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Figure 1: Space Map of the Canvas Gallery Cafe

## Café Life in the Digital Age: Augmenting Information Flow in a café-work-entertainment Space

### Abstract

In this report we detail our experience of designing and installing a large-screen public, interactive community board, the eyeCanvas, in a neighbourhood café and art gallery in San Francisco. Features of the community board include the ability to display content related to the café, including menus, nightly events and artists' work; the possibility of signing up for the cafe's email newsletter; and a touch-screen, "finger scribble" application that allows comments to be left. We describe the café, the eyeCanvas interactive display, the contents that are posted to the display comment on the adoption, use and impact of the eyeCanvas display.

### Keywords

Community display; internet café; field observation; interactive display; evaluation; information flow.

### ACM Classification Keywords

H.5.2 User Interfaces (D.2.2, H.1.2, I.3.6).

### Introduction

Interactive digital displays are becoming increasingly common in public spaces. Although interactive kiosks have long been available for information presentation in shops, malls, banks and transitional spaces like airports, these have been primarily used for commercial purposes or for schedules. However, more and more interactive displays with aesthetically appealing form

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CHI 2006, April 22-27, 2006, Montreal, Québec, Canada.  
ACM 1-59593-298-4/06/0004.

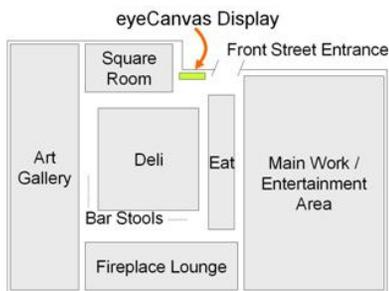


Figure 2: Interaction, digital and physical, at the Canvas Gallery

factors are being integrated into public spaces [8]. Much recent work has explored the potential of such displays to project community generated interactive content rather than exclusively commercial offerings.

We have previously described our work in the blending of online and offline social participation through the installation of online social spaces linked to interactive public displays in workplaces and at conferences [2][3]. However, while we have to date focused on the impact of interactive displays on “closed”, semi-public locations inhabited by members of specific communities of practice, here we describe an installation in a public, “open” community space - an internet café and art gallery.

### The Canvas Gallery Café

Cafes are relaxed, informal, social spaces, but each has its own atmosphere and its own set of “rules” [7]. Owners and customers alike tend to have clear notions of the “script” of different cafes – referred to as the “ambience” of different places or the “desired customer experience”. We surveyed over 15 cafes when looking for a site for our installation and the Canvas Gallery was clearly the best site for introduction of the interactive display. The Canvas Gallery is viewed as “dynamic”, “young”, “hip”. The owners describe the café/gallery as a “cutting edge kind of place, where digital media are useful *and* artistic”. Our observations also suggested it is a social space with different rhythms for day and evening - different social “scenes”, and different expectations about who one would meet and what one would do. This was, therefore, an ideal location for the interactive display and for future experiments with the creation of digital-media “posting” communities.

Located in the Inner-Sunset area of San Francisco, the Canvas Gallery Café is a 4000 sq ft social meeting space for workers who enjoy the free wifi through the day. It is also an art gallery, and host to evening events such as open-mike evenings, musicians, DJs and VJs, private parties and art openings. Open from 6am until midnight Sunday through Thursday and 6am till 2am Thursday through Saturday, the space has a very different atmosphere during the day and in the evenings. The café has several distinct areas which are shown on the spatial layout diagram (Figure 1). On average about 500 customers per day enjoy netsurfing and social networking in the café. Weekends cater to families and visitors, being located near Golden Gate Park. Evenings attract individuals and groups interested in the events that take place.

A survey carried out over several weeks with 93 respondents revealed that most day-time customers are “regulars” visiting several days a week. Customers cover a wide age range (from teenagers to septuagenarians) and most (over 90%) use the internet “sometimes” to “frequently”. Most (33%) are members of at least one online community, reading and posting content. 25% expressed an interest in knowing more about our project, and said they were interested in posting material to a public digital bulletin board.

### Characterizing the social space

We used several methods to characterize the social space of the café/gallery as a way to determine the ideal location for placement of an interactive display [4]. The most foot traffic in the gallery passes between the front door and the square room where the food service counters are located. We therefore decided to

Brand:  
Title:  
Main  
Posted  
Content:



Selection  
Carousels:  
- Content  
-Scribbles  
Buttons

locate the display in this location – notably it was also visible from the bulk of main work area.

**The eyeCanvas interactive display**

The eyeCanvas itself is a large screen interactive bulletin board. The underlying infrastructure is based on a flexible information storage and distribution system, described elsewhere as the Plasma Poster Network [2] [3]. The eyeCanvas installation required not just hardware configuration and the software installation, but also physical blending into the café/art gallery décor and ambience. This required customized cabinetry to house the equipment in a small self-contained area, with paneling and shelving to match the surroundings.

In installing an interactive display and social communication tool into the Café space, we had several aims:

Offer an interactive display for showing café relevant content such as menus, the café web page and upcoming events.

Offer a means of gathering email addresses, the café owners main way of distributing information about upcoming events to regulars and new potential customers.

Offer a means of showing local artists’ and featured artists’ work. Wall-space is limited so artists’ additional inventory can be made available.

Put in place the framework for a social networking environment that spans the online and offline presences of the community members, centered around the café.

Accordingly, eyeCanvas interaction elements were created for the café brand materials, the title of the posting, the main content viewing window, the posting thumbnail selection of items that will be shown in sequence, selection carousel for customer created art scribbles and the interactive elements for sending comments, finding more information and joining the email distribution list (Figure 3). One posted item (URL) at a time is displayed; items cycle automatically every 60 seconds unless someone touches the display which automatically pauses the slideshow. Along the bottom of the display is a carousel of available content. This carousel advances to the left as the content in the main window is changed. Users can spin the carousel with a horizontal flick gesture to see what items are available for viewing in the content and the scribble galleries. By pressing on one of these the item will be displayed in the main window.

Café content can be posted via a web form or email. There are two ways in which customers can enter information: 1. their email address to sign up to the distribution list, and 2. the “scribble” interface. The scribble interface is shown being used in Figure 4.

**What did people do?**

We observed the eyeCanvas being used regularly at the café/gallery, and people's responses to it were largely positive. People read content, entered their email addresses, created artwork and left comments using the “scribble” application (see Figures 5, 6, and 7 for example “scribbles”).

In total, 392,164 touches of the eyeCanvas screen were recorded over 4 months of use. Usage trends indicate more use as the week goes on, peaking on



Figure 3: The eyeCanvas interface includes branding elements across the top of the display; a central area for content, customer-produced comments and art created using the “scribble” application; and previously posted content from the owners.



Figure 5. Café visitors leave messages about events and their own activities.

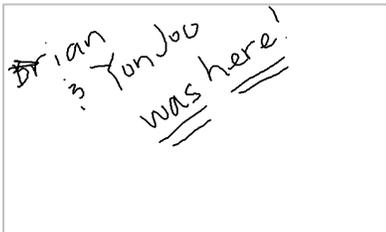


Figure 5. Café visitors leave messages about events and their own activities.

Saturdays. In terms of daily rhythms, interest increases throughout the day, peaking near closing time, with a noticeable dip between 7pm and 8pm. Day clientele (mostly mobile workers and locals) tended to leave around 7pm, and evening clientele meeting friends and attending events tended to arrive around 8pm.

The sign-up rate for the email distribution list was reasonable (131 email addresses in 5 months); we had hoped this feature would be more often used, to satisfy the requirements of the owners who perceived the email distribution list to be the best means for advertising the café/gallery and drawing repeat and new customers.

A total of 1466 *messages or scribbles* were posted on the eyeCanvas in 2.5 months.

### What did people post and read?

For this initial installation, the online community space with posting capabilities designed for the Canvas Gallery customers was not deployed. Rather, content on the eyeCanvas main window was selected and posted by the café owners. The most popular use of the display was to show additional artistic material by artists whose work was (or had been) physically located in the gallery. In interviews, artists, musicians and customers all expressed an interest in there being more content posted to the display, and that such content change more frequently. Active participation by community members was requested.

The eyeCanvas display is more than just a place/medium for suggestion: less than one percent of the scribbles contained contact information. We categorized customer-posted, scribbled content into

several types. Main categories were general events, current events, artwork scribbles, messages, ads and suggestions. 5% of the messages were suggestions/comments; out of those, 3% of suggestions/comments are about the display, not about the café. 50% of postings were drawings. Most messages were very playful as shown in Figures 5, 6, and 7 for examples. Surprisingly few were “inappropriate” – that is, sexually explicit (text and drawing) or politically/racially offensive. Posted items were checked on a daily basis and those considered inappropriate deleted – fewer than 1% of scribbles were considered worthy of deletion. On analysis, there was a correlation between time of posting and inappropriateness of content – 95% were posted on weekend evenings between 10.30pm and 2am. A public information display *entails* one’s activities are themselves publicly *on display*. We believe that the relative lack of inappropriate content was because people were concerned about being witnessed in the creation of inappropriate material – witnesses acted as social sanctions. This illustrates nicely how interaction design for public spaces differs from interaction design for single users alone in private spaces [6].

### Reactions to the eyeCanvas

We interviewed 2 of the 3 gallery owners, workers in the café and gallery areas (6 people) and customers before and after the installation of the eyeCanvas – among those were regulars and visitors (15 people before and 23 people after installation). Interviews were semi-structured and lasted between 30 minutes and 2 hours. Interviews and analyses were conducted in the month prior to the installation and the 6 week period following the installation. In addition, we carried out method and content analyses of the ways in which

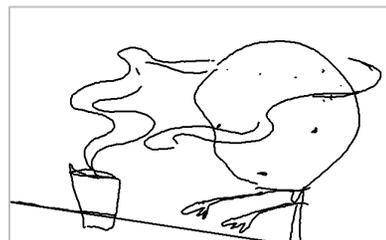
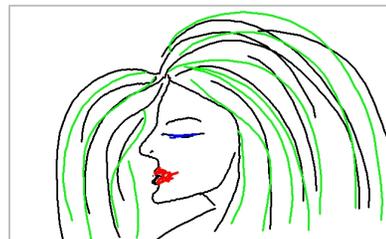
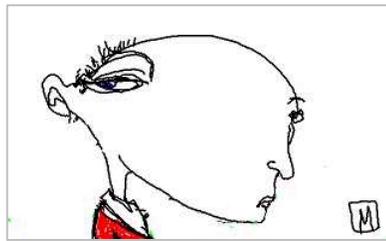
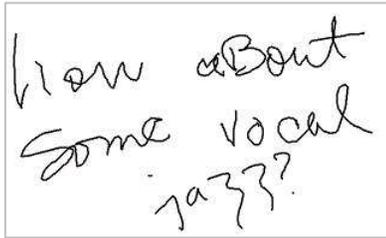


Figure 6. Scribbles reflect interest in the venue such as music and art.

the café owners communicated with customers before and after the installation and evaluated items recorded on the eyeCanvas after the installation to ascertain whether the content flow changed.

The main ways in which the Canvas Gallery management communicates with its customers are: a website; emails sent to people on the distribution list; postcards that are mailed and left in public places around the city and in the café/gallery itself; posters; and word of mouth. Content communicated includes day and evening events (advertising open-mike, poetry readings, film showings, musical events), art shows, featured artists, and menu changes. Customers communicate their feedback to the Canvas Gallery through a “suggestion book” and through conversation. Email feedback was not solicited by the café owners. Customers communicated with each other about the café/gallery activities through word of mouth, emails and giving others the Gallery postcards.

Given much emphasis was put on the leaving of customer comments on the eyeCanvas during the design process, we carried out a detailed content analysis of the paper suggestion books that were also used in the café/gallery for collecting customer comments. Our analysis revealed a total of 305 messages were left in 6.5 months; our first content analysis from March to June (92 days) revealed 195 messages (mean = 2.12 per day), our second content analysis from July to September (105 days) revealed 110 messages (mean = 1.05 per day). 90% of the contributions in the suggestion books were text: 75% suggestions or comments and 25% personal comments and playful traces such as lipstick kisses and artwork.

Most comments were in pencil or ink, and 99% of the messages were single-colored.

Following the installation of the eyeCanvas, analysis of a second suggestion book after a 4-week period of use (27 days) we observed a decrease in the number of comments in the suggestion book, with only 19 messages left (mean = 0.7 per day). The content styles and types did not change.

However, it quickly became clear that the eyeCanvas did not *replace* the suggestion book; the suggestion book was still used to leave addresses, emails, and longer comments – as we noted above people were concerned about others “seeing” them writing addresses, associating them with their contact information. This is, of course, the other side of the coin where inappropriate content was not posted perhaps for fear of being witnessed. 8% of messages in the suggestion books contained contact information compared to the less than 1% reported above on the eyeCanvas display. Messages left in the suggestion books tended to be longer and more detailed than the one or two word comments left on the eyeCanvas.

The suggestion books and the eyeCanvas both demonstrated the ways in which the Gallery customers “conversed”. In both case 5% of the messages in either medium are responses to other previously written messages. Figure 8 illustrates an example. A number of the more artistic “scribbles” were created by a local artist who signed each piece “M”; the robot in Figure 8 was drawn by someone identifying themselves as “Not M”. When we enquired about this, “M” denied knowing who “Not M” was, but was amused and encouraged to contribute more art scribbles in response.



Figure 7. Scribble art and comments to the designers.



Figure 8. Conversational scribble, where "Not M" responds to "M"

### Summary and future work

Although our evaluation studies were over a short time period, the eyeCanvas display was in use for over a year at the café/gallery. Our initial evaluations suggested the display was well-received and seen as a positive addition to the café/gallery space, offering a new way of accessing digital material and a new means of artistic expression for customers.

The installation was highly successful from a "user evaluation" point of view, our software worked beautifully, and the display and online community capabilities were seen as extremely promising by the gallery curators, customers and management. However, in the end the full experiment of online communities of the gallery plus public posting has not been realized for infrastructure reasons – primarily economic and hardware. Our plans to activate the online community site with posting capabilities were

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delayed pending finding money to hire a suitable administrator. Further, the eyeCanvas is currently under repair after the touch screen overlay failed after 14 months of use. This is another indication of its popularity. This also reminds us of something museum and gallery designers have known for a long time: the weakest link in interactive digital installation design is often the hardware itself which is frequently not designed for sustained and constant use by many people. Although the eyeCanvas experiment is temporarily suspended, we think this form of community participation across online-offline boundaries will be increasingly seen in the future. While hardware will improve due to other market forces, the business models surrounding digital community content management will need to be evolved from being seen as a "want to have" or added expense to a "must have" or added value.

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