

# **Research Questions for the Evolving Communications Landscape**

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Note that the mobile phone is not mentioned in the title of this paper, even at a conference about mobile telephony. This is intentional, this is the point. To complement the increasing amount of researching focusing on mobile phone, this paper aims to explore the merits of looking at mediated communication in general, seeing the mobile as just one element of that context.

Our communications options are becoming increasingly complex with relatively more major and minor options becoming available. At one time to study mediated interpersonal communication meant studying the fixed-line phone. Mobile telephony and communication via the Internet may have been the more general, outstanding recent additions, but we might think also of the various ways we have of sending and receiving voice messages, text messages and images, manipulating them and controlling communication.

Increasingly we can ask not only why we *use* a particular channel or function but why we *choose* it from amongst the possibilities. And when we use one media, what implications has that for use of another? To answer such questions requires thinking holistically, conceptualising communication practices as an ensemble, a repertoire. Indeed, we already see some researchers addressing such relations between the different elements of those repertoires when they refer to processes of substitution or complementarity and to specialised use of certain channels – to be discussed below.

This paper attempts to use existing studies, mainly of the telephone, the mobile phone and e-mail, to address systematically issues about that repertoire of practices. What new questions, or reformulations of questions, do we ask when this is the focus rather than the individual medium? In part, this exploration also has an ‘applied’ social science agenda behind it, in terms of suggesting what those working to develop ICTs might consider when making sense of new emerging practices and thinking about possible future ones

1. The paper starts by asking a general question about the limits of the object of study: what might be the boundaries of what we consider to be a communication practice within this repertoire?
2. Next, it asks the historical question of where do practices come from? Specifically, what are the continuities between the different elements of the repertoire? How do some communications practices draw upon practices developed from other media or indeed from other practices in daily life?
3. Turning to how we manage this repertoire, how do we make choices among the elements of that repertoire? What types of factors shape choices, not just in terms of technical features, but also in terms of social relationships? These are not always easy decisions and, indeed, we might ask how much the term ‘choice’ adequately captures the process.
4. Finally the paper asks about the dynamics of the whole media repertoire over the longer term. What factors contribute to changes in communications choices? How does the repertoire evolve?

### **The boundaries of the object of study: communication-related practices**

The first question concerns the scope of any enquiry into communication repertoires: how broad a vision should we have of what elements count as a communication?

Specifically, this section argues why we should always try to imagine what counts as communication-related practices that go beyond but help to make sense of narrower definition of use (as implied in such questions as how often do you use the mobile phone, how much time do you spend using it, how many text messages do you send etc).

In the area of communication, perhaps some of the best recent example of equivalent practices are those related to SMS use, especially by youth, which have been documented in a number of studies. These include such practices as saving messages, talking with others when composing them, etc. (Johnson, 2001; Kasesniemi and Rautanen, 2002).

Thinking of the mobile more generally, we might include the practices, also well documented, of controlling mobile use, such a controlling who the mobile number is given out to, switching it off, switching it to voice mail etc. all of which either greatly shape 'use' or may be considered to be a part of an expanded definition of 'use'. We might also include practices involving talk such as exchanging information about how best to exploit mobile tariff structures. And we might consider the practice of changing Sim cards depending on the mobile phone network of the person being called or borrowing each other's mobile phones as another way to get the best rates<sup>1</sup>.

Equivalent, in effect boundary defining, questions can, and have, been asked of other means of communications such as the phone and Internet, and could be asked of emerging ones. In what ways can these practices take on a wider importance? To take an older example, research on early British home computing in the mid-1980s, including an analysis of game-playing, argued that it was important to look beyond the moment of sitting in front of the screen to consider all the acts related to 'computing' (Haddon, 1992). These included reading the magazines about the new hobby of computing and about games. Knowledge about the latest games and tips about how to play them was important for those, mainly male youth, who followed games as a developing into a cultural industry. Computer-related activities included talk<sup>2</sup> about the computer, comparing experiences, discussing possibilities, both inside and especially outside the home, primarily in the informal culture of school. And it included sharing and copying software.

One reason why it was important to take such practices into account was that it had a bearing upon our evaluation of what constituted the activities of home-computing and game-playing. For example, at the time there were widespread social concerns – not unlike ones currently related to the Internet (Nie, 2001) – about people, especially males, becoming isolated in front of screen, fears about it the computer making them anti-social (Shotten, 1989). But by looking at these other activities it became clear that in certain senses both home computing and games playing could be very sociable.

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<sup>1</sup> These observations come from discussions with Dutch university students at a time when the competition in the mobile market was great duty to new entrants. One practice, for example, was for a student to borrow someone else's mobile if it used the same network as the person being called in order to make a cheaper call. In return the student could let that person use his or her mobile if the person being called was on his/her network.

<sup>2</sup> More recently, there has been some appreciation of the significance of interaction surrounding Internet use, such as talking while in front of the screen (Millerand et al, 1999).

In fact, the very interest in these early home computers derived partly from these social practices, as did decisions taken about time allocated to the computer and games. Moreover, interest in those practices influenced what people did when they played games or explored the potential of these early computers. And appreciating computer-related practices was important for the analysis of patterns of use, for example, contributing further to the explanation of gender differences noted earlier. On the whole, girls did not partake in these same range of activities noted above, which meant that while they may have used a computer or played games their experience was not the same as that of the boys who were involved in these other ways.

To sum up this section, we can ask

1. What may count as communication-related practices?

One reason why we should ask this is because it is a possible step to asking such questions as:

2. What difference might they make to how we conceptualise that communication and to wider claims made about what it means for society?

But also:

3. What difference do they make to the experience of communicating? What difference do they make to decisions when choosing among the communications repertoire? What difference might they make to the patterns of communication that emerge?

### **Continuities between media**

Jouet, reviewing French research, notes that the adoption of new ICTs takes place against a backdrop of preceding techniques and practices, and new uses are often an extension of what has gone before. The use of the new tools is grafted onto the practices associated with older ones (Jouet, 2000). A similar point is made in an empirical study of Internet use by teenagers, where Quebec researchers argue that practices developed around media and technologies need to be located in the context of people's wider and pre-existing cultural practices, and in this sense we can think of a 'continuum of uses' as new practices are 'inscribed within' (or built upon) old ones (Millerand et al, 1999).

In fact, similar observations occur elsewhere. For example, if we look at the social shaping of media, Winston shows how much the form of early TV was based on the broadcasting principles that had evolved in relation to radio (Winston, 1989). This formed part of an argument to show how the emergence of an even apparently dramatically 'new' media is to some extent an evolutionary process. Arguably this is one of the contributions of both an historical and social science memory, always challenging the discourses of 'technological revolutions'.

To take another example, computer games had numerous lineages back to older forms, to the arcades, to TV games consoles, even to pinball machines (Haddon, 1992, 1999a). Once again, it was important to appreciate such continuities in order to understand the historical construction both of interest in these technologies and the particular practices relating to them. For example, in the 1970s games arcades were mainly male domains, and so it is easier to appreciate the greater interest of male

youth in early home games machines. Looking for continuities can, in some circumstances, help explain patterns of use.

But rather than just talk about continuities in general, using the examples of existing studies we can start to map at least some different types of continuities in relation to our communication repertoires, if only to help researchers think about emerging practices.

**Figure 1: types of continuity between research practices**

<b>Types of continuity</b>	<b>Examples</b>
Communications related to specific events	Using e-mail to announce the birth of a child <sup>3</sup> - whereas previous one might have made phone calls or sent cards; male partners acquiring a mobile to be reachable at childbirth <sup>4</sup> – whereas in the past they might have given fixed phone number where could be found; Sending e-mails or electronic Christmas cards at Christmas instead of sending Christmas cards
Continuities from more routine practices	Using the mobile phone at work for private purposes <sup>5</sup> - whereas in the past one might have used the work fixed line <sup>6</sup> ; children chatting on-line after school, or using a mobile phone - whereas in the past they might have used a fixed line: the ‘gift’ of mobile phone calls or text messages <sup>7</sup> – whereas in the past some fixed line calls could have equally well been conceptualised as gifts <sup>8</sup> ; teenagers using SMS in the classroom as an updated, and less visible, version of passing paper notes around without the teacher seeing <sup>9</sup>
Continuities from previous practices not necessarily considered in the past as communication	Teenagers ‘hanging out’ on-line via instant messaging to hear of something interesting, to hear if something was ‘happening’ <sup>10</sup> - compared to hanging out in a physical public spaces such as shopping malls

<sup>3</sup> Manceron et al, 2001

<sup>4</sup> Manceron et al, 2001

<sup>5</sup> Mercier, 2001

<sup>6</sup> De Gournay, 1997

<sup>7</sup> Nafus and Tracey, 2002. Johnsen, 2001

<sup>8</sup> Indeed, that is the way some telecom companies have in the past promoted sociability via the phone.

<sup>9</sup> Ling and Yttri, 2002

<sup>10</sup> Raine, 2001

Looking at such continuities also raises the question: how 'new' are new practices? But asking about continuities may also seem to be a more conservative question. Clearly we also need to appreciate how different new practices are, what do they lead to which is a 'new' departure and where and in what ways do they make a difference. For example, evidence has been cited to support the argument that using mobiles at work has led to extra social communications by males that might otherwise not have taken place, and that they may have increasingly become 'ambassadors for family' (Mercier, 2001). Meanwhile e-mail to those at the periphery of social networks instead of the occasional letter or Christmas card may have led to more communication and, indeed, maintaining contact with older social networks that might otherwise have been lost.

In sum, the first and main questions arising from this section that researchers in this field can pose both for current and future innovations are:

1. Can we see any types of continuity from previous practices?
2. What types of continuities exist? What types of past precedent are we talking about?

That said:

3. To what extent are new practices different from older ones?
4. To what extent does this make a difference and in what sense?

But if we are interested in evaluating the analytical challenge that such questions pose we might add:

5. How much can one only appreciate continuities with hindsight? How difficult is it to make predictions on the basis of seeing possible continuities?

### **Factors shaping the choice between communication options within the repertoire**

In a recent study of the use of 'new media' (in this case meaning mainly screen based media) by children and youth there is some discussion of how the latter manage and choose from the increased range of options available (Livingstone and Bovill, 2001; Livingstone, 2002). The talk is of an increased 'media mix' and choosing from larger 'media menus'. This parallels the increased communications repertoire described here.

As in the field of communications, this study discusses the long running interest in whether the use of one medium displaces or substitutes for another. If we look beyond the case of just children, we might consider the examples of how newly arriving TV channels influence how much time people spend watch the existing ones, and the effects of cable and satellite on time spent watching terrestrial TV, or of VCRs on time watching live TV or of the PC and more recently the Web on time for TV. In the communications field, the equivalent questions would cover the extent to which mobile telephony and e-mail might have an effect on our use of the fixed phone.

But those studies of children and screen media are sceptical of a simple displacement thesis. For example, historically the influence of TV's arrival was not simply one of decreasing time for cinema and radio – the experience of these other media changed, as their use became more specialised and differentiated (Johnsson-Smaragdi, 2001). In fact, this author notes that at a societal level old media are rarely completely displaced, although individuals may give up some ICTs.

The same general theme is repeated elsewhere. In review of French research on ICTs in general - but the point could be applied more specifically to communications - it was clear that new innovations complemented old ones rather than substituting for them: e.g. electronic messaging has not displaced the telephone (Jouet, 2000). In fact, that review argues that the arrival of new ICTs lead us to use pre-existing objects in new ways and in general increase the complexity of communication practices.

Thinking in terms of repertoires helps to move the emphasis of being a user of communications to being a manager of communications, making choices or finding strategies within the external parameters arising from the (socially shaped) means of communication and against a background of social constraints and expectations. To make a link to the conference theme, this involves coping with the options opened up in everyday life just as Goffman's actors do, but noting that the growing repertoire at their disposal makes the decisions ever more complicated.

So what is involved in this complexity? By now we have enough studies to begin to start painting a broad picture of the types of considerations facing people as communications managers, to consider the process of repertoire management. These considerations can be grouped as follows:

- The qualities of the communication media favouring certain choices
- Social factors favouring certain choices
- Constraints affecting the choice of medium

**Figure 2. Qualities of the communication media**

<b>Type of quality</b>	<b>Example</b>
Economic	Cheapness of SMS compared to voice
Symbolic	Potentially disruptive
Design	SMS as asynchronous; Display, storage capacity (e.g. limited number of characters in a text message); Personalisability (e.g. Ring tones, logos)

Clearly the qualities of the media are not only technical in nature. They include the financial costs<sup>11</sup> entailed by using different telecommunications media. They also include symbolic associations, whether derived through marketing policies or associations picked up through some other means, such as the way in which people use the technology.

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<sup>11</sup> Economic considerations can have a bearing on using the free work phone or work access for private purposes, the using up of 'free' minutes within mobile phone service packages, the decision to take the unlimited usage Internet option and its implication for 'always on' access to the Internet, perhaps trying out use multimedia messaging on mobile networks while the cheap offers last, etc.

Of course, choices are also influenced by what technological capabilities<sup>12</sup> enable and constrain. And yet, to emphasise the creativeness of social actors we should add that there is sometimes scope for manoeuvre on the part of users. The technical does not always present a rigid parameter. To take the example above, the limited number characters in a text message might at one time have seemed a powerful inhibitor to choosing this medium, but studies have shown how users have in fact been very creative in overcoming this limitation. This must lead us to always ask how much technological features really allow and constrain use, and so influence choice and how much scope is there for manoeuvre on the part of users in relation to different technical features.

Another question concerns the status of the items on list such as the one above. How much technical fluidity is there? What technical parameters are core to a particular medium, relatively unchanging versus where is there more scope for innovation that may change the possibilities and constraints associated with that option over time (as in the way mobile phones have become more personalisable, to take one of the examples above).

**Figure 3 Social factors favouring certain choices**

<b>Social factors favouring choices</b>	<b>Example</b>
Purpose and content of communication	Gift communications, communications providing a sense of security
Urgency of communication	Emergences and contingencies, finalising arrangements to meet, regular calls to family, occasional calls to keep in touch
Social relationship to the other communicator	Immediate family, extended family, close friends, 'mates', old-friends, acquaintances, colleagues
Physical proximity of communicators	Degrees of distance, abroad
'Social location' of the persons communicating	Home, work place, various public spaces
Communication norms of social networks	SMS, e-mail and or chat being most commonly used medium of some networks of young people

On the one hand various studies suggest that these are indeed all considerations in making choices. But we should bear in mind that all such checklists are simplifications. For example, consider the communication norms of social networks. Within social groups or networks there can be rules and expectations about the appropriateness of different media for different circumstances. One study of SMS use

<sup>12</sup> These examples could include the 'bandwidth' of communications (Ling, 2000): e.g. how voice communications allows more information to be conveyed than text, because of the nuances of how we say things; physical portability: relevant not only for the mobile phone but for other forms of mobile terminal for communication; facilities allowing 1-to-1, or 1-to-many communication; features of the media allowing anonymity; features allowing one to get information of some kind about the caller; features allowing different forms of control over communication. And then there will be various features usually more specific to sending text, images etc such as storability and retrievability, the related sharability (allowing others to share the message or image), the option to send and receive attachments (text, image, audio-visual, sound), etc, all of which support certain type of communication-related practices discussed earlier.



by youth showed that there are understandings about when it is inappropriate to use texting as opposed to using other means of communication, including face-to-face communication: for instance, the study showed how it is not considered right to end a relationship, to ‘dump’ someone, through sending a text message (Taylor and Harper, 2001). But even here there is not always consensus, as some network members make choices that others think is inappropriate.

**Figure 4. Constraints on the choice of communication**

<b>Constraints</b>	<b>Example</b>
The regulation of communications by others	Attempts by parents to regulate outgoing calls on the fixed line, mainly but not exclusively because of cost considerations <sup>13</sup> - which may privilege use of the mobile
	Formal regulation of certain media in other social spaces e.g. e-mail for social purposes at work <sup>14</sup>
Inappropriate communication in certain social spaces	Informal pressures to restrain mobile use in certain public spaces
Social commitments to others at certain times	Keeping the family phone line free in the evening for calls <sup>15</sup>
Strategies people use for controlling their own communication	Youth steering calls to their mobiles, or the mobile’s voice mail, rather than the communal fixed line (or household answering machine); the reluctance to give out mobile numbers to work colleagues has been noted in several studies <sup>16</sup>

One key point to derive from this last figure showing constraints is that it actually provides a useful antidote to some of the misleading connotations of emphasising ‘choice’ amongst the communication repertoire. It reminds us that while we do indeed ultimately make choices, these are made within social constraints, sometimes ‘external’, as in the case of the social pressures from other people, and sometimes partly of our own making, as in our obligations to others and our own communication agendas.

<sup>13</sup> Haddon, 1994, 1998

<sup>14</sup> While some welcome the chance to use e-mail for social purposes at work (De Gournay and Smoreda, 2001) for others such use is not allowed (Haddon, 2000).

<sup>15</sup> One study showed how Internet users avoided going on-line specifically in the early part of the evening, partly to keep the (often single) phone line free for incoming and outgoing calls and partly because the early evening is more often devoted to communal practices (Lelong and Beaudouin, 2001). The most likely is that use of Internet based communication was shifted from those time spots. But the other implication is that is that if more urgent communication was required, or it was important to be reachable, the phone might be the more privileged medium at those times.

<sup>16</sup> One implication might be that, for some people at least, this channels certain types of work-related call to the home fixed line.

Finally, to complete the picture, we need to consider how people link different forms of communication when making choices. After considering various examples (and echoing themes from previous French studies) de Gournay and Smoreda conclude that despite claims about technological convergence some communication tools are used for only certain types of communication – i.e. there is a degree of specialisation (De Gournay and Smoreda, 2001). This may be true generally. But people do also sometimes shift between different parts of the communication repertoire in the short term. This means that for a more complete picture the complexity of repertoire management we need to consider the dynamic dimension as well. Thus we have another level of relationship between the elements of the communication repertoire: the short-term movement from one to another.

**Figure 5 Short-term reasons for shifting between communication options**

Reason for shifting	Example
Reconfirming through another medium	An e-mail to confirm a phone decision
Using one medium to set up another	A phone call to ask for an attached file to be sent by e-mail
Another medium when the first choice fails or is not available	Sending a text message when a phone call does not get through; phoning the relative on the mobile when a fixed line is not available <sup>17</sup>
Sorting out problems created through one medium	The phone call to clarify an e-mail <sup>18</sup>

To conclude this section

1. When you start to outline the considerations affecting, choice, which are more nuanced than can be contained in the figures above, then one can start to appreciate in what ways social actors as communications managers make complex decisions.
2. One general observation from the examples related to shifting between communications, especially the latter ones showing communications problems, is that they draw attention to the fact the managing the communications repertoire does not always run smoothly.

<sup>17</sup> Klammer et al, 2000. Here we might note that sometimes the rationale for the call may have emerged explicitly in relation to one new medium, but then is transferred to an older communications mode if the first is blocked. For example, the practice whereby people call home to let family members know where they are when travelling home is one that for some people has been greatly enhanced by the arrival of mobile phones. But if the mobile is not an option, for example, because the battery has run down, other peoples expectation of that call being made may be such that one may simply feel obliged to find a public phone to make it instead. Or there is the example of using one mode when someone failed to reply by another – such as the example of a teenager phoning on the mobile to ask why someone had not replied to their text-message: i.e. the latter had not met their expectations about how to use one channel of communication properly in terms of giving a timely reply (Taylor and Harper, 2001).

<sup>18</sup> For example, this may include misunderstandings that can arise though the style of interaction when using e-mail, which then have to be smoothed over through the richer medium of voice telephony (Mante-Meijer and Haddon, 2002). Conceivably, the example might be reversed: one might choose to clarify something said in the spontaneity of synchronous voice interaction by a more carefully planned text.

## Longer term dynamics of the communication repertoire

This last section completes the review by considering longer term changes that people make in relation to their communications repertoire. Of course, this can occur in terms of how people communicate with specific individuals, as their relationships develop<sup>19</sup> (Ling, 2000). But here we consider the more general question of people develop new routines and change their practices for handling certain types of communication.

The dynamics of how we develop out use of individual ICTs had been tackled in a number of different research traditions. There have been studies of ‘apprentiships’ with new ICTs (Lelong and Thomas, 2001), and ‘becoming a user’ studies that refer back to the symbolic interaction tradition (Bakardjieva, 2001)<sup>20</sup>. Both of these approaches deal with the early careers of ICTs. The process of integrating ICTs into daily life and their subsequent careers has been considered with the ‘domestication’ framework (Haddon and Silverstone, 1994) and in research into the effects on communication of major changes in life stages (e. Manceron et al, 2001; Mercier et al, 2002).

One change in emphasis when we look at the communications repertoire as a whole rather than individual means of communications is that as new possibilities arise people already have an existing set of options. This means that they may decide that they can manage with those existing options, or that there are reasons for sticking to existing practices<sup>21</sup>. For example, the quote below shows how someone tried out e-mail for organising meetings, but then abandoned it to go back to the older practice of using the phone.

*If it's something like someone sends you a message about where to meet that night it's quicker just to pick up the phone. E-mails can be terribly delayed. It's a real problem actually, it really screws things up, I can think of loads of arrangements that have been totally screwed up by e-mails not getting through in time. I've missed meeting people and I've not known about things that I've been invited to because they didn't come through (Haddon, 2000).*

However, the decision that one practice proves at one point in time to be less effective than another (or have other implications), does not prevent them from being adopted later. Or, as the example below shows, experience of the problems associated with a new element of the repertoire may lead to it being modified.

*I feel like I can get a bit overwhelmed with all the e-mail I receive (...) I'm writing much shorter mails because of that, there's just too many, and I don't put as much effort in as I used to. It's got to the point where I just send*

<sup>19</sup> Ling gives examples such as meeting someone on a chat line, e-mailing them, phoning them and then meeting them.

<sup>20</sup> In the case of the Internet more attention has been given to overall use and accessing information (sites) more than to communication, and there appears to be even less on learning to use the mobile.

<sup>21</sup> This in turn means that as we have more a more possible options in the repertoire, does this create more inertia, and for whom, as people can already achieve more and more goals by existing communications means?

*something, however short, just to maintain a presence. I just say hello rather than give much detail about what I'm doing. (Haddon, 2000)*

The last point by way of general observation is that within the repertoire different practices within the communications repertoire will also have different degrees of inertia. Certain ones may be relatively short-lived, such as some people's experience of pagers in the few years before the mobile phone and SMS options became popular. On the other hand, for certain purpose many people feel comfortable using the fixed phone line, despite the arrival of more possibilities alternatives. If we look beyond just electronically mediated communication, for some letter-writing has been more drastically affected by the advent of e-mails, while for others letters retain a place in life. For some youth, chatting on the phone after school remains important, while for others on-line chat has taken on some of that role.

Having established some general sense of the changes that can occur over the medium to longer term, figure 6 illustrates some of the factors that can lead to such change.

*Fig.6 Longer term factors affecting choices in the repertoire*

<b>Factors</b>	<b>Examples</b>
Changing individual or household circumstances (e.g. life stage, work, commitments)	First use of e-mail and mobiles with the birth of the first child <sup>22</sup>
Changes of communications within social networks or within a cohort of people of the same generation	Rise of texting amongst youth in various countries
Wider societal changes, or changes with particular institutions	The BBC promoting e-mail addresses and texting, social debates covered in the media about the need to regulate mobile phone usage (e.g. because of health, because of disturbances of public space), changing regulation of mobile telephony use in certain public spaces
Changes in communications options (e.g. new products, new pricing, new technical options new marketing)	Pre-paid cards for mobile phones, the appearance of the SMS option, marketing mobiles as fashion items

For research purposes it is worth noting one methodological issue here. In many respects the macro level leaves more historically visible traces, of when events happened as captured in the media, in new adverts, in documentation of the launch of innovations and in institutional memories of when a decision was made. How practices emerged, where tried out, perhaps the role of chance events etc at the other levels - the individual and group level - can be more easily forgotten. People can usually remember the process of acquiring technologies and services, because that is a major decision. They might remember usage associated with significant events, such as the decision to use e-mail to tell people of the birth of a child. But there are many, many smaller practices, now routine, when it is more difficult to remember the details

<sup>22</sup> Manceron et al, 2001

of how they emerged, why choices were made, why some things were and were not considered<sup>23</sup>.

The problem is that because such small changes in practice escape the research eye it is difficult to say how much the pattern that did emerge could easily have been otherwise – be that in terms of individual's repertoires or their usage within wider groups. For example, at one stage the social role of the fixed line was not anticipated. To give a more recent example, with hindsight one can give reasons why SMS might appeal, especially to youth and, indeed, contemporary youth can articulate these now. On the other hand, it still, arguably, represented a major shift in practices over a short period of time. It is perhaps a surprising move (Fortunati, 2000) to have to type of socialising we see on SMS handled by text instead or orally. It is not clear that one would have thought this a likely development in advance, which has implications for the limits or analysts ability to predict the take up of new innovations.

This problem of invisibility some questions for researchers and product developers trying to understand the patterns of adoption. It raises the question of the contingency of the patterns that exist now. While it is commonplace for analysts to be able give reasons about why a practice was not taken up by individuals or groups, should we question whether rejection was automatic or whether that failure was inevitable? In other words, where might non-use have been contingent and it could have been otherwise if other things had occurred, including chance events<sup>24</sup>?

## Conclusion

In a world where the communication options open to us are becoming ever more varied this paper has:

- Explored what can be gained through seeing the totality of communications practices as a repertoire and analysing the relationships between its elements.
- Put this into some historical context by showing parallels with previous questions raised about the relationships between other ICTs.
- Posed some questions we might ask, or a framework for thinking about, not only current practices but ones related to emerging and future innovations.

In considering the scope of the repertoire we looked first at examples of communication-related practices, broadening our viewpoint to ask what is the object of analysis when studying communication, what this could include, The paper also reflected upon why these practices might be important in terms of how we characterise and evaluate communications practices and understand patterns of use and choice

Next we considered the relationship between repertoire elements in terms of the evolution of new practices from existing ones. This looked at the continuity between practices, as identified by some previous research, a focus on which helps avoid emphasising too much their uniqueness and novelty and stresses evolution over

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<sup>23</sup> For example, this was the case for some practices relating to mobile phone use. Personal communication from Nicola Green.

<sup>24</sup> The complementary question being, if some practice has not been taken up in the repertoire, could it still be?

revolution. But of course this does not mean ignoring their difference and implications.

We moved on to the factors affecting choice between the elements of the repertoire, exploring ways in which that choice was complex. Thinking in terms of repertoires helps move the emphasis from user to communications manager. Within such choices technical qualities play a role, but the emphasis was on charting key important social processes and indicating the limits of 'choice' – how choices are made within constraints.

Finally, we looked at the dynamics of the elements in the repertoire, showing the types of influence which can lead to changes in the balance of practices – or not.

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