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# Everyone Here Speaks TXT: Deaf People Using SMS in Australia and the Rest of the World

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This article examines the extent to which Short Message Service (SMS) messages are breaking down communication barriers among deaf people and between deaf and hearing people. It is predicted that deaf texters will use SMS to increase the bonds between themselves in deaf communities, creating new opportunities to develop relationships, understanding, and intimacy with those not physically present. The most exciting question raised by this article is whether those kinds of relationships, understanding, and intimacy will develop to the same extent with hearing colleagues, friends, and intimates.

Sharing a means of communication in common creates a community, so that, for example, it is easier for migrants who speak a variety of English to adapt to the cultures and communication of English-speaking host countries. In a similar way, some contemporary horizontal social networks are being created by the linking of communication communities through mobile phones (Lacohée, Wakeford, & Pearson, 2003). Adolescents particularly are using the Short Message Service (SMS) capability of mobile phones to create their own communities based on text messages “virtually unintelligible to outsiders,” thus excluding the adults in their lives and others outside their “privileged” circle (Lacohée et al., 2003, p. 206).

A shared ability to sign (“virtually unintelligible to outsiders”) united the hearing and deaf community of Martha’s Vineyard off the coast of Massachusetts,

which was home to a large population of hereditarily deaf people in the 18th and early 19th centuries. In the book, *Everyone Here Spoke Sign Language*, Groce (1985) showed that being deaf was not a communication disability when you were in a place where both deaf and hearing people were fluent in sign language and where hearing technologies yet to be invented did not intrude. Later, deaf communities existed outside Martha’s Vineyard all over the world; hereditarily deaf families, deaf clubs, and societies included the whole range of deaf people, from the young to the elderly, just as in any hearing community. Until now, those communities have been limited to deaf people who can sign and their friends and relatives who have learned to sign. They have not included the general hearing community because deaf and hearing people did not have a common language—until now, until text messaging with SMS.

SMS allows mobile phone users to send and receive text messages. Generally, up to 160 characters can be sent at one time. Some mobile phones are able to send messages with more than 160 characters (e.g., 460), but at the cost of two SMS calls (Harper & Clark, 2002). Until the advent of SMS messaging on mobile phones at a reasonable cost (in Australia, generally 20–25 cents per message; Harper & Clark, 2002), deaf people were handicapped by not having a common medium of instant communication among themselves and with hearing people. The playing field is now level among “texters.” Deaf texters can join hearing texters to communicate among themselves with other deaf

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people who inhabit their social world and to communicate with hearing friends, workmates, and business associates without the need for intermediaries. For deaf people as well as everyone else, “the ability to communicate while on the move is now seen as essential to business, commerce, individual lifestyles and everyday social interaction” (Lacohée et al., 2003, p. 203). Until now, this had not been possible. The deaf have taken to this technology as an answer to their prayers. As texters in countries like Australia, Britain, and Israel, where the mobile phone service providers have agreed to interconnect their networks, they can take their means of communication with them as far as they can go and reach anyone who has a mobile phone.

Part of the motivation for the work that led to the development of the telephone by Alexander Graham Bell was to invent a hearing aid for his deaf mother and wife. Even with the rise of the Internet and e-mail, the telephone has been and still is the most ubiquitous and indispensable method of communication in the modern world for personal, social, and vocational purposes. It is ironic, therefore, that its development by Bell led to deaf people being shut out from this form of communication for almost 100 years.

It is only in the last 40 years that deaf people have been able to make limited use of the telephone via the teletypewriter (TTY; sometimes TDD, telecommunications device for the deaf; Minicom in Britain; under other names in other parts of the world), by which a deaf person can send text messages to another TTY user in much the same way as a voice message between hearing people (Lang, 2000). Although somewhat cumbersome, the method is effective for those who use it.

A limitation of the use of the TTY is that there has to be one machine at each end of the conversation, so TTY users are unable to telephone people or community agencies without a TTY. For this reason, in many countries relay services of greater or lesser extent were established in the 1990s. A relay service uses a hearing operator at a computer to read a TTY message and speak it to a hearing person to whom the call has been connected; the operator uses the TTY to type the response back to the deaf person. This has proved useful for contacting people such as hearing family members, medical practitioners, government departments, and the like. Most relay services also have

an emergency services number equivalent to voice services. All this has to an extent “normalized” deaf people’s access to telephone communication, although as Lane, Hoffmeister, and Bahan (1996) noted, there are “inconveniences”—communication through relays is slow, particularly with people who do not understand the function of a relay (they use the example of ordering a pizza delivery), higher cost because of necessarily longer long-distance calls, lack of personal affect and style, and the reluctance of some Deaf people to conduct a conversation through a third person. Nevertheless, the availability of such services has considerably improved the telecommunications access of Deaf people.<sup>1</sup> In some countries (notably, the United States; Bove, 2002), instant messaging (IM) and e-mail are used by those deaf people with computer access, more so than TTYs and relay services by a sample of “middle income, middle age, and fairly well educated” deaf and hard-of-hearing people (Bove, 2002, p. 8).

During the 1990s, a new form of telephone, the mobile or cell phone, came into widespread use. The number of mobile subscribers worldwide is estimated to have reached 1.4 billion in 2003, overtaking fixed-line phones, which were at 1.1 billion (Lacohée et al., 2003). Originally, the intention of mobile phone manufacturers and suppliers was to replicate the functions and hence the uses of the fixed-line phone. More sophisticated GSM (Global System for Mobile Communications) phones were introduced into Australia in 1993 and Europe about the same time, although their text messaging feature was not “switched on” in Australia until 1995 (Harper & Clark, 2002). Text messaging then provided the capacity to advise users that they had received a voice message and a limited set of functions on a small screen, rather like the early generation of pagers. The capacity of this function to provide personal and social text messages was not at first realized; indeed, Agar (2003) suggested that it was the users who drove the widespread use of what came to be known as SMS, not the manufacturers and suppliers.

The original intention of the mobile phone manufacturers and suppliers was to replicate the functions of the fixed-line phone and the pager so recipients of calls or pages no longer had to seek out a fixed-line phone to respond (Horstmanshof & Power, 2004). The

usefulness of the text messaging service was not fully appreciated at first. The tiny keyboards were awkward, the screens had small character sets, the receiver could not acknowledge the receipt of messages, the amount of text that could be entered was limited, and there were problems with incompatibility across different suppliers' systems.

Despite the low number of characters per message, young people have enthusiastically taken up the use of SMS, mostly for social purposes among friends and other networks because it is "quick, efficient, cheap and convenient" (Stewart, 2003) and private in a way that voice calling often is not. Not only can messages be kept private from people who are nearby, when the mobile phone's vibrating function is turned on, only the receiver knows that a text message is available for viewing. Young callers have become very ingenious in attempting to circumvent the low number of characters permissible with current services by inventing and adopting a large set of abbreviations. There are virtually universal ones such as "U" for "you" and "R" for "are"; "2" for "two," "4" for "four," and "8" for "-ate" (as in "GR8" for "great"); "PLS" for "please"; "GTG" for "got to go"; and the like. One of Horstmanshof and Power's (2004) focus group respondents reported an idiosyncratic "ELRU?" for "Where the hell are you?" which some other members of the focus group who had never it seen before were still able to interpret. More traditional abbreviations such as "TDY" for "today" and "TMW" for "tomorrow" are also widely used. Other abbreviations have also developed and are mostly transparent: "BRDBND" for "broadband," for example (see Thurlow, 2002, for an extensive list).

Deaf people have taken readily to this technology; essentially, they now have the same access to phone communication involving SMS as do hearing people.<sup>2</sup> Abbreviating text has long been familiar to them because it is used in TTY conversations (indeed, some abbreviations may have been introduced into the genre by Deaf people; Lang, 2000; Power, Carty, & Neale, 2000). Although little research is available, it appears that a new and quite different genre of writing in English has emerged, with minimal or no syntax or tense and other morphological markers and a limited lexicon of phrases and messages familiar to senders and

receivers. These characteristics of this genre suit the sometimes-limited English of Deaf people,<sup>3</sup> and it appears that Deaf people's purchase of mobile phones and take up of text messaging is already higher than their use of TTYs (Deaf Australia Online II, 2001), even though TTYs are distributed free to Deaf people in Australia under a government program.

Use of SMS creates communities and is favored by price-sensitive teenagers for keeping in contact and developing networks. SMS allows the young to be mobile and to take their communities with them. They are not tied to a geographical location, and as they move they can arrange their social outings according to what entertainment is available and good. This has its downside in the phenomenon of "swarming," with groups of young people alerted to the address of a private party and descending uninvited like a hive of bees on their unwilling hosts (Garreau, 2002). Generally, however, it gives young people a communication freedom that they never had before. It is also personal and yet able to be shared. Special text messages are saved for later review or to be shown to others so that a private text message can be used as a "gift" (Taylor & Harper, 2003) displayed to or shared with others as gifts of flowers and chocolates are. On Valentine's Day, 2004, Warne-Smith (2004, p. 3) in an Australian newspaper reported that young people aged between 18 and 30 "were expected to text 22 million messages to their valentines" (Horstmanshof & Power, 2004).

As well as making work communication easier, SMS has had a positive effect on interpersonal and relationship networking. Lacohee et al. (2003) described text messaging as "the perfect tool for increased levels of social grooming, i.e., letting someone know that you are thinking about them" (p. 206). In the absence of much information as yet about the nature of the social interactivity of deaf people using SMS, we can look at descriptions of how the technology is utilized by other groups, such as young people.

Lacohee et al. (2003) commented that "in a global context mobile telephony is used by a far broader stratum of the population than PCs and the Internet" (p. 206). SMS use is cheaper than other communication methods because SMS employs signaling channels only, requiring less bandwidth resources (Tang, Chou,

Tang, Pan, & Shih, 2001), therefore, it is an inexpensive method of transferring data. The initial cost of mobile phones is also less than for a computer, and the phones do not require often-expensive broadband connections as computers do. Although the cost in Australia is already low and is the same whether the call is local, interstate, or international, with the huge increase in use, there has not been a corresponding reduction in price because greater use might swamp the channels.

### Deaf People and Short Message Service in Australia

Realizing early the potential of the SMS function on mobile phones, the Australian Association of the Deaf claimed that it had been largely responsible for the adoption of text communication cross-networking (Deaf Australia Online II, 2001). What this means is that, prior to 2000, SMS could only be sent to someone who shared your specific carrier on the three Australian GSM networks. For example, Telstra mobile users were only able to receive SMS from those who also used a Telstra mobile phone. Similarly, Vodafone users could communicate only with Vodafone users and Optus users with Optus users.

Cross-networking created a huge expansion in the use of mobile phones and SMS. Estimates are that providing cross-networking trebled SMS traffic (Adams, 2000). In Australia, a country with a population of around 20 million, Telstra (the major telecommunications carrier) estimated that more than 250 million text messages are sent per month (Wallace, 2003). When messages cost around 25 Australian cents each to send (there is no charge for receiving), it was discovered from a focus group study of hearing young adult respondents that it was common for people who mostly used their mobile phones for text messages to have monthly bills of about \$60 Australian (Horstman-shof & Power, 2004).

Among Deaf people, the rate of use is estimated to be much higher than among hearing people. Naturally, there is no way of knowing whether a text message is sent by a deaf or a hearing person. However, one indicator is the increase of mobile phone ownership among deaf people, most of whom are unable to use them for voice

messages. The National Advocacy Service manager at the Australian Association of the Deaf, Brett Casey, is recorded as saying that “although only around 3% of people attending the Association’s 1999 annual general meeting had mobile phones, more than 90% had the phones” at the 2000 Annual General Meeting.

Brent Phillips estimated that 80% of Deaf people in Victoria between 15 and 50 years of age now own a mobile phone (Adams, 2000). Phillips, a Deaf man who is coordinator of the Victorian Council of the Deaf, was an early enthusiastic adoptee, giving this example: “If you’re driving and your car breaks down you can SMS your friend and ask them to ring the RACV [the state automobile breakdown service] for you, rather than walking and finding the nearest petrol station and then trying to make the call. It makes life much more accessible for deaf people” (Adams, 2000, p. 1). By January 2004, RACV had in fact provided a dedicated SMS number so that Phillips could now SMS directly without going through a hearing friend. The same source revealed that he could also call a taxi using SMS. An automobile roadside breakdown service utilizing SMS is available in Tasmania (“RACT Roadside SMS,” n.d.). In Western Australia, it is possible for Deaf people to contact the police using SMSAssist (“WA Police Service,” 2003).

All these services realize the potentialities of SMS messaging to allow deaf people to function more independently in a hearing world. Deaf organizations are keen for more businesses and government services to allow contact through text messaging. Deaf people are able to use services such as Telstra’s “Pocket News” (2004) for reports on breaking news; surf, snow, and weather reports; share prices; sports results; entertainment times; and horoscopes as freely as any other user of a mobile phone. In 2000, Phillips claimed that older deaf people found SMS easier to use than the Internet and e-mail (which they found “scary”) because the mobile phone was less threatening than fax and e-mail. “It’s much easier for them to use the SMS service, it’s not as difficult to explain how to use it, it is much easier” (Adams, 2000, p. 4).

In July 2002, Dr. Therese Pierce, principal of the Victorian College of the Deaf and who is deaf, said she sent 50 text messages a day: “It is very helpful. People can contact me very quickly; teaching staff, parents,

other professionals, and I can give them a prompt response. It's nice to have that independence and that's a very important thing for me personally" (Ker, 2002, p. 8). Pierce also pointed out that a deaf person can use SMS without an interpreter, a fact that encourages independence in deaf people.

Research has shown that deaf people readily adopt texting via SMS. As part of the Deaf Australia Online project (Deaf Australia Online II, 2001), mobile phones were supplied to a group of 15 Deaf people, and their use of the phones and their reactions to that use were examined. Most of the participants had not used a mobile text unit before. They had used TTYs, e-mail, and fax regularly. It was found that 87% of them thought that the availability of text messaging was "better than expected," and mobile phone texting became their most frequently used distance communication procedure (not too distant in some cases; there are anecdotal reports of Deaf people texting one another across the room in social gatherings). Sixty percent of the group used their mobile phone every day; the remainder used it 2 to 4 days per week. Most use was for social communication with family and friends, followed by communication related to work and for nonwork communication with other businesses (the example given was buying or selling a car).

A report of an Australia–England deaf cricket match revealed that the large crowd of Deaf people heard about the match through text messages sent by their friends (Roebuck, 2004). Deaf SMS users in Australia are establishing their own community. Further research is necessary to establish whether similar claims can be made for Deaf people as for hearing young people, for example, that you cannot have a social life without a mobile phone, that there are rules about replying to messages quickly, and that there are rules of reciprocity (Horstmanshof & Power, 2004). There may well also be rules unique to the Deaf community of texters that will be explored in further research.

### **Deaf People and Short Message Service in Other Regions of the World**

#### **The United States**

In the United States, Deaf users place more emphasis on IM than SMS. In IM, the presence of a caller on the

Internet is detected, "[allowing] consumers to use their keyboards to converse in real-time online somewhat like using a TTY to talk over the phone" (National Association of the Deaf, 2000b, p. 1).

A survey published in October by the National Association of the Deaf showed that sending e-mails by cellphone, personal computer or digital pager has become so popular that for some, it is close to replacing the widely used TTY—a special text messaging, operator-assisted system. (Circelli, 2002)

In an extensive review of communication technology for deaf people, Harkins and Bakke (2003) noted that the use of pagers was becoming very widespread among deaf people.

The Deaf community has quickly adopted the interactive pager as the mobile device of choice. Service providers offer some combination of electronic mail and short messaging, with some offering fax, voice messaging and even TTY calling and messaging. (p. 409)

A striking trend is that the TTY is being supplemented and partially supplanted by other text-based technologies that, while not performing the precise functions of a text telephone, take care of a rising proportion of the needs of deaf people for text telecommunications. Electronic mail, instant messaging and text chat, and interactive paging have replaced many telephone calls. (p. 407)

Until recently, IM did not have the advantage of mobility as it required access to a computer. However, because "IM has gone wireless from its traditional desktop applications to PDAs, Cellular Phones and two way pagers" (Ball, n.d.), it is possible to send e-mails from a pager. However, the lack of interconnectivity between providers that exists in America constitutes a frustration for uses of IM and pagers. "Users of one system [of IM] often can't talk with those who use a different system" (National Association of the Deaf, 2000b, p. 1), a state of affairs that concerned the National Association of the Deaf sufficiently that they and Telecommunications for the Deaf, Incorporated (TDI) wrote an open letter to the Federal Communications Commission urging the government to "sup-

port the principle of . . . interoperability for instant messaging” (National Association of the Deaf, 2000a, p. 2). Ball (n.d.) said that America Online (AOL) IM users are frustrated at “being unable to communicate with their ‘buddies’ who use MSN or Yahoo.” This is an example of unfettered competition that is less effective than cooperation between providers.

Indeed, because of the way in which the networks arrange matters and the pricing structures of the U.S. telecommunications providers, there does not seem to be the level of take up of SMS in the United States as there is in Britain, Europe, and Australia. Reasons for this are likely to involve multiple factors other than only those of cost and interconnectivity and may have something to do with established patterns of use of other similar technologies such as e-mail and IM. In the United States and Canada, it appears that the Deaf are texting, but mainly with each other through the medium of two-way pagers, “which use the PCS (Personal Communications Services) band recently auctioned off by the FCC” (Buyerzone, 2004). Two-way paging is also often only available in large metropolitan areas (Buyerzone, 2004).

Some of these pagers also send e-mail and can contact a TTY. However, these pagers are still plagued by network incompatibilities such that the Deaf people who use them mainly do so with other owners of the device who are on the same network, and contact with hearing people and agencies is difficult because such respondents are unlikely to purchase a pager instead of a mobile phone. In countries with interconnectivity of networks, the mobile phone owned by the deaf person can be used to send a text message to a hearing person for fun or business, to send someone you admire a Valentine’s Day message, to vote a contestant out of the running in a reality TV show, and like any hearing person, to be advised by an airline that your flight is delayed, by your bank that your account is overdrawn, or by your landlord that your rent is late.

It is interesting to compare the stories told above about the deaf man Brett Phillips using his mobile phone to SMS a friend to call his breakdown service in 2000 to illustrate how things have changed with greater penetration of the mobile phone and of SMS messaging in Australia. Four years later, Phillips can SMS his breakdown service directly, but in the United

States in November 2003, Cary Barbin still had to use an intermediary: “Barbin wasn’t helpless. He took out his Blackberry wireless pager and typed an e-mail to a hearing friend, who called the tow truck” (Svensson, 2003).

E-mail paging does not allow the spontaneity of contact with both deaf and hearing individuals that SMS does mainly because it still has the intermediary mindset.

In November 2003, Wynd introduced a service<sup>4</sup> that makes its pagers more useful in communicating with hearing people. Users can now send text messages to human operators, who call a hearing recipient on the phone and read the message. The recipient can then tell the operator to send a message back to the deaf person’s pager (Svensson, 2003).

In Australia and Britain, the Deaf person would simply text his or her hearing friend, who, because of the ubiquity of mobile phones and the “rules” of their use, would be constantly checking his or her text messages, especially if someone was late in turning up for an appointment.

In the course of this research, we contacted a professor at one of the leading educational institutions for the deaf in the United States; this professor clearly thought that these “rules” seemed to be different among Deaf people who use pagers:

Oh, deaf people look like they’re in a different world. There’s even talk about doing some “courtesy” research, as people will look down at their pagers and do e-mail right in the middle of a one-on-one conversation (or, I hear, on the golf course). Others are more polite, leaving it for the end of a conversation. It appears to be an addiction that is a real problem for instructors . . . when students (especially deaf) do it during class. (M. Marschark, personal communication, February 17, 2004)

In Australia and Britain, new “rules” about the use of mobile phones and text messages of communication are continually evolving. Horstmanshof and Power (2004) found that young adults had strict rules about answering text messages immediately, unlike e-mails, which could be left longer, and that as the messaging function was used for connection between intimates

when apart, rules had developed between young people about the necessity to text goodnight if the other was not physically present. It is not uncommon in Australia to go to a restaurant and find that people at a table spend some of their time reading and answering text messages from and sending text messages to absent friends while their present friends look resignedly at the menu or perhaps pull out their own mobile phones and begin to flick through saved “special” text messages or to construct new ones to yet other distant friends.

In Japan, more formal rules have emerged; the use of mobile phones is banned on trains, perhaps because the Japanese can imagine no worse torture than to be subjected to someone else’s private conversation. In contrast, perhaps because of some sort of misplaced ideas about civil liberty, in airports, trains, and other public spaces, Australians and Americans suffer this torture with resignation.

Harkins and Bakke (2003) pointed out a major difficulty with the use of pagers by deaf people. At the time they wrote, pagers could not access emergency numbers such as 911; deaf people still had to rely on TTYs for such services. This was confirmed by a report from the Northern Virginia Resource Center for Deaf and Hard of Hearing Persons (2003), which examined communication issues in the wake of the Homeland Security provisions following September 11. The report found that there were serious deficiencies in alerting deaf people to emergencies via any of the then-current telecommunications systems, including pagers, IM, and e-mail.

Other countries have moved to remedy this problem. Israel’s Defense Forces Home Front Command distributes pagers free to deaf and hard-of-hearing people above the age of 16 years who have a hearing loss of 50 db or greater. Through these pagers, deaf people can receive the Home Front Command’s announcements, which are simultaneously broadcast to the people of Israel in time of emergency (Israel Defense Forces, n.d.). Austria has established a free emergency number on SMS that deaf people who need help can call, as have a number of European and Asian countries.

#### Asia

Several of the more developed nations in Asia have always been technologically aware and their people

heavy users of technologies, especially for communication. E-mail and mobile phone use is widespread.

In Malaysia, the mobile phone manufacturer Nokia has provided a special SMS server for deaf people.

Unlike previously they have to use sign language to communicate, the deaf can now use the Short Messaging Service (SMS) offered by almost all the telecommunication companies in the country. . . . Parliamentary Secretary to the National Unity and Social Development Ministry Datuk S. Veerasingham said more and more deaf people were using SMS to contact and communicate with each other. “Recently, I was about to leave for a function for the deaf people when I received a SMS asking me to come at certain time. When I arrived at the function, almost all of them were using the handphone to send and retrieve SMS,” he told reporters. (Nokia, p. 2)

Airtel, an Indian provider of mobile phone services, has launched a plan exclusively for the “acoustically challenged” by which they can communicate by SMS for only R 99 per month. “Under this scheme, all SMS to GSM phones in the country would be free” (“New Airtel Plan,” 2003, p. 4), international calls R 3 and value-added services R 2 per call. Another report claims that there is

massive SMS traffic happening in the deaf community. Most . . . send nearly 50 messages per day, some more than that. . . . Even the less well-to-do spend a significant part of their salaries on SMS. “These people are not earning huge salaries. Yet they spend quite a bit on SMS-ing because for them it is a lifeline. A mobile phone has become the most coveted possession, the favorite birthday gift for a deaf person,” says Arun Rao, executive director of Deaf Way, an NGO working for the empowerment of the deaf. (Nagajaran, 2003)

In Borneo, an announcement in the press said that SMS had benefited

one group of the less fortunate . . . now the deaf can talk to any normal person through the SMS. . . . [and] with their counterparts. . . . To avoid fraud,



the mobile phones of the deaf should only have one service, the SMS with vibrating alert. This should be a social obligation for the company in helping the deaf in their cohesion with the community, the observers said. (Yahya, 2002)

Singapore has always been technologically advanced and its people heavy users of technologies.

Singapore probably ranks second only to Hong Kong for handphone ownership in the region. But it was only in 1998, with the popular use of short messaging services, or SMS, that the hearing-impaired were finally able to be part of this mobile lifestyle. Ms Elizabeth Khoo, a hearing-impaired interpreter at the Singapore Association for the Deaf, used to rely on others to transmit messages. Now Khoo can communicate with hearing and deaf clients, friends and services via SMS on her mobile phone. ("SMS Allows," 2001)

## Europe

*The European Union.* In Britain, solar-powered emergency SMS-capable emergency telephones were provided on motorways in 2003 to enable deaf people to call direct to get roadside service in emergencies. Vodafone UK has also recently launched a mobile textphone that allows real-time interactive conversations between deaf people and with hearing people via the Royal National Institute for the Deaf relay service ("typetalk") ("Real-Time Mobile," 2004). Vodafone in Malta has provided a number of mobile phones free to the Deaf community.

"The mobile phone gives deaf people the ability to send SMS and hence be able to communicate with ease and efficiency," said [a Vodafone representative]. . . . Vodafone is delighted to renew its annual commitment in order to facilitate the needs of [deaf people] by providing equipment and connections free of charge. (Vodafone, 2003)

*Ireland.* Irish deaf people also have taken to SMS over TTY or relay services. One commented, "I remember my first real romance where there was no communica-

tion breakdown, thanks to SMS." "It's a technology that deaf people jumped at" said a spokesman for the National Association of Deaf People. The reporter commented, "The most important thing about the high impact of the SMS in the deaf community is the fact that it is a mainstream technology" (Cradden, 2001, p. 8).

*Germany.* German deaf people seem to be very aware of the benefits of using SMS on mobile phones:

Berlin—More than a third of the shoppers who buy cell phones at the BlueTel store in Potsdamer Platz cannot hear. Neither can the branch's top salesman, Ahmet Arslan.

They have mastered a high-tech thumb workout called SMS messaging—a way of sending text missives over a mobile phone that is proliferating across Europe and Asia.

For the hearing impaired, they are a lifeline.

"It's such a revolution," said Hansjoachim Schirmer, 60, speaking in sign language with a half-dozen other deaf customers in BlueTel one recent weekday morning. "Before the cell, my whole life was waiting."

For now, Arslan is happy to field his wife's daily requests in 160 characters or fewer: "When are you coming home? Will you pick up some milk or bread?" "We couldn't communicate during the day before we had SMS," he said. "Now I'm on call 24 hours a day."

Is this good or bad?

"Whether good or bad," he said, "it's better than it used to be." (Rubin, 2001, p. 29)

*Sweden.* SMS is an "expensive habit" for deaf people in Sweden. It is reported that "young hearing impaired people in Sweden often send up to 500 SMS messages a month" despite it being expensive because subscription fees "generally cater for voice, not SMS" (Ericson, 2003).

A consortium of mobile operators and deaf organizations in the European Union is moving ahead on a new concept called WISDOM (Wireless Information Systems for Deaf People on the Move) that would provide a range of flexible options for telecommunications for deaf people.

This three-year, \$6 million project will enable deaf people to have an opportunity to make sure that 3G mobile telecommunications is an inclusive and all-encompassing technology. Funded and sponsored by the European Commission, WISDOM is expected to focus on providing terminals, applications and services for deaf people, with particular emphasis on providing video sign language information on demand, sign language “chat,” and remote interpretation services for communicating with hearing people. The project will also incorporate text communications. (Cradden, 2001, p. 8) See also the work of the Research Center for Sign Language and Communication of the Hearing-Impaired, University of Klagenfurt (1999) for additional information.

Such a project points out the advantages of preplanning new technologies to be as inclusive as possible so everyone can benefit from them.

If, in about five years time, you find yourself being pleasantly surprised by the quality, reliability, clarity and ease of use of third generation (3G) mobile telecommunications services and applications available on your mobile phone or device, the chances are it will be thanks to the input of deaf people.

The very idea of a deaf person using a telephone may seem oxymoronic, but mobile phones have been bought by just about every young deaf person and used, in most cases, purely for text messaging (SMS). The fact that SMS is a mainstream technology (i.e., cheap and accessible) has contributed to the huge impact it has had on the social independence of members of the deaf community. (Cradden, 2001, p. 8)

*Israel.* SMS is widely used by deaf people in Israel. Israel had not had TTYs, and deaf people were dependent on faxes for communication until mobile phones were able to use Hebrew script in 2000. The Association of the Deaf was largely responsible for persuading the three Israeli mobile service providers to interconnect, and now mobile phone SMS “is the main phone technology used by the Israeli deaf. . . . We can say that the deaf in Israel have almost full technological

access to the phone users in Israel” (O. Zak, personal communication, March 7, 2004). We noted in the Section on the United States that the Israel Defense Forces Home Front Command is supplying Deaf people with mobiles to advise them of emergencies.

## Conclusion

Clearly, SMS allows Deaf people in Australia and some other countries spontaneous, unmediated, and private access to businesses, services, and both deaf and hearing workmates, friends, and family on an equal footing with every other owner of a mobile phone. SMS represents the first communication technology that has broken down the barriers between Deaf and hearing individuals. Unintended and unforeseen by the engineers who designed it, the way that texters are using SMS is perhaps a revolution in communication. Extrapolating from research with hearing users, it is predicted that deaf texters will use SMS to increase the bonds between themselves in deaf communities, creating new opportunities to develop relationships, understanding, and intimacy with those not physically present. Probably the most exciting question raised by this article is whether those kinds of relationships, understanding, and intimacy will develop to the same extent with hearing colleagues, friends, and intimates “when everyone here speaks TXT.” “Speaking text” has itself already become literally possible. In Australia, the major telecommunications carrier, Telstra has introduced Talking Text™ which enables SMS text messages to fixed line telephones to be spoken to the recipient. Deaf people can finally “speak” on the telephone to hearing people.

The full benefits of these freedoms can only occur when the possible length of messages is much greater than 160 characters and “any-to-any” telecommunications across a wide range of devices becomes a reality with Bytheway’s (2003) concept of a “communications hub” for Australia and the European Union’s WISDOM project (Cradden, 2001).

## Notes

1. Some relay providers have recently added services for speech-impaired people.

2. Deaf people opt for those mobile phone models with a vibrating alert for an incoming call.

3. As Lane et al. (1996) noted, "when [Deaf people] have a TTY conversation . . . the stream of English words across the screen sometimes conforms so closely to [their local sign language] that one can recover the intended message best by imagining the [sign language] sentence that would have given rise to it" (p. 66).

4. This is essentially a traditional TTY relay service. No details are given as to hours of availability.

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