
Evaluating Community Response to Content on Public Displays

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Abstract

This paper presents the results towards the evaluation of content on public displays, and in particular of the impact on its 'users'. In an attempt to gather the reactions from local citizens on an existing urban display, we deployed four different research methods, i.e. contextual interviews, card ranking, interactive content demonstration and postcards. Our analysis has identified a wide range of methodological issues, including social barriers, time constraints, shallow responses and the difficulty in eliciting on-site creative thinking. As a potential solution to overcome these findings, we describe the initial results of a pilot case study involving a radically new approach, in which we allowed citizens to experience content creation and curation on a public display first-hand.

Author Keywords

Public display; urban display; smart city; evaluation study; participation.

ACM Classification Keywords

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

Introduction

Recent technological advances and increased affordability have encouraged various local authorities

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to deploy public displays in strategic locations such as tourist hotspots, commuter hubs and other points of convergence. These displays generally aim to extend existing local communication platforms like newspapers, leaflets or posters, and even have the potential for stimulating social interaction [1; 2] or positively impact cultural life (e.g. [6]).

Most current research endeavors in the domain of public display focuses on the issues of usability and noticeability [4; 5], the variety of possible content types [3; 7; 10] and supported modes of interaction [8; 9]. However, we believe that most public displays do not yet fully exploit their true 'public' potential, as they lack any obvious mechanism that allows citizens to impact the content to be displayed. Accordingly, to the best of our knowledge, still little is known about the preferences of citizens towards public display content, and to what extent the surrounding social fabric can benefit from content that is publicly-agreed upon. This phenomenon might be explained by the relatively limited technical capabilities of currently available public displays, and a general lack of attention towards integrating public displays within their surrounding social context [12].

In this paper, we introduce our first results towards understanding the preferences of the local population about what 'should be shown' on urban displays, and how they perceive the relevance of the content that is actually being displayed. This research covers the technological aspects (what is possible within the technical boundaries of current public displays), contextual aspects (how to evaluate the suitability of content across various social contexts) and creative aspects (how to acquire original feedback from locals).

Public Opinion: What people 'want'

We have gathered feedback from citizens on an existing public display in Leuven, a medium-sized Flemish city, through the deployment of 4 evaluation methods that each focused on a particular question: 1) how people consider the display to be integrated in the surrounding environment (i.e. *contextual interviews*); 2) what people want to see on the display (i.e. *card ranking*); 3) how the public reacts to prototypes of content (i.e. *interactive content proposals*); and 4) what creative insights can be triggered from people by letting them draw or describe content (i.e. *postcards*).

Contextual interviews. The response from citizens was gathered during a semi-structured interview session, based on a predefined list of questions revolving around the relation of the person to the city (e.g. resident, commuter), their planned itinerary (e.g. regular pattern, specific goals), and their appreciation of the public display (e.g. perception of content). After interviews were concluded, affinity diagramming helped to organize the responses and yield insights.

Added value. Situating the interviews within the direct vicinity of the display allowed participants to quickly relate to the research subject, observe the context and form useful opinions.

Issue. Motivating individuals to participate tended to be difficult, as most citizens perceived the researchers as street vendors or pollsters. This hints at an underlying fear of social embarrassment. People that expressed interest to participate were often constrained in time, which prohibited more detailed questions or poll the personal motivations or argumentations behind the answers given.



Figure 1. Researchers discussing content with a citizen in the immediate vicinity of the public display.

Card ranking. To enable the acquisition of more qualitative responses, the method of card sorting was reshaped for the urban environment context. Participants were offered an incentive (e.g. a free coffee) to select and rank three keywords from a list of 30 given keywords, according to what they considered the most appropriate to be shown on the public display. The keyword list was based on results from contextual interviews and covered 18 areas of interest such as way finding, commercials, messaging or culture.

Added value. The ranking of cards happened in an indoor environment (i.e. a nearby café), encouraging participants to engage with the subject for a longer period of time (approximately 20 minutes). In-depth information about the motivation or argumentation of specific preferences could be acquired.

Issue. Convincing people to participate in the card ranking proved very challenging, as participants are required to follow researchers to a different location, and invest a considerable amount of time.

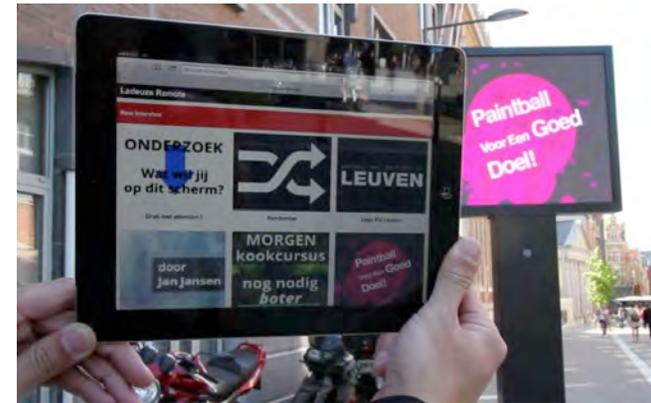
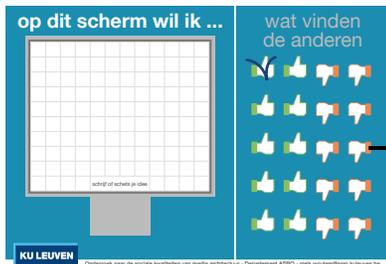


Figure 2. Collection of prototypes available on a wirelessly connected tablet computer.

Interactive proposals. We developed an alternative form of public inquiry, now using the public display itself as a mediator for motivating people to participate. This also provided the direct context on which participants should form an opinion. We utilized a tablet computer with a 3G connection to dynamically switch between possible content alternatives on the public display, in real-time during interviews (see Figure 2). In addition to providing a playful, visual experience, showing content prototypes directly on the display provided participants with an immediate impression of any implications it might bring.

Added value. People were easier to motivate to participate in the study, as they immediately perceived the interactive connection between the tablet computer and the public display; lifting the suspicion researchers were in fact street vendors.

Issue. Participants tended to solely endorse or dislike content by giving one-word replies (e.g. yes / no), even when elaboration was explicitly encouraged.



Empty postcard, containing a large dedicated area for sketching or describing content proposals, and visual elements that allow participants to rate existing



Figure 3. Postcards with content proposals, attached to display. A prompt on the display motivated people to participate.

Postcards. In order to overcome the issue of actively motivating passers-by to contribute, we introduced a participation method that could be observed from a distance. Input from passers-by was acquired using postcards that were attached to the base of the display by way of cables and clothespins. The display itself showed a continuously changing list of topics, preceded by "On this display I want ...", while a prompt encouraged people to submit a postcard, or evaluate the ones that were already attached (see Figure 3). *Added value.* By not actively approaching people, fear of social embarrassment was lifted. The clearly visible postcard collection motivated people to come closer and read, increasing the chance they would participate. *Issue.* In contrast to previous methods, a substantial amount of people actively participated. However, people tended to bring up ideas already known to researchers and content managers. Additionally, most postcards contained written ideas instead of more imaginary sketched content proposals.

Overall, we observed that results were underwhelming. Across all methods, some participants indicated they never observed the public display before or did not appreciate the technology for societal (e.g. excess of commercial advertising) or architectural reasons (e.g. insufficiently integrated in the environment). Also, contextual interviews, card ranking and interactive proposals did not elicit citizens to be creative, often resulting in content proposals that do not contain an intrinsic quality or are not innovative. Most common content suggestions across all methods include video clips (e.g. live sports), local information (e.g. tourist hotspots, locations that are off the beaten track) or cultural announcements (e.g. planned music concerts). The postcards method attracted participants more easily, likely because the postcards, the cables and clothespins themselves served as attraction poles. Additionally, people not willing to suggest ideas could still rate proposals that were previously submitted.

Public Impact: How communities respond

The mentioned issues of involving passers-by in reflecting on public display content, motivated us to consider working towards an 'embedded' evaluation methodology in which citizens could experience content creation first-hand. This led to the installation of a small public display behind the street-side window of a normal residential house. By rescaling the display to the scale of a city street and by making ownership and authorship visible to members of the community, we believe it may lower the barrier for residents to publish messages on such displays, and facilitate possibilities to gather responses from nearby residents. Accordingly, we recently ran a 7-day pilot case study in the city of Leuven with a display installation that allowed text messages of up to 80 characters to be shown.

As residents can publish messages to the display at any time, they also have the opportunity to think about content at their own pace. In contrast to the previously applied methods, this allows for more spontaneous input without an explicit need to be prompted. Also, the private context of a residence may yield a stronger sense of responsibility of the residents towards the display (i.e. its placement in the house) and its content (i.e. quality control by the household).

During the experiment, the participating household published 121 messages. These were analyzed and categorized inspired by methods used in Grounded Theory [11] to uncover main content categories: the large majority of messages (n=68) were meant to interact with or inspire neighbors and passers-by (e.g. "Hello R., how are you today?"), 28 were observations about the weather or current events (e.g. "It's so cold outside!"), 21 offered some form of self-disclosure (e.g. "Would you also love pancakes with a hot chocolate?"), and 2 were humorous and did not explicitly aim for

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response (e.g. "Ceci n'est pas un message", French for "This is not a message"). The remaining 2 messages were classified as erroneous (e.g. containing spelling errors but quickly replaced by a revised one). Our analysis indicates that most published messages were relevant on a micro-level (e.g. events within the family) or situated within the immediate environment (e.g. interacting with neighbors). This contrasts to the results from previous methods, where content proposals were mostly approached from a macro-level point of view (e.g. general announcements, without personally addressing groups of people).

We believe these observations prove promising to be applied in the context of large public displays, by analyzing published content along with reactions by content creators and the larger community. This may result in clearer insights to be formulated about preferences and expectations towards public displays, and the impact such displays have on the environment.

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