

RESEARCH FROM THE SOCIO-DIGITAL SYSTEMS GROUP THAT MIGHT  
BE USEFUL IF YOU WORK ON PRODUCTS THAT **CONNECT PEOPLE.**

**01**  
ISSUE

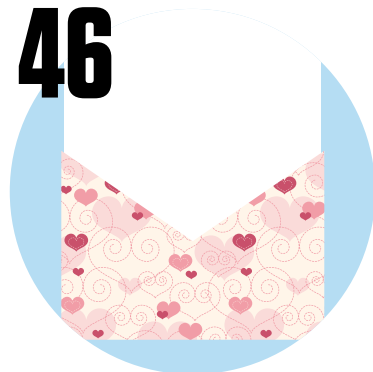
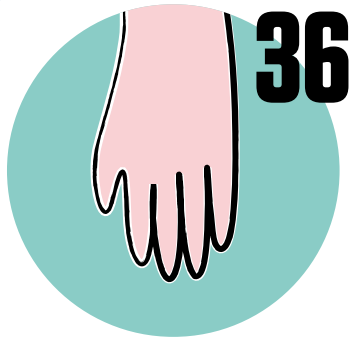
# THINGS WE'VE LEARNT ABOUT



*Communication*



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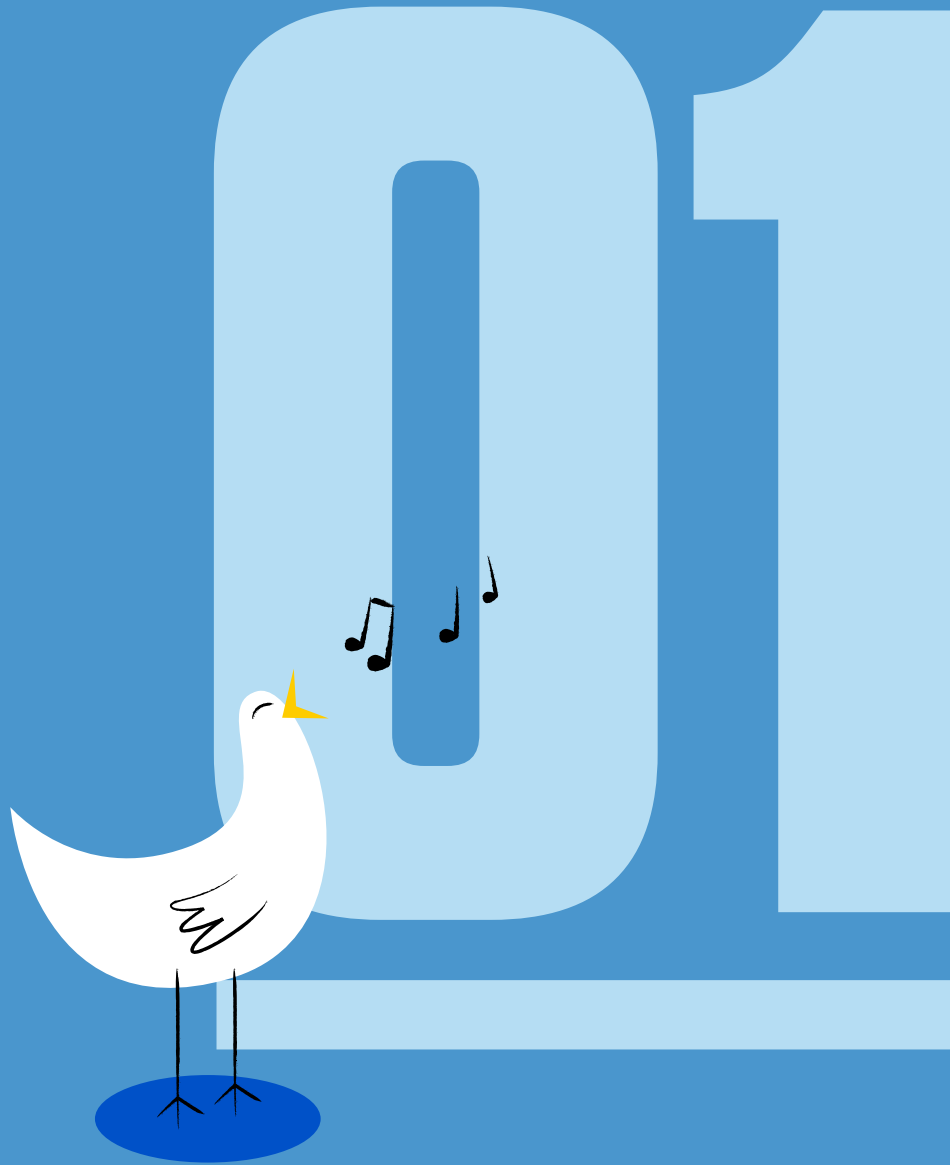
Here we consider the properties of different forms of communication including what is exchanged, whether it persists and whether it has materiality.

## 52 CHOICES

Today we have a myriad of choices about how we communicate. This section outlines why these are consequential for the kind of bond one seeks to make with another person.

## 56 SOCIO-DIGITAL SYSTEMS GROUP

This page describes our research group, *Socio-Digital Systems*: who we are, what we do, and what our goals are.



**COMMUNICATION IS RARELY ONLY ABOUT THE EXCHANGE OF INFORMATION. IT IS MUCH MORE HELPFUL TO THINK OF IT AS A LABEL FOR A VARIETY OF HUMAN ACTIVITIES, INVOLVING A RANGE OF REASONS AND MOTIVATIONS.**

*Why Communicate?*

## INTRODUCTION

**Many people think that communication is about the exchange of ideas or factual information. In this view, communication is about getting facts from inside one person's head into another's. This idea dominated in the 18th century, when the philosopher Locke proposed his telementation thesis. In the 20th century, the inventor of cybernetics, Norbert Weiner, believed this too. In his case, he was also worried that if too much information was communicated between people, it might overload them.**

**Today many computer scientists seem to design systems with these same ideas in mind. The goal for many communication systems is to allow people to exchange information as efficiently as possible, making sure that information is not distorted in the process, and without**

**overloading people. In other words, this view of communication adheres to the notion that it is mainly about the accurate, efficient conveying of information from one person to another.**

**But studies of the nature of human communication, and the values underpinning it, show that it's much more subtle than that: we have many reasons why we communicate, and many motivations behind our activities when we connect with others.**



**HERE  
ARE A FEW  
REASONS**

*Why we communicate...*



Communication is about telling stories that entrance the listener.

Sometimes communication is about entertaining and drawing the listener in. Here we might do this just with words, or we might want to use pictures, sounds or even video to make the experience more compelling – both to the one telling the story and for the one listening.

**'I always phone my Mum once a week to tell her how the kids are. She doesn't really need to know of course 'cause she is too far away to help or anything, but she likes to hear about them. She likes the stories. I like telling them!'**





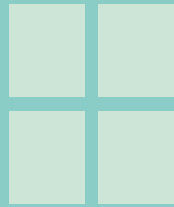
**'When I post on Flickr what I do is put images there so that when I talk with my friends I have something to talk about – the pictures can help me tell my story.'**

*How does technology support storytelling and how could it make it richer?*



*Communication is about listening to others.....*

**Listening is a way of showing someone else that you care about them. It may not even matter what they are saying to you, just so long as they know you are paying attention. This makes others feel important, even special, and is a demonstration of the bonds between people.**



.....so that they feel honoured



**'My friend phones me up whenever he has had a long day. He sort of offloads the things that have been irritating him. He does go on but he knows I will listen. I am his best mate after all.'**

*How does technology make it possible for someone to know that they are being listened to or that others are paying attention?*



*Communication is about  
giving gifts that oblige  
others to respond!*

Sometimes  
messages are like gifts,  
with all of what that implies. We might  
carefully craft our messages to make them  
special, receive a message that we want to keep or  
treasure, and feel compelled to respond in kind.

‘When I am away my girlfriend sends me a text saying  
“Good night and I love you.” When I wake up in the  
morning I send her one back, before she wakes,  
saying something cute so that she has  
something to cheer her up when she  
has her coffee.’

*How can we design technology so that messages can be  
tailored, so that they can be kept for the long term in a  
special place, and so that we can reciprocate?*

Sometimes communication is only important in that it helps us to pass the time of day. It may just be the chit chat that helps us while away the hour while we're waiting for a bus, or the mobile phone call on the long drive to the airport.

'I go on Facebook when I want to distract myself. I post content as a way of using up time, when I need a break. And it means I can be with my friends. I can see if they are passing the time of day. We can share a joke or two.'

*How can we design technology so that we can engage in these lightweight conversations, wherever and whenever we feel the need?*



*Communication is about sharing things so that others can feel part of the action.*



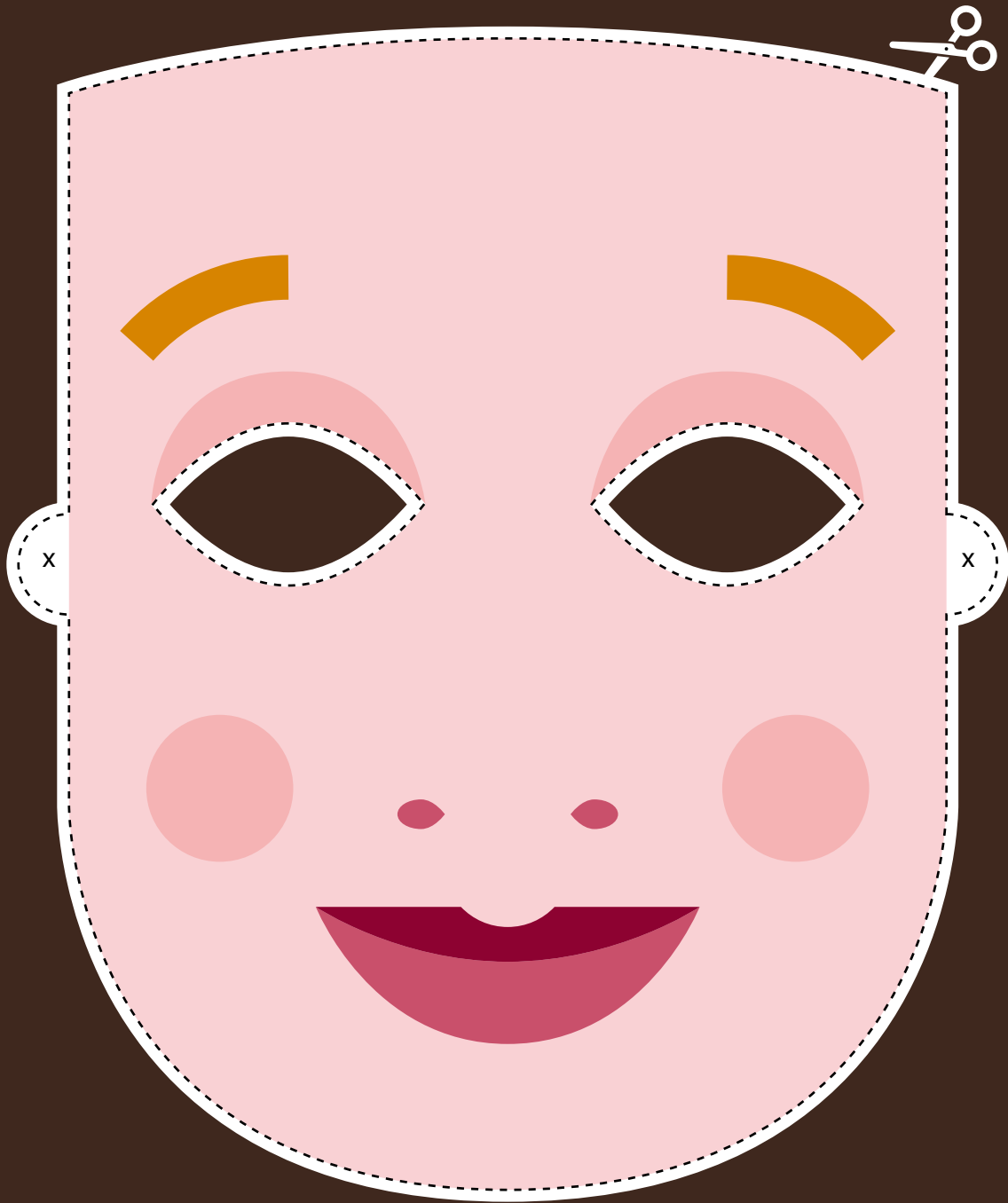




Communication can bridge the distance between people and draw them into experiences that they would otherwise be remote from. This enriches our ability to share and be present with those we care about, at events that may be important.

'We try and Skype the grandparents when it is one of the kids' birthdays. They live too far away to come around, but Skyping sort of makes the event more special because they can be part of the celebration'.

*Can new technologies be designed so that we can further enhance the experience of 'being there' even when we're not?*



*Communication can also let people display who they are and who they aspire to be.*

How we use communication technologies can say something about our identities: who we are, who we want to be, and how we want to be seen or heard by others. We can use words to broadcast our identities, posting regular blogs to show the world what we're about, or updating Twitter to build a picture of our activities and concerns for others. We can flaunt the latest mobile phone, or show our loyalties to a specific brand through what gadgets we buy and use. And we can say something about who we want to be when we turn off our mobiles and announce that we are not going to respond to emails for a day or two. We are saying that we want to be someone who can reflect.

**'I write a regular blog so as to express myself and say what I feel. When I blog I feel as if I can show who I really am.'**

*How do the technologies we use allow us to express our identities. And can we make the capacity for self expression more powerful?*



There are a myriad of reasons why people communicate, creating an intricate weave of bonds between those involved. These reasons are bound up with, for example, expressing the affection we feel for others, sharing our time and experiences with those we care about, or showing the world who we are and what our aspirations might be. We satisfy these reasons by our careful choice of different ways of communicating, sometimes via text, sometimes via Facebook, and in other instances by voice.

To understand human communication, then, is to understand that it affords many different possibilities and is motivated by a range of intentions. Instead of thinking communication is about information exchange, we should see it as being more often about other things.

Understanding the rich and intricate weave of communication we all engage in, and the choices we make, not only helps us to understand why some technologies work and others don't but it can inspire us to invent new ways to communicate.

One way we might think of this is by thinking of communication as creating a texture in our relationships, a texture manifest in the different ways we experience and exploit our communications technologies. We choose one means of communication over another because, for example, the expression that it enables is taut and quick and brings those we communicate with closer to us in that way. We choose another because it is loose and slow-gentle-and so treats those we express ourselves to gently in turn. We select a third because it is permanent and inviolate: however much those we are communicating to try to avoid that missive, they will find it cannot be undone.



The texture of our communication has all sorts of properties beyond these, however. These relate to how some forms of communication allow a sense of dignity, for example, while others provoke laughter and fun. Some acts of communication need no follow-through while others are better thought of as turns in a longer series of communications. An individual act of communication can be just that, or can be an attempt to coax someone to respond with more.

**Left:** We don't just use words to say things.

**Above:** We often express ourselves in surprising places.

**Right:** The well thought out communication can charm.

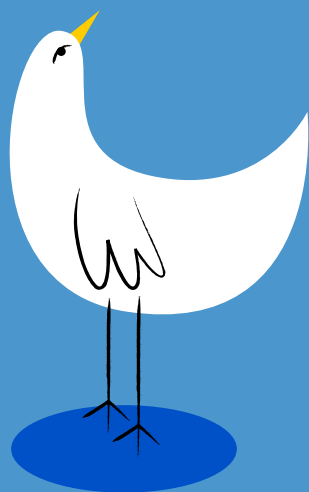


02

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**COMMUNICATION TECHNOLOGIES LET US OVERCOME DISTANCE, BUT THEY ALSO LET US TAKE ADVANTAGE OF IT. IT IS NEVER REALLY JUST LIKE “BEING THERE”. RATHER, WE COMMUNICATE DIFFERENTLY WHEN WE ARE APART.**



*Being Apart*

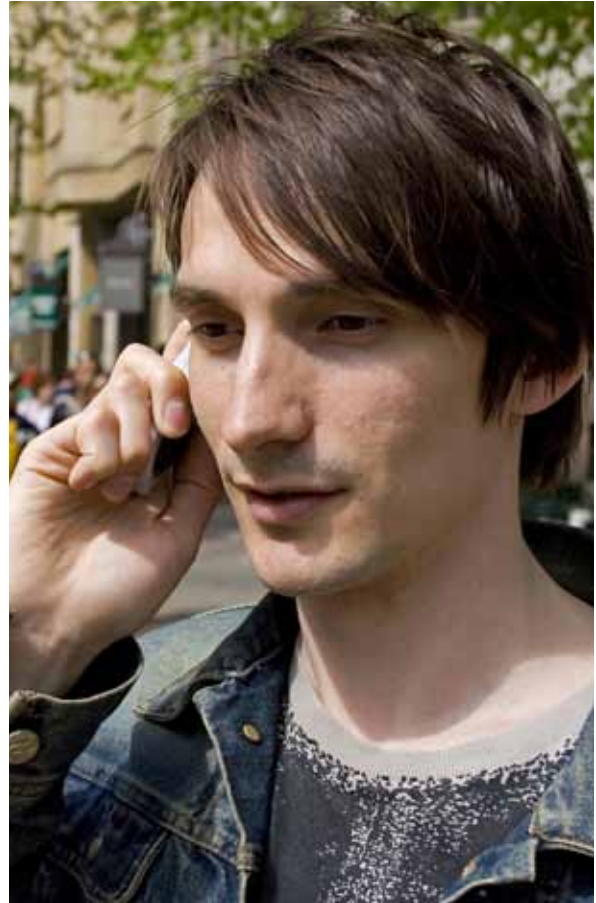


**Left:** Consider the different acts of communication a camera phone can enable.

**Below:** listening and honouring.

**Right:** Reflection and careful expression.

**Communication technologies were invented to solve the problem of distance - bringing people together when they are apart. But once invented, people have discovered that these technologies allow them to create new experiences, ones that turn around the benefits of being apart.**



One of the aspirations of technologists has been to offer people experiences that are as close to being together as possible. If the relay of voice was a step in this direction, allowing people to speak across great distances, then video connection was thought to be another leap forward. With video, people can be closer because they can see each other. All of these efforts presuppose that if people can be together they will choose to be, and technologies which bridge the distance are best.

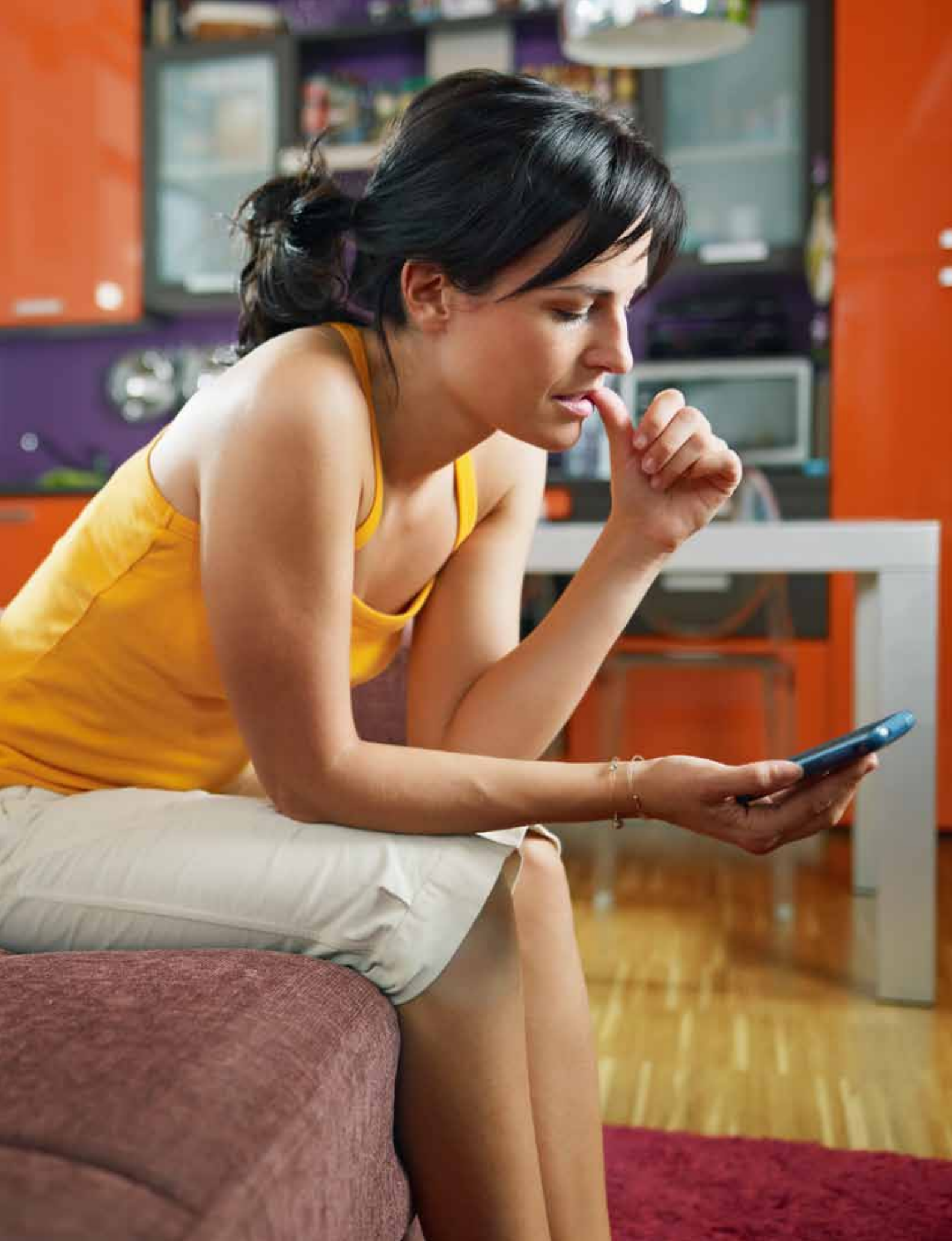
Yet people sometimes prefer not to be together. Often-times, when people are beside each other, they say the wrong things, and once those things are said, they cannot be undone. Indeed it is often the case that when they are in each other's presence, some people can find it hard to think clearly and say what they mean. So they choose to be apart and communicate when they are separate. People sometimes also find that they prefer the written word – text, email, even

the occasional posting on Facebook. This is because they can express themselves carefully, adjusting what they write until they get it just so. These crafted messages are often more important to us than what we might say “on the fly”.

Even for technologies which don't involve the written word, being apart changes the nature of the communication. We can all sense that phone calls and video calls aren't really like sharing the same space, even if they bring some of the benefits of it. Sometimes expressing yourself can be harder when you're apart, but other times it helps, especially if the conversation is emotional or difficult.

The bottom line is that we shouldn't assume that being apart is somehow less desirable than being together. It depends on how you want to express yourself, and what you want to say. When we're apart, these days we have a wide range of options to hand for making the most of distance.







*What's good*

People sometimes appreciate being apart so that they can act in ways that they find difficult when they are together. So we don't always want technology to be like 'being there'. We have more choices when technology helps us act differently.

*'I find it easier to talk to my mother on the telephone than face-to-face. We've had a difficult relationship for years, and I feel I can deal with her more easily when we're not in the same space.'*

*Does your technology let people  
take advantage of distance?  
Why is it sometimes better than  
being face-to-face?*



*about being apart?*

## REAL WORLD APPLICATIONS

Most of our communications technologies have been built with the purpose of bridging geographical distance, and also spanning time. Phone calls, email, text messaging, picture messaging, and social networking seem to make our world smaller in some ways. They bring us closer together despite the miles that may separate us.

**B**ut real world applications show us how bringing us closer isn't just about somehow being present with someone else, or even simply sharing experiences together. The affordances of these technologies have many other important implications. For example, people delight in using social networking sites like Facebook because doing so allows them to express themselves as they wish. They can carefully choose their words when they post some comment; they can diligently select the image they want to share with their friends. In this fashion, they don't so much create a fictional self as carefully manage the way they present themselves.

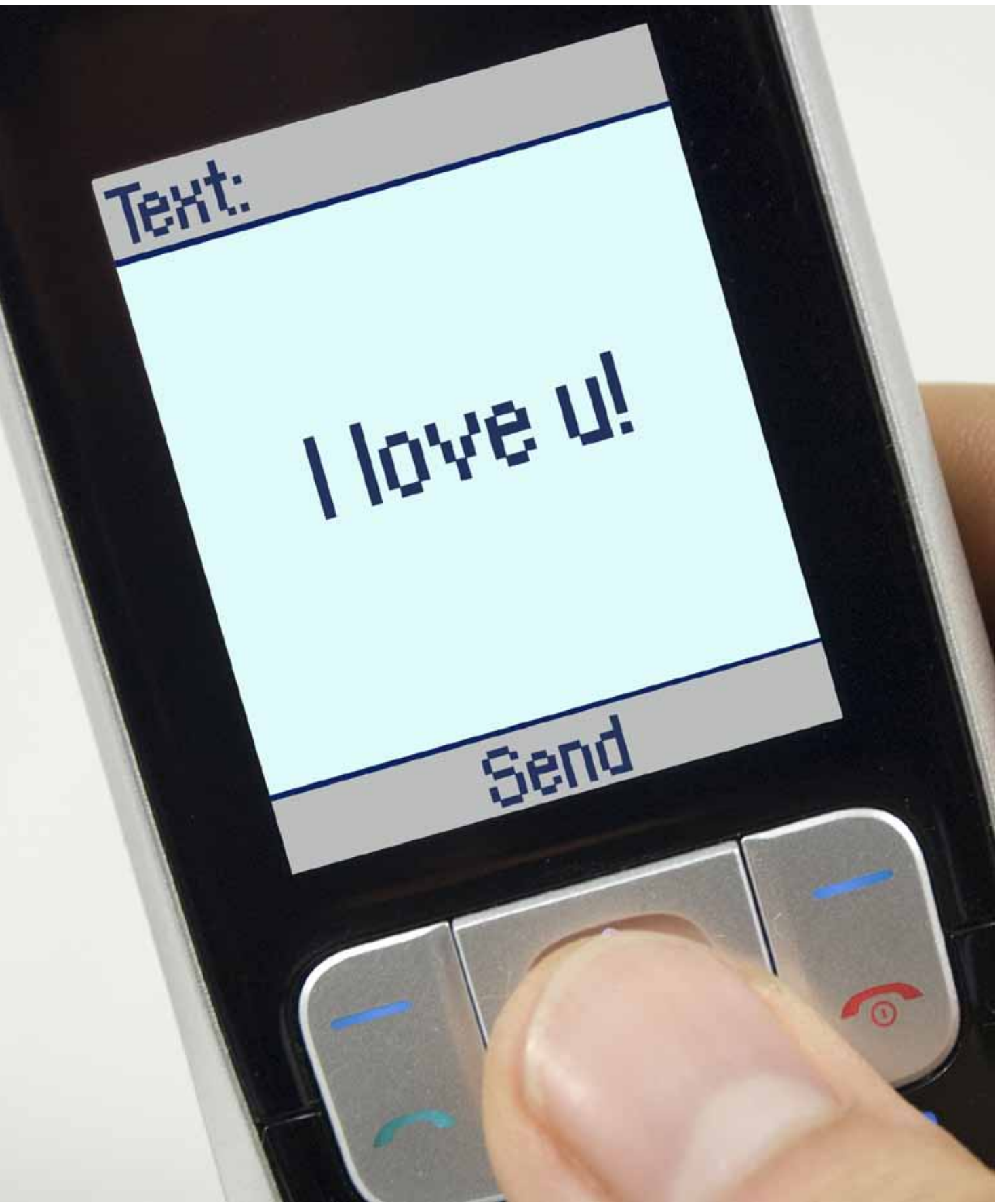
By the same token, people can control what is communicated more effectively and easily when they are apart and can avoid communicating on topics they wish to avoid. They can avoid letting someone see the feelings that they would prefer to hide, for example. Similarly they can avoid seeing the feelings of others when they don't wish to. For these reasons, texting via a mobile phone is often the way that people express intimate thoughts and feelings. Writing a message in text not only lets them control what is communicated, but it can provide limits on how much is exchanged too.

For a third example, some communication technologies allow people to make communication without having to dedicate themselves to the act itself. Instant messaging while at work allows people to keep in touch without forcing them to interrupt everything they are doing – they can



keep working and answer the message when they see fit. It also means that people do not have to account for the other things that might be concentrating on. When they are face to face, on the other hand, people would have to explain why they are not listening to someone, justifying why they are not being rude when they are evidently distracted and so on.

Designers and developers are always creating new ways to bridge distance through different kinds of communication applications. In addition to voice, text and images, haptic devices have also been proposed that can allow people to convey a sense of touch to someone remote. Consider the 'Kiss Communicator' by Heather Martin. This device is a way of digitally blowing someone a kiss over distance. When you blow a kiss into the mouth of the device a sensor picks this up, translates it into a series of pulses of light and sends them to the other pod, which glows in length and strength according to the kiss you blew. But again, far from simulating the touching of hands or the physical act of kissing when people are together, this device allows a personal language of lights to be built up between people. It is a new way of being expressive and letting someone else know you are thinking of them. It is quite different from being together.



# EPIGRAPH

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Epigraph is a device that lets members of families have a presence even when they are away, allowing functional, informal and playful communication. Key to this device is that each person in a household “owns” a part of the display, letting them post whatever they choose so each has a space to make their presence felt.

**E**pigraph is a device developed as a research prototype by the Socio-Digital Systems group. The device is designed to be placed in the centre of a home, perhaps in the kitchen or hallway, so that everyone can see it. It is linked to the Internet and cellular network so that it can receive messages over any channel. Its screen is divided into a number of areas, with each area ‘owned’ by a different member of the family. Each member can ‘post’ whatever messages they want to their area, whether that be via email, SMS or MMS. Epigraph also allows people at home to communicate back to members of the family through touch of the screen and selection of predetermined options. Epigraph differs from other family messaging devices by focusing on presence, on informality, and in allowing the concurrent display of content from multiple channels.

We undertook a small trial with Epigraph by trying it out in some family homes. In these homes, parents exploited the technology to keep in touch when away from home. The benefits they derived from this seemed to relate to the lightweight nature of the messaging. Because of the design of the system, messages to the kitchen did not interrupt those at home but kept them informed. They turned up ‘in the background’ of family life without intruding too much. As the father of one family said, ‘It’s a good way of telling

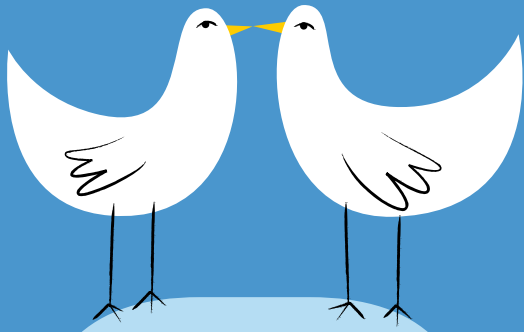
everyone what you are up to without pestering them’. The teenage daughters in this same family agreed: the fact that they were often out, wanting to inform their parents about their activities and whereabouts, but not wanting to get into long discussions, motivated their use. For those whose daily affairs did not involve much travel, such as stay-at-home mothers, or young children, the benefits were different. Here, the delight was in seeing images of their husband’s or father’s whereabouts, for example, and being able to message back.

In addition to this, young children also loved to see images of themselves posted by others. In fact, more than a shared presence device, Epigraph also became a way that family members could draw attention to themselves and others by posting all kinds of images and text messages, letting others know what they were doing, or just posting pictures that they happened to like. The interesting result of this was that, over time, Epigraph became much more than a way of keeping in touch when families were apart. With prolonged use, it also became a type of visual blog for the families in question, documenting what they had done and where they had been and in so doing, conveying something of what they wanted to be as a family .



Jane is not  
available





03

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**COMMUNICATION TECHNOLOGIES CAN BE JUST AS MUCH ABOUT ENHANCING OUR TIME TOGETHER AS CONNECTING US WHEN WE'RE APART. PHYSICALLY SHARING THE SAME SPACE SPARKS MANY DIFFERENT KINDS OF SELF-EXPRESSION.**

*Being Together*



Communication technologies do not just allow people to make bonds when they are separated, they can also help people do things when they are together. Some things are better done when people are face to face. Many of these things are made possible by the very existence of communication technologies.



For example, since mobile phones are also cameras, when you're with a friend or your partner, you can show them pictures taken of an event. When you show them the picture, you can see their reaction, laugh when they laugh, and sigh when they sigh. By the same token, you can share texts and other content, such as Facebook postings through the same mobile, held in your hand as you show it, or passed from person to person. You can also use the mobile phone to send presents that you want to give – it could be pictures again, or other digital content – a digital boarding pass for an aeroplane trip, or simply a text, 'I love you'. Being together means you can see the pleasure they get when they receive such gifts. Similarly one might demon-

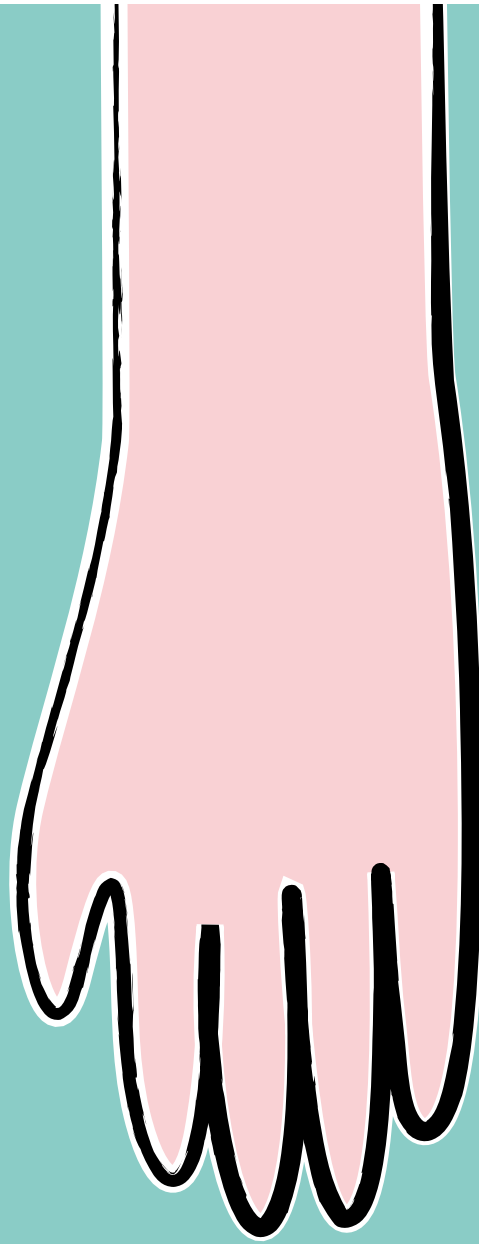
strate how much being with someone is worth by showing them that you are turning off your mobile. In doing so, you show that being in touch with them is more important than being in touch with others. All of these things can bring you closer together, not in a physical sense, since you are already side by side, but socially and emotionally.

**Top:** Pictures are now as much about making conversation as documenting the event.

**Above:** Looking at website together can be a way of communicating.

**Right:** Listening can bring two people closer together.

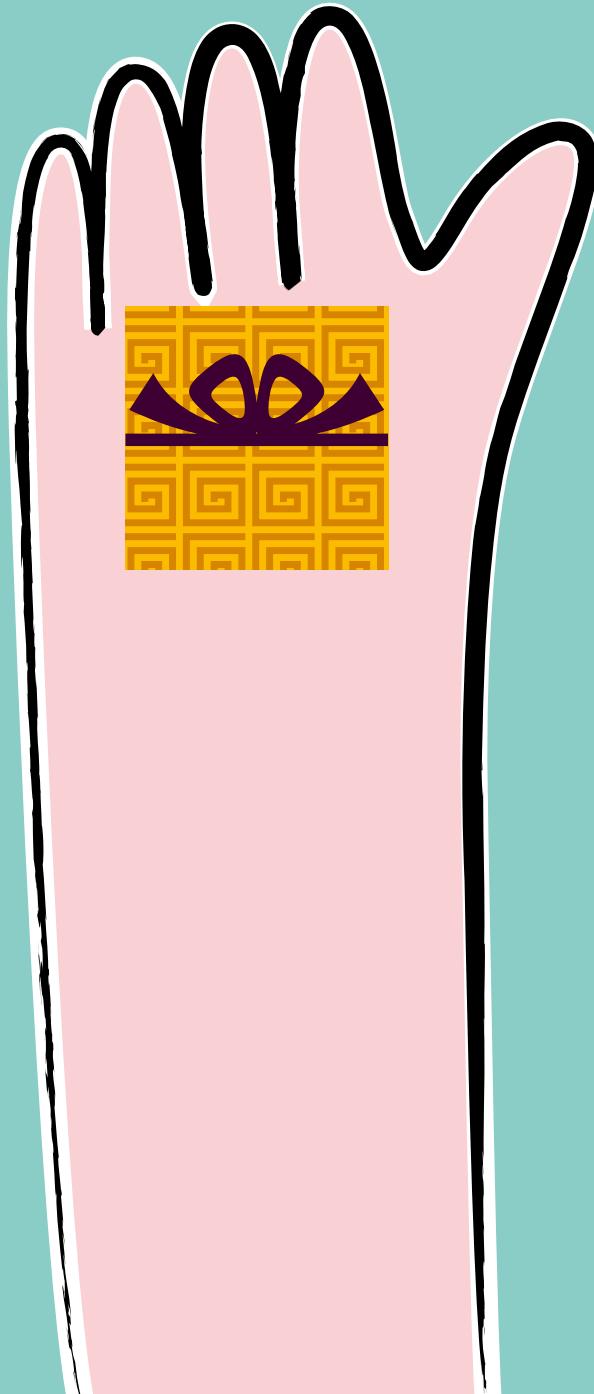




People like to see the reaction of a friend's face when they receive a gift. Even though digital devices allow us to send messages and media long distances at the click of a button, we may prefer to give something we have created or gathered when we're with someone else. This might be a funny text message, a photo we've just taken, or a video clip we found on the Web. Sharing with groups of friends can be fun too, and sometimes we like to pass an object around the table or to others when we're at the pub together.

*Does your technology easily allow people to exchange digital media when they are together, or view each other's media collaboratively?*

*When people are together  
They can experience the fun  
of giving and receiving.*



## REAL WORLD APPLICATIONS

If the bulk of communication technologies have been designed for remote connection, some applications have been developed deliberately for communicating while in face-to-face situations.

For example, various applications and technological enhancements of communications devices are allowing people to do things together that they couldn't do before. Nokia's 'Sensor' application allows users to share personal identity information with others nearby. The Android and iPhone 'Bump' application, meanwhile, allows people to exchange address book data by 'handshaking', where the actual exchange of data only occurs when the two devices physically touch each other. 'Friend Book' offers a similar function: with this application, two users can shake their phones up and down and the personal contact information of the phones' owners will be beamed through the Internet to the paired phones.

For another example, FourSquare, though ostensibly about locating people, offers features that deepen the experience of being together, for example when players compete to be 'Mayor' of a particular place. Various other mobile phone gaming applications offer features designed to function when people are together. Playing the game when people are looking at each other is in part what makes the games in question fun. Our own Mobile Server Playful Messaging concept, an application that allows users to post and remove digital content from other people's mobile phones, is most commonly used when the people in question are together. The fun (and of course, sometimes the mischief) of using the application is greatest when you can see the reaction of the person who has had content placed in their phone or content of their own removed.



Other kinds of applications are more speculative. 'For Two Rings' by jeweller Nicole Gratiot Stöber is motivated by human centred concerns. The jewellery is physically activated and visually changes in response to interaction between people. Sensors detect the interaction and light sources illuminate when the forms are touched. Human interaction and relationships are central to the pieces. The private gesture of holding hands is amplified by the jewellery thus making a private gesture very public. The pieces highlight the thrill of a touch and also the potential embarrassment of the public display.



# DION

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Dion is a social networking application that lets you deepen the relationships you have with people when you are with them. It lets you create content when you are together, such as pictures and digital tags, allowing that content to be shared. It lets you give and exchange messages when you are face to face, and it can let you send a reminder to yourself to do or say something when you next meet someone.

**D**ion is a prototype system developed by the Socio-digital Systems group that extends the concept of social networking applications. The difference between Dion and existing applications like Facebook is that the social network in question is centred around your current physical space, not a virtual space, and hence more closely mirrors how your social life, your friendships, your family life and even many work connections are closely entwined with real geography. After all, you go out to meet your friends in some particular place; you want to be with them there, not in the digital ether. Similarly, you go home to be with your family, just as you go to work to be with your colleagues. Most social networks are designed to bring people together when they are apart. But Dion lets you bring the digital with you when you want to be together with other people in a real place. Dion brings the digital to your world. It binds the digital with the real in ways that makes social networking an experience that deepens human togetherness.

Dion uses mobile phone sensor technology to know where you are and with whom. It then links those geographically close to you with a new messaging channel, MsgX, that allows users to do three things. First, Dion allows you to send gifts or messages by hand, that is gifts (or messages) that are only to be delivered when you are physically close to someone. Second, it can let you can set reminders so that the next time you see someone, you get to see a reminder of something to remember or to say. And third, it can let you create events for when you and a group of friends are together, so that you can pool memories of the event and share the record of the event later.

This new form of social networking and social engagement also opens up a space for new UI metaphors. The 'mobile interface' can support more natural, gesture-based interaction where the gestures are not just about input between the individual user and the device, but are also about display, since others nearby can see those gestures and hence can react accordingly.



# GIFT TREE

List View



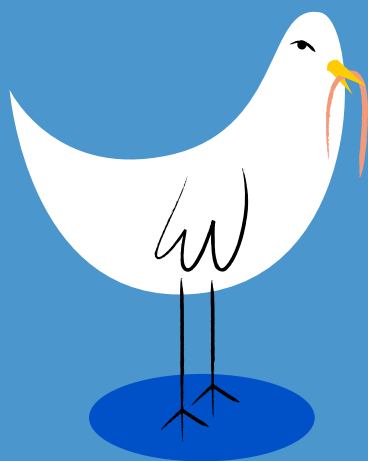
HOME



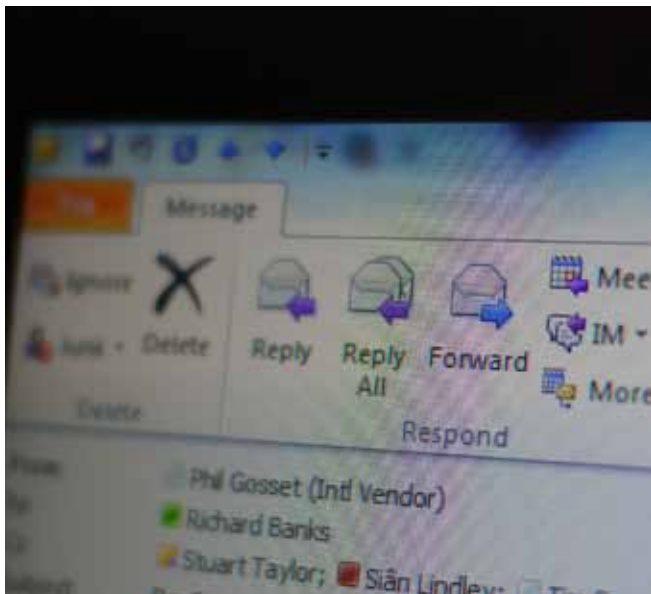
# 04

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**DIFFERENT COMMUNICATION CHANNELS  
HAVE DIFFERENT PROPERTIES IN TERMS  
OF WHAT IS SENT, WHAT IS RECEIVED,  
WHETHER MESSAGES PERSIST AND  
MUCH ELSE. THESE PROPERTIES HAVE  
IMPORTANT CONSEQUENCES FOR HOW  
WE EXPRESS OURSELVES.**



*Properties*



**Left:** Broadcasting a message can make it permanent.

**Below:** Some ways of communicating can be ephemeral, even if the message is meant to last. **Right:** Some forms of expression are meant to be messy.



**When people use technology to communicate, they might use written words, post recorded sounds, or send images. In this way, acts of communication become more than ephemeral. They can last. While these may be evocative, this persistence has its disadvantages too. Messages cannot be undone, and messages which were meant to be private can become public.**

**W**hen people use technology to communicate, they also are implicitly choosing between the different experiences different types of technology afford. These in turn are related to the various properties of the software, infrastructure and devices that we use to communicate. When they use email or SMS, for example, they are choosing to use the written word in ways that ensure the messages can be read again and again. When they leave voice messages, they are choosing to use recorded sounds. These too can be heard again. But when they make a phone call or a video call, when the call is over, it is over.

The issue of persistence of different types of media and media channels has implications that go beyond whether some message can be revisited, however. If something persists, the person who created that message can always be held to account for it, as can the receiver of the communication. This might be important in a business context when you need proof of something being requested, or reminders of actions that need to be completed. But persistence can also have different important consequences in social contexts. A written message sent between two persons privately can

be forwarded and broadcast to the public. Similarly, a message posted on Facebook might have been intended only for one's buddies, but it can easily be copied and presented to the public at large. Any property of communications technologies, therefore, can be at once advantageous and worrying, depending on your perspective.

In these, and numerous other ways, communications technologies have various properties that distinguish one kind from another. Properties such as the 'place' where one receives a message are important for who the audience will be. Will that message be privately received or publicly broadcast? Likewise, the richness of a channel might be an important consideration: there are things that can be conveyed in a video call or a picture that are impossible to put into words. Other properties like the number of conversations one can carry on at once may be a matter for concern, especially if you want to ensure that the person you contact is paying attention to you and only you. While we might not be conscious of it, all of these properties ultimately impact our decisions about how we communicate.



world is round, it turns me

VEAD. GIO. ALI. GIO  
CHALY. ALE  
VAD. B

4BBASII  
FUNA B

SASSA & ENI  
LEVER

BEATRI  
MANU

*Love letters seem more enduring and evocative than email. They can be kept and shown to others, or hidden away in secret. When it comes to matters of the heart, materiality matters.*



## REAL WORLD APPLICATIONS

Today we have more choices than ever about how and when we communicate. And when we make those choices, we are also selecting amongst properties of different communications applications that are just as diverse and rich. This allows, in turn, greater expressivity on our part. We can choose to whisper intimately to someone, or shout about something to a wider audience. We can carefully craft messages to someone we care about, or have a fleeting conversation with those we barely know. The properties of communication technologies both shape the way we say things, and steer us toward some technologies and away from others.

**F**or example, place is an important property when considering how to message someone else. A key aspect of sending an SMS text is that it arrives in a particular place, on the mobile phone, and this device itself is kept in special, personal places. It might be in someone's pocket perhaps, or in their handbag or even in their hand. Consequently the messages sent via SMS are often crafted to reflect this: messages are intimate and often private.

Other messaging media offer different properties. Video connections such as provided by Skype, for example, are not necessarily taken up by business people wanting to deepen their understanding of some issue that they are discussing in a conference call. Rather, Skype is increasingly used by distributed families to support special events – such as grandparents Skyping in to see a grandchild blowing out the candles on their birthday cake.



Video is used to make the event more important to those involved because it celebrates 'being in the moment'.

Other channels such as Instant Messaging are much more sparse than video in terms of what they convey. But one of the properties that drives usage is that people can have multiple accounts running at the same time. In this way they can have concurrent conversations with different people. This might be because some issues users want kept private, or it might be because people want to keep some conversations simple, between two people, even though they might want to have more than one conversation at a time.



# Banks, Shannon

I miss you and Maddie . Went  
for amazing run this morning.  
Wish you were here.  
Mon, 14:36

It sounds beautiful there.  
Worth a return trip?  
Thanks for the number.  
Mon, 14:47

Definitely worth a return w  
Maddie too  
Mon, 17:43

type a message

# DIGITAL MESSAGE BOARD

Wayve is a situated communications device designed for the home that allows householders to create messages by typing, scribbling or taking photos. These messages can be left to be seen within the home, or sent to other Wayve devices. Messages can also be sent to and received from Wayve via mobile phones or email.

**W**ayve is a device developed as a research prototype by the Socio-Digital Systems group which is designed to be placed in the centre of a home, perhaps in the kitchen or hallway. While people can send and receive messages over email and mobile phone channels using Wayve, primarily it enables messages to be created on the device itself for quick, informal communication with other Wayve devices in other homes. A unique property is the flexibility with which messages can be created. Using a digital stylus, messages can be scribbled or pictures drawn. Wayve also has an embedded camera so people can take pictures to send which can be scribbled on top of. Another important property of Wayve is that it is designed to be situated. This means that rather than hiding messages away (like in email), they are displayed “in place” almost like a paper note. Messages created on or sent to Wayve cycle around the device slowly, drawing attention to themselves, without being too demanding. So messages sent to the kitchen are very much displayed in the kitchen for all the family to see.

We carried out a field study of Wayve in 25 households in the UK where most of the households comprised small networks of family and friends, each of whom had a Wayve device. By far the most popular way of communicating was from Wayve to Wayve using playful forms of communication. Pictures of pets were appended with speech bubbles

creating storylines between cats and dogs in households, kids drew birthday cards that were instantly sent to their relatives, and friends scribbled jokes to one another. Households also played games with one another, and children had fun taking pictures of themselves when they were together, embellishing their pictures with Wayve. In short Wayve enabled a celebration of family life, and allowed lightweight, creative communication between households where strong connections already existed, even for the most technology-shy members of the family.

Much of this kind of usage can be traced to the important properties of Wayve that distinguish it from other communication systems. Pen-based input combined with images from the camera provided an opportunity for freedom and flexibility of expression. It encouraged doodling and drawing, something not usually supported in remote messaging applications. A second key aspect of Wayve was the fact that messages could be displayed for all in a household to see, but only those in the household. This meant that on the one hand, carefully crafted pictures could be proudly displayed, but on the other, jokes meant for the family wouldn't be taken the wrong way. In other words, understanding the ultimate “place” where a message would be displayed at once constrained the content of a message, while unleashing its creative potential.



GONDOLIER

Cappuccino Cakes  
Wafers



wayve

TESCO

TES

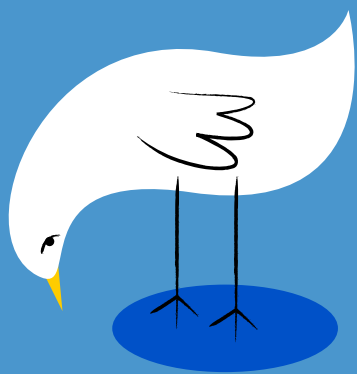
TE



05

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**TODAY WE HAVE A MYRIAD OF CHOICES ABOUT HOW WE COMMUNICATE. WHAT TECHNOLOGY WE CHOOSE DEPENDS ON WHO WE WANT TO COMMUNICATE WITH, AND WHAT KIND OF BOND WE SEEK TO MAKE WITH THE OTHER PERSON.**



*Choices*

## CHOOSING HOW TO CONNECT

**Many organisations seek to offer tools and technologies designed to integrate across communication channels. For some kinds of communication acts, this is desirable. When a work colleague needs an answer to a query, they may not worry how the query is delivered nor how the answer is supplied, as long as the request goes to the right person and produces the answer accurately and efficiently. But not all human relationships are so simple, and not all communication acts so straightforward. The way that people use communications tools of various kinds helps them distinguish between different types of relationship – between professional connections and between friends, for example, or between close family members and strangers.**

**T**here are many criteria that can be used to explain why people choose one type of communication over another. Sometimes it is said that economy is the driver: people select what is cheap rather than what is expensive. In other instances, ease-of-use is said to be the motive, with people selecting one mode of communication over another because they know how to use it, or find it efficient. These and other criteria are certainly important factors underlying people's choices. But these motivations are all subsumed by a larger one: the question of what kind of bond one individual wants to make with another and, relatedly, as a consequence of seeking that bond, what kind of person that individual wants to be seen to be? Thus, to choose to communicate via an economical mode might be because the bond in question is not thought of as having much value: an emailed birthday card might be good enough for a passing acquaintance, but wouldn't do for your best friend. Or it might be because the person communicating wants to show that they are frugal: saving money by using Skype rather than telephoning might be important to convey to your parents, for example.

Similarly, the selection of an easy-to-use mode of communication might reflect the fact that the person making that choice wants to show that they gave little forethought or attention to the act itself, simply wanting to do it quickly. Or it might show that they are a person who is ill at ease with more complex modes of communication, and thus are someone who values being in touch less than others. There are many more examples of how communication says something about us, and what we hope to achieve when we connect with others. Whatever we do and however we say it, whatever means of communication we choose and whatever it is we convey when we do so, our choices reflect who we are, how we want to be seen by others and what kind of bond we aspire to make.

Understanding these goals and aspirations, therefore, can open up the design space for new possibilities that move us beyond notions of efficiency, cost, and ease of use when we design new communications technologies. They open us up to the possibility of more diverse choices, more textured means of expression, and richer ways of connecting with others.



# SOCIO-DIGITAL SYSTEMS

**S**ocio-Digital Systems (SDS) is one of the research groups at Microsoft Research in Cambridge, UK. As a group, SDS aims to use an understanding of human values to help change the technological landscape in the 21st Century. Beyond making us all more productive and efficient, we ask how we can build technology to help us be more expressive, creative and reflective in our daily lives.

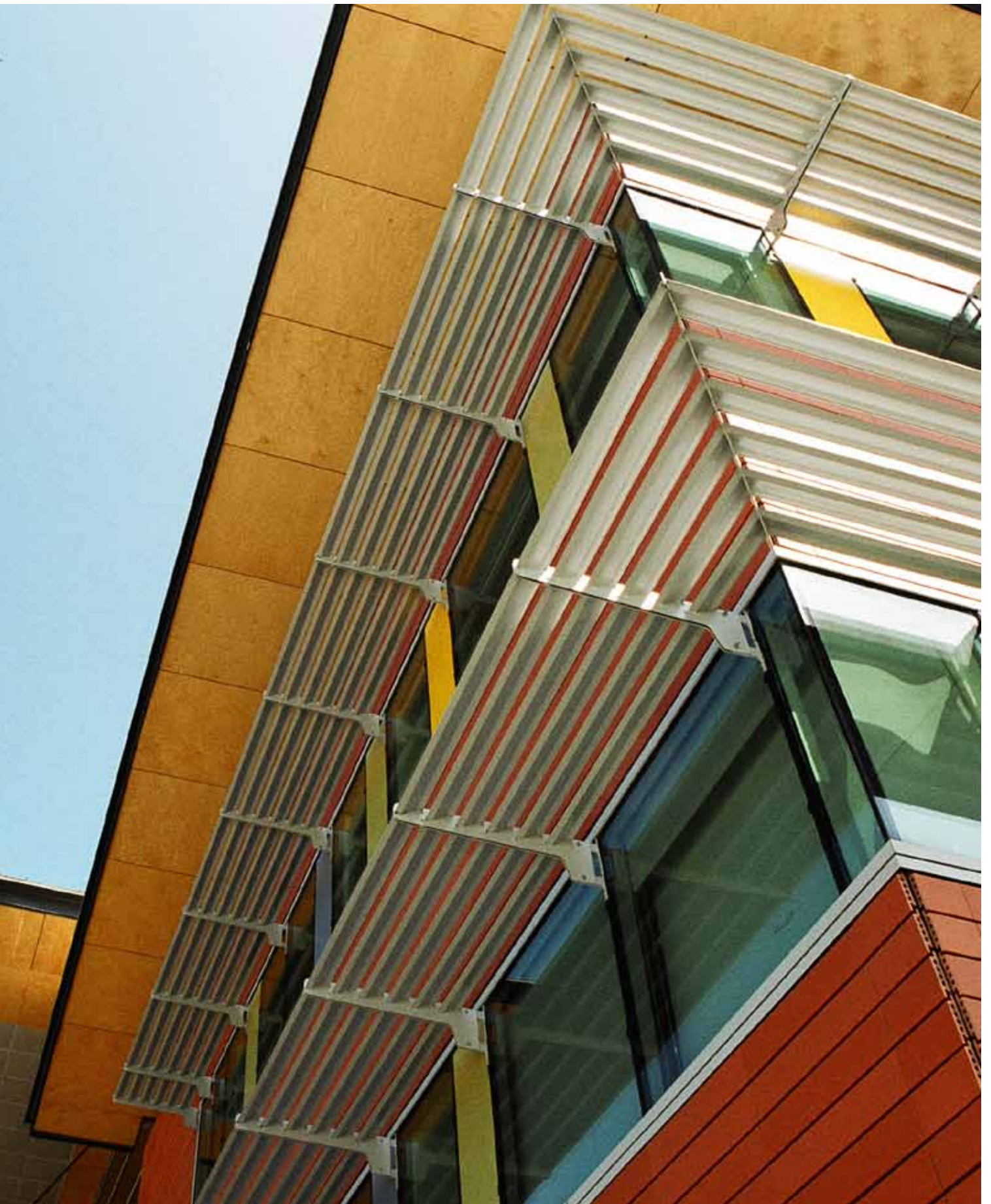
Our group considers a broad range of human values, aims to understand their complexity and puts them front and centre in technology development. An important aspect of this endeavour is the construction of new technologies that, in turn, we ourselves can shape. In so doing, we may create new ways that help us to actively realise our aspirations and desires, to engage with or disconnect from the world around us, to remember our past or to forget it, to connect with others or disengage from them. Important here are technologies which ultimately make our lives richer, and which offer us choice and flexibility in the things that we do.

SDS does this through the bringing together of social science, design and computer science. We believe that by understanding human values, we open up a space of new technological possibilities that stretches the boundaries of current conceptions of human-computer interaction.

For more information on our group, and our current themes, projects and publications, please visit [research.microsoft.com/sds](https://research.microsoft.com/sds)







## READING

### BOOKS

Harper, R. (2010).

[Texture: Human expression in the age of communications overload](#)

MIT Press: London and Boston.

Webb, W. with Harper R. (2010).

[Being mobile: Future wireless technologies and applications](#)

Cambridge University Press: London and New York.

Harper, R., Rodden, T., Rogers, Y., & Sellen, A. (2008).

[Being human: Human-computer interaction in the year 2020](#)

Microsoft: Cambridge, UK.

Harper, R., Palen, L. & Taylor, A. (Eds), (2005).

[The inside text: Social perspectives on SMS](#)  
Kluwer: Dordrecht, Netherlands.

### ARTICLES

Taylor, S., Lindley, S., Mentis, H., Regan, T., Pang, A. Dunphy, P. & Harper, R. (2011).

[Pickpocket: From deviance to delight](#)

Socio-Digital Systems Group,

Technical Report.

Marsden, G., Maunder, A. & Harper, R. (2011).

[Making the link: Providing mobile media for novice communities in the developing world](#)

International Journal of Human-Computer Studies, Special Issue: Locative Media.

Lindley, S. (2011).

[Shades of lightweight: Supporting cross-generational communication through home messaging](#)

Universal Access in the Information Society.

Cao, X., Sellen, A., Brush, A.J., Kirk, D., Edge, D. & Ding, X. (2010).

[Understanding family communication across time zones](#)

Proceedings of CSCW 2010. ACM Press: New York.



Kirk, D., Sellen, A., & Cao, X. (2010).

[Home video communication: Mediating "closeness"](#)

Proceedings of CSCW 2010. ACM Press: New York.

Lindley, S. Harper, R. & Sellen, A. (2010).

[Designing a technological playground: A field study of the emergence of play in household messaging](#)

Proceedings of CHI 2010. ACM Press: New York.

Harper, R. (2009).

[From TelePresence to Human Absence—the pragmatic construction of the human in communications systems research](#)

Proceedings of the 23rd Annual Conference of the British HCI Group.

Lindley, S., Sellen, A., & Harper, R. (2009).

[Bridging the gap between grandparents and teenagers: Lightweight vs. heavyweight contact](#)

Proceedings of CHI 2009 workshop on Age Matters: Bridging the generation gap through technology mediated interaction. ACM Press: New York.

Harper, R. & Taylor, S. (2009).

['Glancephone: An exploration of human expression](#)

Proceedings of Mobile HCI 2009. ACM Press: New York.

Lindley, S., Harper, R. & Sellen, A. (2009).

[Desiring to be in touch in a changing communications landscape: Attitudes of older adults](#)

Proceedings of CHI 2009. ACM Press: New York.

Brown, L., Sellen, A., Krishan, R. & Harper, R. (2009).

[Exploring the potential of audio-tactile messaging for remote interpersonal communication](#)

Proceedings of CHI 2009. ACM Press: New York.

Jose, R., Otero, N., Izadi, S. & Harper, R. (2008).

[Instant places: Using Bluetooth for situated interaction in public displays](#)  
Pervasive Computing, IEEE, Vol 7(4).

Harper, R., Regan, T., Izadi, S., Mosawi, K., Rubens, S. & Rouncefield, M., (2007).

[Trafficking: Design for the viral exchange of multimedia content](#)

Proceedings of Mobile HCI 2007. ACM Press: New York.

Sellen, A., Harper, R., Eardley, R., Izadi, S., Regan, T., Taylor, A., & Wood, K. (2006).

[HomeNote: Supporting situated messaging in the home](#)

Proceedings of CSCW 2006. ACM Press: New York.

Kindberg, T., Spasojevic, M., Fleck, R. & Sellen, A. (2005).

[I saw this and thought of you: Some social uses of camera phones](#)

Proceedings of CHI 2005. ACM Press: New York.

Kindberg, T., Spasojevic, M., Fleck, R. & Sellen, A. (2005).

[The ubiquitous camera: An in-depth study of camera phone use](#)

IEEE Pervasive Computing, Vol. 4(2), pp. 42-50.



**Contributors**

Richard Banks  
*Project Manager*

Nick Duffield  
*Designer*

Richard Harper  
*Writer*

Abigail Sellen  
*Writer*



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