

When Conventions Collide: The Tensions of Instant Messaging Attributed

Amy Voida¹, Wendy C. Newstetter², Elizabeth D. Mynatt¹

¹College of Computing
GVU Center, Georgia Tech,
Atlanta, GA, 30332-0280
{amyvoida,mynatt}@cc.gatech.edu

²Department of Biomedical
Engineering, Georgia Tech,
Atlanta, GA, 30332-0535
wendy.newstetter@bme.gatech.edu

ABSTRACT

We discuss findings from observation, interviews, and textual analysis of instant messaging use in a university research lab setting. We propose a method for characterizing the tensions that permeate instant messaging texts and that expose the collision between conventions of verbal and written communication. Given this method, we suggest a design space for exploring potential design choices in instant messaging clients. Finally, we recommend an analysis of communicative conventions as a fruitful lens through which designers might anticipate or circumvent design tensions in emergent computer-mediated communication technologies.

Keywords: Instant messaging, computer-mediated communication, computer-supported cooperative work, sociolinguistics, interaction design.

INTRODUCTION

Of late, there have been an increasing number of ethnographic and ethnographic-style studies of computer-mediated communication [2,3,4,6,10,11]. In general, these studies aim to understand why people use the particular communication medium that they do, whether it be chat [2,4], text messaging (sending text messages through mobile phones) [6], instant messaging [11] or otherwise [3,10]. These studies have identified some of the communication tasks that the medium supports. For example, Bradner et al. report that their novel chat system supports communication tasks such as waylaying other users and unobtrusively broadcasting information [2]; Grinter and Eldridge report that teenagers use text messaging for arranging times to chat and coordinating with friends [6]; Nardi et al. report that instant messaging in the workplace supports communication by enabling users to hold intermittent conversations and manage conversational progress [11].

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee.

CHI 2002, April 20-25, 2002, Minneapolis, Minnesota, USA.

Copyright 2001 ACM 1-58113-453-3/02/0004...\$5.00.

And yet, for all the documented uses for and positive affordances of computer-mediated communication, there are consistent tensions with its use.

Our goal for this study was to uncover any observable tensions in instant messaging, to understand why these tensions existed, and to discuss these tensions at a granularity that would provide concrete guidance to designers.

In this paper, we posit that the majority of tensions in instant messaging stem from conflicts and ambiguity among the multiple, overlapping conventions of verbal and written communication. We then present a design space with design choices that emerge from the investigation of these conflicts.

METHOD

We studied the instant messaging use of eight members of a university research lab over a two-week period. These lab members were often co-located during the day and worked on conceptually-related but different research projects. Data was collected via observations, interviews, and transcripts of instant messaging conversations. In general, observations led to interviews and data from the interviews led to the collection and analysis of instant messaging texts.

Instant messaging transcripts were shared on a voluntary basis over a period of two weeks. Some conversations were perceived as being too personal and were not shared for that reason; others were not shared by accident — the instant messaging window was sometimes habitually closed before the text was saved. Sixty-one transcripts were collected and analyzed. Of those, fourteen were of conversations between members of the lab and forty-seven were of conversations between lab members and individuals outside the lab. Some conversations took place while the lab member was in the lab; others, from the lab member's home. Some of the conversations were purely social, some were work-related, and many were a mix of both. A total of twenty-six individuals were represented in the transcripts.

MEANING AND CONVENTIONS

"I use instant messaging because it feels immediate, but I don't have to devote my immediate attention to it ... I can ask people

things ... get responses right away. I can feel like I am having a conversation but I don't have to be restricted ... to drop everything else just to have that conversation. I can do other stuff, too."

This was a typical description of what instant messaging meant to the participants in this study. Participants were observed engaging in instant messaging with much the same breadth of goals and uses discussed in previous research [2, 6, 11], but when it came down to articulating the value of the communication space, the discussion was almost always one level removed from specifics tasks or goals. The value was found in broader-ranging affordances.

Listening to the language of the participants in the interviews led us to examine various conventions of instant messaging use. This focus on the conventions of use led us, in turn, to a reexamination of our data, looking at instant messaging as a hybrid genre — a niche somewhere between written communication and verbal communication.

The participant's description characterizes instant messaging as being nearly synchronous but able to be attended to when opportune. The former characteristic is shared with most verbal communication; the latter, with most written communication. Implied in the interviews of our participants is that instant messaging is valued because of the unique balance it holds in affordances between the conventions of verbal and written communication.

In his writing, Gunther Kress, a sociolinguist, describes some of the conventions of verbal communication [8]. Kress' observations, where cited, have formed the skeleton for a brief comparison between the general conventions of written and verbal communication [Table 1]. The interactions between the conventions provide the basis for the remainder of this paper — for characterizing the tensions evident within instant messaging texts.

A Note on Sociolinguistics

This work is not the first application of sociolinguistics to computer-mediated communication [1,4,18]. Much of the existing work looks beyond the medium, to the conversation as unit of analysis. Although we strongly support this approach, we found the medium a more fruitful unit of analysis for our work. The tensions we examined were common across different types of conversations and the design implications we want to provide would need to be useful at the broader interface level.

TENSIONS

When we analyzed instant messaging transcripts paying heed to conventions of use, textual tensions emerged as a result of the interacting conventions. Perhaps the flexible use afforded by these conventions also enacts ambiguity for users as to the conventions of instant messaging use.

In this work, we focus on the tensions of instant messaging, but we want to make it absolutely clear that overall, instant messaging works. That is to say, there is plenty of evidence of instant messaging use that does not give rise to these

General Conventions of Verbal Communication	General Conventions of Written Communication
No persistent record of communication	Persistent record of communication
Hesitations and thinking on the spot without being considered inarticulate [8]	Crafted carefully and edited so as not to be perceived as inarticulate or illiterate
Synchronous	Asynchronous
Turn-taking by establishing "overt cohesive links within the text of the preceding speaker" [8]	Turn-taking explicitly granted through exchange of communicative artifact
Syntax of sequentially adjoined clause chains [8]	Syntax of hierarchical sentence structure [8]
Requires continuous attention	Attended to as circumstances allow
Situational context through shared audio or shared space	No situational context unless explicitly communicated in text
Availability communicated primarily through body language; the power in initiating communication lies with the initiator.	Availability is not an issue as communication is dealt with when opportune; the power in initiating communication lies with the receiver.

Table 1. Comparison between the general conventions of verbal and written communication

tensions. There are also an even greater number of instances when these tensions either do not undermine the users' communicative goals or are not noticeable to participants. The tensions reported in the remainder of this paper, however, all appeared in multiple transcripts and, given that some participants articulated clear frustration with these tensions, they seem to warrant discussion.

Here, we present five tensions, discuss how they can be attributed to interactions between conventions of verbal and written communication, and suggest initial implications for designers.

Persistence and Articulateness Tensions

In our instant messaging texts, there were tensions evident between the transient nature of verbal communication and the persistence of written communication. Users appeared to treat conversation casually and informally as with verbal communication, not worrying about hesitations and not editing their language as they might in written communication. But when errors in grammar or spelling appeared visibly persistent on the screen, there seemed to be a need to foreground those errors, to make light of them, and to say in essence, "I see that error and want you to know I

am not as illiterate as my typing may indicate.” Often, too, the listeners responded back in the same light tone, perhaps acknowledging the lack of significance or seriousness that they ascribed to the error. The following three excerpts exemplify these tensions between the transient nature of verbal communication and the care that is given to crafting written communication.

Jeff¹: There are so much bad design
 Matt: no kidding
 Matt: But I still get surprised sometimes
 Jeff: And so much bad grammar
 Matt: Bad grammar are everywhere

Eric: Maybe you could just get tow and they could keep one another company
 Eric: Er...that was supposed to be "two"

Eric: Later kiddop
 Eric: =P
 Katie: wrong your
 Katie: darn
 Katie: =P
 Eric: (we're both batting 1000)

Design Implications

Tensions arise as a result of collisions between conventions of written and verbal communication. It is often ambiguous whether use of instant messaging aligns with conventions of written communication, verbal communication, or exists somewhere between the two. In resolving these tensions, it becomes the designer’s responsibility to make choices about where the system will fall between the conventions and to provide support for upholding those conventions without stifling use through overdesign. A richer design space can be envisioned by exploring the interactions between multiple, conflicting axes of tensions. In the case of tensions arising from interactions between conventions of persistence and conventions of how formally the conversation must be crafted, design solutions may exist in any (and, indeed, may exist in all) of the four quadrants defined by these two axes [Figure 1].

In identifying design examples and ideas, we are not making value judgements about the quality of the designs. Rather we aim to expose the breadth of the design space and catalyze further research in these areas.

Designs that focus on fostering persistence and thinking on the spot, for example, might identify ways of supporting short-hand or graffiti as modes of communication. Designs

1. Names of all participants as well as individuals mentioned in the instant messaging transcripts have been changed.

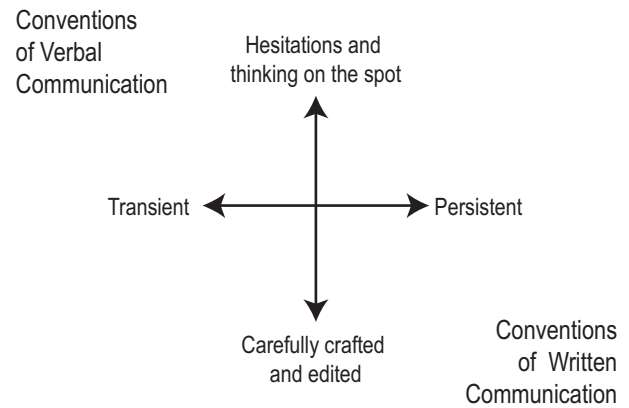


Figure 1: Design space for resolving persistence and articulateness tensions.

situated to support persistence and careful crafting of language might allow text to be edited after it was posted. Designs situated here might also explore the integration of spell-checking or grammar checking, on a passive or active basis. Designs that hone in on the careful crafting of a transient text might explore text fading or displays limited to only the most recent statements while maintaining a history that could be referenced if needed. A system design fostering more informal crafting of communication might work similarly but not maintain a history of the conversation.

Synchronicity Tensions

In our instant messaging texts, there was evidence of tension arising from the near-synchronicity of instant messaging, a characteristic shared with verbal communication, and users’ desire to make the interaction feel asynchronous, as with written communication. One participant indicated quite resolutely that instant messaging “gets boring” when waiting for someone’s response to be typed in. For this reason, unless she was already engaged elsewhere and could multitask, she refused to maintain only one thread of conversation at once. Whether conscious or not, maintaining multiple threads of conversation in an instant messaging conversation was extremely commonplace. Of the following two excerpts, the first highlights the obvious confusion that can result from trying to follow multiple threads of conversation as Eric finally gives up.

Eric: Kitties don't like traveling in airplanes
 Katie: they let you bring them on the plane
 Eric: (Well, for that matter, neither do fish)
 Katie: no?
 Katie: they still alive?
 Eric: One is
 Eric: But I want to see you teach a cat how to pop its ears
 Eric: That would warrant a Nobel prize, at the very least

Katie: true true
 Katie: I want this cat at the store...it's like two years old, but it's the coolest cat ever
 Eric: Cool how?
 Katie: Totally friendly...ready to cuddle and love ya
 Katie: if it's still there in a couple weeks I'm gonna see about getting it
 Eric: Cool
 Katie: ya know, animals can pop their ears
 Katie: cats, dogs, hamsters
 Katie: stacy and I agree
 Eric: Huh

The tensions between the synchronicity of verbal communication and the asynchronous nature of written communication also contribute to missed comments in instant messaging texts; it may be the case that users do not successfully track multiple threads or that users were too busy typing when the comment appeared. Regardless, some comments were significant enough that participants had to explicitly reiterate a previous comment to return the conversation to a salient issue. In the following example, note Katie's early comment about borrowing skis and her later reiteration of this point that she felt had particular significance.

Katie tim and I went the weekend before last
 Eric: Tim? Dalton?
 Katie: I borrowed Kathy's skis
 Katie: yeah
 Eric: That's so cool!!
 Katie: it was great!
 Eric: Yeah, I bet! Did you ski Snowbowl, then?
 Katie: no...not experienced enough yet
 Eric: Where'd you go?
 Katie: oh...I thought you meant the Snowbowl
 Katie: yeah, we went up the hill
 Eric: Just not the actual run named "Snowbowl"
 Katie: yeah...that's the biggass black diamond I guess
 Eric: No thanks, says me
 Katie: exactly
 Katie: so Kathy left her skiis with me so I can go up there again...she's probably never gonna use them again

Design Implications

With only one convention single-handedly causing the tension here, the design space can be defined by the single continuum between the synchronous nature of verbal communication and the asynchronous nature of written communication.

That instant messaging supports near-synchronicity — circumstances in which a single thread of communication is feasible — but that users are willing to endure confusion to engage in multithreaded conversations is a telling design lesson. Research exists that explores potential support for multithreaded communication. Smith et al. have synthesized elements of threaded, asynchronous chats with goal-driven chat conversations, structuring threads into conversation trees [14]. Designers might embody the lessons of this tension through interfaces that allow users to proactively initiate, terminate, and differentiate between multiple threads in conversation. Among the other strategies of the designer, this might be explored spatially or iconically. Threads might also be annotated to denote the state of that portion of the conversation: 'finished,' 'come back to this thread,' 'ask so-and-so about this later,' etc.

Turn-Taking and Syntax Tensions

In our instant messaging texts, tension arose from interactions between turn-taking and syntax conventions. Users were not able to rely upon an exchange of the communicative artifact to structure turn-taking, as in written communication, because both users were able to contribute to the conversation at the same time. The listener could also not make overt links within the speaker's text to claim a turn, as in verbal communication. Compounding these issues, it was rarely apparent in transcripts whether the speaker intended one statement to be a complete series of phrases, as in verbal communication, or whether a statement was to act as a thesis to further elaboration, as in written communication. A complete series of phrases would imply to the listener that it would be an appropriate time to talk; a thesis to further elaboration would imply to the listener that there would be more text to read.

In the following excerpt, there were no clear roles of speaker and listener — both individuals were typing at once. Neither of the conversants were able to convey through syntax or turn-taking conventions when their turn was over. As a result, continuations of a thought were interrupted and that interruption was interpreted as an attempt to end the conversation.

Jen: Sigh...no more news on Donna from dad.
 Grace: Have you heard any more from your dad? I do not have any mail from Diane. You just answered my question.
 Grace: Do you know a game called Spider. It is a type of Solitaire. Laura says she likes it.
 Jen: Go get your shower and get to bed...I hope your stomach calms down soon.
 Jen: Haven't heard of Spider.
 Grace: Thank you. I will be anxious to hear from you tomorrow. Good night and thanks again for the dinner.

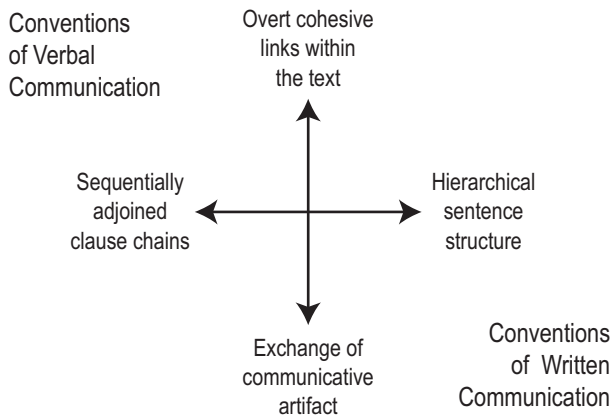


Figure 2: Design space for resolving turn-taking and syntax tensions.

Design Implications

The design space for resolving this tension is constructed by crossing the axes associated with the conventions of turn-taking and syntax [Figure 2].

Design solutions that provide overt cues that a conversant is claiming a turn include awareness cues such as the textual ‘someone is typing’ indicator in Microsoft Messenger™ and the auditory typing cues used in Babble [5]. At a much less ambient level, this tension also might be addressed by further work in the area of Vronay et al.’s status client, which allowed users to see what was currently being typed by other users [17], or by visualizations supporting turn negotiation such as in Shankar et al [13]. Design solutions that provide overt cues that a conversant wants to take a turn, before they actually do, might be explored as well.

On the other end of the turn-taking axis, design solutions might include preventing more than one conversant from typing at any given time.

Design solutions along the syntax axis might involve allowing users to convey the state of their thoughts along with their text, communicating both what they wanted to say and whether each thought is a complete series of phrases, as in verbal communication, or about to be elaborated upon, as in written communication.

Attention and Context Tensions

There appear tensions, as well, between the amounts of attentiveness appropriate for instant messaging — a significant amount in verbal communication but a limited amount in written communication — and between the serendipitous context prevalent in verbal communication but missing in written communication. As indicated previously, one of the participants liked instant messaging because, in his words, “I can feel like I am having a conversation but I don’t have to be restricted ... to drop everything else just to have that conversation.” Participants frequently multitasked while instant messaging. Other work was being accomplished. Other conversations were being held. Other information was being attended to. Participants

explained that they liked instant messaging because they did not feel they had to attend and respond right away.

Even so, there was a particularly prevalent need for users to justify their absence or lag in responsiveness to each other. This justification commonly provided situational context that would likely have been evident in a verbal communication and unnecessary in written communication, but it also served as a preemptive repair tactic, leading the listener away from ascribing an interpretation of rudeness to the delay.

```
Jeff: Yo, are you there?
Jeff: I'm trying to send you the file
Adam: Yep, sorry - phone call.
Jeff: No problem
```

In the next example, context was communicated as parenthetical side notes resembling stage cues, giving the listener an idea of the attention distractor and justifying the lag in response.

```
Neil: just wish i had time to read more
      which reminds me, have you read
      George R R Martin's Game of
      Thrones series? If not you have
      to read them, best fantasy
      series since LotR imho
Anick: hm...I have not (jotting down
      title to dusty reading wish
      list)
```

Occasionally, individuals had differing expectations about how much and how frequently that attention should be paid. Without contextual evidence of what else is going on or how much time to expect their listener’s attention to be diverted, an instant messaging conversation can completely fall apart. In the following excerpt, many of the lines were transmitted after a significant interval of time had passed.

```
Jake: Hey there
      [pause2]
Loren: I'm here
Loren: sec
      [pause]
Loren: hi honey
Loren: sorry, there were a bunch of
      people here talking to me
      [pause]
Loren: are you there?
Jake: I'm here...was reading email on
      my laptop
Loren: so it should be interesting to
      talk to Ken tomorrow
      [pause]
Jake: talking with Karen...sorry for
      delay in not talking
```

2. We regret that we are not able to provide exact lengths of these pauses. This transcript was captured from an instant messaging client without time stamp functionality

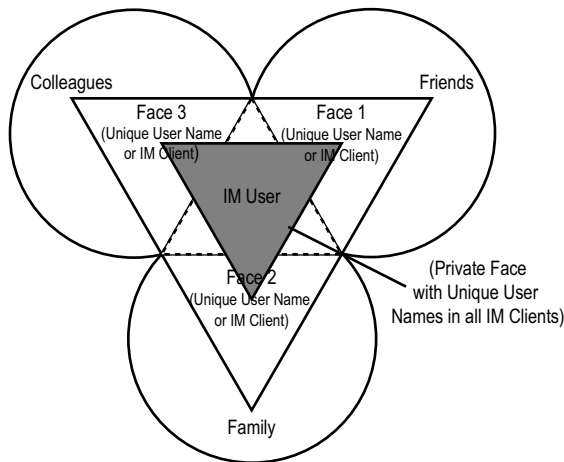


Figure 4: Management of availability and context through online identity.

clients were logged on at any given time — given who they wanted to reach and to whom they wanted to be accessible.

“I use MSM for work because it was introduced to me by a lab member ... and he got all the rest of the lab on it as well. Of course, it logs in anyway, but I always have it up when I am working ... and those annoyingly big reminders help remind me who I need to talk to ... so that’s why I have work people on it.

“ICQ was my first chat client. It’s primarily old friends from back home ... and I have my ICQ number on my old web page, so friends can find me that way. It logs on automatically, too, but it lets you pick your status and set a reason ... I normally take the time to set it to ‘Do Not Disturb’ and tell them why so they won’t bug me.”

Design Implications

The design space for resolving tensions of availability and context motivates a design solution along two axes: (1) between availability indicated through body language,

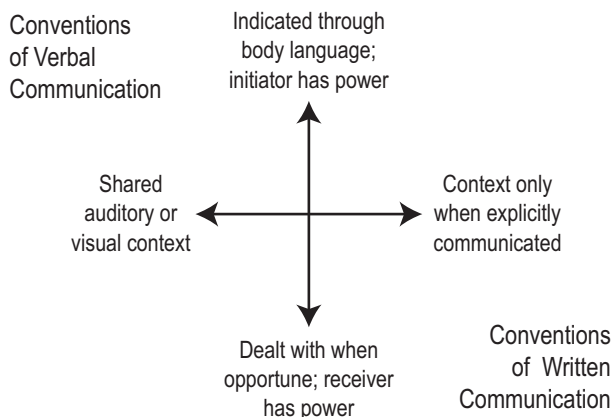


Figure 5: Design space for resolving availability and context tensions.

where the power lies with the initiator, and availability that is dealt with when opportune, when the power lies with the receiver, and (2) between serendipitously and explicitly shared context [Figure 5]. This design space shares a context axis with tensions of attention and context, but the context that is appropriate for alleviating the two tensions is of a different tenor.

Existing research in the area primarily populates the quadrant giving power to the receiver to provide explicit context and to deal with the communication when opportune. Vronay and Farnham’s blob UI [16] explored visualizations of the contact list, such as the intensional netWORKs of Nardi et al. [12]. Further work might allow users to set rules for availability based on context and a contact’s spatial location in the network. Such a design might allow users to manage only one client and identity.

Further research might explore how the availability and context conventions of verbal communication might play a role in resolving these tensions, as well.

THE RESOLUTION OF TENSIONS

When conventions collide, tensions emerge. There are two ways one can imagine resolving these tensions — through the emergence of new conventions or through design scaffolding. Conventions emerge through communities of use. They emerge when expectations and patterns of use are visible to all. In communities of computer-mediated communication, conventions spread through shared use and legitimate peripheral participation [9]. Chat, newsgroups, and MUDs all function as online communities and have the ability to establish conventions through shared use. For example, in the SeniorNet network community, members socially developed conventions for the expected rhythm, the typical turn around time for a response, in various communication channels. Members nurtured these conventions via queries and admonitions when deviations occurred, and through peripheral learning by newcomers lurking on the channels [10].

Instant messaging is different. Instant messaging does not function as a community in the same way. The user is never privy to how others act or communicate. Conventions arise much more slowly, if at all, because there is no shared forum for establishing them — just millions of users engaging in small, private conversations, each with their own flavor of conventions. And so we return to design scaffolding as the most likely venue for resolving the tensions of instant messaging.

CONCLUSION

Through analysis of instant messaging texts, we have identified the following tensions in the use of instant messaging:

- Persistence and Articulateness Tensions
- Synchronicity Tensions
- Turn-taking and Syntax Tensions
- Attention and Context Tensions
- Availability and Context Tensions

We have attributed these tensions to the conflicting interaction between existing communicative conventions. We have proposed a design space for exploring many potential resolutions to these tensions.

Using our work with instant messaging, we have modeled an analysis technique that may be of use to designers working with other forms of computer-mediated communication — an analysis technique that looks to the interactions between communicative conventions to identify tensions, explain why the tensions have arisen, map the axes of the design space, and guide designers to design resolutions.

ACKNOWLEDGMENTS

We sincerely appreciate the contributions of the eight lab members who shared their instant messaging experiences with us.

REFERENCES

- Bergquist, M. & Ljungberg, J. (1999). Genres in action: Negotiating genres in practice. In *Proceedings of the Thirty Second Annual Hawaii International Conference on Systems Sciences*. Los Alamitos: IEEE Press.
- Bradner, E., Kellogg, W., & Erickson, T. (1999). The adoption and use of babble: A field study of chat in the workplace. In *Proceedings of the Sixth European Conference on Computer Supported Cooperative Work* (pp. 139-158). Dordrecht: Kluwer Academic Publishers.
- Cherny, L. (1999). *Conversation and community*. Stanford: CSLI Publications.
- Erickson, T. (2000). Making sense of computer-mediated communication: Conversations as genres, CMC systems as genre ecologies. In *Proceedings of the Thirty-Third Hawaii International Conference on System Sciences*. Los Alamitos: IEEE Press.
- Erickson, T., Smith, D.N., Kellogg, W. A., Laff, M., Richards, J.T., & Bradner, E. (1999). Socially translucent systems: Social proxies, persistent conversation, and the design of "babble." In *Proceedings of the ACM Conference on Human Factors in Computing Systems* (pp. 72-76). New York: ACM Press.
- Grinter, R.E., & Eldridge, M.A. (2001). y do tngrs luv 2 txt msg? In *Proceedings of the European Conference on Computer Supported Cooperative Work* (pp. 219-238). Dordrecht: Kluwer Academic Publishers.
- Gromala, D. BioMorphic Typography. [On-line] Available: <http://www.lcc.gatech.edu/~gromala/excretia/>.
- Kress, G. (1989). *Linguistic processes in sociocultural practice*. Oxford: Oxford University Press.
- Lave, J. & Wenger E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.
- Mynatt, E.D., Adler, A., Ito, M., Linde, C., & O'Day, V.L. (1999). The network communities of seniornet. In *Proceedings of the Sixth European Conference on Computer Supported Cooperative Work* (pp. 219-238). Dordrecht: Kluwer Academic Publishers.
- Nardi, B., Whittaker, S., & Bradner, E. (2000). Interaction and outeraction: Instant messaging in action. In *Proceedings of the ACM Conference on Computer Supported Cooperative Work* (pp. 79-88). New York: ACM Press.
- Nardi, B.A., Whittaker, S., & Schwarz, H. (2000). It's not what you know, it's who you know: Work in the information age. *First Monday* 5:5 [On-line]. Available: http://firstmonday.org/issues/issue5_5/nardi/index.html.
- Shankar, T. R., VanKleek, M., Vicente, A., & Smith, B.K. (2000). Fugue: A computer mediated conversational system that supports turn negotiation. In *Proceedings of the Thirty-Third Hawaii International Conference on System Sciences*. Los Alamitos: IEEE Press.
- Smith, M., Cadiz, J.J. & Burkhalter, B. (2000). Conversation trees and threaded chats. In *Proceedings of the ACM Conference on Human Factors in Computing Systems* (pp. 97-105). New York: ACM Press.
- Tang, J.C., Yankelovich, N., Begole, J., VanKleek, M., Li, F., & Bhalodia, J. (2001). ConNexus to awarenex: Extending awareness to mobile users. In *Proceedings of the ACM Conference on Human Factors in Computing Systems* (pp. 221-228). New York: ACM Press.
- Vronay, D. & Farnham, S. (1994). Redesigning the contact list. [On-line] Available: <http://research.microsoft.com/scg/papers/contactlist.htm>.
- Vronay, D., Smith, M., & Drucker, S. (1999). Alternative interfaces for chat. In *Proceedings of the ACM Conference on User Interface Software and Technology* (pp. 19-26). New York: ACM Press.
- Yates, S., & Sumner T. (1997). Digital genres and the new burden of fixity. In *Proceedings of the Thirtieth Annual Hawaii International Conference on Systems Sciences*. Los Alamitos: IEEE Press.