Babble users could also cordon off comments to certain chat spaces, but, once made, comments were persistent and available for viewing by other members of community. In keeping with social systems in the real world, Kellogg and Erickson argued that designs for socially-translucent systems should allow for selective elements of visible self-presentation (Goffman 1959), but not the complete control of a metaphorical solid door (i.e., which is the case for some profile-based social networking sites). It is this balance of visibility and privacy that the authors suggested would enable trust to take shape in the form of collaborative accountability.

RESEARCH STUDY

Twitter as a Window

My reflections on the topic of social translucence derive from a larger study that seeks to understand how location is represented in the microblog posts of both Twitter and Jaiku[3] users. Here I am using data that consists of the total posts (N=1145) produced by ten Twitter subjects over a four-week period. Twitter posts are unique in that they can only be 140 characters or less, although they can incorporate forms of direct address (i.e., @username) or URLS. Although authoring a Twitter post is easily done from one's own Twitter webpage, there are numerous third-party tools that offer the ability to make posts online as well as from mobile devices. Data collection was done by making screen captures of each subject's Twitter webpage (the main clearinghouse for all forms of input) every two or three days over the observed time period. [Figure 1 provides a sample view of an individual's Twitter webpage and Figure 2 offers a close up of a sample post.]

[3] Jaiku (http://jaiku.com/) is a Finnish microblogging tool that was purchased by Google in October 2007. Unlike Twitter, it has a dedicated mobile application that allows users to incorporate their synchronous physical location as a tag in their microblog posts.

Figure 1. The web-page view of an individual's Twitter stream. Demographic information about the user is on the top right, and the number and thumbnails of the people he is following (truncated here) are on the bottom right.

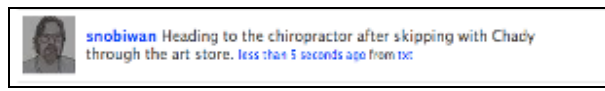

Figure 2. A close-up view of a sample Twitter posting picked randomly from the public timeline on June 17, 2008 at approximately 1:15pm PST. The bold blue name at the beginning is the username of the poster, which is followed by the body of the message, or 'tweet' as it is known colloquially. The phrase 'less than 5 seconds ago' indicates time relative to the time of viewing; a proper date and time will replace this phrase after 24 hours.

Regarding the demographics of the subject sample, six of the ten are male and four are female. All are experienced Twitter users. The median age of the group is 37, with subjects ranging in birth year from 1966 to 1981. Activity definitely varied among the ten subjects—the most active made 272 posts during the four weeks and the least active made only nine.

There are two subgroups of note within the sample. The first subgroup is a pair of permanent, co-located colleagues at the same firm—one a man (Subject G) with 132 posts and the other a woman (Subject F) with 110 posts. The second subgroup, delineated functionally, is comprised of six freelancers and/or distributed workers: the top three most active (H = 214 posts; I = 263 posts; J = 272 posts) and the least three most active subjects (A = 9 posts; B = 17 posts; C = 38 posts) all work from home or in some temporary project capacity. Within this group of six there are existing ties between three dyads (A/I; B/J; C/H), all of which are geographically defined and one of which is a pair of colleagues at the same firm (one project (G), one permanent but offsite (A)). The two co-located colleagues also form a clique with two local freelancers (G/F/C/H).

It is true that all of these pairings are the product of my modified snowball sampling methodology (Granovetter 1976), yet what is more significant is their ability—short of a crisply defined community boundary—to provide intelligibility toward some of the social context in which these posts take place. This fact is important because there is no 'community' as such in Twitter like the Babble user group described by Kellogg and Erickson. Instead, an individual Twitter user has a set of 'followers' who voluntarily subscribe to their feed. Thus, it is highly atypical for any two individuals to interact in exactly the same audience or community. Notably, however, the posts from each of the subjects in this study are wholly public and can be found easily using either Google's search engine and the user's name or the standard URL convention: http://twitter.com/username.

Visibility and Awareness in 140 Characters or Less

Visibility and awareness work together in social translucence by providing a view on others while simultaneously putting oneself on view. My analysis of the Twitter data suggests that there are certain obvious ways that Twitter showcases people's thoughts and behaviors, but less obvious ways in which interlocutors signal their awareness of being noticed.

Networks – One type of visibility that Twitter fosters concerns the overlapping networks in which individuals and their contacts are interacting. The design of the individual Twitter webpage [see Figure 1] displays the group that that person is following, which upon quick glance indicates their selectivity (i.e., how many incoming messages they care to receive) and potential commitment to the service (i.e., following fewer people may indicate only marginal Twitter use). On closer analysis, an observer can also see potential overlaps with those individuals they follow; these can be recognized by noting familiar icons among the set displayed. Furthermore, the nature of the community in which an individual Twitter user is engaged can often be assessed by counting the ratio of faces to icons on display. While it is not unheard of for individuals to use graphic icons as personal representations, it is much less common than corporate services (e.g., BarackObama, digitalnatives) that act like individual users. On the side of awareness, Twitter users know that, as a user of the service, their networks will also be fully on display[4]. The icons and count of their followers similarly infer a persona and a community to those who seek out or follow them.

Social groups also reveal themselves within Twitter postings. Network ties across organizational and social boundaries become evident via Twitter's method of commenting on posts, which illuminates both the porosity of social boundaries as well as the use of Twitter by freelancers to maintain ties with relevant knowledge communities. An example from Subject H shows how others might identify these network ties, namely in the form of direct address by the original poster. This subject's conversation about a piece of software called Textpattern [see Figure 3, read bottom up] begins with a post at 12:19PM.

[4] Twitter does provide the option of keeping one's posts private, however statistics suggest that only 10-15% of total users use this feature (http://twitterfacts.blogspot.com/2008/01/number-of-twitter-users.html).

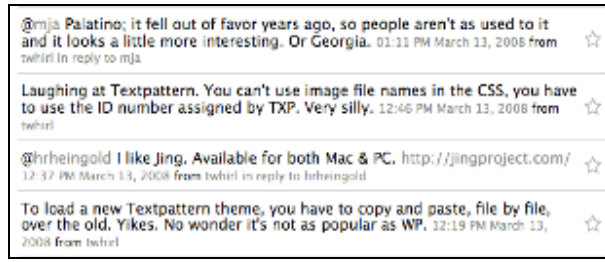

Figure 3. Excerpt from Subject G's Twitter stream that reveals members of her social network by way of her replies to them using the '@username' syntax.

The initial statement elicits at least two responses, which are indicated by the replies she makes at 12:37PM and 1:11PM. Those individuals who subscribe to Subject H's feed—her followers—will only see one side of any conversation unless they are also subscribers to all parties involved, in this case to *hrheingold* and *mja*'s feed as well as to Subject H's feed. Since this level of coverage is difficult for any one user to achieve in a system with over 1 million subscribers[5], the effect is often, as another subject remarked during an interview, like witnessing a conversation happening between people located at either end of a loud, crowded bar. You may catch a snippet here and there, but overall one is left to piece together the gist of the conversation by other means, if at all. What is revealed in this exchange more apparently is the fact that Subject H is on conversant terms with *hrheingold* and *mja*, she knows something about software and typography, and she is fairly attuned to the minute-by-minute occurrences in her Twitter feed. Her act of responding to those who have responded to her acknowledges her conception of Twitter as an active conversation space, one in which she expects—or at least welcomes—feedback. She is aware that her posts are not made within a social vacuum at the same time that she visibly notes, by way of @ syntax, the same of those people whose streams she follows.

Content – In addition to the display of one's network, Twitter feeds also shed light on matters of content, potentially personal or private in nature. As followers' comments become visible within conversation streams, they enable front seat access to what might otherwise have been a circumscribed chat at the water cooler. The public nature of many of these dyadic conversations makes knowledge visible that might otherwise have been hidden. A few posts from Subject G's data illustrate a form of this 'private in public' style well. He directs the following comment to one member of his network: "track down @sunir at barcampnyc and say hi for me." At another point he says to another friend: "thanks for the pointer to Moody – listening a lovely shade of green now." There is no hint of impropriety here via inappropriately revealed intimacies or other sensitive matters, but typically these

[5] The technology blogger Michael Arrington reported on April 29,2008 that Twitter had 1+ million users, 200,000 active users per week, and 3 million Twitter messages posted per day (http://www.techcrunch.com/2008/04/29/end-of-speculation-the-real-twitter-usage-numbers/).

small forms of social touch are not on overt public display. In Twitter, they are like whispers amplified over a loudspeaker. This private visibility reveals something about Subject G's sensibilities and interests in a way that is usually only revealed to those with close, personal access.

A separate, non-dialogic form of revelation is captured in iconic Twitter posts that follow the founders' directive to answer the question "What are you doing?" Few people follow these instructions to the letter, as can already be seen in the sample data, but when the tool is used for typical one-to-many broadcasting purposes, a second form of private in public visibility is tendered. In this way, Twitter closely mirrors the chatroom affordances of Babble. Twitter, however, makes it very easy to consume a person's missives both as single shoutouts and as a series. Subject J is in the habit of revealing her inner thoughts and opinions in her Twitter stream, particularly late at night when prompted by watching television or surfing the Internet. [A sample excerpt is highlighted in Figure 4.] These broadcasts often take the effect of running commentary and they are rarely interrupted by feedback, which works to amplify their broadcast nature.


first he was talking about phone word suggestion text messaging fauxpas, now he's raging on airport security. fun-ny! :-) 01:06 AM April 02, 2008 from web

oh goody! a new hilarious comic! yea! and his name is.....no idea. they won't tell me... he's in a pinstripe suit... 01:08 AM April 02, 2008 from web

so now, lewis black is so great that..he has his own shitty show, and so, we don't get him on the daily show anymore. how is that fair? :-(12:58 AM April 02, 2008 from web

i think comcast is screwing my service. what the hell. it's totally out of control... hmmm... time to start shoppin around 12:42 AM April 02, 2008 from web

guess i'll be playing wishfest too -- not sure when tho - in between running the festival and being at the contact conference all weekend... 12:27 AM April 02, 2008 from web

startin to get excited about the san fran musictech summit coming up in May: http://www.sanfranmusictech... 12:22 AM April 02, 2008 from web

learning joomla to set up our wishfest extravaganza. anybody know any good joomla resources, hand em over :-) 12:18 AM April 02, 2008 from web

Figure 4. Excerpt from Subject J's Twitter stream that showcases 'private in public' broadcasting style.

In the 50 minute time span captured in the 7 posts here, we are witness to comments about Subject J's personal activities (i.e., "learning joomla," "playing wishfest"), critical opinions (i.e., Lewis Black, Comcast), and budding praise for an unnamed comic. Not only are these diary-like entries articulated and uploaded for all who wish to read them (like other forms of blogging), but they are happening in real time. If I am a follower of Subject J's feed and happen to be online at one o'clock in the morning, I might tune in to whichever channel I presume is airing comedy on television at that hour and watch along, knowing that I have the added benefit of her occasional insights. In other words, with Twitter we can be privy to Subject J's private thoughts in a new form of virtualized situ.

It is clear to see how these two forms of 'private in public' behavior—one dyadic, the other monophonic—enable new forms of visibility, but it is less clear whether they simultaneously foster awareness of that visibility. Both of the communicative behaviors described above tend not to engender feedback; one is a directed message within the imaginary confines of a dyadic exchange while the other is an open, one-way transmission to an imaginary community or public. Should the first of these two types morph into a conversation, the originator receives confirmation that their message has been received, but little else. Moreover, the strong comparison in form between Twitter's brief missives and the vernacular of instant messaging easily muddles Twitter's public nature and may facilitate unintentional visibility of which the sender rarely ever becomes aware. Like Babble, Twitter posts are persistent, so delayed awareness could be borne or a review of one's posting activity. Yet, unlike Babble, there is little incentive to look back in Twitter; by their nature Twitter posts are strongly anchored in the present moment.

Context – The last interrelation of Twitter visibility and awareness involves time and space. As the typical workday now extends beyond fixed business hours and into locations other the office, round-the-clock and on location Twitter posts can reveal controlled glimpses into the larger context in which an individual's work and personal life takes place. There are three noteworthy examples of these glimpses in my data. The first emphasizes movement. Subject G, a commuter, often sends broadcast posts out that showcase his walks and bus rides. Examples include: "on my way to the bus stop," "riding the interurban," and "skiddeth bus and sloppeth us." Like all Twitter posts, these are time-stamped so family and colleague recipients can not only imagine Subject G en route but can also predict when he will likely arrive at home or in the office.

Sometimes Subject G also goes further afield, and this shifts the visibility away from local micro-movements around town toward place-based commentary on new locations. In Figure 5, we are given the briefest peek (in three posts over the course of 7 hours or so) at a trip Subject G takes one Saturday afternoon to a nearby college town.

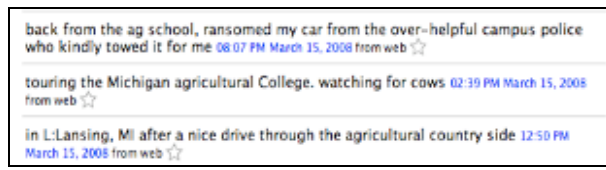

Figure 5. Excerpt from Subject G's Twitter stream that showcases haiku-style travelogue.

The first post at 12:50 pm makes note of his current location and shares a bit about his journey. The second post, about 2 hours later at 2:39pm, hints briefly at the purpose of Subject G's trip and slyly winks to any Michiganders in the audience who will know that "the Michigan agricultural College" is Michigan State University. Finally, he concludes with a post at 8:07pm in which we learn that he is back home (Ann Arbor, for people in his close

community) despite his car having been towed by MSU campus police. These Twitter posts produce a haiku-like travel report with side comments that his followers can use to vicariously travel along—and in only 39 words. Not only is this a novel form of visibility for its continuity across shifting locations, it is also a noteworthy for the fact that it is voluntarily proffered during a time when communications among work colleagues are typically dormant.

My data also suggest a third way in which Twitter renders users' contexts visible, namely in situations where individuals are in attendance at events of interest to colleagues and thus act as scouts or color commentators for the benefit of those not present. One interviewee spoke extensively about this activity as an intentional strategy, and I saw it clearly in several examples in posts I had collected. Subject H attended the technology portion of the South By Southwest (SXSW) conference in March and made ten to twenty posts per day about her activities there, both professional and social. Subject I attended a lecture by media analyst, Bob Garfield, and blogged the event in 40 posts over 86 minutes. He included direct quotes, opinions, links and direct messages during that time, so while there was an effort to act as an on-the-scene conduit, Subject I's strategy did not preclude all the other types of communications he would engage in during that time.

In this sense, this style of 'proxy reporting' is more akin to peering through a door that is ajar than fully opening it. Nevertheless, proxy visibility provides valuable data for those who cannot be present while simultaneously extending the reach—like the tentacles of an octopus—of the follower community. As in the broadcasts described in the preceding section, there appears to be an assumed audience on the part of the authors of these primarily one-way posts. Awareness then is more sensed than empirically confirmed, though we see that sometimes feedback is received and responded to in the form of a clarifying inquiry from a follower. Aside from this mechanism there is little to reflect a poster's activities back on themselves to remind them of the social context in which they are ultimately interacting.

In sum, Twitter enables new forms of social and contextual visibility to a greater degree than it fosters awareness of that visibility. The question remains open to empirical confirmation as to whether individuals reflect back on their own visibility when afforded a detailed sightline on the thoughts and activities of fellow interlocutors, or whether the conception of audience, coupled with an incoming feed from a separate group an individual chooses to follow, combines to evoke the countervailing forces of visibility and awareness that form the foundation of social translucence and, hence, "the building blocks of social interaction" (Erickson and Kellogg 2000, p. 62).

DISCUSSION

Preliminary analysis suggests that awareness is not well supported in the use of Twitter, while visibility may in some ways be extended over other forms of computer-mediated communication. Does this challenge our hypothesis of Twitter as a socially translucent

technology? Absolutely, yes, but only to the extent that it raises a question regarding the evocation of accountable feelings among engaged community members. Clearly, Twitter does not follow the model for accountability raised in the discussion of Babble by researchers Erickson and Kellogg. However, my analysis suggests the presence of at least two alternate means of establishing awareness that appear to yield a sense of accountability among Twitter participants despite their dissimilarity to earlier research, as well as their indirect and temporary natures. I discuss each awareness alternative in turn and conclude with thoughts regarding how our conception of social translucence should be renegotiated given this new evidence.

First, however, a brief word of clarification regarding what is meant by 'community.' Many Twitter users believe themselves to be communicating within a community that they identify by concatenating the set of individuals whom they have chosen to receive posts from—their followees—with the set of individuals who receive their posts—their followers. In truth, however, no two Twitter users have the exact same set of followers and followees, though for many there is a large percentage of overlap. It is in this overlap that the strong feelings of social connection are most often articulated; yet, curiously, of the ten subjects in my study, the average number of people that each subject follows is 283 and the average number of followers per subject is 460. [Table 1 breaks down these numbers per subject.] These large numbers extend well beyond Dunbar's number of 150, and, as such, suggest that there may be two parallel audiences operating simultaneously within most individual's Twitter community. On one level is a core group—perhaps colleagues, friends or neighbors—and, on another level, is a more peripheral community—people from the past, friends of friends, people met at conferences, etc. This secondary community is made visible by their attendant icons and occasional posts on the Twitter web page, but far less often is there a one-to-one interaction to suggest evidence of mutual awareness. Yet, I would contend, awareness of both communities must come into play to engender accountability.

TABLE 1 Number of followers each subject has and number of individuals each subject is following.

Subject	# Following	# Followers
Subject A	141	164
Subject B	126	422
Subject C	68	113
Subject D	482	678
Subject E	146	180
Subject F	828	1152
Subject G	345	439
Subject H	287	565
Subject I	267	542
Subject J	136	340
Average (N=10)	**283**	**460**

Indirect Awareness

Ample evidence within my data points to the fact that awareness can be evoked via Twitter, just not always in a direct manner. Subject G, in responding to my questioning during our interview, showcases an example of this indirect awareness. He reminds us that the practice of communication with Twitter exists in a larger ecosystem, one where missives initially channeled via one medium can be responded to via another.

> ***Interviewer***: *How do you know anyone is out there on your Twitters? Is it mostly because people are making comments back?*
>
> ***Subject G***: *People are making comments back, people mention it in the office, things get done as a result of it. I call people as a result of it. People call me, I get phone calls for Twitters that I do.*
>
> ***Interviewer***: *Give me an example.*
>
> ***Subject G***: *I Twittered that I was picking raspberries in a park and I'm at the park. . . So, I got a call from [name of friend] who was in Plymouth at the time saying, "Are you at the park nearby because I'm in Plymouth."*

Twitter here is a visible trigger for a host of possible awareness-oriented response mechanisms, from the completion of a work task to a physical meet up to a phone call. When G receives a phone call because of a Twitter post he makes, this act raises his awareness that his messages are not falling on deaf ears. In turn, he is less inclined to falsify or make irresponsible posts in subsequent communications. Receiving confirmation that he can see just as he can be seen—or, stated otherwise, knowing that his Twitter posts will, in many cases, be acted upon—helps to establish his sense of being accountable to those who may be attending to his posts. Twitter's mechanism of visibility is therefore made accountable to G by any one of multiple indirect means for his followers to indicate their awareness. As such, it is perhaps improper to designate Twitter alone as a socially translucent system, but rather to understand that it plays a strong supporting role within a potentially translucent ecosystem of interconnected communication media. As Twitter enables or fosters the awareness necessary for accountability, it need not be the primarily channel for it.

Awareness by Incident

Another example showcases the power of circumstance to signal mutual awareness within Twitter. Unlike the previous example, awareness by incident confines the dynamic of awareness within Twitter alone; but similar to the previous example, also suggests the accountability engendered need not be considered strictly as a property of the technology, but rather as a technology in use within a particular social situation. Microblogging during a critical incident, such as inclement weather, appears to bring together individuals across community levels (i.e., perceived close and extended) out of a common need for timely

information exchange. Subject H shared with me the way that her Twitter contacts maintained active ties with one another last summer during a tornado warning in Michigan. Within this critical incident, Twitter became a real-time forum to make reports from respective outposts both to signal well being and to check in with others, despite varying levels of intimacy. Within a 50 minute window, 25 messages surfaced among the members of a self-organized group tied together by geography. The following post began the stream, signaling P1's concern, their location, and their awareness that other members of his network might be affected,

> *P1: "Tornado sirens in Kerrytown – checking now. Is this real?"* (July 19, 3:44pm)

It was followed by a flurry of activity by three others who helped to stake out the situation:

> *P2: "@P1 is it a test or no?"* (3:46 PM July 19, 2007)

> *P3: "no, not a test, real warning. Salem/Dixboro area very close to A2 tornado / thunderstorm warning through 4:15 PM"* (3:47 PM July 19, 2007)

> *P4: "@P2 @P1 Tornado Warning Dixboro 9 mi NE of A2"* (3:47 PM July 19, 2007)

> *P1: "tornado sighted in ann Arbor take shelter immediately"* (3:48 PM July 19, 2007)

Some 46 minutes and much rain later, the thread concludes with a humorous acknowledgement by Subject H that she is well and that the weather in her location is clear.

> *"So what's a little tornado between friends? Weather hysteria-o-rama. Skies looking clear over Manchester. Any more last minute CB riders?"* (4:34 PM July 19, 2007)

By organizing via Twitter, these individuals were also guaranteeing that they were being seen and noted by the other participants, who, presumably, would alert the rescue squad if anyone's participation dropped off. The same type of overt awareness was explained by another interviewee, a Minneapolis, Minnesota resident, who mentioned how Twitter facilitated unbidden awareness of friends when a bridge collapsed in August 2007. He said, " . . . what was great for me is all the people that I know locally, the first thing they did was do a little tweet that says I'm not there. I'm okay." Thus, while the everyday Twitter post often engenders few cues of receipt, in critical incidents and sometimes by indirect means, Twitter can be quite facilitative of the awareness that forms the foundation of social translucence.

Does the indirection and temporary nature of the awareness afforded by Twitter alter the accountability that it produced? Unfortunately a definitive conclusion cannot be proffered without further ethnographic research. It is possible to surmise one of two possibilities, however. It could be that Twitter leads to lower levels of accountability due to

the asystematic glimpses it provides. On the other hand, randomized awareness could also heighten a sense of accountability because of its inherent unpredictability. Preliminarily, then, we can claim that Twitter affords fosters at least a peripheral social translucence, if not social translucence in total. Twitter, and the communication ecosystem in which it is often used, does provides a window in a door, but the view can sometimes be obstructed or opaque.

CONCLUSION

Kellogg and Erickson's introduction of the concept of social translucence has profitably impacted the study of collaborative technologies and helped scholars and practitioners alike to design better tools. I choose to apply the lens of social translucence to the microblogging tool Twitter with data gathered from 10 subjects over a 4-week period. Early conclusions support the argument that Twitter enables visibility among interlocutors, but shows simultaneously that its capacity for enabling awareness is less robust. As such, accountability among interlocutors is present, but fragile. In conclusion, we can state preliminarily that a claim for social translucence can be made, but would be more accurately described as peripheral, not total.

While the implications of this work may be generative for future investigations in this area, it must be acknowledged that they derive from a small data sample and build on existing, but limited, literatures. Our future understanding of translucence requires additional rigorous research by scholars interested in online communities, distance collaboration, and ubiquitous computing. I would enjoin those interested in patterns of social organization to continue pursuing the conceptions of community, accountability and translucence ethnographically. It is only with grounded knowledge that we will begin to comprehensively know why public environments feel communal, what the boundaries of private information are and in which contexts[6], and how we can continue to refine the notion of translucence to engender collaborative norms and practices.

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[6] Synchronous information about one's personal whereabouts—even to friends—appears to cross the line for many, but we have only begun to investigate how this situations differs from other, seemingly intimate situations that are readily shared online.

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