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Objective Meaning: Presentation Mediation in an Interactive Installation

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Abstract

We explore the presentation technique of visual abstraction as a form of mediation to manage content generated by the public in order to maintain a respectful discourse. We identify technological and social mediation as two dimensions within the space of content mediation, and discuss different solutions based on related work in public interactive displays and art installations. We further discuss a novel approach to technological mediation by describing our interactive artwork *Objective Meaning* – an installation that invites the audience to express themselves through anonymous text messages. The design of this system mediates discourse by visually abstracting the presentation of messages on a display by breaking messages apart into decontextualized words. We briefly discuss the public response during a one-month deployment of the installation in a library setting.

Author Keywords

Computer-mediated communication; public displays; public space.

ACM Classification Keywords

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

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		Mediated by	
		Social	Technical
Affecting	Created content	Social protocol	Input technique
	Displayed content	Curation	Presentation technique

Figure 1. Social and technical content mediation affecting created and displayed content

Introduction

Public installations that allow audiences to input content anonymously, for example through remote messaging, exist in an interesting area. People can experience them in a fixed public location, but are less influenced by existing social protocols when contributing this content. This poses the question of how we can give people in a specific physical site (e.g. a library, art gallery, museum) a way to express themselves and generate content through an interactive installation while still mediating the content in a way that mitigates the opportunities for it to deteriorate into an unpleasant experience.

Previous research has explored various forms of mediation as part of interactive installations that allow for public expression. Some systems use technical constraints [3, 7], while others rely on existing social protocols to mediate discourse [6, 9]. We extend this research by implementing a novel form of technical content mediation through the presentation of content in our own interactive installation *Objective Meaning*.

This installation receives text messages from people's personal mobile phones and renders them on the display in an animation that breaks sentences into individual words, and thus decontextualize them from the message context. The system is designed so the content creation and input remain anonymous and unrestricted, while mediation takes place as part of the presentation of content on the display. We highlight the conceptual consideration of this artwork in the light of the conflict that arises between freedom of expression and the need of mediation in public spaces.

Types of Mediation

We relate this work to research on interactive surfaces that investigate subverting the one-way information channel common in public displays (e.g., in corporate marketing) and create means for public expression [8]. This can be achieved through social design processes that include community members in concept workshops [10] or through direct content input by the public. While some systems focus on fielding public opinion on specific civic issues [3, 7], others act as message boards allowing community members to create "contextually relevant" content [9]. These public display installations enable public discourse that requires a form of mediation.

While some systems delegate the task of mediating content to technology [3, 7], others rely on the social context to complement their techniques [6, 9]. Technological content mediation can either happen by restricting the creation of content through the input technique or by affecting the displayed content through the presentation technique (see Figure 1).

Systems can for instance restrict content through custom input interfaces using buttons and switches (Figure 1, top-right quadrant, see e.g., [3]). Such input techniques control the content that can be contributed, for example by only allowing voting [7]. Alternatively, devices such as SMSlingshot [6], defer to the social context instead of the input technique, by making it easy to pinpoint the individual interacting in a crowd (Figure 1, top-left quadrant). This visibility holds contributors accountable to the existing social protocols of public behaviour.

Systems that do not attempt to mediate the input often manage the content before it appears on the display

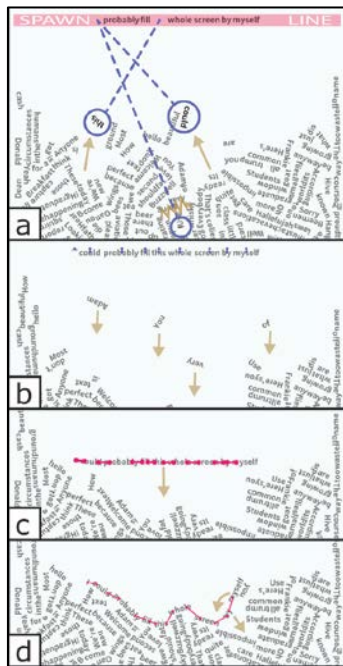


Figure 2. Stages of presenting messages on display in response to interaction (a) display new words, and create joints to move up existing words and displace other words above, (b) words that are not part of the message fall back down, (c) as the message drops, new joints form between the words, (d) these joints hold until the physics simulation is at rest

(Figure 1, bottom-left quadrant, see e.g., [4]). Brynskov et. Al. do this by curating collected video clips based on how they fit with the topic and message of their installation.

In contrast, through the concept and design of the interactive artwork *Objective Meaning*, we explore a presentation technique for mediation through the abstracted representation of content, represented in the bottom-right quadrant of Figure 1.

Concept and Design of *Objective Meaning*

Objective Meaning accepts and displays text generated by the public, thus providing people with a way to express themselves freely. In our system, we intend to minimize disruption of content input by providing an anonymous input technique that only restricts content to the existing limitations of text messaging on cell phones. Our goal was to create an autonomous system that does not rely extensively on manual curation. We thus explore the presentation of content as a mediation technique. More specifically, we focus on the visual abstraction of messages by breaking them apart.

Input Technique

Our installation receives input via simple text messages from people's phones. The phone number for the display is shown directly on the display. This input makes use of a familiar and comfortable mode of self-expression without introducing the additional interaction barrier of downloading a custom app [5]. People tend to experience this type of input as private [1] which reduces the influence of the social context on the created content.

Presentation Technique

When a message is sent to *Objective Meaning* it is first displayed as a complete message. It then breaks apart

into individual words that fall down, accumulating into a pile of decontextualized words. This abstraction is intended to engage the audience in reflection on shared language and meaning. The movement of words are driven by a physics simulation. This simulation represents the impermanence of meaning and creates visual emphasis that draws attention to the display.

The display receives messages sequentially one at a time and responds to each new message through a series of steps (see Figure 2). New messages are displayed at the top of the screen to make them discernable from the word pile at the bottom. Each word exists only once on the display. While new words appear at the top, words that already exist on the display are pulled up using a simulated spring force (see Figure 2.a). Moving a word up displaces the words above it, causing a sudden visual upheaval based on the physics simulation. A few seconds after a new message is composed the words begin to fall down onto the word pile. While the words start to fall, invisible joints connect adjacent words in the message (see Figure 2.c). As the message hits the word pile at the bottom, the joints keep the words in the message relative to each other as they settle (see Figure 2.d). The system waits until the movement of the words in the message is no longer visible. When the composition has become stable, the words are disconnected and reading the next message can commence. Through this slow process of reading and animating messages sequentially we aim to provide room for reflection [2].

The design of the system mimics the balance of energy in nature. It creates quiet moments to subvert the overstimulation of images and motion, common in public displays. It balances these quiet periods with



Figure 3. Deployment in library setting.

sudden disruption to generate curiosity and draw attention to the display when new content is received.

Reflecting on the Deployment of *Objective Meaning*

Objective Meaning was displayed in a University library with public access for approximately one month. The installation was located in a space used for studying and as a social space with frequent traffic from library visitors. For the installation, we used a highly visible large display (8 tiled monitors) that is permanently integrated into the wall (see Figure 3).

During the deployment we logged messages sent to the display including its sender, a timestamp, as well as the message content. We analyzed these logs visually and by coding the content of the messages. One researcher was present at the library at different times to observe people's interactions with and around the display.

Objective Meaning received a total of 1084 messages from 216 individuals during its deployment. The installation was used repeatedly by 154 people (71%). On average people sent 5 messages over the course of the installation and the maximum number of messages sent by the same person amounted to 32 messages. These repeated interactions indicate sustained interest in the installation. The content of messages varied greatly. Thus, we only provide a brief overview of the expressions people shared and their response to the display.

Some individuals used the display to augment group conversations and send messages to people who were co-located:

Messenger 1: "We should get back to work"

Messenger 2: "No we shouldn't"

Messenger 1: "I think we should"

While other messages are directed to a more general audience, many refer to the context of the library:

"If you can read this I am stuck in the library under a pile of physics textbooks send help"

Furthermore, some messages indicate a reflection on the display itself:

"Help, I am a message trapped inside a screen"

Additionally, there were instances where people tried to subvert the breaking apart of messages by concatenating their messages or attempting to use special characters.

"VOTESTEEVENTOOR4PREZ"

Feedback from the public suggests that there are different opinions and assumptions about who is responsible for the content on the display. Some attribute this responsibility to the entity that facilitates its presentation, as demonstrated when one individual approached a researcher to express discomfort at certain words appearing on the display. The individual and his friend group had sent a series of crude messages to the installation, resulting in the display of inappropriate content, then after feeling discomfort stated "why would someone put this [installation] here, of course people will send it things like this". In contrast to this, another individual commented on the display, saying "I made an effort to keep my messages positive and friendly" suggesting that responsibility for what is on the display is with the public who contributes the content.

The specific form of visually abstracting messages in the design of *Objective Meaning*, opens up the

interpretation of the text, creating scenarios that can de-escalate specific rhetoric. In some cases, however, it can also aggravate the meaning of words that are taken out of context. This was exemplified with one individual who stated: "I saw words like Hitler on the board which was disappointing". However, this word was sent as part of a poem about a victim in WWII. Although somber, the poem was wholesome and positive, and by removing it from this context the word Hitler was misinterpreted as being part of a negative message. This response is highly dependent on the individual reading, and their assumptions about the use of that word by peers.

Conclusion

We have discussed *Objective Meaning* - an interactive installation for a large display that aims to facilitate public discourse. From a review of related systems we found that these systems often implement a form of mediation that directly affects the content that is created by the public either by leveraging the social protocol already in place in the social context of the installation or by limiting the input technique. Our own installation *Objective Meaning* explores a new point in the design space of technological mediation. Rather than restricting or curating the content it uses a novel presentation technique to visually abstract the meaning of contributed content by breaking apart and decontextualizing individual words while retaining the overall discourse. We further provided a brief overview of observations from a one-month deployment of *Objective Meaning* in a public setting and reflected on how people made use of the installation in general and the presentation mediation in particular.

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