

TxtBoard: from text-to-person to text-to-home

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ABSTRACT

The design of existing mobile phone technology has emphasised the primacy of person-to-person communication for voice, SMS and image-based communication. It may be contrasted with place-to-place communication, the key property of fixed line telephony. However, other forms of communication may mix these two approaches: these include place-to-person or person-to-place for example. These patterns may afford different values to users. This reports a field study of a prototype person-to-place SMS communications device, 'TxtBoard'. This is a small, fixed display appliance for home settings. It displays text messages sent to it from any standard mobile phone. The study highlights how the person-to-place character of the device, combined with the 'public' or situated characteristics of its placement within home settings in particular, create new opportunities for use of SMS.

Keywords

TxtBoard, mobile phone, SMS, text messaging, public display, situated display, home.

INTRODUCTION

Throughout the development of mobile phone telephony, two basic assumptions have been implicit. The first is that 'anywhere, anytime' communication is important and the second that a mobile phone is a personal device. Combined, these assumptions have produced a view that person-to-person communication, through voice telephony, SMS and, more latterly, MMS, is the 'USP' (unique selling proposition) of mobile networks. Whilst the mobile networks have been developing this view, so in contrast, the fixed network operators have defined their own: one now hears the likes of BT (a UK fixed line provider) claiming that its own USP is 'place-to-place' connectivity [1,2].

Such views, while in many ways serving both industries well, does not necessarily reflect the ways that people themselves would choose to categorise their communications patterns. It ignores the role that person-to-place, place-to-person and even place-to-place may provide, for instance; it underplays too one-to-many and to-whom-it-may-concern types of communications. Furthermore, these assumptions have produced an environment where users cannot evolve their

own communications patterns. There has been a dearth of products that might support some of the above listed communication forms beyond either person to person or place to place forms.

It was in light of this background – the constraining perspectives of industry on the one hand and the likely desire for more alternatives on the part of users on the other – that lead us, at The Appliance Studio, to develop a long term programme of research intended to explore, through the use of 'experience prototypes', alternate ways of communication. The first of these was TxtBoard, a fixed public display appliance to which SMS messages could be sent to and displayed (see Fig 1). The assumptions that guided our initial development of TxtBoard were that it might afford certain kinds of one-to-many messaging. The scenario we had in mind was a person messaging to their family, in the home. This domain appealed since prior studies had shown that micromanagement is an important function of SMS, and family life entails a great deal of micro-management [4,5,6].



Figure 1. TxtBoard

It seemed to us that the two might be brought together with TxtBoard.

In this paper we present the TxtBoard concept and some fieldwork exploring whether these assumptions and expectations held true. We also consider implications for the future evolution of devices like TxtBoard and other communications patterns enabled by SMS. We remark too on some of the implications for communications technologies in general.

TXTBOARD

TxtBoard consisted of an 8-inch touch screen display connected to a dedicated mobile phone via Bluetooth. The mobile phone was hidden within the casing of the device.

Messages sent to the phone displayed on the larger display. Technologically, there was very little in the way of underlying innovation in TxtBoard – our concerns in developing the appliance being to investigate the user values it provided.

Thus, given that our concern was to explore, in the first instance, what person-to-place messaging might allow, we did not want to be distracted by interaction protocols that forced complex navigation. As can be seen in Figure 1, we therefore decided to ensure that the interface real estate of TxtBoard be devoted predominantly to the display of single messages. Furthermore, our selection of the SMS channel meant that users would expect short, terse and ‘one at a time’ messaging patterns, these being characteristic of current SMS usage [7]. We knew too that caller identity was important [1] and thus we linked the calling phone number to a database of names and images. To deal with the issue of multiple messages, we designed TxtBoard so that when a new message came in, a standard text message alert would sound and the message would be automatically displayed. With a new message, the surrounding frame of the message would repeatedly glow brighter and dimmer until its receipt was acknowledged by the pressing of either the *save* or the *erase* soft buttons. We also made it possible to scroll sequentially through the collection of saved messages. We did not include any facility that would allow people to respond to messages. We believed that the inclusion of an actual or virtual (or soft) keyboard of some sort would occlude the essential issue we wanted to explore (person-to-place messaging). This is not to suggest that more involved interactions might not offer value, but that these possibilities were not our initial research topic.

Furthermore, research in to the use of situated displays indicated that the location of displays can be crucial to their utility. An effective way of uncovering the ideal location would be to allow the users to locate it where they saw fit. Accordingly, we attached TxtBoard to a stand that would allow it to be placed anywhere; it could also be easily removed from this stand and hung with hooks from any vertical surface (like a picture). Only a mains cable connection was required; SMS connectivity being, obviously, air-based.

In sum, the interaction and form factor design of TxtBoard was deliberately minimal, emphasising the primary purpose of information display rather than interactivity. Of course, this limited what could be discovered with such a device, but our aim was to build something that would be used in ways that would highlight evidence about how future iterations of the technology might be adopted. This evidence might indicate what further, potentially more complex functions, if any, might be beneficial.

RELATED WORK

There is a growing body of research exploring the use of text messaging in everyday life [7]. Such work has demonstrated the versatility of text messaging in coordinating activities and nurturing social relationships among families, friends and work colleagues. However, using SMS to send messages to displays where more than one user can see them

has actually received relatively little attention in the CSCW and CHI literatures [space precludes a full review but for an exception see 3]. Research on SMS and the home environment is beginning to emerge, though. Various user studies have highlighted the importance of both text messaging and home-centric display artefacts in the management of everyday family life [4,6], but technologies building on this research seem few.

A number of difficulties seem to face home technologies. First, such devices need to be considered within an ecology of existing communication practices and infrastructures: just as these are important in the workplace, so these are likely to constrain and enable in the home. One of the distinguishing characteristics of TxtBoard, from this view, is how it was designed to be immersed within the lightweight ‘anytime, anywhere’, SMS communication infrastructure already omnipresent in home settings (certainly in Europe).

Second, and following on from this, there will be a difference between ‘message centre’ type concepts (portals through which multiple messages of various formats are created and accessed), which would require a substantial shift in user practice as well as considerable design work if they are to succeed, and those technologies designed to leverage some of the more limited and particular properties reported in the situated display literature [8]. TxtBoard drew on this literature by being designed with the goal of supporting the persistent and at-a-glance display of messages. It so doing TxtBoard would afford properties that had hitherto not been explored in home settings, and thus might succeed because of its intended limitations, rather than its comprehensiveness.

A CASE STUDY

In this section we present a case study of how TxtBoard was used in a home setting. Our goal here is not to provide a definitive documentation of TxtBoard use across a range of ‘typical’ homes (though such a study would certainly be of interest in the future) but rather to use ‘ethnographic’ data from a single study to identify and explore certain key values and deficiencies of the device upon which to build a future research agenda.

In particular, we provided TxtBoard for a single family over a period of two months. We kept logs of messages sent by family members and interviewed them about their usage and possible desires for future forms of the messaging. We choose the family in question since they had some characteristics that were typical of many households. The family was made up of a mother who owned a mobile but never switched it on; a father who texted for work related reasons but not much otherwise; and two offspring who not only owned mobiles but were text ‘savvy’. Both used text messaging daily, primarily to friends.

Location

The family decided on TxtBoard’s placement within moments of its delivery. It was positioned in a very public and visible part of the house – namely the hallway – because, in the words of the father, it is “*the epicentre of the traffic of our house because as you come in the front door it’s on the hall table. Everybody sees it when they walk in*

the front door. As you walk down the stairs you see it. It works for people coming in and going from one room to another.”

Our interviews with the family taught us that this description obscures an important fact related to this placement. For placement here was not simply because this was where most human traffic went by, but because of who was in the traffic and the kinds of interest in, knowledge about and concern for each that members of this traffic cohort would have. This was not just any body going past; this was members of a family who knew a great deal about each: about each other’s doings, their whereabouts and their needs. All of the examples below demonstrated how this was so.

Broadcasting calls for action

For example, and as noted, we expected that one of the values of TxtBoard would be in supporting micromanagement. Usage confirmed this.

Flight into Heathrow quarter to eight home about ten. Possibility of a lift? If you’re asleep turn off mobile and don’t lock me out axxx

The above message, sent by the eldest daughter, was to request some form of action or favour from ‘anyone’ in the house (a lift in this case) – though of course the expectation was that mum or dad might act on it, rather than her sibling. When asked why she had chosen to send this message to TxtBoard, the daughter replied:

“The advantage of that is that you’re getting the whole family all in one go...because it’s a one to many and assuming that there’s one out and three in, you’ve got a three times chance of in that example than in the other example, of getting a lift. The alternative would be for me to send three text messages hoping that one of the drivers would see it.”

By virtue of displaying in a ‘public place’, or at least public for all within the household to see, TxtBoard allowed messages to be broadcast to many, increasing the chances that the request for action would be followed up.

An important feature of these requests was not just that they are one-to-many but rather that they are one-to-whomever-might-be-there given-that-I-know-who-might-be-there. This is a subtle yet important distinction from the sender’s point of view. The recipients or, if you like, the particular members of the audience for the message, were not absolutely certain, though they were drawn from a known pool. Txtboard succeeded as a micromanagement tool because its users knew enough about the place-of-use to know who might or might not be available in this pool.

Informing, awareness and reassurance

As with other forms of mediated communication, a good proportion of the messages that TxtBoard received were simply about informing others. Providing such information allowed individuals to judge how their own activities may depended upon the activities of others. For example:

Gone to get leki from bickley station V

In this episode, the younger daughter had gone to pick up her sister from the station while the mother and father were out but due to return home imminently. The daughter knew that the parents would be coming home shortly and that they would “*expect to see Vanessa*”. The daughter knew also that had the parents come back whilst she was out, they would have noticed that the “*car had gone from the driveway*” and that they consequently would have worried. She “*didn’t want [them] to come home and think ‘my daughters have been kidnapped’*”.

TxtBoard offered an important attribute that allowed these kinds of social translucence activities to occur. Before having the TxtBoard, the daughter might have made a phone call to pass on such information but, and as she explained in interview with us, she would have done so only reluctantly. To tell others in the family this kind of information under circumstances where it might turn out not to be relevant was considered by her to be potentially “*over the top*”. TxtBoard offered a lightweight method of communicating, suitable for certain types of messages.

Social etiquette

The provision of this type of information was used very artfully. In contrast to explicit ‘calls for action’ discussed in the previous section, the family members were aware of how texting ‘whereabouts’ information to TxtBoard could have secondary effects in prompting others to do things. This allowed them to make requests much more politely and indirectly. Consider the following sent by the younger daughter:

I’m on a fast to Bromley (i.e. the nearest railway station) coz i can’t be bothered to wait! i’ll get a bus from there Vx

When asked to explain the message she retorted:

“That was for anyone who could give me a lift, it was a hint, hint I’d quite like a lift.”

By informing everyone in the household of her travel and arrival plans she was actually inviting them to change the situation by offering her a lift. The interpretation of the hidden intent in the message was based on the intimate mutual understanding of the family members. She *knew* that her family *knew* that she was indirectly asking for a lift. But the indirectness provided *plausible deniability* both in the request and also in the fact the recipients could choose to ignore it or pretend it wasn’t for them.

“Yes because they can just ignore it,...whereas if I’d rung up and said ‘I’m getting the bus’, they would have felt more pressured and say ‘OK we’ll come and pick you up’ ...I think it just leaves all of the negotiating to be done in his head or between him and my mother. It’s the two scenarios, it’s either that you will know I will be home at roughly 10 or you can change that scenario by intervening to give me a lift.”

Social Touch

Other messages to the TxtBoard had content that were about more than merely informing others. For example, the mother

sent this message:

Easy drive no-ones up (i.e. few drivers on the road)Having coffee in Kew. T & r.

Messages of this type offered a kind of *social touch*. These are a known type within in standard one-to-one text messaging and so are not necessarily unique to TxtBoard [see also 1]. What is of note, though, is that such social touch messages worked within the more public family forum enabled by the TxtBoard.

One of the consequences of making the touch-for-all-in-the family possible was that some members started doing it whereas in the past they would have felt less willing to do so. It was the mother who sent this message but she would have not have sent the same directly to anyone in the family in the past, even her husband. "*Oh he wouldn't have been interested*", it was explained to us. Touching thus had a social value in the family, but was not so great as to warrant an interruption of an individual in the family.

Part of this touching was bound up with the use of TxtBoard to remind people. For example:

Going out to dinner with Alan and Ann hope your dinner goes well and Trinity form has gone off Dad and Mum

This message was aimed specifically at one of the daughters. The explicit choice to send the message to TxtBoard (and not to her personal phone) illustrates the sender's exploitation of the at-a-glance properties of the display and its location near the front door. The message ensured that the individual in question received an encouragement (a touch of sorts) and a reminder: in this case to send a form off before leaving the house.

Who sent messages to TxtBoard: family or friends

Given what we have said about the audience for Txtboard, it should come as no surprise that only the family members who lived in the house sent messages to it. This was not just that other people were unaware of the device. Indeed the family had told several people about it and numerous friends had seen it and thought "cool". The issue here was that the household members exploited it as a tool for their internal communication, not as a tool for friend-to-friend or more particularly friend-to-place communication. The issue here is not simply related to shared interests; it was that the shared interests in question were bound to a place. Other shared interests might not be bound to a place, of course. In this respect, *place*, and how it defined potential audience, was important in determining who actually gained from the messages both as senders and recipients.

CONCLUSIONS

We noted at the outset how few successes there seem to have been for interactive technologies in home settings. Two reasons were listed. First, we suggested there might be a

need for technologies to fit in to and extend existing ecologies of communications practices in home environments. Evidence from this study would appear to affirm this. TxtBoard leveraged the importance of SMS in ways that extended the properties of the SMS medium rather than offered an alternative or substitute. Second, we suggested that technologies might fail in the home if they attempt too much. In this case, TxtBoard did not require users to undertake long interactions, offering peripheral and at-a-glance awareness of messages. The research shows that this turned out to be a boon for users. The content of messages came to be designed to reflect these minimal properties. Social touch messages emerged, for example, so too did reminding messages. Micromanagement messaging succeeded since TxtBoard allowed plausible deniability to the message's intent, and so on. Oftentimes these particular benefits were dependent upon the use of person-to-person messaging, of course. Nevertheless, TxtBoard succeeded in large part because it offered a minimal addition to the home: that is to say, that in offering so little, it made a difference that was worthwhile. In sum, this study of TxtBoard shows that less can be more. Future technologies for the home might orient to the same philosophy.

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