Exploring Use and Appropriation of a Non-Moderated Community Display

Marko Jurmu, Jorge Goncalves, Jukka Riekki, Timo Ojala
Department of Computer Science and Engineering (CSE)
Faculty of Information Technology and Electrical Engineering
University of Oulu, Finland
{firstname.lastname}@ee.oulu.fi

ABSTRACT
We report a pre-study and a three-week in-the-wild deployment of a non-moderated interactive public display prototype designed as a communication extension for an established community. A pre-study was conducted to map existing practices in order to ground the design. We explore the adoption process of the display prototype as well as rhythms of usage. We discuss findings related to extensions of presence within the community, the impact of the display on the community's activities, as well as aspects of appropriation and co-design. We illustrate how the display was used to extend one's presence within the community in addition to existing means of communication. This opens up new design possibilities when social dynamics are carefully negotiated.

Author Keywords
Appropriation; public display; IRC; communication; qualitative; field study; in-the-wild.

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

The adoption of public digital display technologies to urban spaces driven by digital signage is creating novel and disruptive urban computing research possibilities, where display technologies are functionally framed beyond traditional broadcasting [22]. Previous research has explored functional framings such as tools for civic engagement [8,13,25], crowdsourcing [10], emotion detection [11] or shared notice areas [1].

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Coupled with suitable interactive features, public displays are hypothesized to significantly impact how citizens perceive, experience and create meaning of a public urban space [17]. This development is however dependent on multiple entangled functional and non-functional factors and their mutual interaction. For this reason, exploratory research is mandated in order to identify and discuss these factors and to allow more systematic development to take place in the future.

Central notions in how people use an interactive public display are *appropriation* and *engagement* [8,25,28]. Appropriation stands for pragmatic strategies employed when interacting with the public display and these strategies can also be ones not embodied by the original design of the display. Engagement on the other hand refers to how the public displays themselves as interactive artefacts can increase people's willingness to take action and interact.

An important non-functional aspect of a public display is the surrounding environment where the display is deployed. Besides the physical space which has its own features in terms of size, form and geometry, people both assign and associate a specific space with meanings and conventions that cannot be ignored when defining the overall environment. Dourish presents a thematic taxonomy on spaces and places [7], where space denotes the physical aspects and place denotes the layer of social meanings and conventions. Considering these concepts as separable aspects of the environment allows more focused design as well as analysis of a public display deployment.

In this paper, we investigate the framing of an interactive public display as an extension of existing communication channels and practices of a community with a dedicated physical space. Here, the overall notion of the place consists of both the electronic communication channels, as well as the physical space dedicated for the community. For this reason, our work overlaps and conjoins two areas: First, our public display prototype is integrated to the online communication channels of the community. Second, the display resides in the physical space actively utilized by the community members. This gives us the possibility to analyze the public display's functional framing from these two viewpoints, as well as from a perspective concerning the overall experience.

Our contributions are as follows:

- We emphasize the importance of investigating existing practices of places and communities to inform design of interactive public displays. This was accounted for with a dedicated pre-study that was crucial in designing the functionality of the prototype.
- We demonstrate that within more tightly-knit communities, engagement with the display can reach levels where appropriation and co-design take place. This opens up new design possibilities, as long as the social dynamics are carefully negotiated.

BACKGROUND

Our work is situated within two theoretical areas: The notions of appropriation and engagement as aiming to capture the strategies of interacting with a public display, as well as research on how public displays support communication.

Appropriation and Engagement

Schroeter et al. presented a real-world installation for a public forum application called *Discussions in Space (DIS)* [25]. The prototype was meant to engage passers-by to submit locative and topical messages through SMS and Twitter to a large display, in order to facilitate public deliberation of issues topical to the actual location. Their framework for engagement includes three factors, namely *people*, *content* and *location*. For a public display to serve its purpose effectively, a sweet spot should be identified, where the deployed display effectively fulfills each of the three factors.

Fortin et al. discussed a media façade installation called *Mégaphone*, intended to act as a digital 'Speakers' corner' [8]. The system consisted of a public microphone on a stand, speech recognition, loudspeakers and two media façades. Speech coming to the microphone is recognized, and keywords extracted from the speech are projected to the media façades. This way, people can both contribute to the system through the microphone, as well as consume media from the system through the loudspeakers as well as the keywords from the media façades. Fortin et al. discovered that appropriation of the system was linked to identity-building, place-making as well as to facilitate social interactions around the installation area.

Ylipulli et al. investigated the appropriation of two urban technological infrastructures, namely a public WiFi network and a network of interactive, multipurpose public displays [24,28]. Their framework includes factors such as familiarity of the technology, playfulness, and utility, and combinations of factors can either facilitate of inhibit engagement of the technology in question. Contextualized evaluations are highlighted as locations are specific in terms of sociocultural practices, and different demographics can prioritize factors differently. In this sense, Ylipulli et al. [28] follow the framework set by Schroeter et al. [25] and deepen it with additional factors.

Akpan et al. discuss how place-based aspects dominate physical spatial features in environments where interactive display technologies are deployed [2]. Especially, they propose that engagement with interactive public artefacts emerges when the overall social context provides a 'license to play'. Although social context in itself is a wide and complex term, our understanding of this is that levels of belonging to a community translate to increased presence towards the community for example through the use of an interactive display.

Gaver et al. assert that 'systems built for open-ended interpretation can fail', and suggest a set of symptoms for determining whether in-the-wild deployments of interactive technologies have succeeded or not [9]. *Engagement* manifests itself in sustained use and interpretation, and in suggestions for additional functionality. *Reference* means discussions of the system through allusions to other already known and liked technologies, and is an important part when users construct meanings towards the system. *Accommodation* stands for adoption of the system as part of everyday practices. *Surprise and insight* mean that within sustained use, the system surprises its users with new content and/or functionality.

These symptoms are endemic to systems where the functionality is deliberately set as flexible, and the appropriation of the system allows interpretative freedom. Thus, they provide a useful framework for assessing deployments of interactive public displays.

Public Displays and Communication

Technological mediation of interpersonal communication and community dynamics constitute an active research agenda, in which interactive public displays have an active role. Our work thus does not claim any exclusive novelty within this topic, but aims to complement existing knowledge within the research area. Here, we focus on different approaches taken by existing public display systems, and discuss their impact on our work.

Müller et al. have emphasized the importance for interactive public displays to evoke commonly known mental models in their design in order to facilitate use and adoption [22]. One of the best known mental models is the poster, where interactive public display emulates features that people are already familiar with on paper posters, i.e., provisioning of informative and entertaining content. When aimed for communities, previous experiments with this mental model such as the Notification Collage [12] and Plasma Posters [5] have found that members of community adopt interactive public displays as parts of their communication practices as 'interactive posters'. Churchill et al. report a field study of the 'eyeCanvas' prototype, and

discuss the ways in which the interactive poster canvas was appropriated to augment the practices within a café [6].

Certain interactive public display systems focus on raising awareness of the presence of others within the space and couple this with mediation of communication. Both Instant Places [15] and Social Surroundings [14] support people in enacting self-expression through text and images sent from a mobile device to a shared collage on a public display, in order to raise awareness of co-located presence and to indicate willingness for interpersonal communication. Adoption of the system can be done implicitly as is the case with Instant Places, where Bluetooth friendly names are sensed and appropriated as tools for short messages.

Multiple systems have been presented for sharing digital content either synchronously or asynchronously via an interactive public display. DigiFieds emulates a physical public notice area (PNA) on a public display, allowing content sharing within the communicative framing of private sales and event promotion [1].

José et al. investigate content sharing through the paradigms of pins and posters [16]. Use of these mechanisms uncovered the need for added flexibility to content publication, to better reflect how people connect with places.

Content publication is seen as a strongly locative act, and posting mechanisms need to support place attachment in terms of visibility. Memarovic et al. also highlight the locative aspects of content publication on public displays, as opposed to friend graph-based publication in social networks such as Facebook [21].

In CoCollage, McCarthy et al. designed the public display in so-called third place to intentionally cater for a specific audience in a specific social setting [19]. Motivation to visit third places emerges from voids in social support networks, for example by moving to a new city. Lowering the barriers of participation is seen as facilitating the emergence of pure sociability (also referred to as 'leveling'), ensuring an equal agency. Main content of CoCollage is images from Flickr, and the authors raise the place-based recontextualization of the photos as an important topic to study.

SYSTEM

Selection of Venue

In order to study the display prototype as a communication mediator for an existing community, we chose the computer science guild of our university. We had two reasons for choosing this community: First, the guild has its own physical space dedicated for them, and this physical space with its social conventions shaped by the guild itself provides a good real-world example of the space/place dualism discussed earlier. Second, the guild space is within the university premises, which means that we were able to conduct a field study with minimum overhead in terms of negotiating permissions.

The guild - established in 1988 - shares an interest in studies within a common theme (computer science), in creating and maintaining relations to local companies as future employers, as well as in the vibrant student life taking place in a university city. The guild is operated by an annually chosen guild board, as well as a handful of representatives that negotiate on behalf of the guild towards key external stakeholders.

Active members of the guild primarily use two mechanisms in staying in touch with other members: Presence within the electronic community of the guild, and physical presence at the guild room. The guild room is a recreational space reserved only for the members of the guild, so it can be interpreted as physical space affording a gathering and socializing place for the associated community.

Pre-Study

To increase our understanding of this community and its communication practices, we conducted a pre-study consisting of a visual survey of the guild room space and a series of interviews. The main objective was to investigate what communication methods the guild uses at the moment, are these methods sufficient, and how an interactive public display residing in the physical guild room space could complement the communication practices taking place.

The guild's internal communication needs consists of promotion of board meetings, sports and party events, as well as pricing and availability of products for the guild members. In addition to these, guild members need to actively create and maintain internal and external relations, and coordinate the maintenance of the physical guild room space.

Localized communication channels in or within the vicinity of the guild room include bulletin boards as well as collection of paper-based signage conveying general information, guidelines, or instruction regarding objects in vicinity (Figure 1, above). A bulletin board allocated by the university to the guild is underutilized, and given the way that a staircase structures the entrance to the guild room, an unofficial bulletin board has emerged so that it is facing people who walk down the stairs (Figure 1, below).

Since signage within the guild room space may not reach all the guild members, communication is complemented with electronic channels. These include the guild's website, a Facebook account, email lists and an IRC (Internet Relay Chat) channel. The website is updated sporadically and its main content of interest is an image gallery from events participated by the guild members. The Facebook account has formed as a supplementary channel to the unofficial bulletin board in that it mostly advertises upcoming parties. Email lists are in active use, but in practice the mails are not read by majority of the guild.

Figure 1. Bulletin board within the guild room (above) and an unofficial bulletin board near the entrance to the guild room (below).

Quite surprisingly, the IRC channel was discovered as the main means of online communication within the guild. Newcomers to the guild sometimes take a long time to recognize the importance of continuous presence in the IRC channel, but the majority of guild members assert that without this presence one is effectively 'lost' in regards to guild, its happenings and its overall social dynamics.

Besides surveying the existing space and the practices, the pre-study also involved a series of interviews for selected members of the guild. Twenty semi-structured interviews for people with ages 24 to 30, recruited through the IRC channel, focused on discussing the existing communication practices, uncovering any room for improvement, as well as discussing a possible role for an interactive public display that could tie the heterogeneous communication practices together. In more than half of the interviews, the following themes emerged:

- Insufficiency of signage as communication mechanism within the guild room. "Very poor" / "None" / "Just a bulletin board outside the room" / "Some papers at the walls telling you not to do something".
- Diversity of topics to communicate. "Board meetings" / "Parties and sports cups" / "Board's announcements" / "Availability of new merchandise".
- The importance of the IRC channel. "[Besides other electronic channels] IRC is also used in case of uncertainties with any other channel. If you're not there, you are somewhat lost".
- Projection of the bulletin board mental model to future development of communications [22]. "Some bulletin board that would actually be utilized as much as it could be" / "Something digital would be appreciated by the CS guild" / "Something easy to use".

When presented with the option of an interactive public display within the guild room for the purpose of communication, interviewees quickly established images and videos as main content types. Furthermore, people wished for a controllable persistence of items on the display, as well as separate spatial areas within the screen real-estate for fun and for serious content, especially coming from the board of the guild.

Design Rationale and Implementation

We decided to implement an HTML5 canvas based on awwapp [3] as it allowed us to address the majority of features requested in the pre-study.

Based on the feedback gathered during the pre-study, it became clear that the display needs to tie in with the IRC channel that was seen as the main 'lifeline' within the guild. To support images and videos as content types, a design decision was made to allow people to upload given image types (.jp(e)g, .tif(f), .png, .gif) to the display directly from the IRC channel by using an IRC macro command. A Java-based IRC bot was created and joined in the guild channel to handle this transaction. The uploaded images appeared in the bottom of the screen in a scrollable banner. People residing in the guild room could then drag these images to and within the main canvas, and resize them (Figure 2). We deliberately decided to use this banner, as image uploads are location independent, whereas interactions with the canvas are locative. This design also prevents active canvas interactions to be disrupted with image uploads.

As for direct interaction with the canvas, we implemented two distinct modes: Draw and Manage interchangeable through a toggle mode button. There were however two actions that could be performed regardless of the mode: Clear and Help. The clear action would completely wipe the canvas (with some exceptions as explained below) while the help action would open up a pop-up dialog where the basic functionality was explained and email contact details was shown in case questions or problems arise.

In Draw mode, users could scribble directly on the canvas using their fingers, having the possibility to choose different line thickness and color. This would allow users to enhance dragged images as well as leave messages. Additionally, users could also erase parts of these scribbles.

The Manage mode was geared towards the manipulation of uploaded and dragged images on the canvas. In that regard, users could do three different actions: 1) Delete a specific image from the canvas, 2) pin an image so that it would not get deleted when a canvas clear was done, and 3) embed an image making it permanently part of the canvas and being no longer movable. Both pinning and embedding addressed concerns of enabling persistent content raised during the pre-study.

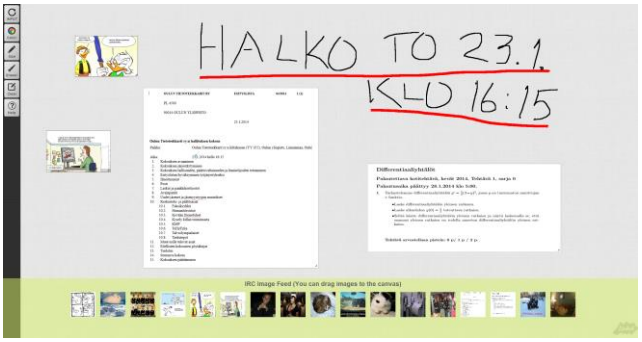

Figure 2. An example canvas featuring images and scribbles contributed by the guild members. The scribble, freely translated, says "Board meeting, Thu, Jan. 23rd at 4:15 PM."

Data Collection

All interactions between participants and the display were logged. This included both the triggered event as well as the timestamp. We also collected and analyzed 3 different sets of images which we describe next:

- The uploaded images: For obvious reasons, we wanted to analyze the content of images passed to the display through IRC.
- Canvas clear screenshots: Every time the clear canvas button was used the system automatically took a screenshot of the canvas before it got wiped.
- Periodic screenshots: Every 30 minutes an automatic screenshot was taken of the entire screen real estate. By doing so, we hoped to capture behavior that went beyond the deployed canvas and that could not be captured by the previously mentioned screenshots.

The deployment of the display also naturally evoked lively discussions on the IRC channel. To gain a better insight especially on the sense-making phase of the display deployment, we also looked at the IRC logs during this period. Analysis of the logs was based on simple thematic analysis, where researchers marked up themes of discussion and assessed their relative priorities.

Finally, we conducted semi-structured interviews at the end of each week of the deployment. There was a dedicated member of the guild being interviewed weekly, and asked to summarize the observations he had made during the week. The last interview also featured three additional guild members. This was done in order to capture the qualitative aspects of use, as well as any opinions and attitudes towards the display not discovered through the IRC log analysis. The final interview after the deployment was deliberately longer, and in it we also probed the guild members regarding issues that were revealed through all prior analysis.

RESULTS AND DISCUSSION

The display was deployed in the guild room adjacent to the meeting table and the main bulletin board that are visible in Figure 1 (above). During the deployment period (three weeks) there were over 4500 touch-based interactions with the display (including the various actions). In terms of collected data, we had a total of 48 images uploaded through IRC, 33 screenshots resulting from a canvas clear action, and 1008 periodic screenshots of the public display screen. As mentioned previously, this collected data was complemented by the IRC channels logs as well as semi-structured interviews conducted at different points of the study. The interviews were focused on aspects of usage, but also included questions from previously observed behaviors. In the following, we discuss in detail three themes that emerged from the collected data.

Extensions of Communication

The first theme to be discussed is related to how communication in general was extended through the display, and how the guild as a community adopted the display. Image uploads featured content such as board meeting agendas of the guild, one of the sports teams of the guild, and an excursion trip done by the guild. The guild board members also utilized the sketching functionality to frame the display as a meeting reminder (Figure 2): This was evident from image uploads, from screenshots, as well as from interviews with the guild members.

During this meeting, the actual meeting agenda (left document in Fig. 2) was shared as an image to the display. In the interviews, the guild representative stated:

"While everyone had papers versions of the meeting agenda, we used the display as a common reference. I think there is a potential for the display to act as a single shared reference in future meetings."

The display was also seen as supporting in communicating study assignments (right document in Fig. 2) and associated deadlines with images copied from study materials. This type of framing resembles a persistent notification, especially when augmented with scribbling to emphasize the image's importance within the screen real estate.

During the interviews, it was evident that a certain level of novelty effect prevailed during the first week of deployment, when several guild members tried out the macro for uploading images. Partially for this reason, images uploaded did not embody a single theme but were asserted by the interviewees as 'reflecting the activity of the IRC channel overall'.

Due to the fact that many people resided in the guild room space with personal mobile devices connected to the IRC channel, a strong spatiotemporal correlation between image upload with the macro and touch interaction with the screen was observed: Right after upload, the uploader would go to the display to drag the uploaded image to the canvas and thus promote it further. According to the guild representative, image uploads were basically pointless when not residing in the guild room during the upload:

"There's really no point in uploading an image to the display unless you are at the guild room at that moment. Usually people proceed to the display immediately after the upload to drag their image to the canvas and make it bigger."

This behavior speaks about strong locative aspects in image uploading [16,21] and more generally in public display deployments [22]. It also illustrates how the design worked in practice when image uploads took place within the communal place.

Some visual narratives were observed from the screenshots during the deployment. Most of them were very loose in nature, and for example focused on cloning a single image from the upload bar to the canvas, arranging the clones into a shape of a mosaic and then augmenting the mosaic with some scribbling. An anime-related discussion took place through the medium of comic book frames with manipulated speech bubbles. Another time, existing images from the upload bar were dragged to the canvas, set beside each other and scribbled to resemble a light saber fight from Star Wars. During the first week, we also observed an informative scribble that instructed guild members on how to use the image uploading macro in the IRC channel.

Impact on the Community's Activities

The potential danger in extending communication with new tools is that the emergent communication practices clash with established ones, causing people to ignore or even take a negative stance towards the new technology [17]. Overall, the conclusion of the interviews was that the deployment was seen in a positive light by the guild members, and perceived as changing the atmosphere of the associated space.

An interesting point to highlight is the peaking of touch screen activity during every Tuesday and to a lesser extent Friday (Figure 3). Regarding the Tuesday activity, the guild representative stated:

"The guild room week usually starts on Tuesday, while Monday is a low-profile day. Tuesday is also convenient for sharing activities and stories from the previous weekend."

Regarding Friday, we account the activity for the starting of the weekend, when people discuss and coordinate upcoming weekend activities. It would be in our interest to also tap to the slower rhythms of the guild room in terms of study and exam periods, and even a complete year during which novice guild members are initiated to the community, but this would have required several months of data collection. Novelty effect was seen as wearing out during the deployment, but according to the guild representative, guild members did foresee usage for the display also beyond the actual deployment time.

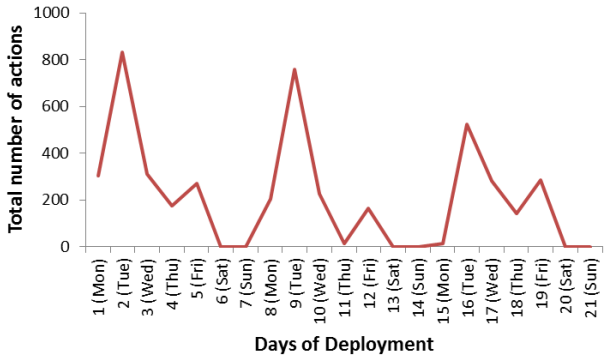

Figure 3. Aggregated activity considering the number of actions performed (add photo, drag image, scribble, change mode, etc.) using our prototype during the deployment.

On the other hand, interviews revealed significant irritation for the usage of the macro alongside other communication within the IRC channel. It was seen as 'spamming' the channel, and some guild members had stated that this was partially the reason for reduced image uploads after the first week of deployment. It should be noted that the macro itself did not produce any additional material to the IRC channel, but commands to the macro were visible to everyone connected to the channel. Although the solution would have been to handle all communication with the macro as private messages, we did not foresee the commands having a significant annoyance effect. Leaving the commands visible to the IRC channel was a deliberate design decision, in order to increase the awareness of the macro.

The annoyance regarding the channel macro highlights that when installing a display as part of existing social practices in a communal place, the display and its associated behavior should never take explicit foreground, but instead act unobtrusively as a value-adding functionality. This can be in contrast with installations to public urban spaces, where the attention seeking aspect may be based on deliberate disruption of conventions and routines [23].

The purpose of the display acting in the periphery and reinforcing communication and community member

presence was noted in the guild. A representative of the guild stated in an interview:

"Overall, this has been seen as a positive deployment, and seen as changing the atmosphere of the space where [the display] was deployed. People have enjoyed this space more because of the display."

Coupled with the IRC macro activity, this suggests two distinct phases for the deployment: One where the macro was actively used for the purpose of populating the display canvas with images, followed by a direct interaction phase [27] where activity towards the display consisted more of manipulations of existing images rather than uploading new ones.

McCullough has called for a 'focus on habits rather than novelties, on people rather than machines, and on the richness of existing place rather than inventions from thin air' [20]. In other words, we need to first explore and understand [26] the place in which the deployment is to happen, understand the people and their activities in that location, and then design a system that will support these activities and fit the selected location. In this case, the pre-study and the associated interviews with guild members represent this gathering of understanding prior to design. As an example, this is manifested in the design decision to utilize IRC instead of trying to get the guild members to actively use Facebook or Twitter.

Appropriation and Co-Design

Considering that the target community for the deployment was a computer science guild, we foresaw enthusiastic usage and appropriation to emerge beyond the originally designed framing. We set up a dedicated email account for help requests and error reports, and instructed its use in the help-section of the display touch menu. However, no emails were sent, as we observed the discussion regarding the common errors with the display in the IRC channel, and once shortly gave information for dealing with them. Guild members quickly adopted a handful of practical error fixes such as how to refresh the canvas in case of a livelock, or how to boot the touch panel to get it working again.

Already during the first week of deployment, these practices were adopted as parts of everyday use of the display. Guild members did not just leave the display unattended when certain functionality broke, but actively enacted a role similar to the researchers, and proceeded to try out different debugging mechanisms. Of course, these students with their backgrounds and competence also exhibited the necessary skills for enacting the role of a 'debugger'.

We also hypothesized that the computer science students would potentially override all functionality designed for the display and completely re-frame the display to their own purposes. What we observed was that to a degree this happened, while all the time maintaining the designed functionality as the 'default' mode of the display. It needs to be noted that in this case moderation was not our main concern, since the display was deployed in a semi-public space.

By foregoing moderation and relying on the established social conventions of the IRC channel and the physical guild room, i.e. visibility and accountability of actions, we maximized the flexibility in the display usage. We then reactively resorted to analysis of screenshots and interview data in aiming to explain the use and appropriation that took place. Our stance regarding appropriation is that we expected it to happen, and also find it interesting to study public display usage that goes beyond the usage of designed features [18].

Regarding appropriation, the discussion on the IRC channel during the first week focused on general sense-making, overall functionality, as well as discovering possible exploits within the design of the display. Some guild members even actively discussed the legal implications of hacking prototypes given to them within the limits of 'flexible use'. After familiarizing with the common usability problems, the guild members actually went ahead and switched the web view from Google Chrome to Mozilla Firefox. This was justified by the guild members as improving the stability of the prototype.

Several requests came to us for a persistent part of the canvas that could show non-editable information. Before we had time to react, the guild members proceeded to proactively solve this issue as follows: Reducing the browser from the full screen state, opening additional tabs, and loading persistent materials there. Examples include the lunch menu of the week and the YouTube video service (Figure 4).

For the remainder of the deployment, guild members preferred the following mode of use: Our prototype was on the foreground for the majority of time, while at the same time the tab panel was exposed for quick changing of tabs. This indicates an additional enacted user role of a 'co-designer' in addition to that of a debugger, and reduces the distance between original designers and end-users. Since we did not limit the use of the display, the guild members were able to appropriate and extend the display features as they saw fit.

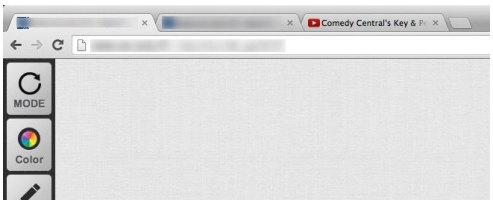

Figure 4. Focus of a periodic screenshot, illustrating the tabbed organization of content, with our prototype on the foreground.

Finally, the guild members also decided to physically move the display once during the deployment, as part of a more general re-arranging of the guild room premises. The fact that the display continued to enjoy use after the re-arranging indicates that the display as an artefact was accepted as a part of the overall surroundings. Had the adoption process failed, the display could have easily been moved to a remote corner by the guild members and be left there, possibly turned off.

Limitations

The duration of the field study allowed us to uncover rhythms in usage up to a weekly basis, however the acceptance of the system cannot be fully assessed in this time frame. Additionally, the chosen target group was a computer science community, and therefore the willingness to engage and appropriate the prototype was probably higher than it would be for a more mixed demographic.

CONCLUSIONS

Through this field evaluation, we demonstrate the importance of building an understanding of the target community and its practices prior to the design and deployment of new technology. By doing so, we were able to leverage existing communication practices within the design, and thus facilitated the overall adoption of the prototype.

Referring back to Gaver et al.'s [9] symptoms of a successful deployment, we can see that although the novelty effect of the system wore off, its use was still sustained. The use of the prototype as a reminder and a shared resource for meetings indicates a reference of the system to paper and calendar-based technologies. The persistent temporal rhythms on the other hand indicate a certain level of accommodation. Finally, surprise and insight was achieved by both uploads of new images as well as constructions of new canvases based on existing images and scribbles.

To conclude, our deployment illustrates how the domestication [4,29] and appropriation [28] of public and potentially foreign technologies can be significantly facilitated by the surrounding social context. In our case, the guild room is an example of a communal place where the sense of belonging to a community is strong, lowering the barriers for interacting with a novel prototype. All of the discussion themes in our paper were results of various enacted user roles towards the deployed prototype through its use and appropriation. Besides social context, the flexibility in design was a crucial enabler for the observed behavior.

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