Experiments in Backchannel: Collaborative Presentations Using Social Software, Google Jockeys, and Immersive Environments

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Abstract
This paper examines ways in which networked communication can augment and amplify the content of classroom education, promoting collaborative processing and retention. We describe experiments performed in an immersive media lab with fourteen screens and projectors in a horse-shoe shape where students and faculty can share multiple data feeds. Laptops and desktop computers in the room can send visual information to the group and wireless connections enable free-flowing internet access and communication.

Keywords
Backchannel, social software, collaborative presentation, immersive environment

ACM Classification Keywords
H.5.3 Group and Organization Interfaces-Collaborative computing

Introduction
An increasing number of students appear in class with laptop computers and empowered mobile devices. Their professors stand at the front of the room, reading from PowerPoint slides. Around them all, wireless

connections make the internet available – enabling communications between classroom participants and the World Wide Web at large. In this increasingly data-rich environment, there is a great potential for collaborative learning. So too is there great potential for distraction. Most of what happens in technology-augmented classrooms today is still traditional – students take notes, and professors lecture. We believe the potential exists for new and important forms of collaborative learning within these spaces, harnessing the power of network multimedia for augmented learning experiences. At the same time, these opportunities for intra-classroom and extra-classroom communication during lecture can be threatening to the institutionalized learning environment, the structures of power that attempt to hold young minds in sway. Whether schools choose to recognize and accommodate students' attraction to technology or deny it in favor of the illusion of classroom quiet, these machines continue to have increased presence in education.



figure 1. The Zemeckis Media Lab with 14 display screens and 16x16 matrix switching capability.

An Immersive Media Lab

At the Interactive Media Division in the University of Southern California's School of Cinema-Television, we experimented to find ways that networked communication could augment and amplify the content of classroom education, promoting collaborative processing and retention. In this paper we describe particular experiments that we performed in our "Zemeckis Media Lab", a 1200 square foot space that is configured with fourteen video screens and projectors in a horse-shoe shape where students and faculty can share multiple data feeds. (Figure 1) Laptops and desktop computers in the room can send visual information to the each or every screen. Wireless connections enable free-flowing internet access and communication. Using a mixture of chat clients, image sharing software and web browsers, we have discovered a number of opportunities and pitfalls surrounding collaborative, communicative backchannel learning situations. We experimented with various software and social protocols. We adjusted levels of control over visuals between audience and presenters. This paper will explore our experience with these experiments in technology-aided real-time knowledge sharing.

Over the course of two semesters, Fall 2004 and Spring 2005, we invited a series of speakers to present weekly in our fourteen screen immersive room. Each was presenting their personal recent research to an audience of faculty, researchers and students. We started the school year inspired by researchers who have lead backchannels at conferences like Emerging Technologies in 2003 (an article "Harnessing the Hacker's Hecklebot," in TheFeature, a mobile technologies research publication, put it this way, "The wireless connections between laptops and hackers created a hundred small groups and small applications for knowledge sharing and chatter; most of which competed for attention better than most of the speakers") [2]. We thought we might develop a presentation mode in line with the material at hand that was multitasking, interactive, collaborative, and energetic. From the start, we wanted to allow participants to play with both images and text. Text-chat was an obvious way to have a broad range of people participating. Images would broaden the vocabulary, and in addition can be read quickly to give commentary on or support of the ideas being discussed. We drew from these early experiments in backchannel and started with EtherPEG and IRC.

EtherPEG , IRC, and Flickr

IRC, Internet Relay Chat, is the oldest standard for chat on the internet. It's text only, it's widespread, and it's older than the web. Still most participants did not have IRC clients up and running on their computers. Users were not familiar with the IRC interface, and IRC servers were not happy to have twenty users logging in suddenly from the same location. Unlike the power users of the computer conference, our diverse group of interactive media students was not readily chatting on IRC.

EtherPEG is a Macintosh-only application that monitors local networks and displays images that are going to the computers in the area. So if someone is looking at their bank statements, Washington Mututal logos will flash across the screen, pictures of pop stars, whatever comes into nearby web browsers, whether people like it or not. The EtherPEG was non-consensual, and people felt put off having their behavior shared, even in somewhat anonymous circumstances. It was exciting and useful as a barometer of student attention levels – Brittney Spears popped up onscreen during one professor's lecture, a seeming sign of deliberate distraction.

Ultimately EtherPEG felt like another kind of experiment – about surveillance. Not exactly our goals. In order to pull back from the confrontational-quality of EtherPEG, we began to experiment with image-based chat rooms. Flickr is a photo-sharing web site with a sophisticated text interface and real-time chat and photo posting mechanism. But Flickr presented setup problems, similar to IRC. People had to make Flickr accounts, and then find the appropriate menu option to launch chat, and then find their way into a secure room within Flickr for our IMD chat for the night. Then once they were there, and a hearty half-dozen made it, they didn't or couldn't figure out the advanced multimedia photo posting features. In addition, we couldn't figure out how to keep a log from our Flickr chat, and we consider chat-logging to be a critical feature of our backchannel software.

AIM: Seeking Backchannel Simplicity

Granted a maximum of 15 minutes for setup, with people arriving mostly two minutes before the scheduled start time, we couldn't conduct much tutorial and installation. Our priority was seeing a good seminar take place, and we would work to minimize the need for tech support whenever possible. We eventually settled on AIM, AOL Instant Messenger - installed with many web browsers and Windows applications, built into Apple's iChat, and accessible through web clients and many third-party chat softwares, AIM was the ready choice for chat compatibility. We did have problems with people being cycled and kicked off but people understood AIM.

AIM Behaviors

Informality

And, as it turns out, most people had standards and practices for AIM-based chats. We were working to conduct somewhat formal discussions in a space people associated with friends, quick personal updates, and personal spellings and creative punctuation. Early sessions had ample amounts of "yeah" and "hah aha" type comments – non-informative social affirmations and so forth. These are perfectly appropriate in chat, but as we were projecting these AIM scrolls up large on a few of our fourteen screens, they seemed gratingly informal. In person chastising and general example setting in chat served to curb the informality to some degree.

URL Posting

Even people who felt distracted by the AIM backchannel were happy to have the URLs where they could see them. If a speaker mentioned something, and a web site flashes by onscreen, there's not the chance to delve deeply, and often it passes by too fast for a user to bookmark it. Particularly for students for whom English is a second language, URLs provided in chat allowed each user to follow along with the visitor, or follow up later.

Non-Combatants

In another undergraduate Communications class at USC's Annenberg School of Communications, we noticed that the use of AIM for backchannel left many students open to social distraction. Many students answer each other, their friends and their families, when they pop up in a chat window. This amplifies the activities onscreen and draws attention away from the single window of backchannel. But too much excitement for a single window belies the multiplicative effects of chat: often there would be backchannels upon backchannels. Especially during socially tense moments or to work out specific areas of interest, or technological questions, direct individual to individual chats would happen within the room, alongside the primary chat window.

Call and Response

The backchannel did serve to give voice to a few participants who were otherwise silent, not willing or eager to raise their hands. On backchannel they might ask questions or make suggestions. If something was resonant or timely, a self-appointed moderator would raise their hand and ask the speaker something from chat. In a few cases, we experimented with separate chat channels for posting questions, which were made available on a laptop screen at the front for the speaker. Generally these channels were so silent for so long that the speaker would forget to notice a posted question until it was brought to their attention. We

discussed developing a sort of call-out system for questions posted in chat, where they might appear extra-large, or stream from the chat room if posted with extra punctuation. Nothing came of these efforts – manually calling out questions from the primary chat flow was too easy.

Projection and Exclusion

Over the course of the school year, we relied on AIM and projected the chat on multiple screens for view by non participants. Often the speakers could see these remarks going by; some requested not to see it so as to reduce distraction. Others wanted to have it nearby because they feared being talked about without their knowledge. Nearly all the speakers spent most of their time ignoring the backchannel, unless there was an unusual lull, or the group energy somehow signaled a spike in backchannel activity: often with laughter not in sync with the spoken remarks. These out-of-sync moments, where the virtual conversational energies and the physical conversational energies were disparate enough to cause a noticeable rupture, might have driven more antagonism towards backchannel.

AIM is a rich platform for collaboration because of its ease and availability. Over the course of the months we used it, we managed to develop some useful social and technological functionality. However, there is still much room for improvement [1,5].

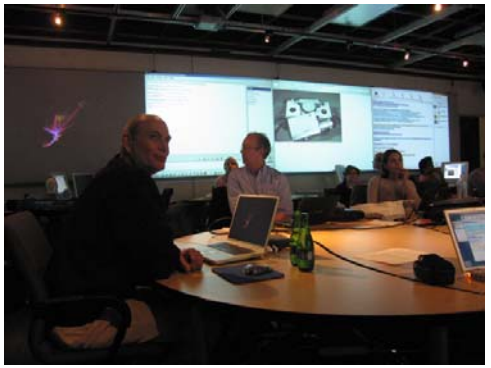


figure 2. Backchannel presentation

Collaborative Note Taking

Believing that backchannel format might impact tone, we experimented with real-time collaborative note taking software. SubEthaEdit is software that allows users on a local network to share a single document, making color-coded changes and additions. It's a perfect tool for group note taking. In our few evenings with SubEthaEdit projected onscreen, a few specific information curators did an admirable job taking turns tending the transcript and reflections. Unfortunately SubEthaEdit is Macintosh OSX only, and many folks in the group are Windows PC users. So the format may have seemed appropriate, but it was exclusionary. When SubEthaEdit was running, the AIM channel had little formal content to chew on, as the formalists were spending their time with the shared SubEthaEdit document. To this date, we have not found an adequate, online, real-time, cross-platform collaborative note taking system. There's movement in this area from several of the wiki makers and experimental tools like Moon Edit [3], however nothing

has emerged that promises to be stable, installable, and accessible.

Google Jockeys

During his 17 November, 2004 talk, Michael Naimark, an Interactive Media Division faculty member, suggested we have someone surf alongside his remarks. Two students dueled with links inspired by Naimark's remarks projected up on a few of the fourteen screens. We were referred to as the "Google Jockeys." Naimark had invited the visual participation – a step above the usual text scroll. There was interplay between the speaker, the backchannel, the audience participants, and the two Google Jockeys. People made information requests, and people nodded or laughed at the remarks or the images and links they inspired.

This was backchannel at its most collaborative, and also its most performative. It was collaboration; at its best the Google Jockeys were collaborators. You knew the best moments because the speaker would mention a web site, and then start to say "can you pull that up?" and the Google Jockey would already have it up. For the Google Jockey at least, the activity required attentive listening. Most of the students who took up GJ duties petered out after a time, or didn't provide rapid fire enough updates. Nothing gets staler than an outdated graphic when the topic has changed.

Backchannel: Collaboration Amplification, or Distraction Engine?

After a year of Backchannel experiments, Backchannel appears to be both a set of technologies, social practices and personal discipline. Increased literacy could mean a more formal approach for backchannel participants or increased interest and comfort with collaborative note taking technologies. Speakers could arrive without a PowerPoint deck and rely on students to respond to their remarks, keeping screens fresh with images, graphs, statistics, and Wikipedia entries. Also, the more backchannel happens, the less time will be needed to explain how it works and how to get it working. Perhaps the more backchanneling happens, the more the sorts of mental divisions between virtual and physical conversation will break down.

But ultimately, backchannel is technology-independent. It is a discipline for computer-augmented collaborative work. Rheingold writes in his history of the personal computer, Tools for Thought, "both the computer establishment and the computer revolutionaries still fail to understand that the art and power of using a computer as a mind amplifier are not in how the amplifier works but in what the amplified minds are able to accomplish" [4].

Citations

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