Suicide Effects: Designing for Death

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ABSTRACT

This paper presents design ideas and suggestions for digital signage systems within the Tokyo transportation system to create and nurture social and community engagement around the phenomena of train suicide. This method of taking one's own life is widespread in Japan and repeatedly cripples the schedules of trains creating delays. The authors of this study have conducted field research and interviewed a number of participants on their perception of suicide in the train system and their observation of other passengers' behaviour. Our analysis has shown that a tragic act, such as suicide, offers multiple views and departure points for design. The outcomes of the paper, aside from analysis of collected data, are ideas and suggestions for designs and design guidance for particular urban spaces and insights into the design of urban systems that foster community awareness and engagement.

Keywords

Design, Death, Suicide, Public display, Social media, Urban Information Systems, Transport

INTRODUCTION

At 5:15 p.m. that day, a 51-year-old man from Ibaraki Prefecture died after being hit by a train at a JR station in Tokyo's Chiyoda Ward. A JR employee and several passengers saw the man jump on the track from the platform. Although no suicide note was found, the man had a history of suicide attempts. At 5:55 p.m., a 65-year-old man was killed by a train after entering a Keisei Line railway crossing in Tokyo's Katsushika Ward. The man had no job, was on welfare and lived in a cheap lodging house in Tokyo's Sanya district. According to his friends, the man's health had been deteriorating. At 6:09 p.m., a woman believed to be a foreign national was run over by a JR train in Saitama. She had been staying in Japan for the birth of her grandchild. "I had lots of stress because of the difference in the language and lifestyle (in Japan)," she said in a suicide note. At 7:25 p.m., a pharmacist jumped toward an oncoming train from a station platform on the Tokyu Line in Yamato, Kanagawa Prefecture. The contents of the shoulder bag he had with him were scattered around the site, including a memo that said, 'I'm sorry.'.[2]

These four suicides happened on the Tokyo transportation system and probably affected between 80 to 800 thousand people caught in the delay. Given these tragic events happen in the highly engineered and designed space of stations and rail tracks in a country with arguably the most advanced public transport solutions, spaces that people have created, they provoke us to ask how we can confront death, specifically suicides on the Tokyo underground system, through design. While groups of commuters on a train may not be a community per se what we describe here presents an interesting problem for communities and technologies and, specifically, issues of formation, non-formation and dissolution of publics around particular apparently traumatic events on the Tokyo Metro system. Such groups and their formation may be somewhat transient but we argue such urban, 'liquid communities' are worthy of attention.

The 'take' on the issue of death in interaction design has almost always been medical and has focused on information provision. For instance, Reddy et al. [22] argue for the importance of "information work" in Surgical Intensive Care Unit nursing work and suggest that an adequate treatment of time has been neglected in descriptions (and, by implication systems that have been developed from such descriptions) of such work. However death and dying are multi-faceted, as the HCI and design-oriented communities are beginning to acknowledge [14]. Strauss and Glaser [25] describe the different kinds of work associated with death through chronic illness through their notion of "dying trajectory" including articulation work, information work and sentimental work. In such a view dying through chronic illness, perhaps somewhat coldly, has a "shape" and "critical junctures". This perspective also acknowledges that there is more to managing chronic illness than simply the physical work of care and attending to the physiological needs of the cared for. However, death and dying may not always be as unwillingly participated in and affect different publics in different ways.

This paper addresses how to approach designs related to suicides on the Tokyo underground. Approaching suicide in a research study is difficult for all kinds of reasons, not least because of the sentimental aspects and the devastating impact on loved ones 'left behind'. These reasons, among others including constraints as ethical issues, mean suicide remains largely unresearched from the point of view of

Urban and Community Informatics. In this paper we deliberately focus on the consequences of sudden, intended death through suicide on transport networks in Japan. We acknowledge, as with dying trajectory, the different aspects and impacts of suicide on public transport networks from the perspective of the general publics affected.

SUICIDES IN JAPAN

Japan has the 7th highest suicide rate with 49.5 suicides per 100 thousand people according to World Health Organisation data from 2009. Tokyo is one of the places with the most occurrences. Over 30,000 people committed suicide in 2010 [1]. A recent Reuters [15] news report describes how with regard to suicides in Japan: "although depression was the most common cause, there were sharp rises in the number of people in the 30-39 age group thought to have committed suicide because they had failed to find a job, were unemployed, or were having difficulty making a living, the Mainichi said, citing the police". However, not only unemployed, young, productive men are a notable suicide group. Men in their 50s are also a high risk group, according to this report: "the reason many men in their 50s commit suicide is to leave insurance money for their families".

Suicide methods in contemporary Japan vary and evidence somewhat worryingly points to suicides being influenced by trends and 'popularisation' through various media and the Internet. For example, in 2008, suicide through hydrogen sulphide gas generated from a combination of standard household products jumped from 29 occurrences in 2007 to 517 occurrences in 2008. This rise demonstrates the potentially negative role of the Internet and media, as the method has been described publicly in both, particularly on infamous suicide pact websites, analyzed by, for example, Ozawa-de Silva [17]. Other common methods of suicide in Japan include jumping off high places, hanging, or overdosing with drugs and medication and jumping in front of moving objects, mostly trains [16]. Even though train-related suicides account for a relatively low number of cases in total, their consequences influence the general public far more than any other method. According to Ojima [16], in 1999 the category of 'jumping in front of the moving object' accounted for 2.3% of all suicides among males and 3.3% among women, resulting in 812 cases out of 31,413 in total. Even though these numbers might seem relatively small compared e.g. to hanging (67%, resulting in 21,177 deaths), the specifics of train suicides and their significance for design opportunities lie in their large social visibility in real-time and thus convergence on by multiple publics. Train suicides happen in areas with the highest density and throughput of people. Such suicides are not only a personal or a family tragedy, but are also a major public disruption with impact on a large group of people.

Train suicides in Tokyo

The first suicide on the JR (Japan Railways) lines occurred only four days after its official opening in 1872. Being ever since popular together with the so-called suicide forest (Aokigahara near Mt. Fuji), suggests a nation's problems that are rooted not only economically, but also socially. However, suicide has a different social history in Japan compared with other countries, as explored in depth by Pinguet [19]. He noted that while in many other highly developed countries suicide is stigmatised, in Japan it is generally socially accepted as a valid solution to personal problems. Pinguet attributes this to long history of suicide in Japan throughout both medieval and modern times, when it was seen as honourable way of ending one's life for various reasons. The past prevalent practice of seppuku (or colloquially harakiri) [32], has arguably largely influenced the higher social acceptance of suicide. Such deeply rooted tolerance is reflected even in the legal system of Japan, according to which suicide is not illegal in contrast to most other western, developed countries.

While most suicides carried out in Japan are by their nature private acts, train suicides are notable in terms of their public implications – they influence a large number of commuters. The Japanese transportation system holds first place in numerous statistics, mostly for the number of people it transports every day. Shinjuku station is the busiest passenger terminal in the world, connecting 12 lines and serving 3.64 million people per day in 2007. Thus the impact of suicide on commuters is considerable. The statistics on how many people are actually affected by these acts in peak hour varies by situation, as well as by researcher, but the number discussed is between 20 and 200 thousands (according to the blog posts on http://www.aintnowaytogo.com/suicideByTrain.htm). The impact depends on time and location and train line, but with the vast majority of suicides happening after work hours, the number is arguably very large. Any such statistics include both the people in the trains stopped on the actual track as well as people waiting in the stations for connections.

The treatment of suicide itself is also very specific. As the train system is historically very important in Japan and the need to minimize delays is high, the 'cleanup' of the site usually happens very quickly, in about 20 to 40 minutes. Depending on the exact place of the suicide, it either involves the personnel of the station or the train staff themselves. Their task at such times is to free the tracks as quickly as possible, disposing of the body in the disposal bags the train is equipped with for such occasion. The body disposal bags are color-coded according to the train company and the line, which illustrates the prevalence of the suicide act and the need to 'brand' suicides in particular ways. As soon as the tracks are cleared, the disposed body is left at the scene for further police investigation. When the suicide happens within the area of the station, the scene is usually obscured from the eyes of bystanders with blue sheets in a similar way the Japanese police cover crime scenes. The subsequent cleanup of the scene creates considerable stress for the train operators.

The physical design of the platforms in some stations implement general safety measures in the form of barriers blocking the access to tracks with doors opening after the train stops. While this precaution might reduce accidents, it might have little effect on a determined suicide seeker.

Train mobile phone use in Japan

The use of mobile phones in trains in Japan is a phenomenon that crosses all age groups. However most of the population use them to access information rather than to engage in social interaction. Kimura [10] notes, that such 'social' use of mobile phones is popular only among the young generation in their teens and twenties. The older generation uses the phone to access and retrieve information, rather than to engage in social interaction. They might even be afraid of such interaction. On the other hand, Kimura also describes the relatively high popularity of blogs and Internet diaries in Japan, albeit conducted mostly anonymously. This might suggest, that Internet habits and keitai culture have not fully converged in Japan yet, one the suggestions of Kimura's study.

There are particular social practices associated with the use of mobile phones, or keitai, to follow Ito's [8] established terminology, inside trains in Japan. There is a very strict code and social order connected to the ways people use them including means of "punishment" for mischief. Talking in trains or having a phone ringing loudly is considered as impolite. However, as Ito [8] points out, there are ways to express consideration while at the same time breaking the rule, such as hiding oneself behind a magazine, covering the mouth with a hand, going to less crowded area in the car or simply trying to avoid any eye contact with other passengers. Goffman [7], whom Ito quotes, calls these techniques a "portable involvement shield". In contrast to voice, texting, messaging and mailing are widely acceptable. In fact messaging on trains is a more utilised means of mobile communication than voice itself as pointed out by Ito [8] and under different circumstances by Kimura [10].

As Ito [8] notes, these conventions around keitai arose organically during 1990s and early after 2000, as the penetration of keitai into the population grew and people needed to react to the situation: "the topic of keitai manners in public transportation emerged widely around 1996 and reached a peak in the last half of 2000 through 2001". The social codification of the rules followed this emergence and today most public transport uses identical announcements concerning mobile phone use and divides the space in train cars into a silent zone and an off zone (to protect people with e.g. pacemakers).

In this paper we are interested in examining the possibilities for public information across different displays. Such information can potentially be either preventative (i.e. be designed to stop suicides before they happen such as 'shock campaigns') or informative (i.e. inform people of the consequences of suicides after they

happen). It can also be aimed at different publics (Warner [30]). The social potential of the screens in public spaces has been discussed by Manovich [12] and Struppek [28]. However, their focus was mostly on public events and ad-hoc installations rather than a system remaining in place and allowing continuous engagement through interfacing with a mobile phone. Designing technology for this domain presents a particularly thorny design problem, not least because of the consequences of 'getting it wrong' or the possibilities of malappropriation of any proposed design e.g. to assist suicides. In addition, the Tokyo underground presents a very particular instance of a setting, as are the social conventions around mobile phone use. Given these concerns our approach has been specific and our design suggestions appropriately tentative.

One of the departure points for thinking about design and research here are notions of 'attending from' and 'attending to' that refer to Polanyi's argument on tacit knowledge and the structure of consciousness [21]. The paraphrase, in this case, is rather metaphorical, but in our opinion accurately describes the approach to the use of awareness of the train system breakdown: the result of a suicide. In the 'attending from' mode, we argue that design should help to overlook the personal tragedy of the suicide, the complex network of events, relations and the longer term consequences of the dead person and her or his family, relatives, co-workers, etc. and focus on the immediate consequences it has within the transportation system and on how to solve immediate problems. On the contrary, while in the mode of 'attending to' a suicide, there is a focus on the tragedy itself. We think that in this mode commuters are curious about the details of the tragedy, motivations of the person. Accordingly, the ideas for solutions revolve around addressing the social phenomena, supporting emotional engagement that itself is of great social value. This dichotomy of 'attending to' and 'attending from' creates an opportunity to focus design ideas using two approaches, one completely disregarding the tragic dimension of suicide, the other exclusively focusing on it.

APPROACH

The first stage of this work involved some exploratory fieldwork – informal observations and field notes, taking photographs of signage in trains and stations describing suicides and reviewing blog postings on the topic (e.g. Tokyo's 'Human Accidents' by Todd Crowell on Asia Sentinel [4]). Subsequently the lead author conducted a two-pronged study over two months: a 6-week diary study (cf. [3]) of ten commuters' experience of suicides and their effects on the Tokyo underground system and two months of observations and interviews involving one of the authors. The recruitment and choice of participants for this latter study, as with theoretical sampling [6], was driven by the research questions we wished to answer through the study. Thus, participants used mobile phones to communicate with work colleagues, friends and family, and

traveled on the Tokyo underground. In parallel to this study the first author informed the analysis of the diaries with his own investigations: field notes, photographs and audio recordings focused on the impact of suicides on the Tokyo underground system.

Participants were mostly graduate students between 25 and 30 attending the Graduate School of Media Design at Keio University, Tokyo. Out of eight who initially joined the study, seven participated throughout the whole research. Four were Japanese males and three were foreigners living in Japan for at least two years, among them one woman. They are all very active users of mobile smart phones, and commute daily for one to two hours in total.

This former part of the study required participants to keep a diary while commuting and to note every suicide event they encountered whether they were directly affected by it (e.g. by being delayed or being stuck in a train between stations) or if it was mediated through public address and signage systems. Specifically we asked them to record: details (e.g. time, place) of the suicide event; their behavioral response of to the suicide (e.g. mobile phone use); the information they received on the suicide and how they received it; their feelings at the time; what they did in response to the suicide (e.g. contacted a friend); if and what they thought about the suicide afterwards; what they thought could improve any difficulties with the situation. Thus the diaries were relatively open: we tried to elicit their views without leading them to talk about particular things such as the effect on the deceased's family. The diary study was carried out during summer in Tokyo.


Figure 2: Participant workshop

In a less structured way the lead author also asked participants to take photographs related to the suicide requiring participants to have some sort of camera. During the evaluation all of the participants said they had used mobile phones to take the photos. In the final stage of the study the lead author asked participants to review their data before a final workshop (Figure 2). This workshop involved presenting a version of this data back to participants and eliciting possible design solutions from them. Thus this session focused on commuters' practices around the suicides and possible responses to the effects of

suicides (e.g. being delayed) through station signage, messaging applications etc.

Informal observations and photographs
As we can see in Figure 3, participants took photos of the screens located in the train cars as well as in the stations.
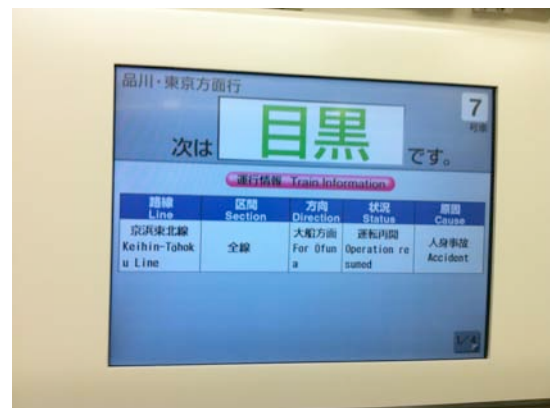
Figure 3: Participant photo of the screen in the car.

The screens in the cars give bilingual information on the status of the transportation system, such as if there is a delay, or, as seen in Figure 3, that operation has resumed after the accident. Participants did not happen to be in the situation when they directly witnessed the suicide; therefore the majority of the photographs taken were of its representation within the signage system and the reaction of other commuters to it.

Figure 4: Participant photograph of a commuter using their mobile phone

Observations also showed that texting was a ubiquitous activity and, similar to Perry et al's [18] filling of dead time by mobile workers through mobile phone use, one of the time killers for long train rides (Figure 4). Especially in peak hours, the trains are very crowded and distances between people are often non-existent. There is an awareness of the privacy of texting so black display covers that limit the angle of visibility of the display are very common. In addition, from these observations, it became clear that the division between different zones regarding mobile phone use is being widely ignored. The station area

is treated as any other open public space. There are also no special rules about phones, except that loud ringing in public and having loud conversations is very unusual.

While none of the participants were involved in a suicide situation really closely, most of the photographs taken were actually those of digital displays – namely public station displays and mobile phones. Some of the photographs depicted a particular instance of people looking at the screen while using their keitai (Figure 5). In this situation, as the participant explained, the screen was located next to North entrance at Nakano station, where most of the people get either in or out the station. In the discussion we then assumed that these people were passengers who had just entered the station and found out about the situation, initiating a direct voice call to someone. We can argue, that in this case, the initial stimulus to make the phone call was what they saw on the display.

Figure 5: Participant photograph of people looking at a Tokyo underground display

Diary Study

In the diary, participants described both their personal response to events as well as their observations of their surroundings, with special attention directed towards the information technologies involved: digital signage, PA system and keitai. The diaries were kept both in Japanese and English, depending on the participant. Diary excerpts in Japanese are translated into English here.

The response of participants to the research exercise was in general positive. They were interested in and motivated to contribute to this research. Through the diary analysis and further discussion, we could see that the interest was piqued mainly by the possibility of engagement. Participants noted that prior to the study they did not pay attention to the phenomena and that the research helped to raise their awareness and curiosity. The diary study also showed that suicides on the train system, even though they influence a vast number of people and are widely reported, are still obscured and impenetrable events reduced to the obstruction of delivering the train service: "when I see the 'human accident' explanation at the info screen," noted one participant, "I don't feel any different than when I see 'big

rain' as a cause of the delay, which seems wrong". We can argue this vagueness of information representation, that we discuss later, also plays a role here.

As mentioned before, the suicide event has become, due to its ubiquity, mundane. However, it may not always be perceived of as a nuisance creating delay. One of the Japanese participants described a recent situation he was caught in while traveling to a university campus for a meeting: "When I was about to change for my connection, the trains stopped. After a few minutes, two or three, we knew what is going on. I was at large station and I knew I am not going to make it in time, so I just took my book and went for a coffee to enjoy the time a little bit". In the discussion he explained: "Being late while suicide happens is accepted within society and I am implicitly excused when I say I was late because of that. The time that I have to spend in the traffic jam is free time. I can read a book, I can go shopping, I can go for a coffee." In such cases the negative response the suicide usually generates is reframed into a positive one.

In the diaries, the majority of the participants expressed a lack of interest in who the person was and what his or her problems were. One opinion was: "I never really think about the persons themselves, there is no connection between the tragedy and the effect of it - me being late". "I would like to know more about the person and also use her or his story to warn others," said another female participant. While being a foreigner herself living in Tokyo for many years, she added "the accidents are rare in my home town [Toronto], so I was quite shocked when it happened for the first time while I moved here. Now I got used to it." This demonstrates the cultural specificity of the phenomena. Other participants had the same opinion. One French participant noted: "When suicide happens in Paris subway it is on the evening news, here it vanishes in 30 minutes". During the review, one of the participants mentioned that this year suicide was on the news in Tokyo once, when there was a big fireworks show and some 200 thousand people were delayed. This led the group to the observation that there is a relatively low level of interest on the issue in newspapers, except for special cases. The participants also noted that suicide at present is not a 'hot' topic in Japanese society.

The diary notes also relate to Ito's [8] work. One Japanese participant noted: "it is unacceptable for me to make an eye contact with anyone on the train in a normal situation. But when the suicide happens, the atmosphere in the train changes, I can feel that the usual convention changes. Sometimes it even happens that people comment on the situation to others". The participant continued to describe how, in such cases, it is socially acceptable to make a phone call while on the train. The portable involvement shield Ito [8] talks about is not even necessary, as conventions have changed.

The diaries also showed the importance of the real-time signage systems: "When I enter the station I can immediately recognize whether there is something wrong. The way people move in the corridors, the numbers of people in the different time of the day give me a hint if everything is alright. If I have a feeling there is something wrong, I go and check the screen". The screen gives a lot of information about the status of the train system in Tokyo. It lists any delays on breakdowns for whichever reason (weather, technical problems, suicides). For the convenience of non-Japanese residents, the system is completely bilingual in Japanese and English. Participants competent in both languages noted the differences between the terminology in English and Japanese. While the Japanese 人身実行 expresses an accident involving a human body, the English translation "accident" is much more vague. Interviewing some foreigners not capable of Japanese it seems that many non-Japanese are not aware that such a situation might be, or is, a suicide. During the review session, participants of different nationalities were asked to give a description of such an accident in their own country. This showed that the Japanese term is the most literal, while the translation from the Japanese to English is the most vague.

The vagueness issue, as mentioned above, was important. The digital signage systems do not report anything specific about the suicide. The fact that there was a suicide, or rather a 'human body accident' is the only information that is released about the event. However, the consequences are documented in far greater detail. The signage systems announce all the lines affected, in which directions, graphically displaying these data on the map and adding an estimate on the delay time together with the information on how the situation develops, such as changing the status descriptions from 'accident' to 'clearing the tracks'. One of the participants noted that from the digital signage: "the suicide is a fact that basically does not matter, what matters is the train system. When you think about it from a human perspective, it's wrong." When asked about what type of information there should be more of, this participant noted that: "it is important to keep privacy of the victim. I was referring to a certain discourse, style, that is connected with talking and referring to dead and that is what I think is missing, rather than more detailed information."

Workshop
All of the participants met for a review and discussion of the diaries and photographs taken during the research. As noted above one of the photographs show an image of people looking at the screen while using their keitai (Figure 5). At this point, the participants described a desire to be able to communicate with others about the event using social media services in the context of the train system. The discussion generated interesting design ideas: suggestions about how to facilitate social interaction between the people caught up in the delay to make them to attend to

suicide as a personal tragedy and; suggestions about how to rapidly extend the 'richness' of the place where the passengers were at the particular moment the delay occurred to make use of the 'free time'.

The emotional aspect, or more precisely lack thereof, was one of the central themes to the whole discussion session. While some ideas revolved around how to make people 'attend to' the suicide, there were also a number of ideas that were more directed toward 'attending from', such as how to use the free time. While one group of ideas was focused towards grieving and may be seen as implicitly positive by drawing attention to the phenomena of personal tragedies in modern Japanese society, another addressed the more functional and rational side of the issue, especially how to deal with the consequences and effects of suicide on regular passengers.

Japanese participants repeatedly mentioned Twitter, which is recently gaining popularity and momentum in Japan, especially among young people in Tokyo. The ideas ranged from the promotion of Twitter hash tags for these events to sharing comments and thoughts while being caught up in the delay, to more elaborate suggestions. The latter included integrating Twitter into digital signage systems in trains and stations to support and promote public and emotional engagement. While this idea is certainly interesting, participants themselves reflected upon possible criticism of such an application, such as how to secure the appropriateness of comments and how to protect such systems from any unwanted content.

More complex ideas included contextual recommendation engines that would, in the case of a delay, give suggestions on activities and possibilities about how to make use of the 'free time'. In connection with suicide, such thinking might be again seen as problematic from the ethical point of view. However, it is somewhat in the tradition of the current representation of suicide in the Tokyo transport and its digital signage system. Such applications would make use both of the public screens and personal handheld devices to distribute the information. Another idea proposed was to use such applications for engagement of local services and facilities, which could use such an application for advertising purposes.

However, public screens were also an inspiration for designing a public health/social campaign on raising awareness of the issue, informing people about causes and possibilities for seeking help. Participants repeatedly suggested displaying such information at the time of suicide, effectively using the heightened awareness to generate a greater impact and response to such information. The suggestions of participants for the exact form of information ranged from imperatives, such as "Don't commit suicide!" to the more traditional "Ask your closest ones for help" or "There is always a solution to your problems". One Japanese participant noted that the

imperative form and its intensity in Japanese might have significant impact on potential suicide victims.

DISCUSSION

In Strauss and Glaser's [25] terms a suicide's dying trajectory comprises a sudden, abrupt and often unexpected end. Strauss et al [27] also remind us of the sentimental aspects to such sad events and the need for different kinds of work to deal with the resulting trauma. However, here we have shifted the focus from those directly involved in the suicide through social worlds and networks connected to the deceased to those who experience such suicides as a somewhat mundane, everyday and even annoying (as opposed to upsetting) occurrence. The suggestion here is that the experience of Tokyo commuters with regard to suicide is not one of trauma but one of inconvenience from a functional network being disrupted. Through the diaries and the workshop participants raised issues that were somewhat surprising to us – namely issues of *disconnecting* from the realities of suicides and *using* the time available as opposed to *connecting* to the event through information. These ideas repeatedly emerged whether through the discussion of current information and displays related to suicides on the Tokyo underground or of new designs.

This finding contrasts with the tendency to circulate particular images of victims of terrorist attacks via mass media [23] and thereby constituting "an intimate public sphere" through "evoking feelings of [collective] grief and horror." This stands in stark contrast to the emotional disconnection described by participants in our study and their responses to current information services in the Toyko train system. Emerson and Pollner's [5] notion of "dirty work" also reminds us of the importance of considering "social worlds" [26] or, in Warner's [30] terms "publics" when approaching the effects of suicide and how we might design for them. Although train commuters could not be considered to be involved in such 'dirty work' they nonetheless demonstrated how they distanced themselves morally and emotionally from the event.

The suggestion we also make is that particular aspects of suicides can be designed for, which might seem like a strange and dubious claim to make. We anticipated that participants would want tools to minimize disruption to their journey and support resumption of movement through the public transport network e.g. rerouting their travel onto other rail lines, or recommending other transport service providers, or even suggesting alternative overland, or pedestrian routes to circumvent the disruption. Yet instead the kinds of applications that participants discussed, on the one hand, focused on maintaining an appropriate distance from the particularities of the event or distracting them from it altogether through filling the literally 'dead time' [15] the suicide had created while, on the other hand, suggested using these disruptions as an opportunity to raise awareness and to deliver public health messages and the like. Such suggestions, more broadly, suggest the role that

technology design can have in *not* providing information, or at least appropriately vague and distracting information – even the discussion of the 'appropriate' Twitter feeds and 'preventative' information suggested distance from the realities of suicide. Work in the area of 'awareness systems' [13] suggests a role and potential for multiple displays to support different threads of work. Yet, through what participants wrote and said, a different sense of awareness is evident – being appropriately aware of that which is not relevant to the immediate situation.

Yet, we suggest that both of these alternative design suggestions – the 'tools' and 'dead time' view – miss a key design issue if not carefully considered. The first suggests a Taylorist, economic role for representations and information while the latter suggests an almost hedonistic view of design. Instead, we argue for the importance of considering the information and representations firstly in terms of 'interventions' and secondly in terms of different scales and networks. Drawing on research from media [20] and suicide research in Japan [31], we suggest a role for health information that could possibly result in a reduction in suicides on the public transport network through doing exactly what participants did not want: representing the far-reaching, long-term consequences of suicide. In addition, we believe that augmenting the public display of announcements and providing opportunities for the public to exchange, share and circulate information in ways that traverse private and public screens has an important role.

The data also illustrated how the conventions regarding mobile phone use changed within unpredictable and disruptive situations – the need to connect with others on the train became acceptable in situations that are temporally and/or spatially close to the suicide event. This change is in the form of utilizing eye contact within a train and in changing practices around public information displays (that is changing them from passive announcement boards to a means of public engagement). When we consider more closely participants' reflections on the screens and their use, we can identify three types of interrelated display technologies: the static display in the public space of the station; displays on the train and; the displays of mobile phones. Even though they often can and do display similar information, the ways they are designed and how commuters interact with them are quite different.

Displays are installed in the public space of the station – i.e. corridors connecting different lines and station platforms. The interaction with these displays is usually very brief. They have, however, a great audience as they are usually placed in bottlenecks and places where most of the commuters are passing. In the case of breakdown of any sort, these displays usually draw more attention and people stop by while passing them to see the latest state of the train system. The interaction with the displays in the train cars is different. Passengers usually stare at them for longer in between the stations watching either advertisements or the

same information as on the station displays. The interaction with these systems is also passive. The third type of displays that we addressed is mobile phones, or keitai. They differ because they are interactive and private. Interaction with keitai is also bound by cultural rules, as we described earlier in the paper and depicted in Figures 4 and 5.

These three systems represent a potential for design interventions to raise emotional engagement within the community of commuters. One approach is to interconnect these technologies in a design solution, using their specific characteristics, such as the privacy of mobile phone displays against public displays' affordance for addressing larger audiences. We suggest that bridging public and private through weaving these technologies together creates the potential for transforming public space. In this particular case we are looking into the potential for raising awareness and emotional engagement in the situation of suicides, but this also involves a transformation of community that is bound by shared space and activity (commuting).

We argue that technologies connected in this manner, along with the applications designed for them, create new material-semiotic ecosystems, or actor-networks [11] through which information and representations of suicides are circulated. Through their circulation across these different public and private screens their significance is translated and mutated in ways that can be manipulated through design. From private to public, from station and train display to keitai and vice versa, messages can be used to weave a net of engagement. In our particular case it is the message of suicide paired with the message of train system breakdown. These systems can also be extended beyond the space of the station to keep awareness among commuters, who are out of the train space, but they are about to go to the station. This notion of awareness is achieved through "monitoring, visualizing, reminding and persuading as the main functions of the new tools and applications working with large numbers of human and non-human users and their collectives" [9].

DESIGN PROPOSAL
Discussions of the transformation of public spaces to facilitate the formation of urban communities often highlight the difficulties faced when attempting to implement and fund these initiatives. In the case of the Tokyo underground the necessary infrastructure is already in place. We believe this infrastructure can be used in conjunction with re-appropriated commonly used communication services to design a system that addresses the issues associated with suicides in the underground. However, designs associated with suicide must be deployed carefully given the demonstrated coupling between particular ways of committing suicide and their representation in the media in Japan.

Currently, the use of Twitter is rising sharply in Japan, and Asia in general, and many people in Japan are now familiar with it. Shirky [24] argues that Twitter has enormous social potential, as has been seen in its use during large-scale disruptive events such as the recent earthquakes in China and Haiti. We suggest that an already functional and somewhat proven technology, such as Twitter, appropriately interconnected with the social potential of public screens, presents an elegant and lightweight design.

Figure 6: Examples of line and delay information from Twitter in Japanese.

We propose one conceptual design based on the field research, its analysis, the workshop, the debate with participants and the discussion within this paper. Our design interconnects three types of screens (in stations, cars and keitai) and uses the Twitter micro blogging service to create a shared information space through mining existing tweets on relevant topics such as #line and #delay. We argue that the design we propose supports engagement and creating and strengthening the creation of ad-hoc bonds between commuters, while offering the opportunity to 'opt out'. The decision to use Twitter as a carrier for message streams comes from its versatility and the ability to structure conversations based on location, time, a particular event or other contextual factors. Twitter is also already being used to communicate line and delay information in Japanese (Figure 6). In addition, Twitter permits the generation of profiles for non-human entities such as animals (e.g. [29]) and even architectural structures such as bridges (e.g. http://twitter.com/towerbridge). In our case, we suggest implementing Twitter feeds for stations and lines, with line tweets further contextualized by hashtags for particular stations. The displays in trains are already labeled with line and station information within the carriages. Some have digital displays (e.g. Figure 3). The station displays could show Twitter messages related to the

station itself, through geotagging, while the displays in the cars could show messages related to a particular line (like for example the existing channel #yamanote on Twitter). Keitai could simply be used to display line and station information through deploying GPS and/or cell information so commuters have easy, immediate access to their location in the train network at any time.

Figure 7: A mockup of a Yamanote line carriage screen with Twitter feed on the right

The content of the Twitter feeds could include the time and exact place of the accident. Individual tweets could be both less euphemistic and curt than existing messages and engage commuters emotionally through details of the accident while, at the same time, allowing them to 'attend from' through retreating to their personal handsets if they wanted to. The tweets could also progressively disclose information on the deceased (e.g. by linking to other tweets etc) as information on him/her becomes public. These tweets could include the generation of sympathetic messages and, potentially, an unfolding public 'conversation' around the suicide. Thus, this proposal deliberately avoids the extensive use of keitai, allowing commuters to deploy them as a 'portable involvement shield' [8]. Clearly the design of such tweets is not a trivial problem and the possibility of inappropriate tweets is a concern. We intend to investigate this through the content analysis of existing tweets concerning suicides in Japan and follow this with participatory design approaches involving commuters on the Tokyo underground. This would involve commuters both collectively examining and designing messages and actively generating messages using hash tags. These messages would then, in turn, become a resource for design. We suggest this analysis could surface connections between the commuters, trains, places, suicide events and keitai networks. Such data have the potential to be used to create new, innovative types of interactions to raise and support awareness.

The benefits we see in such a design, especially for the period immediately after the suicide, are that it raises awareness of the issue of suicides – people 'attend to' the suicide. As such, we believe it can help to reduce particularly negative reactions from the commuting public

by re-appropriating suicide as a tragedy rather than as a breakdown of the transport system that is mainly experienced as a nuisance and inconvenience. At the same time, it supports the circulation of information and representation of the events beyond the actual physical space of the train system, allowing exchanges between the commuters in transit and those outside of it. The design also permits 'attending from' the suicide through the use of keitai.

CONCLUSION AND FURTHER WORK

This research has shown that the phenomenon of suicide in Tokyo's train systems is a challenging problem for the design of interactive systems, especially because of the delicacy of this issue. The diary study and following workshop brought to light an interesting dichotomy in thinking about, and understanding, suicide in these circumstances. We have described the two parts of this dichotomy 'attending from' and 'attending to' the suicide. In the first case, the suggestions for design overlooked suicide as a human tragedy and focused on how to design for the consequences of disruption to travel (delays, free time etc.). In the second case however, the design suggestions focused directly on the suicide itself addressing questions such as how to increase emotional engagement, how to raise the awareness of such issues with the public and how to use these disruptions as an opportunity to deliver public health messages with a view to reducing suicide.

While the train public displays currently offer some information about breakdowns, they function in a mode that does not afford much opportunity for participation by the commuting public, a problem that has already been criticized by other public display literature [e.g. 12, 28]. The ideas emerging from our workshop suggested that, as a first stage of design, we should examine existing Twitter use and then implement a minimal version of Twitter hash tagging as a low risk demonstration.

The second stage of design and development would involve actually implementing Twitter feeds on public screens, perhaps at a public exhibition or event. Data collection from this kind of trial could include observation and an in-situ survey of people's reaction to such installations as well as content analysis of postings to the screens. The screens could also be used to display visualized data in the form of suicide maps.

We acknowledge, however, that in particular settings and cultures, such designs could fail to be appropriated and used by people because of a failure to appropriately address, and be sensitive to, the sentimental and emotional aspects of death and suicide. Therefore, when proposing designs, it is important to balance public information and intervention; attending to and attending from; euphemism and directness in representation; and awareness and prevention.

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