

Digital Backchannels in Shared Physical Spaces: Attention, Intention and Contention

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ABSTRACT

There are a variety of digital tools for enabling people who are separated by time and space to communicate and collaborate on shared interests and tasks. The widespread use of some of these tools, such as instant messaging and group chat, coupled with the increasingly widespread availability of wireless access to the Internet (WiFi), have created new opportunities for using these collaboration tools by people sharing physical spaces in real time. The use of these tools to augment face-to-face meetings has created benefits for some participants and distractions—for others. Our panelists will discuss some of the advantages and disadvantages of these emerging uses of collaborative tools.

Categories and Subject Descriptors

H.5.3 Group and Organization Interfaces: Computer-Supported Cooperative Work.

General Terms

Management, Design, Human Factors.

Keywords

Groupware, communityware, computer-mediated communication, chat, instant messaging, informal communication, multitasking, presence, awareness, social issues, shared spaces.

1. INTRODUCTION

The use of technology mediated communication tools, such as instant messaging (IM) and short message service (SMS), to create synchronous channels of communication between or among remote participants is receiving increasing attention in the research community. Studies have revealed interesting patterns in the use of such tools in the workplace [Churchill, *et al.*, 2000; Handel & Herbsleb, 2002; Isaacs, *et al.*, 2002], in a university lab

[Volda, *et al.*, 2002] and more informal contexts [Grinter & Palen, 2002]. However, very little research has been done in the use of these kinds of tools among participants who are in a shared physical space, and how the tools are co-opted for contexts and uses for which they were not originally intended (cf. boyd [2004]).

This panel will explore the use of group communication tools among physically co-present people in different contexts. To help focus the discussion, we will look at gatherings of people in which there is a single, primary focus of attention—or, at least, an *intended* focus of attention—such as a conference presentation, classroom lecture, business meeting or discussion in a shared office space. As a corollary, CMC tools in such contexts typically assume a secondary, or background, role, forming a digital *backchannel*.¹

Among the benefits cited by proponents of the use of digital backchannels in shared physical spaces are an ability to ask questions and receive answers without having to physically interrupt the presentation or meeting, providing pointers to information that augments the meeting topic(s) in useful ways and the ability to better organize and coordinate the activities of some of the participants in a meeting. Problems cited by some opponents of the use of such tools include the distraction (both for the participants and the speaker), the negative or disrespectful form or content of some of the comments made in the backchannel, and the potential unevenness of participation among those who are physically present (e.g., if separate chat channels are known or used by some but not others).

Our panelists represent a variety of institutional backgrounds and philosophical perspectives, and will address a number of different physical contexts in which these tools have been used. Among the questions we intend to address are:

¹ Rekimoto, *et al.*, [1998] describes an interesting variation in which the contents of a chat channel are projected on a large screen for all participants (in an 80-person workshop) to see, blurring the distinction between backchannel and front-channel.

In what kinds of meeting contexts are digital communication “backchannels” used to augment physical communication?

Important contextual aspects include features such as the physical features of the space, the size of the group, the nature of the meeting, and a host of organizational, political issues such as community norms and power structures. The types of meetings might range from a gathering of peers with relatively distributed participation to a gathering such as a lecture or presentation in which one person tends to dominate the primary physical communication channel.

How are the backchannels used in these contexts?

Activities may include establishing channels, inviting participants, excluding participants, posing questions, providing answers, critiquing what is being said in physical or digital communication channels, or pointers to information (e.g., URLs on the web).

What are the motivations of people using the backchannels?

Motivations may include some combination of seeking information, providing information, affecting one’s reputation in the group, affecting others’ reputations in the group, or simply amusing oneself or others.

What are the impacts on the people in the physical meeting?

Who benefits from the use of the backchannels, how do they benefit and why? Who suffers in some way from the use of the backchannels (and how and why)? How is this affected by whether and how one participates in the backchannels?

How are the use and effects of the backchannels influenced by the nature of the participants?

What kinds of variations can be seen in the way the tools are used, and the way they impact people, based on the types of people participating? How do factors such as age, gender and culture affect the participation and experience of those involved?

What kinds of new norms might help increase benefits or decrease costs of the use of backchannels in physical meetings?

Given that the benefits and disadvantages are often unevenly distributed among participants in meetings that are augmented with digital backchannels, what kinds of new norms may help create a more positive experience for everyone involved?

2. PANEL FORMAT

The panel will start with a short introduction by the moderator, followed by brief opening remarks by each of the four panelists. Panelists will be encouraged to provide concrete examples of specific incidences of use that highlight their arguments as to how and why the tools offer advantages and/or disadvantages wherever possible, so as to better ground the discussion. The remaining time will be devoted to comments and questions from the audience and responses from the panelists. We will open up the floor to the audience, but the organizers will be prepared with several questions of our own to help get the discussion started after the opening statements.

If WiFi access is provided to session rooms during the conference, we will work with conference organizers to setup and advertise Internet Relay Chat (IRC) channels for each session, along with instructions with how to install and use IRC clients, providing

audience members an opportunity to experience digital backchannels in shared physical spaces at the conference before, during and after the panel ... in which case we don’t anticipate any shortage of comments and questions from the audience.

3. PARTICIPANT BIOGRAPHIES AND POSITION STATEMENTS

Joseph F. McCarthy (co-organizer)

Bio: Joe McCarthy is a Senior Researcher with Intel Research Seattle. Joe’s research focuses on the use of ubiquitous computing technologies to create new opportunities for awareness and interactions among people sharing physical spaces. Examples include MusicFX, a system for allocating influence over selection of music among people working out in a fitness center [McCarthy, *et al.*, 1998], and Proactive Displays, computer displays augmented with sensors that can sense and respond in beneficial ways to the people nearby [McCarthy, *et al.*, 2004]. In addition to his research, he recently served as conference chair of UbiComp 2003 and conference co-chair of CSCW 2002. Joe holds a Ph.D. in Computer Science from the University of Massachusetts, an M.S. in Computer Science from RPI, and a B.A. in Philosophy from Ripon College. Prior to joining Intel, he spent six years at Accenture Technology Labs; in earlier lives, he was a faculty member at the University of Hartford and spent a number of years as an independent consultant. More information about Joe and his work can be found at his web site: <http://seattleweb.intel-research.net/people/mccarthy/>.

danah boyd (co-organizer)

Bio: danah boyd is a Ph.D student in Information Management and Systems at the University of California, Berkeley. Her research focuses on how people negotiate their presentation of self in relation to varying social contexts within the digital realm. Her approaches include analyzing social networks, constructing social visualizations, and employing ethnographic analysis. Most recently, she has been studying the social behavior exhibited on Friendster, blogs/journals and other social software. Before attending Berkeley, danah studied computer science at Brown University and sociable media at the MIT Media Lab. Her Master’s thesis from MIT is entitled "Faceted Identity: Managing Representation in a Digital World." She also worked on ethnographic projects for Intel and spent five years managing an online community for V-Day, a non-profit working to end violence against women and girls worldwide. For more information, visit danah’s web site and blog at: <http://www.danah.org/> and <http://www.zephorias.org/thoughts/>.

Elizabeth F. Churchill (panelist)

Bio: Elizabeth Churchill is a senior research scientist and leader of the Social Computing Group at FX Palo Alto Laboratory, Inc. (FXPAL). Her work focuses on the design and use of networked, computer based tools for communication, cooperation, coordination and collaboration. She has worked and published within the areas of cognitive psychology, cognitive science, human computer interaction and computer supported collaborative work. She has co-edited several conference proceedings and five books: *Embodied Conversational Agents* (2000, MIT press), *Collaborative Virtual Environments: Digital Places and Spaces for Interaction* (2001, Springer Verlag), *Agent*

Supported Cooperative Work (2003, Kluwer), Inhabited Information Spaces (2004, Springer Verlag) and Public and Situated Displays (2004, Kluwer). She was an initiator of the ACM's conference series on Collaborative Virtual Environments, co-chairing it in 2000 (CVE 2000); was the Technical Program Co-chair for Collaborative Virtual Environments 2002 (CVE 2002); co-chaired the ACM's 2002 Conference on Computer Supported Cooperative Work in 2002; is a CSCW 2004 industrial liaison; and is the CHI 2004 Doctoral Colloquium co-chair.

Position statement: The interpersonal and group dynamics of any social situation are constantly being managed and negotiated in real time. Psychologists and sociologists have studied contexts in which people are face to face, and have demonstrated how spoken utterances, gesture, apparently unattended postural shifts, and kinesics all are part of an elaborate interaction dance. As social 'breaching experiments' [Garfinkel, 1967] have shown, these complex real time negotiations are fragile, and when assumptions about others' anticipated performances are violated, people become uncomfortable, communication flow is disrupted and "face work" ensues—often crucially impacting trust and mutual understanding [Brown & Levinson, 1987]. So how does this relate to the topic at hand? I want to consider what happens when some members of a group are obviously distracted, engaged in two or perhaps more social worlds at one time. Does it help if one knows where their (social) minds are? How do the specifics of the social situation make a difference? Do people feel excluded, in the out-group? What are the social ramifications of feeling included or excluded? What kinds of power are being exercised? I argue that not all situations in which distractions of this kind occur are bad, but also not all are good. We need to consider carefully the social power dynamics, and the consequences of being more or less distracted when someone is talking to us.

William G. Griswold (panelist)

Bio: William Griswold is a Professor in the Department of Computer Science and Engineering at the University of California, San Diego. He received his Ph.D. in Computer Science from the University of Washington in 1991, and his B.A. in Mathematics from the University of Arizona in 1985. He is Program Co-Chair for the upcoming 2005 International Conference on Software Engineering, and recently chaired the 2nd International Conference on Aspect Oriented Software Development. He is a principal of the UCSD division of Cal-(IT)², the UCSD/UCI California Institute for Telecommunications and Information Technology. His research interests include ubiquitous computing, educational technology, software evolution and design, software tools and visualization, and program analysis. More information on Professor Griswold can be found at <http://www.cs.ucsd.edu/~wgg>.

Position statement: The term "backchannel" is a political term, implying not only the existence of a primary "front-channel", but also carrying implications of an unofficial, unwanted, illicit quality. In the lecture-oriented classroom, backchannels have always had a rich life, enabled by the technology of the day—from whispering, hand signals, and note passing, to today's e-mail, instant messaging, and mobile phone-based SMS. The norms (not to mention the costs) regulating the use of these media means that only a self-chosen few employ these distractions-cum-opportunities. I argue not that communication should be depoliticized—which it can't—but rather that explicit attention to

political considerations from an ecological perspective can have positive impact.

Today's classroom is on the whole less controlled by the professor, with the democratic norms of society taking a firm hold. In this context, we might ask how technology could take the "back" out of backchannels without destroying existing positive aspects of the classroom setting. At UCSD we have been experimenting with a system called ActiveClass that sanctions the backchannel by aggregating conversation into a single silent forum and letting the professor or teaching assistants moderate [Ratto, *et al.*, 2003]. A number of ancillary benefits accrue. For one, with many contributors to the forum, it is beneficial to introduce click-based "voting" modalities on previous commentary, questions, and answers, eliminating much of the need for typing. This makes the use of more affordable (and less intrusive) handhelds or pervasive mobile phones viable, thereby enabling greater participation.

Due to a number of "political" decisions in the design of ActiveClass—such as limited anonymity and question-ranking—we have found that a wider spectrum of discussion takes place on ActiveClass than in typical front-channel communications. Yet, important front-channel qualities are preserved, such as sanctioning and participation by the professor. A key causative element appears to be the anonymous-but-regulated materialization of the discussion in public space. This allows participants to ask, rank, annotate, and choose questions (for example), while minimizing the fear of potentially uncomfortable social situations.

Elizabeth Lawley (panelist)

Bio: Elizabeth Lane Lawley is an Associate Professor in the Department of Information Technology at the Rochester Institute of Technology in Rochester, New York. She received her Ph.D. in Information Studies from the University of Alabama in 1999, her Master's in Information and Library Studies from the University of Michigan in 1987, and her B.A. in History from the University of Michigan in 1984. She has served on the Board of Directors of the Library and Information Technology Association, and has authored two books on libraries and technology. In addition to teaching classes on web technologies, and the social impacts of information technology, she is the principal investigator on an NSF-sponsored research project investigating the under-representation of women in information technology degree programs. Her current research and curricular interests focus on the use of technology to foster social and professional interaction, particularly in academic contexts. More information about Professor Lawley can be found on her web site, at <http://www.it.rit.edu/~ell/>

Position statement: Research into pedagogy has shown time and time again that traditional lectures are among the least effective methods of transmitting information and encouraging engagement in participants. Nevertheless, we continue to use this form not only in the classroom, but also in our professional conferences and workshops. Ubiquitous network connectivity and social computing technologies now offer lecture attendees the ability to become actively engaged with other participants rather than remaining passive listeners. While these technologies can be disruptive, they can also be powerfully enriching for participants. Use of these communication channels during a meeting can significantly alter the experience for participants, and can open

the process to participants not geographically present. Analysis of the transcripts after an event can provide a valuable feedback loop to presenters and organizers.

Melora Zaner (panelist)

Bio: Melora Zaner, User Experience Architect for MSN at Microsoft, is leading future customer scenarios and vision strategy for PC and wireless devices. She has spent the past 5 years studying NetGen consumers' computing habits and their impact on the evolution of technology in the home and in the workplace, with research findings resulting in tangible technology with the beta project "threedegrees" (www.threedegrees.com). Melora previously worked in the Social Computing Group in Microsoft Research where she studied online social interactions in multi-user environments. Her past research includes designing and developing HutchWorld, a shared space for cancer patients and their support networks [Farnham, *et al.*, 2002]. Before coming to Microsoft, she received her master's degree at NYU where she focused on identity and social interfaces for teenage girls. Melora also has a background in Human Development and graphical design, and worked several years designing user interfaces for both software and the web.

Position Statement: The Net Generation, people under the age of 24 who have grown up using the Internet, is the first generation to which the Internet is commonplace. It is so ubiquitous as to be incorporated into their daily lives, and as a result, their attitudes and behaviors are radically different compared to other generations. Their usage is more extensive, integrating many different forms of communication, entertainment and productivity. This generation expects technology to connect them with their friends anytime and anywhere. In fact, they have become masters of continually paying partial attention to multiple things, making backchannels a natural pattern of their behavior. The backchannel is embraced when they are at home interacting with family, doing homework with friends or when they enter the work force. While listening to a lecture, working on a group project or even hanging out with a group of friends, it is common for them to have several IM conversations going on at the same time. Some conversations may be relevant to the task at hand, and some may be purely social. Many have reported that they are actually being productive while also listening to music, talking on a mobile phone and having multiple IM conversations. Understanding Net Generation's internalization of technology and their desire to use it in new ways is critical for understanding future technology directions.

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