Weaving Between Online & Offline Community Participation

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Abstract: Much effort has been expended in creating online spaces for people to meet, network, share and organize. However, there is relatively little work, in comparison, that has addressed creating awareness of online community activities for those gathered together physically. We describe our efforts to advertise the online community spaces of CHIplace and CSCWplace using large screen, interactive bulletin boards that show online community information mixed with content generated at the conference itself. Our intention was to raise awareness of the online virtual community within the offline, face-to-face event. We describe the two deployments, at CHI 2002 and at CSCW 2002, and provide utilization data regarding people's participation within the physical and virtual locales.

Keywords: awareness, community, participation, poster board, plasma display, usage data, and virtual places.

1 Introduction

Much effort has been expended in creating online spaces for people to meet, network, share, and organize (Cherny, 1999; Rheingold, 1993). Some of these virtual places function to maintain connections between people who have pre-existing strong ties (Wellman et al., 1996). In these cases, communication occurs through multiple media and sometimes face-to-face (Churchill and Bly, 1999; Erickson et al., 1999). Other online locales support communities of interest or circumstance (e.g., Mynatt et al., 1999) where members have no other forms of connection to fellow online participants.

CHIplace and CSCWplace are two online spaces designed for members involved in the design and use of computer-based applications. Community participation takes place both online and offline (e.g., conferences, workshops, seminars). While the online spaces have been designed to encourage participation and strengthen ties among members, there is less awareness in the broader community of the existence of the online forums. This creates a division between the two forms of community participation.

We present the design and use of a large-screen, interactive interface, PlasmaPlace, to create a presence for the online community in offline settings. The displayed content derives from online community members and from people located in the physical space (photos and blogs). The intent was to provide a window that blurs the boundary between the digital and the physical activity spaces.

In the next section, we describe related efforts to join physical spaces and in particular, large-screen displays. Then, we provide some background about CHIplace and CSCWplace. Next we present the design of PlasmaPlace for bridging online and offline participation. We conclude with a discussion of usage of PlasmaPlace at CHI 2002 and CSCW 2002.

2 Related Work

The idea of joining physical spaces through mediating technologies is not new. Media space experiments have proven very successful in certain settings (Bly et al, 1993). Similarly, offering representations of online activity in the offline, physical world is becoming increasingly common. Examples include work by Pedersen and Sokoler (1997) on AROMA and Ishii et al.'s (1997) "tangible bits." Finally, research in graphical virtual environments has explored the concept of "hybrid realities." The projection of video streams of "real" world activity into graphical, virtual landscapes is an example (Reynard et al., 1998).

Our work inverts the logic of the bringing the "real" (i.e., not abstract) into the "digital." It offers offline viewers a window onto the subject matter and content of an online community space by means of large screen, interactive bulletin boards. We envision these large screen boards to be interactive, digital poster boards, advertisements for the online activities. Timmers (1998) defines a poster to be "communication between an active force and a re-active one" in which the former "has a message to sell" and the latter "must be persuaded to buy the message." This interchange takes place in the public domain.

Finally, large-screen interactive displays are increasingly being used within organizations to share community information (e.g., Houde et al., 1998), to support focused brainstorming (e.g. Guimbretiere et al., 2001), to provide awareness of activities (Greenberg & Rounding, 2000) and to bridge sharing of online content using personal devices and content in physical spaces using public displays (Churchill et al. 2003). They have also been used in a conference setting to facilitate new encounters and face-to-face discussions among conference attendees co-located at a public display based on common interests (Sumi & Mase, 2001). However, our use of such displays is new and innovative in that we focus on bridging online and offline participation over time and space for communities of practice.

3 CHIplace and CSCWplace

CHIplace was an open-access system that was developed for ACM CHI 2002 conference to facilitate interactions among researchers and practitioners in the field of Human-Computer Interaction (HCI) both in time and space. It operated from March 2001 until late April 2002. 1058 CHIplace users registered prior to the conference and 92 more registered during the conference. CSCWplace was based on the CHIplace infrastructure and was set up before the ACM CSCW 2002 conference to fill a similar role for that conference. Opened just two months before the CSCW 2002 conference, 154 people signed up prior to the conference and 11 more registered at the conference.

These online spaces allow members to join in threaded discussion, upload content for others to view, edit their own profiles and vote on posted topics of interest. In addition, community news and lighthearted commentaries were available. Prior to the CHI 002 conference, there were opportunities to upload papers and have colleagues provide comments. Both Web sites provided a number of social browsing tools that enabled the participants to get to know the other participants of the site (Girgensohn & Lee, 2002). For example, the main people page presented a list of people who joined most recently and a gallery of randomly selected pictures of members. This serendipitously introduced newcomers and members to each other. Both online communities have periods of active participation, focused around the conferences. As online discussion sites for conference activities it is not surprising that most online activity occurs around the time of the conferences.

4 PlasmaPlace

In designing a public interface to the online community activities, we had three design goals:
1. to mix content created by local and remote participants,
2. to advertise the ongoing and persistent activities of the online communities, and

3. to encourage participation at all levels.

Consequently, we aimed to provide a system for presenting content blended from a variety of sources related to the online community activities (e.g., CHIplace and CSCWplace, conference Web sites, local information sites such as restaurants and "daily" content uploaded directly to the poster such as photos). The system collected this content and, where appropriate, re-purposed and re-represented it to be attractive and attracting to passersby from a large screen display. It allowed easy navigation of this content when people stopped to browse, and then encouraged people to follow up by guiding them to the online community resources. Both PlasmaPlace installations were located in the Internet area of the conference. Therefore, there were a number of computers available nearby for general use.

The design of PlasmaPlace was separated into two related aspects: the visual look and feel and the display processing and interaction mechanism.

4.1 PlasmaPlace Appearance and Content

Based on experiments in-house, we identified a number of criteria when considering what content should be posted to the PlasmaPlace display:
- People respond positively to seeing faces and other indications of community member identity (e.g., names, contact information);
- People are attracted to a large central display as a focus of attention;
- People respond positively to having an overall sense of the content provided by the display;
- People respond positively to the poster board form factor and the poster genre of information presentation; and
- People respond positively to changing content and are sensitive to the rate of change of content: too fast and it is distracting or disturbing; too slow and the display appears "static" and "less interesting."

The design intentionally mimics the design of physical poster boards, as they are a familiar form factor for advertising content. To permit this, the display is oriented in portrait format.

Content displayed for the CHI 2002 installation consisted of upcoming events listings (areas A and C of Figure 1a), comments and information from members posted during the conference as a weblog (area B), pictures from the conference uploaded directly to the poster (area D), and names and faces of people in the online community (area F). This arrangement permits a large, easily read view of selected content, while also permitting "at-a-glance" views of other content that a person may find interesting.

The same layout and content arrangement was kept for the CSCW 2002 installation (Figure 1b). Aspects of poster appearance (e.g., colors, fonts, logos) were adapted for the conference and its location (New Orleans).

Figure 1: PlasmaPlace Design for (a) CHI and (b) CSCW

4.2 Display Processing and Interaction

All content areas of the display cycle automatically when users are not interacting with them. Information from areas B-D and F were cycled into the main viewing area (area E) in order: Independently, the content shown in the smaller display areas were cycled from their source.

Two basic modes of interaction were allowed with the content: selection of general content area of interest (e.g., schedule, people, photos) and browsing within that content area. Browsing consisted of a simple forward or backward traversal through a circular list of text, Web pages, and images for the selected area.

At CHI 2002, we used a large trackball for input selection to simplify this first attempted installation. The two mouse buttons on the trackball were used to switch the display selection to the next or previous item in the PlasmaPlace selection order. Spinning the trackball scrolled the selected display.

For the CSCW 2002 installation, we used the touchscreen overlay. Touching any of the selectable areas (i.e., Happenings, Schedule, Photos, and People) caused the cycling to pause and moved that content into the main viewing area. Any Web content displayed in this area could be visited (via the usual point and click operations). However, we restricted navigation to a predefined list of sites and domains.

This reinforced the notion that full access to content and online facilities should be made through a normal "desktop" session available nearby. When a person tried to navigate beyond these environs, a message would appear with instructions about how to use the nearby Internet room facilities.

5 Observations

The PlasmaPlace posters attracted a considerable amount of attention and interest at both conferences. Figure 2 shows the interaction patterns with the two PlasmaPlace interactive posters. We have charted all interactions at the posters in 15-minute segments to show patterns of interaction through the day. Each bar depicts the percentage of time during a 15-minute segment that the poster was being interacted with. For example, if a bar fills 50% of the 15-minute segment, that means people were interacting with content for half the time (7.5 minutes). The charts indicate that both posters were interacted with, and that activity peaks map well to break times.

Images were the most popular content for viewers to interact with (62% of the recorded interaction events were related to selection of images from the conferences), followed by selection of personal profiles (19% of all interaction events). Content related to the conferences themselves accounted for 8% of interaction events, 6% of the interaction events were related to scrolling, browsing and navigating content and 5% was seeking information about the online community spaces.

We did not receive any comments from participants about their feelings regarding the content that was posted from the conference and fewer people left blogs than we had hoped.

6 Summary

We described our use of interactive, large screen, publicly situated displays for creating greater awareness of online activities in two communities where participants also gather together physically: the CHI 2002 and CSCW 2002 conferences. The display designs advertise the online community spaces of CHIplace and CSCWplace by mixing content from online community spaces with content created at the gathering itself (e.g., weblogs, photographs).

We cannot separate out the role that the interactive displays played from other means of advertisement (e.g., word of mouth), comments collected at the conferences, and enrollments to the online community site during the events. However, interaction data logged at the displays suggest that the PlasmaPlace displays were attractors for the online virtual communities. People noticed, touched, and talked with the PlasmaPlace screens throughout the conferences. They also discussed and signed-up for the online community spaces.
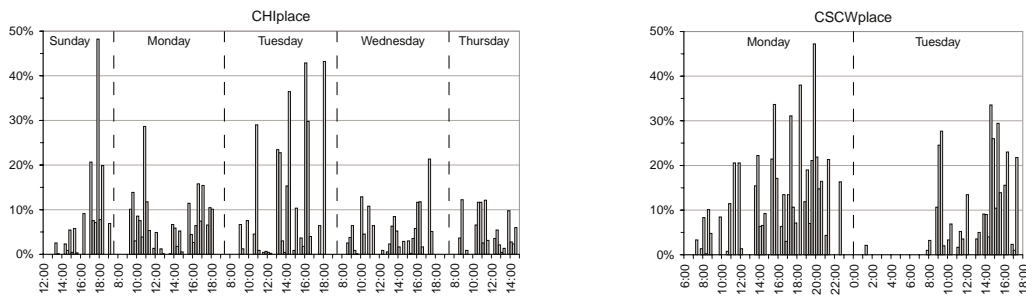
Figure 2: PlasmaPlace utilization at (a) CHI, (b) CSCW

We note that the communities we designed for have certain unique characteristics that should be considered when thinking about the generality of our design efforts. For example, these communities meet infrequently (once every year or two), and they consist of computer professionals and others highly skilled in related disciplines, and therefore are potentially more sympathetic to experimental technology interventions. That said, online community participation is also highly variable, increasing around the conference times and waning between them.

While we understand our experimental deployments are preliminary, we believe further exploration within the area of multimedia publishing of interactive online community content and activities, or digital community media portals, is warranted.

7 Acknowledgements

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