

Glancephone – an Exploration of Human Expression

Richard Harper

Socio-Digital Systems
Microsoft Research
JJ Thomson Av. Cambridge
Tel: +44 1223 379824
r.harper@microsoft.com

Stuart Taylor

Socio-Digital Systems
Microsoft Research
JJ Thomson Av. Cambridge
Tel: +44 379000
stuart@microsoft.com

ABSTRACT

In this paper, we describe the design and ethnographic study of a phone developed so as to allow people to glance at each other, rather than simply message or voice call. *Glancephones* work through having a form factor that allows them to be placed upright when a user wants to be available for glancing, and support a web-based application that allows glances, bitmap images, to be taken and sent to a remote viewer on request, via GPRS connections. Glancephones were originally invented to allow callers to see if it is appropriate to call or interrupt and thus act like normal glances in face-to-face situations. Ethnographic studies of the use indicate that people prefer using the devices not to support greeting sequences, however, but to enable others to glance at them. It was found that Glancephones were used to draw attention to oneself, not to encourage better control of interruption and greeting sequences. The paper uses this data to remark on the concepts of human expression that underscore much of the research reported in Mobile HCI, and it proposes Bourdieu's concepts of *habitus* and relatedly, *distinction*, as explanatory tools for this and other evidence about expression enabled by mobile and other technologies of communication.

Categories and Subject Descriptors

H.5.m [Information Systems]: Information Interfaces and Presentation – *miscellaneous*.

General Terms

Design, Economics, Human Factors, Standardization, Theory.

Keywords

Mobile phones, glancephones, human expression, ethnography, habitus.

1. INTRODUCTION

One might say, innocently, that our age is essentially about a relationship between ourselves and devices designed, at first, simply to calculate – computers. Yet one might also say that today that computers 'compute', calculate binary bits, has become very distant from what they appear to do for us. A digital camera is a computer of sorts but when it takes pictures, we don't think of

it as taking measures of light taken within a matrix of evenly distributed light sensitive zones. After all, it is images we are wanting the camera to let us show others, not indexes of light. Similarly, our mobile phones let us communicate our voices, not binary representations of radio wave frequencies. But to say therefore that computers have become invisible still seems to miss the point. If these examples suggest anything it is that our relationship with computers has come to stand proxy for our relationship with other people. It is a truism to say that computers shape our economic world, but it is less often said that they also connect us to others, thus shaping our social world.

Over the past 25 years or so, the evolution of computing, from mainframe to mobile, from desktop to wearable, from letting us do 'desktop publishing' to letting us 'twitter', has been reflected in, and a reflection of, this extension of function. These changes have to do with what we think we are and what we do, and what we think the devices we have saturated our lives with will let us become. All this may seem tangential to Mobile HCI. But if the reader can bear with us, we shall show it is not. Understanding our relationship with computers is central to this paper. But as we have noted, what that relationship is is something that requires some deliberation. Whatever this relationship might have been in the past, today it is one that stands proxy for another set of relationships, ones we have with people. But, if this is so, then a question that follows on, and in some ways is more salient, is why do people have such a strong desire for using computers as communications technologies, as proxies for being in touch (somehow) with other people?

2. MOBILE EXPRESSION

This is obviously central to Mobile HCI – or at least one would think so. Yet, if one looks over the literature we can see numerous researchers have said a great deal about the interface to mobiles, the social context of mobile use and the relationship between people, mobiles and society – so many indeed that no one paper can do justice to them all. But one can say that, despite all this, Mobile HCI still hasn't addressed the problem of understanding how people themselves orient to and act with communications technologies in a way that gives priority to the overall experience and motivations behind that use which accords what users themselves think they are about. Certainly one gets a few papers on specificities – on why people want to announce their presence via IM for example, or use touch to communicate fixed meanings [15,3] but only occasionally do we get papers that seek something more and place particular communication acts in a context where those acts are part of a gestalt of choices. One can think of Jung *et al's* Scent research as being one of those

exceptions [14]. The view reported here addresses a particular locale of communication, *proximate communication*, and what happens when users are given a technologically enabled repertoire of expression in those locales (with their 'scent-enabled' mobile phones). In this, Jung *et al* are treating acts of communication as consisting of outcomes of choices that users themselves make, choices as between different modes of technologically enabled expression as well as to do with the contents in their expressions.

In placing the complex organisation of motivation and expression at its heart, this view accords with the approach to the analysis of social action that the Oxford philosopher P.M.S. Hacker urges is the conceptually correct one for analyzing human affairs. He says the analysis of human affairs should be more akin to a philosophical anthropology than a natural science [8]. It is quite opposed to those views that reduce human communication to something else, such as the grooming of primates, as in the work of Dunbar [5].

Of course, one might say that Mobile HCI has not really been too interested in philosophical reflection on the object, the human, at the heart of its inquiries. It has tended to take a rather middle-of-the-road, somewhat behaviourist view. Mobile HCI's research forays into communications have most often been based around what one might call geographic maps of human lookings and glancings, of telecommunicated replications of touches and pointings. The communicating human, in this view, is a body that expresses movement. Its capacity to process the communication in question is manifest in bodily performance— in the saccades of the human eye as it surveys an icon or message for example, in the speed with which fingers can navigate between and press appropriate buttons, in the ways in which it can easily manipulate a presence monitor, and so on. Think of the research nominated for best paper awards at prior Mobile HCI conferences – the *Tactons* paper in Helsinki, the battery life *Icon* paper at Singapore. This *is* how Mobile HCI researchers generally think. In other words, what we are suggesting is that, though there have been studies in the general HCI literature that have sought to taxonomise what different channels 'afford' (one can think here of Erickson & Kellogg's seminal paper [6]), just as there have been, over the years, numerous attempts to define what beyond 'being there' might require in terms of psychological functioning (see for example [13]), one can't find in the literature many studies of why it is that, for example, people sometimes choose to shout a hello and sometimes to whisper it. Harper noted some years ago [10] that this might be a design concern for Mobile HCI, but did not explain how Mobile HCI was to understand the motivations behind such choices. In short, Mobile HCI has been curiously disinterested in human expression when that expression is treated as a volitional act, and not as some proxy for animal instincts or as a mere mechanical bodily act, a touching or a glancing.

There are important conceptual and empirical reasons for doing so, it seems to us. It should be clear, for instance, that different disciplines address communications in various ways but often construct very different views of this topic. Indeed, so much so that one can hardly say that the topic they have in common is in fact common. Take, for example, the historian Henkin and his vision of the Victorian letter writer [12]. In his view, there is something special created in the communications act and he illustrates this with the epistolary experience afforded by letter writing. This view could hardly be more different from, let us say,

Weiner's cybernetic human [18], for example, yet they are both about communication. The behaviourist vision of the human used in the bulk of human factors (and indeed HCI) could not be further from the social actors that sociologists describe, yet again both are about communicating actors.

So if these disciplines have a view, what is the one that Mobile HCI holds? Should it aver from this question and instead adopt a common view, one that other disciplines and trades avow? There is not necessarily anything wrong with disciplines having a particular view of their topic, indeed quite the contrary. Consider, say, the engineering sciences and from that domain *communications theory*. This ostensibly links such things as information processing with communications, and so might do the job of analyzing human expression. But one will find, if one looks carefully, that the thing that makes human communication uniquely human, that it has meaning of particular sorts, is the thing that is expressly excluded from study. As Shannon puts it in his seminal paper of 1948 (a paper that more or less invented the discipline [16]), 'semantic aspects of communication are irrelevant' to the task of producing mathematical models and theories of communication (p3). A lack of concern with even a minimal aspect of what human communication entails – namely the meaning of words – should indicate that this approach doesn't offer answers to the question as to what human communication acts might be that would satisfy Mobile HCI. Shannon's view seems to offer a vision of the human that is too pale; no communications acts here, one might say, just mathematics. But that doesn't mean that Shannon's view is not good for something else. And that else is the ability to build communication systems for any kind of communications traffic, human or otherwise. One might say that Shannon's view allowed engineers to build their systems *because* it disregarded the why of the human communication act. But that also means one cannot use that view to explain or analyse that act, as seems required in Mobile HCI.

In this paper we want to get to that concern, with the human expression and its modalities, and with the motivational frameworks that people themselves deploy to choose their communications acts. We will do so by using an analysis of the use of a technology of our own as a vehicle to outline a theory of communication. More particularly, we will want to describe something of the history of the evolution of the technology in question (from faltering idea to functioning system) as well as the problems we had in understanding its use, once built. We want to point out that we developed our ideas with what we have come to think of as the standard approach to the design of mobile communications systems, one that emphasises the body, as described above. But in analysing the use of our technology, we came to see that view failed us not because it has ceased to provide fruitful ground for invention but because the concepts and ideas that it had allowed us to produce delivered experiences – one might even say enchantments – for the 'users' that the view was not been able to help us understand or explain. We had to search for new ways of understanding the communications act, beyond the model that seemed adequate before, because the way that our users were using our technology, the thing we invented for them, perplexed us: they choose to use our technology for reasons that didn't have to do with ease of use, because of sensual scope, or because of some simple fitting of their bodily acts to technological affordance. Or, rather, they do have these concerns in mind, but along with other concerns that often have greater

priority – such as the desire to laugh and play, or to show finesse in their articulateness, or sometimes simply because of a desire to tell their story so as to entertain their friends. Something about their overall humanness, about what it means to be human and what this leads people to do when they express, underscored their communication. It seems to us that it is that that needs comprehending in Mobile HCI.

3. GLANCING

3.1 Background

The device and application we have in mind was rather simple, technologically. The devices were called *glancephones*, eponymously named to allow people to use mobile networks to glance at each other. We invented glancephones as a way of fitting (at least partial) technology ‘solutions’ to what we thought were human ‘needs’, the general properties of which we shall describe below. But glancephones ended up being used – and could only be understood by – treating the communicative acts in question quite differently from how we had done so when we devised the idea. We came to see that communications here weren’t about increasing sensory range, for example (as in sound and sight), or providing a closer fitting of two (or more) communicating human bodies (‘you glance at me’, ‘I glance at you’). They were, in various ways, about a different order of things, about a sensibility for communication that the users had that was curiously fostered in part by use of the technology itself. Our trials of glancephones taught us that they did not afford a communicative fitting, they created human expressive desire. Nowhere has this been reported in mobile HCI it seems to us; indeed, it has hardly been reported anywhere.

3.2 Glancing

Glancephones were derived from the idea that one ought to allow mobile phone communication to simulate certain aspects of social interaction that had been, hitherto, neglected or at least not made possible with mobile phones. The communications at issue here, or rather the acts in question, related to what one might say are the structural patternings visible when one person says hello to another: what might be called a *greetings sequence*. Mobile phone technology does not allow the normal pattern of this to occur in ways that we shall describe. It was thought that offering some kind of replication of a face to face greetings sequence would appeal to users, making mobile phones seem more ‘natural to use.’

A greetings sequence is a fairly basic feature of everyday conversation (studied most notably by Harvey Sacks in the 1960s)[7]. When a person seeks to converse with another, they will commence the conversation with a hello of some kind, a greeting, and this will in turn prompt or elicit a response from the person addressed. This can be a hello or some other form of greeting. The two stages are connected so that if a person does not reply to a greeting it is thought to be a case of rudeness or insult: one person says hello, the other is obliged by the rules of etiquette to say hello back.

As it happens, in the mid Nineteen Nineties this pairing was thought to be a suitable basis for the design of interaction dialogues with computer kiosks [19]. Leaving aside whether this applied to kiosks, when it comes to mobile phone communications, a greetings sequence cannot take this form. It offers what one might think of as a distorted version that looked

like this: when someone calls another, the other’s phone will ring and this stands in as a surrogate or proxy for the first person saying ‘hello’. If the other (the recipient) so wishes, they can then press the phone’s relevant button to say ‘accept’; this would be in effect an answer to the hello-as-greetings: it would be their hello back.

This might seem fairly close to normal interaction until one begins to dissect it some more. For example, the person making the first step, the first hello, isn’t able to vary the tone of their hello, dependent on their feelings. The caller may have been angry or sad, joyful or despondent but the way the other’s phone rings, the hello will always be the same. With mobile phones, a whispered hello would be the same as bellow, a shout would be as good as a murmur. This seemed an obvious failing in mobile system design, we thought [10].

Moreover, if this were an odd situation, a lack of ‘fit’, then another feature of mobile phone systems creates further distance between the normal and the telemediated. With mobile phones, an individual is able to choose a ring tone for a particular caller, and when this caller contacts that person (i.e. makes a call), that ring tone will be produced by the phone. In this way, the recipient of a call can in effect decide whether the caller’s hello is to be shouted, whispered or mumbled. This control can result in recipients’ of calls giving themselves completely wrong indications of a caller’s mood. Using ring tones in this way can let the recipient of the hello choose the manner or the mood of the hello. In natural or ordinary conversations, this would not be possible. In other words, this aspect of mobile phone technology inverts what one might call the normal rules of communication.

It seemed to us that there were lots of ways whereby this misfit of human greetings sequences can be corrected. We thought we could design improvements to mobile phone systems that would make those systems nearer to the human norm.

One idea we had was for the caller to choose a ring tone that would reflect their mood. This ring tone could be sent to another’s phone as the ring tone it should play in that instance. This might delay the connection slightly, we thought, since the recipient’s phone would have to download the ring tone and install it before it could start ringing. Nonetheless we thought this a better fit. But, as we thought this through, we also recognised that this solution would create some problems (beyond simply momentary delay that loading a tone might create). It could mean that the recipient might know the mood of the caller, but not the identity of the caller. As it happens, further reflection led us to realise that this might not be a problem since, instead of using the ring tone as an index of identity, the recipient could look at the phone’s screen to see the name of the caller it was displaying (assuming of course that they have an entry in that address book).

This led us to another idea. This had to do with a stage in a greetings sequence that came *before* the first hello. In face to face situations it is quite often the case that people will glance at each other before saying hello [17]. They do so to see whether the person they want to speak to is available to talk or doing something else that would make talking an interruption, perhaps busily reading, for example. Glancing can also allow someone to see what mood others are in and this might also affect how they choose to open the conversation in their greeting. Glancing can provide evidence for a person to modulate how they open their conversation: if the person they want to speak to looks sad, they

might say, 'Sorry to disturb you' or they might even go further and pose a rhetorical query: 'You are looking downhearted' – thus prompting a reply which explains that expression.

The first of these two options, the idea of selecting a ring tone, seemed less exciting to us than the second, since the latter seemed to offer more scope for unusual design. The first just seemed like an augmentation of ring tone technology. So, it was with these sorts of reasons in mind that we opted for the idea of designing an application that would allow users to *glance*. We hoped that our design solution would allow a caller to quite literally glance at the person they were seeking to contact before they said hello. Having glanced, they could judge whether it was a good time to call. If it was, the glancing might also enable them to judge what might be the most appropriate opening gambit ('You look worried' etc). Of course, we recognised that our design, however ingenious, would not be able to replicate perfectly what human glancing allows. A phone in the pocket would not allow much glancing for example, except into darkness. But on the other hand, the ability for some kind of glance, once, say, the recipients' phones had been 'set up' (somehow) to allow glancing, might allow a better 'fit' if not a perfect one, with the forms of everyday discourse. Thus, as we reflected on these issues, our idea gradually evolved into *glancephones*.

3.3 Overall Function

Glancephones are, in essence, camera phones that can be set up in such a fashion that a caller can glance through them. To achieve this requires quite a bit of engineering, both of the hardware and of the software. We started off by buying a number of standard camera phones that had front facing cameras on them (many camera phones only have cameras facing away (from the back of the phone)). We chose in particular ones where this front facing camera was switched on by the movement of a slider on the case (not all camera phones function in this way). We choose these because we could attach a little leg to this slider so that when this slider was moved down, the leg moved out, making a tripod effect on the base of the phones. Hence when a user selected to have the camera on by moving the sliding leg, the phones would stand up and so be like a webcam. Once in this mode, we reasoned, a glance would be possible. We went through several iterations with this basic concept, ending up with a plastic hinge type design [See fig 1].



Fig 1. The initial prototype and the one used in the trial.

Having sorted out the hardware, we then wrote an application that we installed on the phones. From the user's point of view, this worked as follows. When they put the phone in the tripod mode, a glancephone application would automatically start. Once this was running, ordinary phone calls could not be made. Only glances could be made when someone called the phone. When someone called that device (using a glancephone to do so), they were told

this by a screen dialogue (i.e. that the phone they were calling was in glance mode). If they pressed the 'yes' soft key on their own glancephone when prompted, a glance would then be undertaken which would be delivered to their phone. This would take a second or two, dependent upon network speeds.

It turned out to be very difficult to make glances a fully duplex video connection, so we designed the application to take a still image and send this as a 'glancepacket' across the mobile networks to the glancing phone. It was this still image that turned out to be the glance. This would be displayed on the caller's screen much like a picture (or an MMS, see fig 2.).



Fig 2. A glance image on a glancephone screen dialogue

Since glancing in real life is often reciprocal, such that one might glance back at those who glanced, we also decided to design the application to indicate when one was glanced at and by whom. We did this by cropping the name of the caller from the address book and displaying it on the phone screen of the person whose phone was being glanced at. For this to be possible, it was necessary for the callers to have their name represented in the address book.

3.4 Technical Description

In technical terms, the main component of the glancephone system was a local web server running on the mobile phone, along with a number of customised dynamic web pages that interfaced to the phone's integrated camera. This combination allowed specially encoded incoming http requests to the web server to trigger the capture of an image via the phone's camera, and return the image to the requesting party. Thus, it was possible to send a glance request from one phone and have the receiving phone capture an image and return it to the requester.

This scheme had the advantage of a reasonably fast round-trip time for the data and also allowed the image capture to be handled automatically without user intervention. Client software, also running on the phone, enabled the handling of glance image requests, via a list of 'buddies', or user's who had been granted rights to glance at other users.

One complication of this arrangement however, was that mobile phones operate within private IP networks maintained by the phone operators. Thus, simply setting up and running a web server on a phone would not work, since the phone's IP address would only be visible from with the private IP network. Putting this another way, the phone's web server would not be visible to the outside world. To overcome this problem, we arranged for the web server to communicate via a gateway, which was visible both to the phone and to clients connected to the 'public' Internet.

Thus, external web requests to the phone's web server were directed at the gateway, which then routed them via the operator's private IP network to the phone's web server. The reply generated by the phone's web server was again routed back to the requesting party via the gateway.

3.5 Trial

There were various other features of glancephones that we could describe but hopefully this is sufficient to convey how our design worked. Hopeful it also shows how our design choices reflected our presumption that users would want some kind of better fitting between their ordinary natural communications and the telecommunicated version.

For the purposes of a trial, we built eight glancephones, using seven at any one time for a trial that lasted 7 weeks. We selected the following users for this trial: ourselves, one other colleague, a married couple, and a triad of three friends. Two lived in London, one in a small town just north, and the rest, here, near our lab. We reasoned that this range of persons had sufficient depth of relationship to find glancing acceptable and for there to be some demonstrable benefits for the people in question being able to manage the potential for interruption more carefully. We had imagined that all of the users (ourselves and those we had asked to join in the trial) would put their phones in glance mode at the those times during which they were happy to be glanced at and less happy about being interrupted with a normal call, when they were in meetings, say, or having dinner with their families. In other words, we wanted to test whether glancing would be a means whereby recipients of summonses could reject those summonses without a word: a caller could see, in the glance, that a phone call would be too intrusive and so they would delay their greetings till later.

We had the usual problems with the trial – such as curious technical hiccups and failures. The gateway we used on the mobile network would sometimes not allow glancepackets through, for example. We could find no obvious reason for this except the possibility that the networks was monitoring all data traffic and was gating any traffic whose identity or provenance they could not identify. These restrictions seemed to apply irregularly, though sometimes for 24hours at a time.

We also found that the sensor we had fitted to the phones to indicate that they had been set up in glancephone mode would sometimes lock itself, making it impossible to make a call or to glance, dependent on the position the sensor got locked in. We found that this problem could be solved by turning the phones in question on and off. However the users could only discover that they had this problem by testing the phone through glancing at themselves. After a few days, testing the phone this way became a routine we asked all subjects to do.

One of the subjects, one of the researchers, also started objecting to the size of the glancephones, claiming that it made his trousers too tight. He would therefore not take it with him in the evenings, obviating part of the point of a trial. His phone was given to another trialist within a week. The other participants were more complaisant from the outset. They were willing to cooperate whatever their vanity.

All the trialists were instructed as follows. We described the problem of interruption in normal human affairs, and the role of glancing as one way of judging whether a greetings would be an

interruption or a welcome event. We then explained how the glancephones could enable an analogue of this, if users set them up in such a fashion that people could glance at them. We also described the sorts of scenarios when we thought glancing would lead individuals to choose not to interrupt, and call later. We illustrated this with meetings at work and family dinners at home. We then showed the users how the devices worked, as well as explained that all the images that were shared during the trial would be stored and used in analysis. We also made clear that we would occasionally seek to glance at each of the subjects ourselves, as a way of prompting usage aswell as communication. Finally we explained that we would interview the users at various stages through the trial and at the end. These interviews would be qualitative in nature, seeking to generate an ethnographic sense of the social context of use.

3.6 Glances

Over the period, just under 1000 glancepackets were successfully exchanged. These included all those 'self glances', undertaken to make sure the systems were working. Use of the devices went through the expected cycle of higher levels at first, when users were keen and playful, and then dropped a little. But we were gratified that after a few days remained steady, at least for some of the users. Though it should be clear that this was a small trial and thence the volumes of traffic small, there were on average about 5 glances per day per user, after an initial period in excess of 12.

Before we say anything else we should also note that two users did not find much appeal in the devices. One of the married subjects found that she had little desire to be glanced at by her partner after a few days, nor much interest in glancing it him, despite avowing keenness to participate when we first inquired. She returned her device a week after we gave to her. Another trialist would only infrequently use the device, explaining that he found himself too busy to set them up. That it might have reduced his level of interruption did not persuade him, since it was business calls that were the source of his interruptions, not 'this research stuff' as he explained. We shall have more to say about the aversion to the phones later on.

The others, meanwhile, ourselves and our remaining volunteers, did use the devices, quite extensively, though with what could be described as bout-like sessions. One glance would provoke another, this would lead to a third, and then often a turn to other modalities, a text, a voice call; sometimes an email even. These sessions were also temporally rhythmic: few occurred in the workday mornings, for example, most in the early hours of the workday evenings. There were quite large numbers of 'bouts' at weekends.

3.7 Analysis

The trial made us realise that, despite all our reflections about normal practices, and our attempts to offer a digital fit for human communicative practice, actual use of glancephones took quite a different form from what we had expected.

We had imagined or expected that glances would be used to see if the one being contacted was busy or otherwise; in other words to see whether a call was appropriate. At first, we found that we and the other trialists did indeed use the glancephones for this practice, with the devices being set up when individuals were in

work meetings (and hence 'busy') or alone in their office and hence interruptable, for example (see fig 3).

But this pattern soon subsided. Gradually we came to see that all of us started to use the devices in a different way. We would set them up on those occasions when we *wanted* to be glanced at, when we had something that was worth seeing, as a means to force interruption, almost, and not to help avoid it at all.



Fig 3. Glances showing users in a meeting or alone in an office

This worked in the following, somewhat curious manner. A user would decide that something they were doing was worth having their friends glance at and see. A way of getting their friends to glance was to glance at them first. This would act as a notice that a person wanted to be glanced at in return [for a discussion of how this also occurs in face to face situations see [17, esp. pp259-280]. The result of this emergent practice was that, within a few days of glancephones being deployed, all of us came to know that an attempt to glance was an elicitation for us to glance *back*. This seems convoluted but some examples of what actually happened might help clarify things.

3.8 Examples

In one instance, a user set up his glancephone on a restaurant table and sought glances so that his friends, us, could see the expensive restaurant he was taking his partner to. Our phones were not in glance mode but indicated that a glance request had been made and the name of the requester. We then sought a glance back at him, to see, to glance, at what he was doing. (See fig 4).



Fig 4. Showing off where a person was

He did this because he was behaving as most of the glancephone users came to behave. Generally speaking, glancing was sought when people thought they were doing something that their friend's would envy.



Fig 5. Users showing their lack of industry

So in another case, one of us set up our glancephone to show to others that we were sitting at home watching telly knowing full well that our colleagues (in the trial) were working late. (See Fig 5). In a similar case, another participant set up their glancephone so that others glancing at them could see they were with someone special (fig 5).



Fig 6. With someone special

In most cases, the glancing bouts would be bound up with knowledge about what all the parties were doing, so were, in a sense, self-explicative, or rather self-explicative to the participants. One person would get another to glance knowing what that other was doing and hence knowing too how they might react to seeing what they did when they glanced. As the example of the person sitting at home should make clear: that he was at home and that he knew his colleagues were not made the glancing bout meaningful. Similarly, someone in a pub would get their colleagues at work to glance at them to show off what they were doing (and hence what those at work weren't!) See fig 7.



Fig 7. Mocking those at work

3.9 Analysing Glancephone Glances

Glancing did not have meaning unto itself then, as if it were sufficient to constitute a meaningful act or series of acts alone. Glancing was part of larger context of meaning, of social relations, one that was 'live' and 'ongoing' (insofar as one party would know 'He is at work and I am not,' and that therefore 'now is a good time to tease them with a glance request', etc).

Of course, during the trial there were other usages: the self glancing to check we mentioned, then also fact that the people running the trial, us, made glances on a daily basis to check the systems were working. During the first two or three weeks of the trial all the participants tried different things with the phones – leaving them in particular places, a windowsill being a particularly common one. In this they were used like webcams. But after this, the pattern of use did appear to settle down to the kind of glancing bouts we report above.

The testimonies from the subjects - and indeed our own experience - seems clear. Glancephones got to be used in a particular way, most of the time. As one put it, one of the married pair,

Sometimes, like last night, I will glance someone just so they are inclined to glance me back. I don't give a stuff about seeing you, but I want people to see what I am doing (it is all about me after all).

We came to realise that this kind of glancing behavior, the one that we and our subjects thought most central to ‘glancing’, that became most salient, had three key properties.

First, this digital form of glancing did have some of the proprieties and social consequences of glancing in unmediated communications, real life communications one might say. It was a step in a sequential order of ‘implicative turns’. One glance leads to a response, a glance back, for example. In addition, and bound up with this patterning, the glancing was bound to judgements about who would or could glance and what was worth showing and seeing viz-a-viz the persons in question. In other words, that one knew the person one glanced at gave an especial meaning to that glance – bound up with what you knew about them. It was also bound up with the rights to glance. To glance at a stranger is different from glancing at a friend, after all, the former begging questions about what a relationship might become, the other what a relationship already is. Of course, in this trial, only friends and colleagues were involved. But interestingly only those known to each other would glance. One of the subjects in London would only glance at us, the researcher pair, or the two other persons in the trial that he knew. He thought it inappropriate to glance at the others in the trial, since he did not know them.

Second, it was somewhat distinct from normal glancing. For one thing it was bound to the larger narratives of what one might call playful interactions where glancing could be a goal in its own right, rather than merely an opening stage in a greetings sequence. As remarked, glances were made when doing so would cause mirth or irritation, or because it would allow someone to be made the subject of envy. Sometimes glances were requested so that people could show off. In this and in various other respects, it was essentially a different experience from people glancing at each other when proximate, and when not technologically mediated. Glancephones were not being used to finesse the gentle rhythm of summons and answers; the devices were being used to get friends to look at oneself. This was not glancing, this was attention getting.

Moreover, and third, like normal glancing in greetings sequences, glancing became a step in a series of communications, the subsequent parts of which may not entail just more glancing. Likewise here, glance bouts would often lead users to call each other or text; in a couple of instances emails were sent with the express intention of getting the person originally glanced at to move, from the couch they were on, for example. In other words, glancing may have been a pretext for a communication, but once that pretext had been justified (i.e. the parties thought something worth glancing at had been shown) then it would lead on to other communications, sometimes over other forms of communication acts, mediated over other channels.

3.10 Interpretation

What does one learn from this trial? We think one can learn a great deal, not so much about glancephones in themselves but in terms of how one should understand the role, impact and shaping of communications technologies in the general.

To begin with, we should see that our notion of natural communicative behaviour, one that underscored our design rationale, had within it the idea that a new system would succeed if it fitted this natural order. But what we found is that the use of our system did not reflect the ideal form of behaviour we had in

mind. Glancephones simply did not get used in a way that ‘fitted’ as we understood it. Instead they got used to do new things. As it happens those new things were subject to an emergent form of social etiquette: ‘you glance me so I’d better glance back at you’, a form of behaviour that is in some ways similar to the greeting sequences that had inspired our design. But what this glancing etiquette allowed was something different. It wasn’t about how to deal with interruption – it was about laughter, mischief, even vanity; about a kind of performance, and this performance lead to other acts, sometimes mediated in other ways.

Now, it seems to us that one can hardly start thinking about these concerns – laughter, mischief, vanity, telling stories about what one is up to, in a way that doesn’t lead us to think about what it means to be human. Nor can one think about reaching a point where there is a perfect technological replication of ‘natural’ communication about these matters. What we are thinking about here is whether it makes sense to talk of designing a system that could allow laughter, mischief and vanity to be conveyed, let us say, ‘efficiently’. Our studies of glancephones should lead us to recognise that we ought to judge and understand new communicative media not in terms of a measure such as that; we should do so in terms of how the technology in question can be deployed within what we would like to suggest is a moral order – as the kind of thing that people themselves understand as the context in which they operate and in which the technology lets them leverage certain expressive finesse, even delights.

By this we are thinking of what a person means when they communicate, not so much by the semantics of words communicated, but in terms of the purposes of doing so; in terms of what a communication act implies about the person who does it. Here we are not confining ourselves to one party: we are thinking of both (or more) parties in a communications act, in this case the one glanced at and the one doing the glancing. Those who delighted in the glancephone were those who liked to celebrate their life and the friendships they had through laughter and mockery. Sometimes this would entail self-celebration, as when a person got others to glance at them; sometimes it entailed self-deprecation as when those doing a glance acknowledged in subsequent turns at communication that what they were glancing at was indeed more interesting than what *they* were doing, for example. Volume, capacity, communicative burden, even ease of use, all the phrases that are commonplace in communications engineering, in HCI and other related disciplines that seek to invent for communication, are orthogonal to these matters, it seems to us.

What we learnt with our glancephone research was that what mattered in communication is not what we had thought. We came to see that glancephones, for our trialists and ourselves, were a vehicle for conveying a broader picture of us all. But by ‘picture’ here we are not thinking in terms of fixed visual representation, but rather in terms of a view on the things that we and trialists did. Glancephones came to be a tool to help us all build a character study of ourselves for all of us involved – for our colleagues, our friends, even our partners.

In recognising this, we came to recognize too why it would be that not everyone would find – and indeed did not find - our glancephones equally appealing. Some of the reasons why some of the trialists dropped out became easier to comprehend. Not everyone will want to convey a sense of their character in their

communications acts in just this way that glancephones enabled. Using glancephones would be a measure of their character – their character are regards the activities that glancephoning enabled and their judgment of and the relationship they have with those they might glance. The wife who gave back their glancephone after a week was communicating that fact she was fed up of seeing her husband; she was expressing that precisely in her choice not to use her glancephone. Not glancing turned out to be a finding too.

What this study began to teach us was that we need to see what the communications in question are for: much more than for the problem of interruption management, or the artful control of greeting sequences. Glancing with glancephones turns out to be illustrative of how and why people communicate in the general: because of reasons to do with who the participants wanted to be, wanted to become (or wanted to avoid being); because of their ‘humanness’, if you like.

3.11 Implications

A kind of performance; the construction of character and what it means to be human; all these seem obtuse and perhaps minor. Of course one laughs with friends and colleagues. But what has this got to do with communications technologies? And most especially what has this got to do with what we said at the outset was the goal of the paper: to understand what motivates or drives the communicative act?

Let’s pause and address the issues raised by the above from a different angle. In sociology as well as many humanities there has been an ongoing debate about how one thinks about the construction of character (though not all – think of economics). For many commentators, the interpretation to take is that human character *is* a narrative and human tellings *are* the vehicle through which identity is built up. In its simplest form, this interpretation says that humans are creatures that desire to tell their story. Whether one agrees wholeheartedly that humans are essentially story tellers, one can certainly accept that people delight in telling stories about themselves; one can agree too that they like to hear them in return. But if we consider the above examples, one should note that the stories that the technology let our trialists’ construct about themselves, about their own respective characters, had different consequences. The stories of which they could be a part were not the same either. Nor, finally, were the kinds of character traits that could be highlighted or performed in each, the same. What one could say is that the stories were bound to the time and place where the device was used.

As it happens, one of the problems with theories of narrative is that they tend to strip out any real sense of the time and space of ‘narrative acts’, of where the tellings get told. The bulk of the narrative literature is concerned with the theory of narrative form. The French anthropologist Pierre Bourdieu argued in his *Outline of a Theory of Practice* [1] that to understand ‘humanness’ one needs to avoid such distraction. He urged investigations of how there is both a bodily and moral ‘fitting’ of the human to times and places. Telling stories is as much a question of telling the right story at the right time and place as it is about any general imperative to tell stories. In his view people have to learn to behave in certain ways in certain places and differently in other places; telling appropriate stories is one of the skills bound up with this. As well as this, Bourdieu suggested that the differences in appropriate modes of behaviour aren’t simply matters of the

head, of thought, of Will, as it were. He thought that they are also written into the skills of the body, skills manifest in movements, in the fitting of the body and its movements to the objects it interacts with. Now, Bourdieu emphasises the bodily movement of humans, and would seem to be urging us to look at movement rather than at something internal, ‘in the mind’. But this is wrong. Bourdieu was trying to counter in his *Theory of Practice* the consequences of the dichotomising view of the human (namely, one that splits the mind and the body and chooses to emphasise only the body and its actions or movements) which had led to its opposite in anthropology and sociology: a kind of mentalism, a concern with what goes on inside the head without a reference to the body. Bourdieu proposed a solution, one that we think might be helpful here, which holds that we might think of this entwining of the mind and the body and the social-temporal location of its performance(es) as a *habitus*. This term can allow us to avoid slipping into confusion through use of words and categories that emphasise either the mind or the body.

We will illustrate with examples that are apposite to communications. Consider how it is that, at work, one quickly picks up the phone when it rings because the bodily tempo of work is ‘just so’: quick, urgent, responsive. At other times and spaces one reacts differently: at home, say, the household phone might ring for some time and one doesn’t answer it, though perhaps we might shout – ‘Who is going to answer the phone?’ Neither we nor anyone else will answer quickly or urgently, because at home we are oriented to a different set of bodily practice: to being leisurely, indolent, relaxed. We would not answer the phone for the same reason no-one else would: no-one wants to be bothered. This is why we might find ourselves shouting in the hope that someone else, with more energy than us perhaps, feeling less idle, might pick it up. Sometimes because of this domestic inertia the phone might even be disregarded altogether and a caller might find themselves leaving messages on an answering phone even when they know that we are at home. Of course the scenarios described might be rare, an exaggeration of moral habits and routines. And besides, the phone may sometimes be ignored at work too so one can hardly say the two places are entirely distinct. But the point one should take from this contrast is that the systems of appropriateness and propriety, manifest in the bodily behaviours that are appropriate to each domain, are somehow different; each is a different *habitus*.

But the word *habitus* is not the only cargo we want to take from Bourdieu. It seems perfectly reasonable to say of our glancephone studies that they let us uncover the forms of friendship, its mindfulness and bodily arts, as well as its linking of times and places – we saw the *habitus* of friendship at work when communications were made between restaurants and workplaces, for example, and how the topics were girlfriends, alcohol, labour and insouciance. Time and place and body conduct was spread here across times and places, as well as topicality.

Hopefully we made no distinction between the ideas and the actions of the people we reported on, nor separated the times and places in which those ideas and actions were bound. But what we do want to make more of is the word we have just used: Distinction. Bourdieu makes a great deal of this in his book of the same name produced the decade following the publication of *Theory of Practice* [2].

For Bourdieu leads on from his claim that the label *habitus* might be useful to suggest that (whatever it might be) one should also be aware that it will and does evolve through time. It will evolve as people try and create distinctions between themselves and others. It seems to us, that this idea, the possibility that people seek uniqueness in evolving their patterns of bodily, meaningful action, in their various *habita*, is the key to opening up why it might be that people seek new channels and new modes of communication, just as they also worry about taking on too many. They are not thinking about whether they are being efficient or economical when they do so, they are thinking about what it says about them and their worlds. Economy, efficiency may be labels here, but the words are being used as labels for moral categories, not in a quantitative sense. Besides, they are only part of the vocabulary that would apply. Largesse, generosity, prolixity could equally do so.

Let us make this clearer with an example of how *habitus* can evolve before we start exploring in a little more depth what distinction might mean here. Think of the changing patterns associated with mobile phone use in public and semi-public spaces. As the reader will recall, at one time, it was thought rude to receive a mobile phone call in a public place, though those who had mobiles then – in the late Eighties early Nineties – would sometimes answer those calls out of a kind of celebratory vanity [4,9,11]. But gradually the codes associated with phones have shifted as have the arts required for dealing with them. Now a phone will be left on a table and it may still be allowed to ring, but the recipient will glance at the caller ID on the screen before choosing to answer it or not. They use their eyes as much as their mind to make a judgement and, whatever the ultimate course of action, they need to be able to pick up the phone and press either ‘accept’ or ‘call forward’ promptly and elegantly. They would be laughed at if it led them to spill a glass of wine, just as they would appall their fellow diners if they answered the call by shouting.

It seems to us that it is in a similar manner that one should approach glancephones. These devices did not resist or transform the social setting in which they were used nor as we made clear, did they ‘fit’ some prior need or bodily pattern (even if this did help us conceive of the devices in the first place). They were brought into the social settings and used to gradually shift the codes of appropriate bodily *and* mindful behaviours within them. Glancephones did not fit into a cognitive need (related to the problem of attention and interruption, say); their use was managed in such a fashion so as to gently, skillfully, and indeed as we saw playfully, expand and evolve what communicative finesse meant in public and private spaces so that the identity of those involved could be crafted in new light. These technologies gently shifted human doings because humans crafted their doings in new ways with them.

Now, this technology was a modest affair; our studies of it modest too with only a handful of users. But what this study illustrates is how we ought to understand the role or nature of communications technologies in the real, in the wild of everyday life. Their value was bound up with what users thought they could leverage with each. It wasn’t communication that was at issue, but how that communication could enable refinement, distinction, differences in the doing of which they were part – friendship, collegiality.

Let us put the emphasis here somewhat differently since this is an important point. One might say that the role of glancephones

related to the performance of character. Each technology allowed different aspects of character to be conveyed and deployed. The word character is not being used to mean a single object that can, say, be ‘captured’, compressed and sent via digital means. What is meant here has to do with how character, different hues of character, are constructed or portrayed in the playfulness of friendship or in work sociality. The glancephones were tools that let users convey, display and *enact* their character (or identity if you prefer) in particular ways. That technology succeeded in this was dependent upon how the users in question were able to leverage the sense or aspect of the character they so desired.

One might take this argument as suggesting that seeking new ways of delineating character is what underscores the motivations and patterns of use of communications devices. This is not what is meant. For one thing, this cannot be said to be the case historically. Many communications channels were designed and developed for military organisations, for example, and these can hardly be said to have been about character. Similarly, at work, our diligent response to an email is designed to show our professional competence and that might intentionally be irrespective of our character. After all, we often put effort into doing things at work that reflect nothing at all about who we are or want to be as people. But nevertheless, in other circumstances, other *habita* if you will, we do choose to communicate precisely because we want to say something about who we are. But we do so not so much in terms of volume and our studies make this clear why. It would not be very accurate or insightful to say that our Glancephone users conveyed more about themselves by using the Glancephone more or less; indeed reducing meaning to this calculus would make for quite anodyne understanding. Their character was conveyed in part by the extent they chose to use it, certainly. To glance more said something about who they were; just as glancing less said something different. But how it said less or how it said more: these are not quantitative but qualitative questions.

In other words, when using the word ‘character’, the argument being put forward is that one of the motivations behind communication acts is to convey our *adroitness* as people. We seek to convey our identity in the way in which we use our communication channels. To use more channels is not necessarily better therefore since the goal is to use channels astutely. One needs to pause and reflect on what the use of one channel will achieve; what the neglect of another will avoid. Thus not only do we convey some aspects of our character in that use pattern, but our choice of one channel – or a set of channels over another – is in turn used by our friends to judge who we are. In this view, an identity is bound up with how we chose to express; and in the digital age, this means how we communicate over the mobile, via email and through our various social networking sites; just as it could also mean through our use of new technologies like a glancephones. In this view, we are *how* we communicate, not something separate from the communication act itself.

This has one startling consequence. It suggests that Who has become How. We are not so much what we do, but what we say and *how* we say it (if one can allow a difference between saying as one kind of doing and other kinds of doing). The paradoxes that this implies about what identity might mean hardly need expounding. Similarly, the implications of this for such things as the relationship between identity and the capacity to convey it, given differentials in wealth or access to communications

channels, hardly needs expounding either. But economics are not our main concern here. We are wanting, at the moment, to think solely in terms of who we are and why we communicate. If some have noted that we seem to have reached a threshold where our scale of communication would leave little room for doing anything else, now we are saying that we might have lost sight of what that anything else might be: the who of us, the thing that might be conveyed when we express, other than the expression itself.

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5. REFERENCES

- [1] Bourdieu, P. (1972) *Outline of a Theory of Practice*, Cambridge University Press, London.
- [2] Bourdieu, P. (Trans R. Price) (1984) *Distinction: a social critique of the judgment of taste*, Harvard University Press, Mass.
- [3] Brewster, S. Brown, L. (2004), Tactons: Structured Tactile Messages for Non-Visual Information Display, Proceedings of 5th Australasian User Interface Conference (AUIC2004), Dunedin.
- [4] Brown, B. Green, N. & Harper, R. (Eds) (2001) *Wireless World: Interdisciplinary perspectives on the mobile age*, Springer Verlag, Hiedleberg and Godalming, UK
- [5] Dunbar, R. (1996) *Grooming, Gossip and the Evolution of Language*, Faber & Faber, London.
- [6] Erickson, T. and Kellogg, W. (2000): 'Social Translucence: An Approach to Designing Systems that Support Social Processing'. In: *Proceedings of ACM ToCHI Conference*, ACM Press: New York, 2000, 59-83.
- [7] Jefferson & Schegloff, Eds: *Sacks: Lectures on Conversations*, 1992.
- [8] Hacker, P.M.S. (2007) *Human Nature: The Categorical Framework*, Blackwell, Oxford.
- [9] Hamill, L. & Lason, A (eds) (2005) *Mobile World: Past, Present and Future*, Springer, Godalming, UK.
- [10] Harper, R. (2003) 'People versus Information: The Evolution of Mobile Technology', in Chittaro, L (Ed.) *Human Computer Interaction with Mobile Devices*, Springer, Berlin, pp1-15.
- [11] Harper, R. Palen, L. & Taylor, A. (Eds), (2005) *The Inside Text: Social perspectives on SMS*, Kluwer, Dordrecht, Netherlands.
- [12] Henkin, D. M. (2006) *The Postal Age: the emergence of modern communications in Nineteenth-Century America*, University of Chicago Press, Chicago.
- [13] Hollan, J. & Stornetta, S. (1992) 'Beyond Being There', in *Proceedings of ACM ToCHI Conference*, ACM Press: New York, pp119-125.
- [14] Jung, Y. Blom, J. & Persson, P. (2006) Scent Field Trial – Understanding Emerging Social Interaction, in *Proceedings of Mobile HCI 06*, pp 69-76.
- [15] Kranz, M. Hollies, P. & Schmidt, A (2006) 'Ubiquitous Presence Systems', *SAC'06*, Dijon, France, ACM Press, pp 1902-1909.
- [16] Shannon, C.E. (2001), A mathematical theory of communication, *ACMSIG Mobile: Mobile Computing and Communications Review*, Vol 5. Number 1.
- [17] Sudnow, D. (1972) 'Temporal Parameters of Interpersonal Observation', in Sudnow, (Ed), *Studies in Social Interaction*, The Free Press, New York, pp 259-279.
- [18] Weiner, N. (1948) *Cybernetics: or the control and communication in the animal and the machine*, MIT Press, Boston.
- [19] Wooffitt, R. Fraser, N. Gilbert, N. & McGlashan, (1997), *Humans, Computers and Wizards: analysing human (simulated computer interaction)*, Routledge, London.