

# Social Translucence, Collective Awareness, and the Emergence of Place

A Position Paper for The Role of Place in Shaping Virtual Community

Wendy A. Kellogg<sup>1</sup> and Thomas Erickson

The Social Computing Group  
www.research.ibm.com/SocialComputing/  
IBM T.J. Watson Research Center  
Yorktown Heights, NY 10598

## Introduction

A fundamental tenet of our work on creating environments to facilitate fluid and productive online group interactions is *social translucence* – 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 (Erickson & Kellogg, 2000). This framework has yielded a rich collection of ideas about what kinds of user information and activity should be made perceptible in different contexts. Our primary approach has been to utilize abstract visual representations, called social proxies, to portray information, in addition to contextual information provided by the other common traces of user activity in mediated communication environments (e.g., persistent conversation). In our recent work, the notion of social translucence is evolving to include collective awareness of common resources (e.g., task states, activity contexts, artifacts) in addition to basic presence and activity.

Collective awareness occurs when two or more people are aware of the same context and each is aware that the others are aware of it. Although subtle, this awareness of others’ awareness is crucial to supporting collaboration. Collective awareness underlies social phenomena like peer pressure, accountability, and competition; it’s why we applaud when the rest of the audience does, why a pointed question makes us feel ‘on the spot’ in a meeting, and why, in face-to-face auctions, we not only bid for items but against other bidders. At a more one-on-one level, let us suppose that I owe you the answer to a question. If I see in my buddy list that you’re online, I know I have the opportunity to respond, but I don’t necessarily feel any pressure. In contrast, if we pass in the hall, not only do I see you, but I know that you see me: now, not only do I have the opportunity to respond, but I also feel a bit of obligation – I feel accountable. These effects of collective awareness are subtle but real, and they are what enable groups to maintain their focus, coordinate their actions, and carry out smooth interactions. Often, collective awareness is created in the context of an online place; alternatively, collective awareness of context and common resources might tend to produce the perception of place. Harrison and Dourish (1996) argue that the critical property designers must create is “appropriate behavioural framing,” and that this arises not from the properties of *space* per se, but from “mutually held, and mutually available, cultural understandings about behaviour and action” that they call “a sense of place” (Harrison & Dourish, 1996, p. 67). While we agree heartily with this view, a critical question for designers is how these mutually held and available cultural understandings can come into being in online environments. Clearly just designing a ‘place’ and throwing it over the wall to users is not enough. We believe that creating socially translucent environments can play a critical role in allowing such cultural understandings to emerge.

In the remainder of this paper, we further elaborate the concept of social translucence<sup>2</sup>, and then return to the topic of how to create common resources through collective awareness of people, activity, tasks, and artifacts.

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<sup>1</sup> If this paper is accepted to the workshop, Wendy Kellogg would attend.

Since our work has been place-based, we also take the opportunity to examine what role the notion of place might play as a rubric for organizing the design and/or user experience of collective online environments.

### **Visibility, Awareness, and Accountability**

In the building where our group works there is a door that opens from the stairwell into the hallway. This door has a design problem: opened quickly, it is likely to slam into anyone who is about to enter from the other direction. In an attempt to fix this problem, a small sign was placed on the door: it reads, “Please Open Slowly.” As you might guess, the sign is not a particularly effective solution.

Let’s contrast this solution with one of a different sort: putting a glass window in the door. The glass window approach means that the sign is no longer required. As people approach the door they see whether anyone is on the other side and, if so, they modulate their actions appropriately. This is a simple example of what we call a socially translucent system. While it is obvious why this solution works, it is useful to examine the reasons behind it carefully. We see three reasons for the effectiveness of the glass window:

- First, the glass window makes socially significant information *visible*. That is, as humans, we are perceptually attuned to movement and human faces and figures: we notice and react to them more readily than we notice and interpret a printed sign.
- Second, the glass window supports *awareness*: I don’t open the door quickly because *I know* that you’re on the other side. This awareness brings our social rules into play to govern our actions: we have been raised in a culture in which slamming doors into other people is not sanctioned.
- There is a third, somewhat subtler reason for the efficacy of the glass window. Suppose that I don’t care whether I hurt others: nevertheless, I’ll open the door slowly because *I know that you know that I know* you’re there, and therefore I will be held *accountable* for my actions. This is a form of *collective awareness*. It is through such individual feelings of accountability that norms, rules, and customs become effective mechanisms for social control.

We see these three properties of socially translucent systems — visibility, awareness, and accountability — as building blocks of social interaction. Notice that social translucence is not *just* about people acting in accordance with social rules. In socially translucent systems we believe it will be easier for users to carry on coherent discussions; to observe and imitate others’ actions; to engage in peer pressure; to create, notice, and conform to social conventions. We see social translucence as a fundamental requirement for supporting all types of communication and collaboration.

### **Translucence and the Power of Constraints**

There is one other aspect of social translucence that deserves mention. Why is it that we speak of socially *translucent* systems rather than socially *transparent* systems? Because there is a vital tension between privacy and visibility. What we say and do with another person depends on who, and how many, are watching. Note that privacy is neither good nor bad on its own—it simply supports certain types of behavior and inhibits others. For example, the perceived validity of an election depends crucially on keeping certain of its aspects very private, and other aspects very public. As before, what we are seeing is the impact of awareness and accountability: in the

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<sup>2</sup> The next two sections are reprinted from Erickson, T. and Kellogg, W. A. (2000). Social translucence: An approach to designing systems that mesh with social processes. In *ACM Transactions on Computer-Human Interaction*, **7(1)**, pp 59-83. New York: ACM Press.

election, it is desirable that the voters *not* be accountable to others for their votes, but that those who count the votes be accountable to all.

It would be a mistake, however, to think that translucence is only about the tension between privacy and visibility. Rather, translucence stands in more generally for the power of constraints. To see this, let's look at a more complex example:

*A group of thirty people — authors of the chapters of a forthcoming book — had gathered to mutually critique chapters. For three days, each author worked with a small group of about six others. Afterwards, the workshop organizers decided to try to collectively create an organization for the book. The authors, none of whom had read all the chapters, would decide what the book sections should be, and how chapters should be ordered.*

*Everyone gathered in a room, each author with a copy of his or her chapter. To start the process, pieces of paper with possible section names had been placed on the floor, and authors were asked to put their chapters near appropriate sections. After this, the procedure was simple: anyone could pick up any chapter and move it elsewhere; anyone could change the name of a book section; anyone could propose a new section by writing a name on a new piece of paper.*

*Although the ensuing process was characterized by a lot of milling about and simultaneous conversations, it was exceptionally effective. In half an hour the group had arrived at an organization for a book of 30 chapters, with everyone participating in the discussion.*

What is of interest here is how the spatial nature of the setting enabled what was, in effect, a process of social computation. First, as in the case of the door, the participants could see what was happening, and thus awareness and accountability came into play. For example, when someone went to move a chapter to another area of the room (i.e., move it to another section of the book), there would usually be one or more people around. Although not required by the rules, what happened was that the mover would politely offer a rationale for moving the chapter to those in the vicinity (hereafter the 'on-lookers'), thus triggering a discussion about the purpose of that section and the point of the chapter. The consequence of this discussion was that either:

- the mover and the on-lookers would agree on the move  
the on-lookers would convince the mover that the chapter was indeed in the right place
- the mover and on-lookers would decide to change the name and definition of the section so that the chapter fit the section better

In each of these cases the result was that there was a greater shared understanding of the section names and definitions, the gist of each chapter, and the rationale for the chapter's inclusion.

In addition to the awareness and accountability brought into play by the visibility of the activity of moving chapters around in the room, another spatial property played an important role: physical constraints. Constraints shaped the way in which people could participate in the process of organization. The fact that the chapters and section names were spread all over the room had an important impact: it meant that no one person could dominate the organization of the book. Those who had strong opinions about where their chapters belonged tended to hover near their chapters, ready to 'defend' their chapters' positions against would-be reorganizers. In contrast, those who had ideas about the arrangement of the book as a whole had to flit about from section to section, thus giving up any strong control over where their chapters (or any single chapter) were positioned. Similarly, people who stayed near a single section heading gained, over time, a detailed understanding of the rationale for the section as a result of

repeatedly participating in the to-move-or-not-to-move discussions for its component chapters. This regulation of activity came as a side effect of the fact that the ability to hear and see in a crowded room decreases as distance increases; that is, the space is *translucent* (not transparent) to vision, speech, and hearing.

Note that it was not simply the existence of the constraints that was important; in addition, as with the visibility of socially significant information, two other levels are of importance. First, it was important that *people were aware of the existence and nature of the constraints*. This awareness means that the participants were able to anticipate the ways in which the constraints structured the group's interaction and adjust their own actions accordingly. Thus, based on the amount of ambient noise, speakers adjusted the volume of their speech so that they could be heard by those to whom they spoke. Awareness of and experience with the physics of real world interaction enabled smooth interaction. In situations where an awareness of certain constraints is lacking (e.g., if a participant has a hearing aid that doesn't cope well with high levels of ambient noise), the interaction may break down, with communicative acts failing unexpectedly, and requiring joint action to detect and repair failures.

Second, it was important that *participants were aware of the others' awareness of the constraints*. Thus, in the situation described, there was a generally shared awareness that people on one side of the room were unable to see or hear discussions on the other side of the room. Everyone understood, by virtue of their common experience with the physics of human interaction, what was going on. Thus, while I might be held accountable for moving your chapter if you were standing nearby and could have easily been consulted, it was a different matter if you were on the other side of the room where you knew I could not have seen you. That is, not only do constraints serve to structure interaction, but *collective awareness of constraints* is also a resource for structuring interaction.

We turn now to a brief characterization of one of the place-based environments we have built, before taking up a consideration of the role of place in creating collective awareness.

## Loops

Loops is an online, text-based digital space originally designed to support small to medium-sized work groups. It is a web-based successor to a previous system we developed called 'Babble' (Erickson et al., 1999). Conversation in Loops is persistent, and a visual representation of people and their activities with respect to the conversation, a "social proxy," is included. Figure 1 shows the Loops user interface. Two noteworthy differences of Loops from common chat applications (e.g., IRC) are its social proxy (the round circle with dots), and the fact that all conversation is persistent. For a more complete description, see the Loops project page at <http://www.research.ibm.com/SocialComputing/Loops.htm>.

Loops adds two kinds of new common resources that were not in Babble: shared bulletin boards and shared tabs (Figure 1). Our deployment and study of Loops has just begun as of this writing, but we suspect that the addition of these shared resources will enhance the ability of Loops to support coordinated behavior. For example, in our own use of Loops we have evolved a practice of using the bulletin board to find a preferred meeting time for the group in a lightweight manner. Figure 2 shows a screen shot of how this worked: First, a person posted a message to the bulletin board announcing that she would like to hold a meeting on "ECSCW plans" and proposes four possible times. Next to each possible time, she wrote a '1', indicating that she could attend at any of those times. She then asked the other participants to vote for times when they could make the meeting by incrementing the numbers. People were able to do this as they logged on and saw the message. Someone also began a convention of putting an asterisk next to a preferred time. Over the course of a day or two, numbers and asterisks on the different meeting times appeared until a maximally convenient meeting time could be chosen. Note that in this case the simple expediency of community members being able to write plain text to a shared display is enough to enable smooth coordination of a task that becomes much more heavyweight in, for example, a shared

calendaring system (where everyone must keep their calendar up to date for good candidate meeting times to be identified) or arranging meetings via email (yuck). The bulletin board method is lightweight and versatile, and it makes few assumptions about user behavior. Note that once the “schedule a meeting” behavior is enacted in the shared context of the bulletin board, the practice can be imitated, repeated, and perhaps become a conventional use of a shared resource in this place.

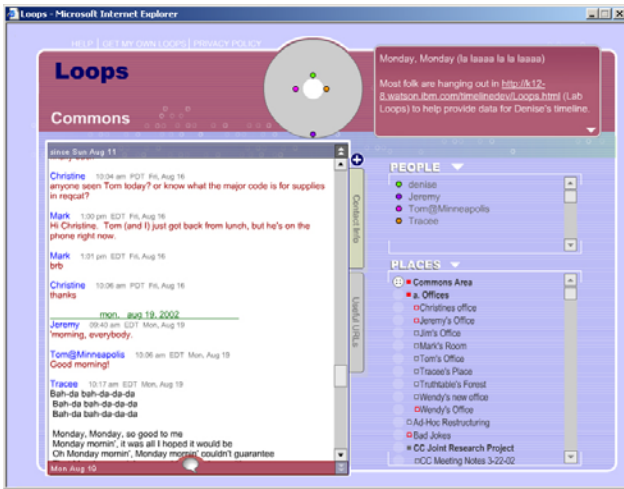


Figure 1. The Loops Interface. From the upper left, clockwise: name of the community and current location within it; the social proxy; the bulletin board, the list of users and places, and the conversation pane. For a more complete description of Loops, <http://www.research.ibm.com/SocialComputing/Loops.htm>.

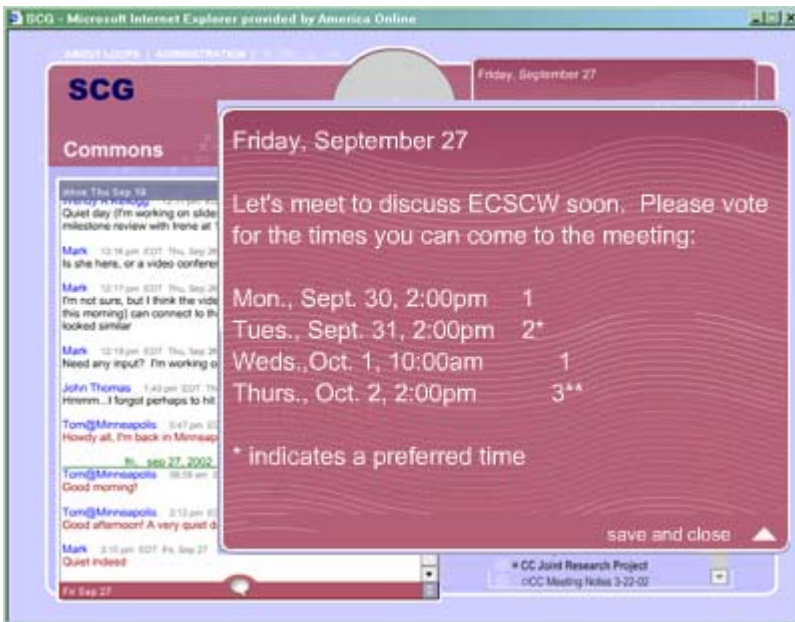


Figure 2. Blow-up of Loops bulletin board being used as a collective resource to arrange a meeting.

### The Role of Place in Online Environments

We have reviewed the notion of social translucence, and the role of constraints in supporting coordinated group action, and have briefly described a place-based collaborative system called Loops. In this light, let’s consider what “work” the notion of place might be doing in online environments. It seems clear that “places” are not

*necessary* for supporting coordinated online interaction. Instant messaging, for example, is often used to coordinate actions, but we suspect that most people would not describe their IM clients as places. And while Harrison and Dourish may be right in suggesting ‘mutually-perceived cultural understandings’ as what differentiates places from spaces, their thesis somewhat begs the question of how designers can create an environment that induces such cultural understandings. In the physical world, both space and place constrain behavior and contribute to mutually perceived understandings. Space gives rise to shared expectations in terms of its physical properties and affordances for human behavior; and place evokes expectations based on (learned) conventions of use and decorum in particular types of spaces.

The understandings of space and place in the physical world result from years of daily experience with people, places, and activities. In the online world, this kind of incremental, long-running, shared cultural experience is rarely available: environments and experiences in them are fragmented, and in any case, are too new and rapidly changing for a stable cultural base to evolve. How might we as designers create a stable foundation capable of supporting the emergence of a shared digital culture, where interactants might come to understand what is mutually perceived and what actions are mutually possible? Collective awareness of who is present, what people are doing, and the state of those activities, shared artifacts, and a shared understanding of mutual capabilities and constraints, are the basic building blocks of social interaction that will inevitably give rise to convention and shared practices, and thus the emergence of cultural expectations. In the physical world shared awareness of these factors and physical constraints on action are all present. The fluid coordination of action that occurs in groups as in the book chapter example discussed previously is typical of “radically collocated” groups (Olson & Olson, 2000).

Thus place may be best viewed as the emergent result of mutually perceived and available culturally-appropriate understandings of behavior and action. Collective awareness of participants, activities, and contexts provide a sociobehavioral foundation for the emergence of the cultural understandings that signify place. This is not an indictment of the concept: as in the physical world, places can serve as a useful rubric for organizing, understanding, and remembering the purposes and appropriate behaviors of online environments. However, it does suggest place as a guiding concept for interactive system design may be a relatively thin analogy. While as designers we can exploit people’s understandings and behaviors about places, this alone will not be enough to create a viable culture of online places. Rather, we must strive to architect a flexible, manipulable, socially translucent digital world within which inhabitants can create the shared cultural meanings that will mark the true emergence of place.

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