

Media Sharing In Situated Displays: Service Design Lessons From Existing Practices With Paper Leaflets

Ana Melro, Bruno Silva and Rui José

Centro Algoritmi, University of Minho
Campus de Azurém, Guimarães, Portugal
{amelro,bruno.silva,rui}@dsi.uminho.pt

Abstract. Digital public displays have an enormous potential as a collaborative technology to socialize in public venues, especially when they are open to the participation of visitors. However, user-generated content is a form of control sharing that requires safeguards against the publication of content deemed inappropriate. In this work, we study the perceptions of Café owners in regard to their acceptance of user-generated content displayed on their venue screens. Our goal is to inform the design of new media sharing services for public displays by uncovering how existing practices with paper leaflets could be leveraged as a conceptual framework for dealing with content appropriateness. Based on interviews with 10 café owners, we identify important insights into some of practices surrounding the distribution of paper leaflets and their implications for the design of media sharing services for public displays.

Key words: public displays, user-generated content, social computing, situated computing

1 Introduction

Situated services have a strong connection with the immediate physical environment in which they are deployed [1]. An interactive public display that accepts content from people in its vicinity is a representative example of a situated service. When interactive or in some other way reactive to the presence of people, public displays can have an enormous potential as focal points for social coordination, helping to create a shared sense of place, inviting people to action and setting behaviour expectations in public venues [2]. While situated displays have existed for quite some time, their wide deployment has been severely limited by the lack of appropriate and usable solutions for trust and control sharing. These solutions need to be able to combine the easy and spontaneous participation of people with safeguards against abuses.

In our research, we intend to uncover the key elements that could compose trust models for media sharing services for public displays. Since these elements may vary considerably, depending on the nature of the places, in this work we are specifically addressing cafés, bars, community centres, and other similar places where people go to mingle with others. More specifically, we study the perceptions of café owners

about the appropriateness of content that could be published on their screens in scenarios where content was, at least partially, generated from café visitors.

The study is based on existing practices with the distribution of paper leaflets at these cafés. This is a very common practice that is grounded on well-established forms of social negotiation, making it an interesting source for informing the design of situated services. Based on interviews with 10 café owners we identify some of the key practices surrounding the distribution of paper leaflets and analyse the respective implications for service design according to three specific themes: content appropriateness, moderation strategies and connections between places. Together, these results constitute a novel contribution to inform the design of new media sharing services for public displays that reflect realistic practices around content publication.

2 Related Work

Strategies for content publication on public displays have been extensively studied in the context of specific display systems [3-7]. These studies involve the issue of moderation and access control, but they also identify less obvious challenges, such as the need for flexibility with regard to content creation, content expiration, and clean-up procedures [4]. While providing a fundamental background for our work, these studies are not focused on the role of social practices in the publication process.

The role of the social setting around the display and how it affects engagement has been addressed in the work by Brignull et al. [8] that has shown how the attention of passers-by (viewers) can be achieved through the honey-pot effect. This work has also shown that since the persons interacting with the display could easily be identified, thus allowing everyone to know who said what, this would lead to a form of social pressure that is not enjoyed by everyone, and was even compared by some people to the public shame felt when going to blackboard at school.

Other studies about user engagement have also shown that social embarrassment can be a huge barrier to use public displays for social interaction [9, 10]. This can change significantly when the interaction is based on mobile phones. This possibility is important as mobile phone is the everyday gadget, one that users do not need to learn how to work with (they are familiar with it) and at the same time contributes to diminish social embarrassment, as users do not need to be seen interacting with the display [8]. Together these studies highlight the importance of the social context in content publication practices, and how content publication policies for public displays should be strongly anchored on practices that are aligned with that social context.

Alt et al. [5] address the issue of the motivations venue owner can have to share their public boards and also their practices for controlling that content. They studied Public Notice Areas (PNAs) to understand what type of content is left there, how the control of content is made and the ways used to entice the publication of new content. Our focus is on the design of digital media sharing services in which the same content can be left at multiple locations.

3 Methodology

This study was focused on cafés and the existing practices for leaflet distribution. We selected 10 locations in the city of Guimarães and conducted semi-structured interviews with the respective owners, addressing the research questions of the study. A key challenge in our research is that the target audience of our study, the Café owners, still do not have any practices of publication in public displays. Their screens are merely used for TV viewing and therefore there is no such thing as someone asking permission to post their own content in there. Rather than asking venue managers about futuristic scenarios for which they have no practices and that they will always have some difficulties in envisioning in their entirety, we chose to explore the practices associated with paper leaflets as a relevant background for framing the emergence of practices associated with user-generated content on the public displays.

The distribution of paper leaflets is very common in these cafés, which often have a small corner, where they can be left. They are mainly used to promote events (parties, exhibitions, concerts, etc.), causes, or small local businesses (house selling, support in studies, etc.). The interesting point about these leaflets is that their distribution is grounded on a broad range of well-established practices surrounding the creation, placement, maintenance and appropriation of places as a display location. These practices are strongly embedded in implicit social behaviours, reflecting the various forms of negotiation around the design and use of those leaflets. Despite the differences in the medium, the essence of the social negotiation involved in leaflet distribution is probably the best approximation one could have to the complex social negotiation processes that may emerge in public displays. Their distribution is preceded by an informal authorization request, in which a distributor will approach the venue manager and show him or her the leaflet that is meant to be distributed. These requests are almost always accepted, in good part because there is an established understanding about what might be reasonable to ask.

3.1 Interviews

To prepare the interviews, we collected multiple leaflets and made a selection of 20 to be used in the interviews. This selection was carefully made to isolate the effect of particular content properties on the venue manager's decisions. Regarding the type of content, we have made an informal categorization of the various leaflets that had been collected, and then we made sure that those categories were properly represented in the 20 leaflets selected for the interviews. Regarding the type of location, we used mainly leaflets collected in cafés, but we also introduced 5 leaflets collected at the University. Finally, we also introduced 7 leaflets collected from cafés, but from a different town located 20 Km away.

Interviews started with the 20 leaflets being placed on a table. Participants were asked to indicate 5 leaflets that they would like to see on their display and 5 others that they would prefer not to be shown. The use of physical leaflets that are part of the daily reality of the participants was meant to provide some well-known context for specific questions, but worked well as a catalyst for the whole interview. The inter-

view itself had 9 questions, distributed by 3 main topics: type of content that place owners would like and dislike to see on their public display; moderation issues; and content publication as a service that allows places to keep in touch and interact with each other. The interviews were recorded with the permission of the participants, lasted approximately 30 minutes and were all made in-situ, so that the interviewees could feel in the right context to answer. Participants were also told that questions were meant to be open, and they should not restrain themselves to direct answers.

3.2 Results

Table 1 summarises the number of leaflets in each category and the number of acceptances and refusals that occurred in the 10 interviews.

Table 1. Leaflets categories and number of times a leaflet category was selected or rejected

Content type	Location where leaflet was collected	Number of leaflets used	Number of acceptances	Number of refusals
Announcing an event	Cafés (other location)	1	7	0
	Cafés Guimarães	3	21	0
	University Guimarães	3	9	2
Advertising a service	Cafés (other location)	6	5	18
	Cafés Guimarães	5	2	14
	University Guimarães	2	2	1

These results are complemented with the analysis of the reasons indicated in the interviews for accepting or rejecting the leaflets. We have analysed those answers and classified them according to the categories presented in Table 2, which shows the reasons indicated to accept or reject leaflets and the qualitative view of the overall attitude towards each of those leaflet types.

Table 2. Main reasons indicated by place owners for accepting or refusing leaflets

	Reason for accepting	Reason for refusing	Overall attitude
Leaflet is from a similar type of place	6	3	Mixed
Leaflet promotes cultural event	3	0	Positive
Leaflet is about local services (same town)	7	0	Positive
Leaflet is commercial advertising	1	6	Negative

Acceptance motivations were mainly associated with a sense of community, and the promotion of the city, especially cultural events. Rejection motivations were primarily associated with competition. If the leaflet was from a competitor place that would be a strong reason for refusing it. We will now analyse the answers according to three specific themes: content appropriateness, moderation strategies and connections between places.

Content Appropriateness.

In regard to content appropriateness, we intended to uncover the main elements that drive the perception of venue owners about which content could be appropriate for

presentation on their public display. By avoiding the noise that would potentially be introduced by obviously offending content, we tried to focus on less obvious values that venue owners could have in regard to the content and particularly on differences of perception between different places. Also, for the same reasons, this could indicate us any differences of perception caused by the fact that the medium is a digital display rather than a conventional non-digital medium. The leaflets that were most often selected as suitable for presentation were mainly related with cultural events in the city, with the justification being that it would be interesting information to visitors:

[Leaflet nr. 1 was select for presentation] *because it's part of Guimarães culture and people need to know what's going to happen during the week.* [ER]

The reasons for possible rejection of some leaflets were varied. The notion of competition was indicated by 4 of the interviewees as very important as many of those rejected leaflets were announcing events at competing venues.

First, because they sell everything I sell. [TB]

3 participants have identified the source of some leaflets as being from a different city (Braga) and for that reason considered those leaflets not appropriate. This clearly confirms the strongly locative nature of some of these leaflets, but also another dimension of the social role in the appropriateness of content, in this case localism:

Would you reject any leaflet from Braga? Yes, I would, anything! [Mu]

Moderation Practices.

In regard to possible moderation practices, it was also clear that different participants chose to take very different perspectives on the moderation issue. While some seemed to struggle on what should be acceptable, other took a much more pragmatic approach by simply not rejecting any leaflets.

Why shouldn't I like?! There is nothing special in these leaflets; they don't have pornography or other content like that?! There is nothing here that would shock me. [M]

I think there will be some moderation, even if a relaxed one, to avoid the possibility of undesired publicity. [TB]

No [I wouldn't like to moderate], I wouldn't have time for that, and I think that the interest of such a platform is everyone being free to do whatever they want. [M]

Participants have also had a very diverse perspective on sharing moderation with others. While some claimed they would not even trust their employees, others have indicated that they would be able to identify several regular visitors they would trust as additional moderators. These results seem to indicate that in regard to moderation techniques there may be a need for flexible approaches that can accommodate a very diverse set of social settings, each with its own needs in regard to the best way to establish moderation.

The Role of Collaboration Between Places.

The final set of questions addressed the issue of connections between different locations, more specifically how venue owners perceive the possible dissemination of content about their own place in other places, even if competitors and their possible role in some form of collaborative moderation. Most venue managers indicated they would be available for either receiving information/leaflets about other places, and for disseminating information about their place. Leaflets from other cafés and bars were more controversial. 3 interviewees have explicitly mentioned not wishing to have information (in leaflets or on screen) about parties or events occurring in places that offer the same service as they do, at the same hours. Competition was indicated as a major obstacle:

Yes [I think it's important to connect with other places], but when it's not direct competition to my place, but I accept information from restaurants, hotels, pubs after closing mine, which are not my competition. [ER]

Yes [we would accept] if it is advertising, parties, discos as of 2 a.m. [C]

However, 6 other interviewees indicated they would not have a problem with competition, and pointed out that it would be an advantage, because it may bring more and different people to the city, and consequently to the places:

I would accept [information from other places] if there were information about my bar as well, I can't see why not. [EB]

In fact, tacit connections already seem to exist that make them accept leaflets from other places. Even if not a formal relationship, place owners already ask each other to leave paper leaflets announcing a party or other events. Reciprocity seems to play an important role in these collaborations. While competition is understandably an issue, the interviews have shown how this perception of competition can be subjective and much more embedded with local knowledge that simply assuming that similar businesses would necessarily see themselves as competitors. Overall, however, participants seemed to be well aware of the high value of collaboration opportunities between different venues in regard to content moderation and exchange.

4 Conclusions

The overall results of this work confirm the importance of established content sharing practices in setting the expectations and the control mechanisms for new situated services. In particular, those practices should be essential in establishing appropriate control sharing policies for user-generated content in public displays. A second important conclusion is the diversity of perspectives that place owners can have on the same issues, and particularly how the concept of appropriateness can depend more on personal values and culture than on content itself. This suggests that situated services should be designed with flexible control mechanisms that may accommodate a broad range of social settings and control practices. The results in regard to moderation also point in the same direction, highlighting the need to accommodate a very broad range

of expectations in regard to how it is done, the guarantees provided and the people involved. In regard to connections between places and the role they may have in content publication procedures, most place owners recognised some value in those collaborations. However, it was also evident that many of them had a very subtle understanding about the nature of those connections. A solution to integrate them into content publication procedures for situated services should be able to capture these subtleties and allow place owners to be in full control of their engagement with others.

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