# $CO_2$nfession: Engaging with values through urban conversations

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**ABSTRACT**
It has been suggested that future directions of HCI would need to place human values at its core. One approach towards this complex endeavor is to build an understanding of these values through examining systems designed to address them. This paper focuses on an urban installation—*$CO_2$nfession/$CO_2$mmitment*—that deals with one such (societal) value: environmental sustainability. Designed to solicit personal opinions about climate change, we found the 'confessional' aspect of the installation encouraged strong reflexivity amongst 'users' with regards to this value and precipitated personal considerations about future actions. More importantly this reflexivity exposes people's lived and felt experiences about this societal value, unearthing their ambivalences, hindrances but also motivations. This installation highlights an alternate approach that can complement current efforts without taking a 'big stick' approach. Instead, urban media technologies can be harnessed to engage people with this value on their own terms, through encouraging conversations and supporting reflexivity.

**Author Keywords**
Interaction design, reflexivity, values, urban media technology, user-generated video

**ACM Classification Keywords**
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

**INTRODUCTION**
Considerations of technology design within the HCI (Human-Computer Interaction) community have evolved considerably since its early formulations of usability that focused on supporting effective and efficient use of technology. As technological products move out of the workplace to become a part of our lives, there is a growing realization that what it means to live with personal technology is not captured in formulations of usability. After all, our living-with-technology is laden with experiential attributes such as notions of self and how we interact in society [e.g., (Grinter & Palen, 2002; Katz & Aakhus, 2002; Norman, 2004)].

Thus the HCI community embraced the User Experience (UX) agenda. Primarily, this considers how technologies may be designed to not only provide the required functionalities but are also optimized to support users' experience during and through use [e.g., (McCarthy & Wright, 2004; Hassenzahl & Tractinsky, 2006)]. The full range of experiences considered include that of fun and enjoyment to richer experiences such as enchantment (McCarthy, Wright et al., 2006), social challenge (Brynskov & Ludvigsen, 2006), and even that of serendipity (Leong, Vetere et al., 2005).

While the turn to UX has led to a better understanding of individuals and individual experience, it has been pointed out that a focus upon human values would extend these notions about the individual to conceptions about what is desirable within a culture or a society. In fact, it is suggested that future directions in HCI would need to place human values at its core (Harper, Rodden et al., 2008).

With this call in mind, this paper explores how technology may be harnessed to support one such human value, i.e., Environmental Sustainability. In order to focus our discussion, we will describe an urban video installation designed specifically with this value in mind. Called *$CO_2$nfession/$CO_2$mmitment*, it took place in the city of Aarhus, Denmark early in 2009.

Besides bringing a particular aspect of environmental sustainability to the fore, the installation was found to also encourage reflexivity for those who 'used' the system through being engaged in public conversations. As we will discuss later, this provides insights into an alternate approach whereby such values could be engendered. Instead of the commonly used 'big stick' approach that pushes values such as environmental sustainability in a didactic manner upon individuals, the installation was found to encourage personal reflexivity; allowing people to enter into dialogue with this value. This approach is more 'open' and allows people to engage with values on their own terms whilst respecting their personal circumstances, contexts and historicity. As we will demonstrate, through appealing to the individual's sense making, there is potential for individuals to engage more actively through their own volition and in turn even leading to attitudinal change.

After turning to the literature to establish what we mean by values and reflexivity, we begin by describing the thinking and design behind the *$CO_2$nfession/ $CO_2$mmitment* user-generated video installation. This is followed by an examination of some of the video content generated by people who used the system, with a particular focus upon people's reflexivity. From this we will discuss aspects that are unique to this system and poten-

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tial implications. We conclude by pulling together what we learnt about this 'brand' of reflexivity; proposing some future explorations of such installations as well as point to an alternative approach to support societal values.

First, we will clarify what we mean by values and reflexivity. After all, these terms are complex and possess different meanings when used in different contexts.

## VALUES

Grappling with values is not a new idea within HCI. 'Value-sensitive design' was proposed over a decade ago (Friedman, 1996), and recently, it was developed as a design methodology that claims to represent a theoretically grounded approach to the design of technology that accounts for the *human values* in a principled and comprehensive manner throughout the design process (Friedman, Kahn Jr et al., 2006). Concurrently, Cockton (2005) proposed a 'value-centered HCI' that focuses upon the *creation of value*, to support the design of useworthy systems when designing technology. In acknowledging the many other ways the words 'value' and 'values' are used within HCI, it is unsurprising that some felt the need to "explore the different and complicated perspectives and their possible boundaries…to identify a framework (or frameworks) that enable the broader HCI community to better understand and discuss this territory" (Gilmore, Cockton et al., 2008).

Our definition of 'values' (in this paper) focuses specifically upon human values. Following Harper et al. (2008, p. 35), *human values* refer to "the ideas we all hold about: what is desirable in different situations, societies and cultural contexts. They guide our actions, judgments and decisions, and are fundamental to what makes us human." Whilst there are many values that we can all agree on, others may be more contentious. "Whether or not we hold a particular set of values to be true for ourselves, they are concerns that are nonetheless more broadly important to us, and that we, as humans, orient to".

In fact Friedman and Kahn (2006) articulated a set of (twelve) values that the HCI community should endeavor to uphold; "Human Welfare, Ownership and Property, Privacy, Freedom from Bias, Universal Usability, Trust, Autonomy, Informed Consent, Accountability, Identity, Calmness, and Environmental Sustainability". But even with such a concrete set of values, it is imaginable that the delivery of one value may be contradictory to other values. Further, a person's values may not align with those held by the community or society he/she lives in.

Given such potentially paradoxical outcomes, there is a need to first explore some of these values in action and hold them up to closer scrutiny. Such efforts are necessary before we can truly understand how to support them. Further, it may also help to explicate the extent whereby values can be supported through the design of technology. So in this paper, we will only focus upon one particular value: Environmental Sustainability. And as we prefaced earlier, one possibility may be to provide an environment (via technology) that provides opportunities to instigate strong reflexive processes in people.

## REFLEXIVITY

Lynch (2000) notes that, "Reflexivity is a central and yet confusing topic. It can refer to an essential human capacity, a system property, and in others, a critical, or self-critical act". His inventory of 'reflexivities' illustrates the complexity and fuzziness of its usage. We do not wish to wade into this definitional debate here but simply to declare what we mean by reflexivity when used in this paper. At its most basic, reflexivity points to two related human abilities: to think about things (as distinct from responding automatically) and to monitor ourselves (Bruce & Yearley, 2006). More precisely, reflexivity is the process by which people reflect upon themselves and their concerns *in relation* to society, and vice versa. "Human reflexivity works through 'internal conversations' using language, but also emotions, sensations and images" (Archer, 2007, p. i). Such deliberations are important because they form the basis upon which people determine their future courses of action.

And as Archer (2007) contends, not all internal conversations are fully reflexive. Some "lack the crucial feature of the 'object' under consideration being bent back in any serious, deliberative sense, upon the 'subject' doing the considering. Further, the deliberation needs to concern social matters" (Archer, 2007, p. 3). She is concerned primarily with strongly reflexive processes; of reflective deliberations about matters that are primarily and necessarily social. This too will be our focus when examining people's internal conversations that arise from their use of the urban installation in question.

But a final point should be made to distinguish between reflexivity and reflection. For Chiseri-Strater, "to be reflective does not demand an 'other', while to be reflexive demands both an other and some self conscious awareness of the process of self-scrutiny" (1996, p. 130). Put more simply, reflection is thinking about something after the event. Reflexivity, in contrast, involves a more immediate, dynamic and continuing self-awareness (Finlay & Gough, 2003, p. ix).

Now we will turn to the installation.

## TOWARDS THE VALUES OF ENVIRONMENTAL SUSTAINABILITY

The Center for Digital Urban Living (DUL) is a national research center located in Aarhus, Denmark. In the last couple of years, several people at DUL have been investigating the properties and qualities of urban interactive systems, e.g., media façades, mobile and pervasive games, interactive museum exhibitions and digital art in urban space. In particular, two of the four groups in DUL are working with large-scale experimental systems. They are the Media Façades group and the Civic Communication group. The research strategies include material studies and small-scale experimental systems as well as large-scale production quality systems carried out with external partners. Public deployment of such systems and interventions are found to be crucial means not only to gain a better understanding of how new systems work 'in the wild' but also how people experience and make sense of them.

**Figure 1. The $CO_2$nfession/$CO_2$mmitment photo booth (left), with camera (middle), chair (right), AstroTurf and props.**

### $CO_2$nfession/$CO_2$mmitment

*$CO_2$nfession/$CO_2$mmitment* came about because the Municipality of Aarhus (a partner of DUL) has an ambitious goal: It wants to be $CO_2$ neutral by the year 2030. To meet this challenge, it aims to engage citizens to make a difference on an individual level by reducing his or her emission of $CO_2$. This led to a strategic venture—the CO2030 Campaign—aimed at addressing Aarhus citizens through various initiatives held in the city. One such initiative was a large exhibition, called *CO2030*, held in conjunction with the international *Beyond Kyoto* conference. With more than 1500 attendees, and a list of prominent international keynote speakers, it was hoped that this exhibition would provide an opportunity for the citizens of Aarhus to meet up, be inspired, procure advice and learn about how to decrease their $CO_2$ emission

As a partner of the municipality, DUL was invited to contribute to the exhibition, to do 'something' to attract people to the exhibition, and to make visible the faces of its citizens in their fight against climate change. *$CO_2$nfesssion/$CO_2$mmitment* was one of two urban installations that DUL deployed during this event. It ran throughout the four days of the exhibition. The outcome of an iterative design process, the "confession" (of "sins") and "commitment" (to change) was chosen as a metaphor for this alternative video booth. We wanted the public to quickly and easily get a rough idea of the interaction and of the motivations behind. However, the scenography and the graphic design of the booth quite clearly communicated that there were no religious undertones.

*$CO_2$nfesssion/$CO_2$mmitment* is an advanced video installation developed by DUL in partnership with outdoor media agency AFA JCDecaux and the Municipality of Aarhus. The installation consists of two parts: (i) a video booth inside the exhibition space (the Ridehuset) and (ii) screens on bus stops and info stands around the city.

#### *Video Booth*

The video booth (Figure 1) was located inside the exhibition building, and consequently, most users were there in homogeneous groups because of events or lectures in connection to the exhibition and other activities. People could enter a booth where they can "confess their climate sins" (e.g., using too much water or electricity, eating too much red meat, using the car unnecessary, etc.) to a video camera, and at the same time pledge a commitment to a more active fight for a better climate in Aarhus. Some props were placed in the booth to help inspire and support people's conversations/confessions. At the same time, a video loop with earlier recordings was shown outside the booth to attract bystanders.

The videos recorded were diverse: ranging from straightforward confessions (just talk), to highly animated narratives with props used in creative ways. The latter were especially successful in attracting children to the booth (although only recordings of people above the age of 18 were distributed in the city). The video recordings were edited the same day and distributed across the screens in the city. A demographically wide range of people used the installation. This included visitors to the exhibition who used it as an opportunity to get something off their chest to even the Aarhus city Mayor.

#### *Screens on bus stops and info stands*

In total 68 videos were made and distributed to screens around the city over the four days. Located in busy city locations, these screens showed edited versions of the videos 24/7 for four days (Figure 2). People could view broadcast confessions and also hear the confessions by touching a sensor on the screen to activate the audio. A number of people remarked upon their existence. We noted stories of people going to a certain screen to see themselves and also stories of people being surprised when suddenly seeing some of their friends appearing on the video screens at the bus stop.

### FINDINGS

As we mentioned earlier, *$CO_2$nfesssion/$CO_2$mmitment* is a one-off experimental installation designed for the Aarhus CO2030 Campaign. DUL's mandate was to make public the faces of citizens in this struggle to reduce climate


**Figure 2. Edited confession videos distributed in the city on monitors embedded in posters on bus stops and info stands.**

change. Encouraging reflexivity was not fore in its design and certainly not its explicit intention. Thus the interview data (of video booth participants and people at bus stops) did not specifically seek out this aspect of the installation.

The most complete and pertinent record with regards to reflexivity lies with the 68 user-generated video recordings from the video booth. These were transcribed (originally in Danish and then translated into English). We examined the transcripts for evidence of strong reflexivity. The numbers at the end of the transcripts are timestamps.

#### User-generated videos

When we reviewed people's videos, we note that the 'confessional' set-up and framing encouraged people to be reflexive with regards to the topic at large, i.e., $CO_2$ emission. This involves the consideration of self, in relation to their (social) contexts and vice versa. In doing so, the individual had to 'turn back on oneself', to hold up one's personal values against what is required or expected on a societal level. Besides this, it puts people on the spot and urges them to consider just what it is that is personally important to them, how this may relate to larger concerns and in turn how they might act.

> *Hey, Aarhus. I'd like to confess my, eh, $CO_2$ sins. I LOVE electricity. All electricity. My computer, my TV, my radio, my car, my hot coffee and, uhm, all electric light. I think electricity is fuckin' cool. And I try, I try to cut down on it, but, mmm, it's gonna be really hard, and I'll be sorry to use less electricity. Going to be real sorry in the future.* Man (20:20-21:01)

The example above highlights the fact that reflexivity is deeply imbued with the sense of self; of personal values, likes, desires, and so on. Although it varies in degrees of explicitness, deliberations from reflexivity form the basis upon which people determine their future courses of action (Archer, 2007, p. 4).

> *Well, I must admit that I really like my hamburger, but it, err, it emits $CO_2$, which I'm being told today. So from now on it's NO MORE burgers, burger eating. It'll be nothing but salad, or...(thinking)* Boy with tie (14:33-14:54)

While the 'boy with tie' is considering options and future actions, a potential change that is aligned to reducing $CO_2$ emission, this may or may not come to pass. On a seemingly opposite scale is the next example that shows one participant playfully mocking his 'climate sins' and displaying faux guilt.

> *Well, I don't feel too good... It's because, eh... it's, like, I accidentally took the car to work the other day, and, emmm, it's like, I have only 755 meters to work, but it was raining, so I, so I took the car. And I don't think I will sleep very well tonight, but well...* Man (03:39-04:15)

The apparent mocking attitude doesn't mean he is unreflexive. If anything, his 'act' reveals otherwise. He knows precisely what he *should* be doing and how he *should* feel about his actions. This reminds us that whilst reflexivity guides future actions, it does not promise or prescribe a particular course or trajectory of action. This depends upon the individual's commitment and sense of volition. Nevertheless, when reflexivity is encouraged, the individual is confronted with a moment of rumination; one that is charged with personal sense making and that could potentially precipitate a turning point in how one judge and decide to act.

In providing opportunities for confessions to more than one person at a time, the installation appears to support a further layer of conversation to personal reflexivity. Below is the transcription of a mother-daughter confession.

> *Mother: Sometimes, when it's dark and winter, and when it actually rains in the morning, I may very well take the car to pick up [my daughter] in the afternoon. Even though it's not that far, because I don't have time to just walk home. Yeah, how's that? What could you do in order not to emit so much $CO_2$?*
>
> *Daughter: You could avoid leaving the car on when you're not using it.*
>
> *Mother: Yes -- you know that some of the worst thing regarding $CO_2$, that's actually traveling on airplanes? Would it be OK for you not to fly in order that you lower your $CO_2$ emission?*
>
> *Daughter: No, because I don't fly that much.*
>
> *Mother: You've actually only flown once in your life.*
>
> *Daughter: Yes.*
>
> *Mother: So that doesn't count much...*
>
> *Daughter: No.*
>
> (00:00-00:56)

Having to engage in dialogue requires a person to interpret the other person's point of view. And here, the dialogue is intimately intertwined with the individual's reflexivity. Archer (2007) goes into much more detail about the communication potential when internal conversations are shared in external conversation. In particular she highlights the ease and efficiency of communication when the speakers share contextual references, i.e., shared understanding, history, etc. It suffices to point out in this paper


**Figure 3. In the city, viewers could activate the sound. Interviews revealed that the majority understood and sympathized with the overall theme and could relate to the persons, but they could not recall what was actually said.**

that our examination suggests that the individual's reflexivity can be potentially (and mutually) shaped by the other through this dialogical interaction.

In the above example, the short conversation between the mother and daughter did not appear to go anywhere—as far as future action is concerned—with regards to $CO_2$ emission. But the installation nevertheless provided a novel opportunity for them to air (and share) their internal reflexivity, allowing for the discussion (and even debate) of the issue together. For while both of them might have participated in various climate events, and been 'pushed' with information about the 'what, how and should' regarding climate change, it is during this brief moment in the booth that they were presented with the opportunity to air how it is this value affect their everyday lives both as individuals and as mother-and-daughter.

For another two people (a boy and girl, early 20s), their joint confession revealed their inner reflexivity and through this forum of sharing and co-reflection led to some mutual-affirmations about future actions.

*Girl: Erm, and then I'm really bad at remembering to turn off the light after myself when I've been in a room and leave it. That's not too good either.*

*Boy: Well, I'm pretty good at that.*

*Girl: And I almost never turn off my computer. That's not too good either.*

*Boy: I can confess that I'm not good at taking the bike,*

*Girl: No, neither am I.*

*Boy: Mom and Dad will drive [me] anywhere.*

*Girl: Yeah, they'll drive. They're easy to convince.*

*Boy: Yeah.*

*Girl: So, one should probably be[come] better at taking the bike, right?*

*Boy: Yes.*

*Girl: And then remember to turn off one's computer.*

*Boy: Yeah, you should.*

(00:00:56-00:01:30)

Despite the framing of the occasion, the location of the booth and the collective feeling of supporting efforts towards reducing $CO_2$ emissions, the reflexivity of some revealed more interesting (and deeper) issues.

*The fact that every time there's a investigation, every time something happens, then... then there's another investigation which shows something completely different, and that's incredibly frustrating to me. Ehm... It's very difficult to find out what I should believe in then, and I think there are many others who have the same experience. Personally, I have a very hard time figuring it out.* Young man #1 (00:06:44 – 00:07:39)

*The oceans they're getting warmer and the poles are melting, but there's been ice ages in the world before and there's also been much warmer than there is now, so why should it be us [that are the cause of this], why isn't it just something natural that's coming.* Young man #2 (00:10:21-00:10:35)

Users of the video booth know that others could watch their confession. The possibility that it will be watched by someone they know will be high given the size of city of Aarhus (240,000 urban inhabitants). Despite this, the reflexivity revealed by the above two young men shows that their internal conversations don't exactly 'tow the line' or follow the 'correct' public rhetoric about $CO_2$ emissions. Glimpses of such reflexivity provide valuable and pertinent clues for understanding how individuals negotiate societal values. The revelations of individuals' confusion and apprehension about this value and what it means to them may also seed suggestions to (re)think approaches as to how this value could be supported.

The airing of some reflexivity reveals perhaps unexpected factors that may guide people's apparent support towards reducing $CO_2$ emissions. The example below of a young woman and a young man also highlights how this reflexivity can be richly stained with the lived experiences of

individuals; in this case when asked by society to embrace this value. Once again, this highlights the potential capacity of such urban conversations to unearth factors that are perhaps overlooked when considering how such values could be supported.

*[She's questioning him. Quite seriously.]*

*Woman: If you have to be totally honest, how much does this mean to you, how much will this event change your opinion on the whole climate debate, how much more engaged will you be than before?*

*Man: This event? Probably not very much, because for economic reasons I usually already turn off the power when I'm not using a thing. That's life for a student.*

*Woman: Have you reflected on it before? [Pausing] The whole environmental debate and $CO_2$ and that we mustn't... that it's a bad idea to use deodorants and so on [smiles] and beef and...*

*Man: No, neither deodorant nor beef. I use both.*

*Woman: What's the decisive factor when you decide? What would make you more engaged in this?*

*Man: Probably primarily the economic half [i.e. part] of it. Again, that's what it's like to be a student.*

*Woman: So if you can save money, then you'd be more engaged?*

*Man: Yes.*

(00:19:15-00:20:20)

### Screens on bus stops and info stands

Although the screens deployed in the city elicited attention in general, it was difficult to get people to actively engage in exploring the video content. Two-thirds of the people interviewed had activated the sound using the "Press for sound" button. In general, 13% of all people waiting in a bus stop during periods of observation activated the sound. For the info stands, it was 6%. While the sound was audible, few people could actually remember what was being said.

This may be because there was too much interference from ambient noise or that the content did not interest them enough to pay continuous attention. Further, most people were there to catch a bus. Thus, their attention was most likely divided. Incidentally, a lot of interviews were not completed. This is because the interviewees had to get on their bus when it arrived.

Despite this, some people reported that they felt that they could relate to a few of the personal stories being told. This led them to ponder about their own practice. Even when internal conversations were triggered in the viewer, the interviews examined found that these were not strongly reflexive encounters.

It may appear (for various possible reasons) that viewers out in the city do not display strong reflexivity. Of course this may be due to the factors mentioned above that dampened engagement but it may also suggest that 'passive' reception of other people's reflexivity does not encourage strong reflexivity. This remains to be explicated with future work through a more focused investigation of the viewers' experience.

## DISCUSSION

The *$CO_2$nfesssion/$CO_2$mmitment* installation has many features similar to other urban media technologies in terms of functionality and exposure. The constellation of photo booths, public exposure and urban conversations is not new. Made popular in the 1920s' New York (Goranin, 2008), automated photo booths have become part of the urban inventory, serving both practical and social needs. Photo booths as a dedicated medium for public exposure and identity construction varies in penetration across cultures—common in the US and Japan (cf. the *purikura* phenomenon, e.g. www.photoboothjapan.com) but less so in Denmark.

A prominent (early) example of the equivalent of a networked photo booth is *Electronic Cafe* (www.ecafe.com/about.html), a network of cybercafés founded in Los Angeles for the 1984 Olympic Games. As an artistic endeavor, its ambition was to organize and produce live performances and encounters for geographically dispersed patrons. Other types of video booths include the vox pop video containers or booths set up, e.g. in a city, by TV broadcasters so that audiences may offer their opinion on a certain topic. A more recent example of a similar, but web-based, infrastructure is Google's *YouTube Upload Booth* (http://googlemac.blogspot.com/2009/01/youtube-upload-booth.html) that resembles a red British phone booth. Another webservice, with a more sinister tinge, is *PostSecret* (http://postsecret.blogspot.com/) where people can upload anonymous secrets or confessions. It contains some quite confronting specimens.

At its core, *$CO_2$nfesssion/$CO_2$mmitment* is a video booth with a simple broadcast network. But in contrast to the naked booth, it is embedded in the theme of $CO_2$ reduction and not purely for arbitrary use or entertainment. Whilst the cybercafe network is symmetrical, with the communication between patrons in cafés, *$CO_2$nfesssion/$CO_2$mmitment* is asymmetrical, exposing the videos to another audience.

The difference between broadcasting on TV or the web and in the local city is important. The feeling of a very close relationship between the input end and output end conveys the implicit message that the audience could very easily take the stage and become the performer. Also, although the urban screen is physically the same as a TV screen, the viewing situation in urban space is very different than the one in a private home. Whatever reactions the exposure may cause, they are most likely shared among people who may very well react to the others' reactions (c.f. Dalsgaard & Hansen, 2008 below). This has an impact on the person sitting in the chair in the confession booth as well as on the audience experiencing the confession in the city.

Another (and better researched use of confessional video) is *video diaries.* Used as a data collection tool, participants are given video cameras to record particular confessions have been used to unearth their reflexivity (Holliday, 2000). In the same paper, Holliday raises particular issues

pertinent to this use of video, e.g., video used as a narcissistic identification with an imagined viewer and "possibly (hopefully) by an assumed sympathetic reading of the material from a similarly situated researcher".

While this may ring true for such self-produced (and self-editable) private confessions for the researcher, the users of the *$CO_2$nfesssion/$CO_2$mmitment* video booth don't have that luxury. They know that they can't edit or delete the video. They know that it will be shown outside the booth, for an edited version of their confession may be publicly broadcast for the following four days, 24/7. And thus they can't hide behind that comfort of privacy. This bears strong influences upon their confessions.

Participants in the video booth are required to *externalize* their reflexivity. Some researchers undertaking qualitative research do the same. They invoke (self-)reflexivity during data collection and analysis in the form of personal notes and diary entries, "to better represent, legitimize, or call into question their data" (Pillow, 2003). This private externalization differs significantly with those arising from the staged *$CO_2$nfesssion/$CO_2$mmitment* video booth. Here, people's reflexivity is externalized in a situated, ad hoc, high-pressured, public and potentially disempowering situation. This has various implications.

One immediate and observable impact is that some of these factors create significant hurdles that deter many from participating in the video booth. The other and subtler impact is how these factors influence people's confessions (reflexivity) during use. With the latter, these factors can problematize this reflexivity. This of course is an advantage conferred by such experimental installations for the introduction of novel situations and conditions can shed light upon our understanding of reflexivity. More importantly, it presents an opportunity to explicate ways and means (and to what extent) we might be able to second technology to better support for it in urban settings when dealing with widely publicized and presumably socially held values, e.g., in this case, $CO_2$ emissions.

On a participatory level, the location of the booth, set within a busy and crowded location, with a looping video feed of previous recordings outside meant that any individual using this booth will be noticed by others and will attract some attention. Besides hindering people who are more timid and shy or those who, for whatever reasons, do not want to be singled out, it will potentially appeal to those who are more gregarious and confident or people with particular agendas that they wish to broadcast, such as in this case, the City Mayor of Aarhus.

Using the concepts of Dalsgaard & Hansen (2008), whereby the user is simultaneously operator, performer and spectator when interacting with certain technologies, *$CO_2$nfesssion/$CO_2$mmitment* can thus be characterized as a very focused interactive system, meaning that the performer is put very much in focus. Considering ways to lower the participation barrier will encourage more people to use it. That would be introducing a more unfocused interactive system. Providing more discreet access may be one possible solutions, but it might very well be that doing the opposite, e.g. adding a live-feed instead of recorded clips in front of the booth, could extend the recording activity inside the booth to a sort of live event for audience outside and thus attract more participants. However, these considerations will need further investigations in the future. It may also be charged that this booth is appealing to the converted.

But even if an individual overcomes this, he/she is literally put 'on the spot' and 'on the record'—in focus—knowing that what is said will be publicly circulated. This meant that social factors such as impression management, public perception, peer pressure, and so on may interfere with people's reflexivity.

Other installations that attempt to facilitate conversations in urban space also address this issue of focus. *TexTales* (Annay & Strohecker, 2009) is an interactive media facade where participants can send statements via SMS to the wall. Here they are displayed as captions for a pre-selected picture, thereby adding a comment to the ongoing public discussion. The anonymous SMS creates an unfocused interaction that lowers exposure of the person and puts emphasis on the message. It would be interesting to compare the effect on reflexivity exhibited by the 'users' in systems with different levels of focused interaction.

## CONCLUSION

Despite the fact that various properties and factors of the installation could influence and contribute to encouraging reflexivity, they should not distract us from seeing what we can learn from this installation when considering how urban media technologies may be harnessed in the future to support societal values such as environmental sustainability.

Our critique of the *$CO_2$nfesssion/$CO_2$mmitment* found that it was able to support reflexivity amongst people who used it, in particular with the confessional video booth. The examination of the user-generated videos shows people's reflexivity about their own practices and relating that to the value at hand, i.e., the reduction of $CO_2$ emission. It showed that they were able to reflect upon the particularities of themselves and their concerns in relation to this particular value and vice versa. Some also expressed commitment to 'better' practices in support of this value.

More interestingly, the reflexivity collected allows us a glimpse into the individual's circumstances, contexts: the lived experiences of the individual in relation to this value. This includes the conflicts, the motivations, ambivalence, doubts, and so on. Through getting closer to this and how people make sense of their particular situation, we can also begin to understand the decisions that guide their future actions (with regards to this value).

By having access to such information, we can take those individual particularities into mind when working out approaches of how to better garner community support for particular values. In short, urban media technologies can be designed to better encourage reflexivity from users and in doing so be harnessed to gather richer, more felt and lived information from citizens regarding particular value, such as that of $CO_2$ emission.

Besides this, and with further understanding through suggested future work, urban media technology can potentially serve as an approach to supplement current efforts such as education, informational and others to engender more active embrace of this value. After all, if through reflexivity an individual is guided to act in alignment to this value, e.g., to make an effort towards reducing personal $CO_2$ emission, then the individual's perception of this self-volition would most likely lead to an attitudinal transformation. In short, through encouraging reflexivity, we allow people to decide for themselves as to how and to what degree they wish and could act to support this value (or even to object or refuse), would add to the success of current efforts to engender a more committed embrace of societal values such as the reduction of $CO_2$ emissions.

Based on this nascent study, we close by proposing that encouraging reflexivity in people—through self-conversation and/or with others in public spaces—could potentially engender people to make decisions and carry out actions that are based on self-volition. The novel installation of *$CO_2$nfesssion/$CO_2$mmitment* exemplifies some of the aspects that could be adopted and adapted to designing future urban media technology to (better) encourage the provision of reflexivity. This approach may prove to be fruitful especially when supplementing current campaigns aimed at education and the dissemination of information. After all, actions that arise from the deliberations of self reflexivity do depend not only upon our commitment but also upon our knowledgeability (Archer, 2007).


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