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Putting Psychology and the Internet in Context

1

An on-line friendship developed between John Stansbury, who was posted to a rural outback, and 'Mat' during a lonely summer. They chatted regularly, and even developed plans to go on a joint holiday and fishing trip. However, 'Mat' changed plans, and decided instead on a trip to New Mexico that involved passing through Stansbury's area. At the time, Stansbury was taken ill with a fever, and can only recall being 'vaguely aware of gentle womanly hands and a kindly presence in my sickroom'. Suffice it to say, 'Mat' turned out to be the handle for a woman, and the couple were married soon after.

Familiar? Of course. The Internet has, quite apart from everything else, led to a large number of news pieces about on-line romance, entrapment and disinhibited behaviour. However, the report above was published in a 1891 article in the *Western Electrician* (and retold by Standage, 1999, pp. 127–8), and our young lovers were telegraph operators, not Internet chat-room users.

Tina Huish sent the text message 'Feel like talking?' to a phone number almost identical to her own. The message appeared on the phone of Andrew Baldwin, 140 miles away. He replied, and the two hit it off immediately. The couple spent hundreds of pounds on text messages and phone calls, and within six months, Baldwin had moved to Somerset to be with Huish. According to press reports, they planned to marry in the near future. (Ananova.com, 20 July 2001: 'Random text message leads to marriage')

Two key elements of the above tales are worth noting. The first is that such occurrences still receive press attention and a fair degree of wonderment. The second is that they provide a clue that to understand psychology and the Internet, we need to look not only at the present, but also the past. This is not to say that the specific tool used to mediate communication is unimportant (it clearly is), but rather that the act of mediating communication can have effects that transfer across time and media.

Tools and the psychology of the Internet

In the 1980s I was studying for my first degree in Psychology, and took a computing course. All the computers we learnt on were DOS-PCs – to do anything you needed to use the command line interface.

To use the word processing software, you needed a long piece of card placed across the top of the ‘F’ keys on the keyboard. When correctly aligned, this card told the user what combination of key presses to use to achieve a specific result (e.g. to make a word emboldened). But, the package couldn’t give any feedback as to whether or not your goal had been achieved – a screen of plain text always sat in front of you. Formatting a document in these seemingly simple ways was seen as such an achievement that it actually formed a substantial part of the assessment of the course.

*Around the time I flunked the computing course because I couldn’t ‘do’ subscript (someone stole my stick-on card), an Apple Macintosh appeared in the corner of the computer lab. I never saw anyone touch it. So I tried. But all I could see was a blank grey screen with a tiny icon in the top right corner labelled ‘Macintosh-HD’. I could move the ‘Macintosh-HD’ icon around the grey screen, but nothing else. It never occurred to me to ‘double click’ (why would it?), and the idea that there might be something **inside** that tiny icon was ludicrous.*

Two years later my brother bought a new Apple Macintosh, and installed it in his flat. The experience was both bewildering and intoxicating. The interface felt like it had real depth – as if you could really open items and delve and explore. I had become an Apple Mac convert.

The point I would make from this experience is this: tools are more than just something to make a task easier. They change your way of

thinking, of approaching a task (and indeed the nature of the task itself), and can reap unimagined wider social changes.

To take each point in turn, a task (e.g. to remember the shopping) is fundamentally different if we use a tool (e.g. a shopping list) or use our own memory. In the former, the task becomes ‘match the shopping in your basket to that on the list (and remember to use the list)’. In the latter, the task is to remember the shopping you need to buy. The development of tools, right from the earliest alphabetic and numbering systems, has radically transformed not only the task, but also human capabilities. Vygotsky (1978) called this ‘mediation’, and argued that tools (as well as other people) allow for the extension of human capabilities.

When communication is technologically mediated, for instance, by using the telephone or the Internet, the task is similarly changed. The tools we have traditionally relied on to communicate, say, turn-taking or nodding to signify agreement, become obsolete. Body language, while not extinguished (who hasn’t smiled when reading an e-mail?), becomes irrelevant to the communication of interpersonal affect.

More importantly, it is questionable whether or not the outcomes of a mediated and non-mediated communication are the same. When we write down a shopping list or alternatively memorise it, and assuming that we have a fairly good memory (or a short shopping list), the outcome (food in your fridge) is likely to be the same. However, when our communication is mediated it is possible that the outcomes are likely to be quite different than in a similar encounter face to face. This is the crux of cyberpsychology. We need to understand the psychological processes that underpin mediated communication to predict and explain not only how the task differs, but also how the outcome might differ, and the reasons for this. It is the differences in outcomes, rather than just how we complete a task, that is important, that begins to explain the phenomenal growth of the Internet, and that predicts wide social changes from a seemingly simple task.

A brief introduction to the Internet

The roots of the Internet can be traced to a US Defense Department initiative in the mid-1960s to develop a distributed network of computers. Originally perceived as a method for sharing data only, the original intention of the Internet (at the time called Arpanet) was

to provide links between computers rather than people. However, e-mail was developed relatively early by the users of Arpanet as a means of person-to-person (as opposed to computer-to-computer) communication. With the advent of the World Wide Web in the early 1990s, and the commercial release of web browsers in 1993–4, the Internet began to expand rapidly, and to attract increasing numbers of commercial organisations and private users. For the study of psychology and the Internet, it is worth separating eight different domains of Internet activity. These are:

- *E-mail* E-mail is *asynchronous* text-based communication, which can be one-to-one or one-to-many. E-mail-based discussion lists (also called Listservs after the name of a product that manages these lists) involve posting to a group whereupon the message is distributed to all members. As e-mail tools have developed, they have gained a number of new capabilities, including attachments (files added to the e-mail), and e-mail forms (tick boxes and so on integrated into the e-mail).
- *Chat* Chat software allows for synchronous (real-time) text-based communication, again either one-to-one or many-to-many (e.g. Internet Relay Chat or IRC). Chatting can be conducted over the World Wide Web (WWW) or using dedicated software (e.g. IRC). Other chat services include instant messaging, buddy lists (people you regularly talk to) and, in some cases, file sharing.
- *File sharing* File sharing was one of the earliest activities on the Internet. In its early format, file sharing on the Internet involved logging on to a remote server (using, for instance, file transfer protocol (FTP) or Gopher), and uploading and downloading files. In the late 1990s peer-to-peer file sharing (e.g. Napster, Aimster, Gnutella) allowed people to connect directly to other computers to share files, rather than share via a remote server.
- *Asynchronous discussion groups* Asynchronous discussion groups are many-to-many systems for exchanging messages. Examples include Usenet newsgroups or bulletin boards. They can be hosted and distributed by e-mail, WWW or using newsgroup servers and readers. Generally, a user subscribes to a particular group to read and post messages.
- *Multi-user dungeons/dimensions (MUDs)* MUDs are text-based virtual environments that developed out of role-playing games. They provide not only synchronous communication environments,

but also descriptions of environments and a series of commands for interaction with those environments and other participants.

- *Virtual worlds* Virtual worlds are effectively 3D MUDs (e.g. the Palace) where participants are represented graphically and interact with environments and other users in the graphical 3D environment. Participants are represented by ‘avatars’, graphical representations of their character. As more immersive virtual reality (VR) develops, the use of VR tools (e.g. goggles, suits) will most likely increase the ‘reality’ component of the virtual space.
- *Video/voice communication* As the price of webcams (video cameras for sending live video over the Internet) has dropped dramatically, so the use of videoconferencing has moved from a primarily commercial concern to being more common on the Internet. Applications like CuSeeMe effectively create chat rooms with either one-to-one, one-to-many (i.e. a webcast) or many-to-many voice, text and video links between users.
- *The World Wide Web* The World Wide Web accounts for much of the data transmitted on the Internet (although it is still behind e-mail as the most popular use). Although much is made of the WWW as a content delivery device, it is the use of hypertext links between pages that provides something unique to users. WWW pages are written using hypertext mark-up language (HTML), although the use of XML, JavaScript, Coldfusion and other scripting languages and applications allows for the design of ‘dynamic’ web pages.

The above list is not exhaustive, nor are the activities or tools mutually exclusive. A mailing list uses e-mail, but can be archived on the WWW (and in the case of newsgroups, posting can now be done via a WWW interface). File-sharing applications, particularly peer-to-peer ones like Napster, sometimes also include a chat function. As the technology develops, we may well see new Internet activities develop, particularly if we see convergence between media (e.g. interactive TV) and increasingly immersive virtual experiences.

The various different Internet activities and tools outlined above provide users with a range of benefits and shortcomings, many of which users are actively aware of, and with which users seek to advance their own goals (Mantovani, 1996). They also determine what a user can do, with whom, and, to a degree, how that behaviour will be enacted. It is this balance between the aware user and the effects a media exerts on

behaviour or psychological state that is the domain of the study of the psychology of the Internet.

Talking without meeting: a quick look back at the psychological consequences of mediated communication

Gackenbach and Ellerman (1998) note, in a discussion of private radio, that from the 1920s through to the 1940s

Dozens of scholarly books were written ... studying the ways in which the new technology was reshaping personal relationships, the structure of the family, the literacy of children, and the ability of people to think critically and express themselves. We have only to pass by the shelves of any bookstore to see this whole process repeating itself with respect to the Internet. (p. 14)

Gackenbach and Ellerman's argument is essentially that the Internet has led to many scholars essentially reinventing the wheel, along with similarly utopian (and dystopian) predictions of the social impact of a new technology. A study of old 'new technologies' can also teach us valuable lessons about the impact of technology on behaviour. First, there are often striking similarities between mediated behaviours that share certain characteristics, regardless of the technology doing the mediating. Second, there is evidence that earlier technologies influence the psychological impact, and behavioural norms, of later technologies. For instance, writing has its own impact both socially, historically and psychologically, but of course, when we think about computer-mediated communication we focus on the newer technology (the computer) rather than the older one (writing). I would argue that these two technologies are inseparable, and that to amply consider the psychological impact of text-based communication we also need to think about the impact of writing itself. Further, as technology develops, earlier technology use influences how we use later technologies. For instance, when radio began to replace the telegraph, radio operators used the same slang and acronyms as telegraph operators. This then influenced the norms and behaviour of amateur radio operators (radio hams), an influence still discernible today.

In the following section, five ‘new’ (and not so new) technologies – writing, the telegraph, the telephone, the radio and mobile phone text messaging – are discussed in a historical and psychological context.

Writing

It is easy to forget that writing, as opposed to oral communication, is a technology (Ong, 1986). Not only that, but it is a relatively new technology as far as human development is concerned. Although human oral communication is dated at about 50,000 years, the development of writing and alphabets is only around 5,000 years old.

Like other, more recent forms of mediated communication, writing requires its own specialised tools – whether that be slate and chalk, pen and paper or even the word processor. And, like the Internet and computers, writing was also railed against in its early days. In *Phaedrus*, Plato argues that writing is inhuman and artificial, that it destroys memory and ‘weakens the mind’ (Ong, 1982, p. 79).

Until medieval times, writing was very much a minority pursuit. Documents were handwritten on expensive parchment. It might take a copyist (usually a monk) a year to make a copy of a religious text (Burke, 1991). The vast majority of information was transmitted orally – by travelling poets or a network of messengers employed by the Church or a royal house. To the illiterate, writing held little value – unless a document had an official seal, there was no counting on its authenticity (and they were often faked). In law, it was the oral that counted – the court ‘heard’ evidence against charges read aloud to the defendant (a practice that continues to this day). Unlike today, writing was expected to be read aloud, and in most well-to-do households different people would occupy the role of the reader and writer of letters. To have meaning, the written would be spoken, rather like religious incantations and wills are spoken today.

A number of developments led to the rapid spread of literacy and writing – the (re)invention of the moveable type printing press by Gutenberg around 1450 removed the need for laborious copying by hand, while the availability of a cheap material for writing – paper – meant that the printing press could be used liberally. Paper was a Chinese invention that was discovered by the Arabs in the eighth century, and eventually exported as technology to Europe by the fourteenth century. Burke (1991) reports that in Bologna the price of paper had dropped by 400 per cent in the fourteenth century. The invention of the printing press in the 1450s ‘destroyed the oral

society ... and its effects were to be felt in every area of human activity' (Burke, 1991, p. 77).

According to Ong (1986), writing 'restructures consciousness', it separates the knower from the known and creates a distance between the author and the reader. Writing cannot answer questions, and is forever static (one of Plato's concerns). Ong (1986) even argues that writing may have a neuropsychological effect – encouraging left-hemisphere activity in readers of alphabetic scripts. There is an educational movement, writing across the curriculum (WAC), that has since the early 1970s attempted to use writing as an aid for student learning (Hilgers *et al.*, 1999). Hilgers *et al.* (1999) interviewed students enrolled on an intensive writing course about their experiences. Hilgers *et al.* note that 'throughout the interviews, interviewees made summary and general statements about the perceived benefits of writing' (p. 341). Some of the quotes from their participants illustrate the potential perceived benefits of writing for understanding a topic, for learning and for formalising ideas (all from Hilgers *et al.*, pp. 342–3):

When I just made the outline, the paper meant nothing to me and I thought this was going to be a hard paper to write. But as I was writing – I had read all the stuff and gone to all the classes and knew all the information – but as you're writing, you have these epiphanies and things come to you. It just all seems to fit together.

Writing helps me organise my thoughts ... Now, when I'm talking to someone, I tend to think 'Okay, what are the major points I want to make in this conversation?'

When you write an idea or concept or branch off from there into a full essay, it's very different from regurgitating facts because when you're writing something you need to think about how you connect things.

The specific technology used for writing can have an effect too. When writing was a time-consuming, difficult job, a scribe would often be used to put one's thoughts on to paper (so writing became more a transcription). While the printing press made entirely new uses of the written word possible (for instance, a newspaper), it also made text universally legible. However, it was not until the development of computer technology, and word processing packages in particular, that the written word was freed from many of its previous technological constraints.

The journalist Steven Johnson (1997) discusses how his use of a word-processing package changed his whole process of writing:

In the years when I still wrote using pen and paper or a typewriter, I almost invariably worked out each sentence in my head before I began transcribing it on to the page ... All this changed when the siren song of the Mac's interface lured me into writing directly at the computer. I began with my familiar start-and-stop routine, dutifully thinking up the sentences before typing it out, but it soon became clear that the word-processor eliminated the penalty that revisions normally exact ... I noticed a qualitative shift in the way I worked with sentences: the thinking and typing processes began to overlap. (pp. 143–4)

It is arguable that in one way computer technology has brought writing closer to its oral predecessor (Yates, 1996). When writing was transcribed and then read aloud, the register and protocol for writing were still based upon an oral tradition. However, perhaps as more people wrote (and read), and the technology for writing became easier, so writing itself moved to its own status. However, computer technology and the Internet have allowed us to type freely, without the need to carefully form sentences before we write. Plato complained that writing is always a facsimile of the mind, while the spoken word taps directly into consciousness. However, as the quote from Johnson illustrates, this need not be the case any more. In support of this contention, it has been noted by linguists that the register of synchronous computer-mediated communication shares many of the characteristics of verbal communication (Collot and Belmore, 1996). The Internet has seen an upsurge in written communication amongst groups who, only ten years ago, would have hardly written at all during a normal working day. This shift towards the written word, regardless of the register (or grammatical and spelling mistakes), may in itself have a large-scale impact on people's psychological processes.

The telegraph

While writing was perhaps the first form of technologically mediated communication, the telegraph (which translates as 'far writer') was certainly the immediate ancestor of modern electronic communication, including the Internet (Standage, 1999).

The ability to communicate quickly between two distant points offered commerce and governments a competitive advantage from the earliest stages of civilisation. For instance, in warfare, being able to get news from a battle, and relay instructions (and supplies) back, would give any army a substantial advantage over their opponent. Similarly, if a commercial organisation could gather information faster than their competitors about, for example, commodity prices, they stood to profit from that knowledge.

By the time of the Industrial Revolution in Europe, the need for the fast transmission of commercial and government information became more pressing. The search for a communication technology intensified. In 1791, Claude Chappe demonstrated an optical system that allowed the communication of a complex message to a point ten miles distant. His system was quickly adopted by the French government and expanded by Napoleon in 1804. The importance of his invention was recognised across Europe and by the early part of the nineteenth century, an optical telegraph system covered much of Europe. In the UK, fear of invasion (by variously the Spanish and the French) had led to an earlier system of beacons linking the south coast to London. These beacons were replaced with an optical telegraph system at the turn of the nineteenth century.

The development of an electric telegraph took a further fifty years of research and testing. Again, part of the problem was in developing a suitable protocol for communicating between the two points (after all, an electric current can only pulse, so the letters of the alphabet need to be represented some other way). It was 1841 before Morse could demonstrate his electric telegraph well enough to convince people of its value. By the end of the nineteenth century, the electric telegraph had revolutionised the speed of communication, and in turn the pace of life itself.

The telegraph serves to illustrate an important point about the nature of mediated communication. First, the importance of bandwidth and associated costs. Telegraph messages were charged by the word, so there was considerable incentive to make messages as short as possible, and where possible to use shorthand rather than full words. Although a trained operator could send up to 40 words a minute using Morse code, it was common for them to abbreviate some common phrases.

A second point worth noting is that an interesting communication phenomenon generally occurred 'off record' between operators, rather than between clients of the telegraph companies (although to be sure the CAPS used in telegraph messages, along with the shorthand,

certainly lends them a sense of urgency). The cost and lack of privacy tended to inhibit personal communication between members of the general public using the telegraph. However, for the telegraph operators, the network provided an 'on-line community encompassing thousands of people, very few of whom ever met face-to-face' (Standage, 1999, pp. 122–3). The sense of community amongst telegraph operators was heightened by their own norms and customs, vocabulary, the use of short (usually two or three letters) signatures or 'sigs' and a sense of ownership of a particular 'line'. According to Standage, experienced operators could even recognise their on-line friends simply from their style of Morse code.

Because the wires (with the exception of rural outposts) were staffed continuously, during the quiet periods telegraph operators would engage in lively on-line interaction – swapping jokes, stories and opinions, which were, according to Edison (a one-time telegraph operator), far too rude to publish. Women formed a reasonably large proportion of this community (estimated at around a third), and were generally aged between 18 and 30 and unmarried. Although these women operators were usually physically segregated from the men, they were of course in contact with them daily on-line. It is perhaps not surprising then that romances between telegraph operators were widespread.

For instance, Ella Cheever Thayer's novel *Wired Love: A Romance of Dots and Dashes* was published in 1879. The plot of *Wired Love* was based around a romance on-line. An article in an 1891 edition of the *Western Electrician* titled 'Romances of the Telegraph' outlines a romance between two operators that led to marriage when they met. Standage quotes one operator from the 1880s saying that 'many a telegraph romance begun "over the wire" culminated in marriage' (1999, p. 129).

The evidence of an on-line community of telegraph operators, alongside the romances between distant pairs, led Standage to conclude that 'despite the apparently impersonal nature of communicating by wire, it [the telegraph] was in fact an extremely subtle and intimate means of communication' (Standage, 1999, p. 123).

The telegraph is also important in any consideration of mediated communication because the codes and norms developed by telegraph operators moved to radio when the operators moved, and were picked up by ham radio hobbyists, who a generation later were also some of the early enthusiasts of the Internet. In addition, many of the leading figures in the telegraph industry went on to similar roles in the developing telephone business.

The telephone

In 1876, Alexander Graham Bell's experiments to develop an enhanced 'harmonic' telegraph led to the patenting of what became known as the telephone (the original invention can be traced to Halian Antonio Meucci). The possibilities of the telephone were missed by many – when turning down the offer to purchase the patent for the telephone (and so monopolise the market), the President of the Western Union Telegraph Company asked 'What use could this company make of an electrical toy?'

Perhaps not surprisingly, considering many of the early 'telephone men' came from the telegraph industry, the marketing of the telephone in the early days stressed its business uses and the possibility of the telephone as a device for broadcasting rather than for one-to-one communication. For instance, future visions of the telephone involved the broadcasting of 'distinguished men' to remote audiences in various music halls (*Boston Transcript*, 18 July 1876) or even a 'dancing party [with] ... no need for a musician' (*Nature*, 24 August 1876). Advertising pitches to residential customers almost universally stressed the practical value of the telephone rather than its possible use for social interaction. Such 'practical' uses included the broadcasting of news, weather reports and sports results, for ordering goods and services, and in emergencies.

Fischer (1992) notes that telephone executives bemoaned frivolous use of the telephone in internal memoranda, and actively discouraged social uses of the telephone until the 1920s. For instance, in 1909 a local manager in Seattle listened in to calls on a residential exchange, and found that 30 per cent were 'purely idle gossip', his concern being how to reduce this 'unnecessary use' (Fischer, 1992). Similarly, at the turn of the century a telephone directory in Canada stated that 'It is, of course, well understood that business conversations cannot be limited as to time, but "visiting" can beneficially be confined to a reasonably short duration of time' (Fischer, 1992).

At the same time, both the telephone industry and popular press were concerned with abuse of the telephone. In 1884, *Electrical World* magazine warned that 'The serenading troubadour can now thrum his guitar before the telephone, undisturbed by apprehension of shot-guns and bull dogs. Romeo need no longer catch a cold waiting at Juliet's balcony.' A series of cards developed by the Canadian Dominion Telegraph Company in 1877 to advertise their telephone service show a man speaking to, presumably, his wife on the telephone while she conducts a dalliance with a younger man. In another

card, a husband explains to his wife that he ‘can’t come dear, too busy’ while he gambles with friends.

According to Fischer, ‘Many industry people complained of profanity, yelling and abuse on the telephone. Through notices, direct chastisement of customers by employees, and occasional legal action, the companies sought to improve telephone courtesy’ (1992, p. 70). In some cases customers were cut off or even jailed for profanity. In 1910, Bell published an advert titled ‘Dr Jekyll and Mr Hyde at the Telephone’ to highlight misuse and abuse. As well as abuse of the telephone, the lack of etiquette was also a cause for concern. Until well into the 1920s, most social commentators bemoaned the use of the telephone to issue invitations, and telephone companies tried desperately to discourage the use of ‘hello’ instead of more ‘proper’ greetings. AT&T distributed the following to local companies for inclusion in their directories in 1910:

Would you rush into an office or up to the door of a residence and blurt out ‘Hello! Hello! Who am I talking to?’ No, one should open conversations with phrases such as ‘Mr. Wood, of Curtis and Sons, wishes to talk with Mr. White ...’ without any unnecessary and undignified ‘Hello’s’.

From the 1920s onwards, the telephone industry effectively ‘discovered’ sociability, and began marketing the telephone as a technology for socialising as well as for practical uses. Around this time, adverts began to stress the use of the telephone to keep in touch with family and friends in a more ‘intimate’ manner than a letter. A typical advert around this time noted that: ‘It’s a weekly affair now, those fond intimate talks. Distance rolls away and for a few minutes every Thursday night the familiar voices tell the little family gossip that both are so eager to hear’ (Bell Canada, 1921).

So, effectively for thirty years, the telephone industry was out of step with the actual uses of the telephone in residential households. The attempts by the companies to create uses for the telephone have echoes in early attempts to encourage households to purchase PCs to manage their accounts or to plan their garden. It was not until the discovery of sociability in the form of the Internet that these efforts desisted.

A further parallel with the development and spread of computer technology in the household is the early theorising on the social

impact of the telephone. One concern, that I will return to in the following chapter, was that the telephone would replace face-to-face encounters with something less 'real'. Fischer (1992) exemplifies this concern when he states:

Not even a telephone company publicist could assert that telephone calls capture the intimacies conveyed by eye contact and physical contact, or that telephone friendships can plumb the same depths as sharing meals, taking walks or just being together. (p. 239)

Indeed, McLuhan (1964) quotes from a 1906 copy of the *New York Telegram* the use of the word 'phoney' meaning the lack of real 'substance' inherent in a telephone conversation. Even relatively recently Berger (1979) claims:

to use the phone habitually also means to learn a specific style of dealing with others – a style marked by impersonality, precision, and a certain superficial civility. The key question is this: Do these internal habits carry over into other areas of life, such as nontelephonic relations with other persons? The answer is almost certainly yes. The problem is: just how, and to what extent? (1979, pp. 6–7)

However, there is evidence that people use the telephone to develop relationships, and that they feel close to those they talk to regularly on the phone. A vast majority of telephone calls are directed to a relatively low number of people (typically five or six), suggesting that close relationships are maintained on the telephone. In the UK, British Telecom launched a 'Friends and Family' discount for five selected numbers, suggesting that they recognise this use of the phone. This does not, alas, suggest that telephones are always designed to support the user: the absence of off switches on standard land-line telephones has led to third-party devices (e.g. Caller ID) to manage the interaction (Brown and Perry, 2000). Mobile telephones that automatically answer when they are opened is another case of design impeding user control of the interaction. However, in late 2001 Samsung launched a mobile telephone with a window on the front that displayed the caller's number (or name if entered in the phone's memory), allowing the user to know who is calling before answering. The advertisements for this telephone stressed this use, with the television ads showing a female choosing from a selection of males, and the print advert with

the tag line that it puts ‘you’ in control. The development of third generation (3G) mobile phones that allow multimedia messaging will no doubt lead to more unexpected, perhaps unwanted, uses of the telephone.

Radio communication

Following the development of radio by Marconi, most radio stations were staffed by ex-telegraph operators. As both the radio waves and telegraph used Morse code, it was not surprising that these new operators took with them the linguistic short-cuts used on the telegraph, and many of the social norms and etiquette.

By the end of the First World War, relatively large numbers of amateur radio enthusiasts had joined the airwaves. These amateurs were called ‘hams’ – which also happened to be the name given by telegraph operators to particularly slow (and usually rural) operators on the wires. The use of radio waves by ‘hams’ gave members of the public, for the first time, the experience of a global community linked by mediated communication. The following three decades were the ‘golden age’ of radio, although it also represented an increasing amount of regulation of the airwaves by governments, the military and commercial broadcasters.

Although the number of radio ‘hobbyists’ increased during the period between the wars, amateur radio, because of the restrictions on its use, was bound to remain a minority pursuit.

The introduction of ‘citizens’ band’ radio (that does not require a licence) and computer technology has seen the number of radio hams reach a plateau and begin to reduce in recent years. However, one estimate at the turn of the twenty-first century puts the number of radio hams at 600,000 globally. In some places, the licence to operate as a radio ham still requires a knowledge of Morse code, limiting the number of likely users.

Amateur radio gave many people an ‘Internet-like’ experience (and to many, still does). According to one of the many radio FAQs, amateur radio is ‘one of the most direct and personal means of communications between citizens of different countries, races, culture [*sic*] and believings’ (<http://www.qsl.net/iuOpaw/curiosity.htm>).

Ham radio, like the telegraph before it, also has its own customs and language. For instance, there is a considerable emphasis paid on radio ham Internet sites to establishing proper behaviour. One such site

explaining ‘repeater’ etiquette (<http://butler.qrp.com/~n9ynf/rprt-etiquette.html>) states:

- Use the correct phonetic alphabet when identifying
- Don’t call CQ, just ‘your call listening’
- Use ‘Break’ only in emergencies
- To interrupt give your call sign between other stations’ transmissions
- Brevity, be short and concise with your conversations
- Remember that nothing is private on the air
- No need for ‘no contact’ or ‘nothing heard’ or ‘clear’ after making a failed call. All the other stations heard you not make your contact.

Some of the language used by radio hams, such as 10-4, has passed into everyday understanding, while other codes (CQ for ‘seeking’, 88 for ‘hugs and kisses’, 73 for ‘best regards’) have not. Each user has their own unique call sign which is a combination of letters and numbers (e.g. N9YNF for the poster of the etiquette above). Although the call sign is usually provided by the registering authority, there is a considerable market in ‘vanity’ call signs.

Because most early radio operators were on board navy ships, they were predominantly male. Similarly, most of the early hobbyists were also young males. However, like the telegraph before it, there are some reports of romance between radio hams. For instance, one web site says: ‘A growing proportion of radioamateurs are women, and it is fairly common for OM’s (male amateurs) and YL’s (young lady operators) to meet first over the air, then in person, get married and start raising their own future radio operators’ (www.qsl.net/iu0paw/curiosity.htm)

However, this may be wishful thinking: the Electronics Museum Amateur Radio Club’s 1996 newsletter reports that a request for information about radio romances led to no results, but does state that ‘One does hear romantic chit-chat on the air from time to time. There is a real drama when a lady of certain years who happens to have a youthful voice is chatted up by a young man who thinks he has found a possible love interest who would not object to his hobby.’

The Amateur Radio Newline (1998) does report on the marriage of Erin Burck and Don LaFreniere, who courted on-air. Although they used their own secret frequency, Erin says ‘We had many interesting conversations on the air. We had a lot of people from both sides of the

border who would love to tune in to us and tease us at appropriate times. Yea, it was an on the air soap opera.’

Mobile telephone text messaging

SMS or Short Messaging System was developed during the early 1990s as an addition to the new GSM (Global System for Mobile communications) system for mobile telephones. According to the web site mobilesms.com, ‘SMS was an accidental success that took nearly everyone in the mobile industry by surprise’. The first text message was sent in 1992 by Vodafone between an engineer’s computer and mobile telephone. The system allows mobile telephone users to send short text messages to other users using a difficult-to-master and slow-to-use interface.

At the same time, in Europe pre-pay mobile phones became popular during the late 1990s. A pre-pay tariff allowed young people to own a mobile telephone because they paid for their usage in advance (rather like an electricity meter that uses pre-paid keys to run). The ability of mobile telephones to send and receive text messages was little publicised and, at least initially, usage was not billed by the companies. For young people with limited funds, the ability of mobile phones to send free messages to friends was soon well-known, and SMS traffic increased exponentially. For instance, in August 2000, 560 million text messages were sent in the UK alone, according to the GSM Association, more than ten times the 50 million recorded in May 1999. Worldwide, the number of text messages sent to mobile phones in October 2000 reached 10 billion, compared with 1 billion in early 1999. The best-selling book in the UK immediately before Christmas 2000 was a guide to text messaging.

Because of the limited number of characters allowed in each message (160 for the Latin alphabet, 70 for non-Latin alphabets like Chinese), a new language reminiscent of early Internet communication developed. So ‘see you later’ became ‘CU L8er’. It took several months for the mobile network operators to develop a system for billing SMS messages, by which time the use of text messages was well-established.

The phenomenal growth of text messaging has also led to a rash of media stories and reports of text message oddities, its use in romance and courting and, of course, the potential dangers of too much text. For instance, writing in the *Prague Post*, Kate Swoger (16 May 2001) reports the case of Donat who sends between 20 and 30 texts a day. Although he is reluctant to share the contents of his texts, he does show

her one: it reads 'I want you'. Swoger also quotes Michal Cernousek of Charles University stating that text messaging is mostly used for banal, meaningless conversation, and that 'It is a medium of loneliness ... You must use it so as not to feel the loneliness of our modern world'. Swoger also quotes another academic arguing that SMS keeps intimacy at bay and encourages terseness: 'Personal moments have been vanishing from communication'.

This emphasis on courtship is similar to the increased use of the telephone during dating at the start of the twentieth century reported by Fischer. In his interviews with users of telephones between 1900 and 1920, Fischer notes that many recall increased use of the telephone to arrange dates and other courtship matters. One hundred years later, it would seem that the same use of the telephone, except SMS rather than talk, is taking place.

Similarly, concerns that SMS has a negative net social impact similarly echo earlier concerns that new technology, whether writing or the telephone, has a negative impact on people's well-being or social skills (there have even been reports of SMS-derived repetitive strain injury). As we shall see later, the Internet has encountered similar concerns.

Mediated communication - lessons from history

This somewhat brief look at technology and communication illustrates a number of points that will develop throughout this volume. One is that technology is, at least initially, seen as an artificial substitute for something more 'real'. Just as writing was bemoaned by Plato as lacking the direct link with consciousness that speech has, so the telephone was initially seen as a poor substitute for face-to-face interaction that could lead to misunderstandings or worse. The same pattern is repeated for mobile phone text messages and the Internet.

A second point is that tools do not simply translate a behaviour to a new medium without some impact on psychological processes. These psychological processes may occur both because of the unique requirements of the tool (e.g. writing), and out of the affordances and environment for communication a tool provides (e.g. telegraph operators). When a medium offers, for instance, limited bandwidth and exerts a cost on verbosity (e.g. SMS or Morse code), we would expect some form of linguistic adaptation, both to reduce word count and to express

socio-emotional themes. However, this adaptation to the affordances of the tool will also carry with it a psychological effect. For instance, the abbreviations used in text messaging or indeed Morse code also serve to exclude certain groups who do not understand them. The need to express concisely might encourage candidness because 'beating around the bush' is not possible.

Sara Kiesler (1997) draws a distinction between technologies that amplify and those that transform:

Some technological change is primarily amplifying, making it possible for people to do what they have done before, but more accurately, quickly or cheaply. In other cases, technology is truly transformative: It leads to qualitative change in how people think about the world, in their social roles and institutions, in the ways they work, and in the political and economic challenges they face ... Sometimes the amplifying effect is what we see first, never realising there is a later transformative effect to come, or that the amplifying technology is part of a larger social change. (pp. xii–xiii)

As Sherman notes (2001), it is a little too early to say whether the Internet is amplifying or transformative, but 'As history has illustrated, it is wise to remain open to all possibilities' (p. 68).

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