Text Communication Preferences of Deaf People in the United Kingdom

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This study is the only comprehensive survey to date of the text communication preferences of deaf people who cannot or prefer not to use voice telephony in the United Kingdom. Respondents covered a wide age range, became deaf or hard of hearing at different ages, and had different communication preferences. Generally, respondents used several forms of text communication, selecting them for particular purposes. E-mail was the most widely used form of text communication, but SMS was the most used by younger respondents. The most prominent reasons for liking different forms of text communication were that they were easy or fast. Older respondents were more likely to give “not knowing how to” as a reason for not using particular forms of communication and would have liked more information about what text communication is available.

It is a commonplace that technological developments can be both a means of inclusion and of exclusion for disabled people. For no group is this more true than that of deaf people. The development of the telephone ironically excluded deaf people from an activity that has become everyday and essential for most people. This is ironic because its inventor, Alexander Graham Bell, was much concerned to improve the communication abilities of deaf people. Fortunately, more recent technological developments have gone some way to redress this situation. Although it would seem that none to date has quite the ease of use and capability of real-time conversation of the telephone, there has been little research into deaf people’s own views of the merits and drawbacks of different types of electronic communication. This is likely to differ for different groups of deaf people, particularly between those who become deaf before the age at which language is acquired (before the age of three) and those who acquire a hearing impairment after this.

An Australian study (Deaf Australia Online II, 2001) conducting a number of trials of different methods of communication with deaf participants, mainly sign language users, found that when people were given a mobile phone, which most had not used before, SMS (method of sending short text messages from mobile phones) became the most frequent means of communication. Prior to this TTY (method of text communication available since the 1960s, consisting of keyboard and small display enabling real-time text conversation over the telephone network), e-mail, and fax were used most frequently.

The rise of the use of SMS text messaging in Australia and Europe among deaf people since providers have allowed cross-networking was examined by Power and Power (2004), who suggested that this has given deaf people access to businesses, family, friends, and workmates, both hearing and nonhearing, on an equal footing to every other mobile phone owner.
Until fairly recently, the situation seems to have been different in the United States, with deaf people placing more emphasis on Instant Messaging (IM—a method of having a real-time conversation through exchange of text messages, using software from a provider, such as MSN Messenger on an Internet-connected computer) than SMS (Power & Power, 2004). A survey of deaf and hard-of-hearing people with Internet access (Bowe, 2002, p. 8), described as “middle income, middle-aged and fairly well educated,” found that 97% used e-mail from home and 75% used IM. Respondents liked IM for its interactivity, the possibility for both parties to type at the same time, unlike TTY and text relay (service which provides text-to-speech and speech-to-text translation for TTY users to communicate with hearing people using ordinary telephones) and the ability to display emotions through the use of emoticons. Some, though, thought IM was an invasion of privacy, and many felt that it was distracting, preferring e-mail as this could be read and answered at the recipient’s convenience. Both e-mail and IM seemed to be replacing TTY and text relay, though no figures are given. This study did not mention SMS, although text messaging using interactive pagers was becoming popular among deaf people (Power & Power, 2004), despite being limited in use by network incompatibilities. The situation had changed by the beginning of 2005 in the United States, with operators offering interoperability between networks, and the volume of SMS increasing substantially among mobile owners. Information on how this has affected the communication choices of people in the United States has not yet become available.

An Australian study of deaf people who had obtained TTYs through that country’s Disability Equipment Programme used SMS on a daily basis more often than TTY to TTY calls and more than calls via the text relay service (Eureka Strategic Research, 2005). (The Disability Equipment Programme provides eligible customers with specialized equipment at the same annual rental charge as for a standard telephone handset, to access the telephone service.) However, asked for their top two telephone preferences, TTY was the top preference for this particular group, followed closely by SMS. The most common reason for this was that it provided “real-time conversation,” the next most common reason being that it was easy to use.

In the most comprehensive study to date, Power, Power, and Horstmanshof (2007) carried out a survey of the uses of different forms of text communication by 172 members of the Australian Association of the Deaf. Respondents, the vast majority (93%) of whom identified themselves as Deaf (i.e., sign language users), covered all age groups and all areas of Australia. Results showed that respondents used the range of available communication methods—SMS, TTY, text relay, fax, and e-mail—selecting methods as appropriate for different purposes. Most calls were social, to and from Deaf and hearing friends and family, SMS being the most frequently used method of communication for this purpose, followed by e-mail.

The study reported here is a comprehensive investigation of the views of different forms of text communication of a wide range of deaf people in the United Kingdom who cannot use or find it hard to use ordinary voice telephones. The aim was to include people in different age groups, people who became deaf or hard of hearing at different ages, and those with different communication preferences. The study allows comparison among these groups. It investigated what people liked about different forms of communication, as well as how they used it. Findings reported here focus on personal use of text communication.

Method

In order to include people from different deaf groups and different age groups extensive publicity and mailings were carried out. These consisted of the following:

2. Information and call for respondents through Read Here (BBC Teletext) on three occasions.
3. Invitation letters to take part in the survey mailed (to preserve address confidentiality) by three organizations of deaf people, the National Association of Deaf People, Hearing Concern, and Deafblind UK, and also sent out electronically by Sense, another organization of Deafblind people.
4. Leaflets about the survey sent to deaf schools and hearing-impaired units in mainstream schools, to
It was hoped to include some people with severe speech or language impairments, so an article was written for Speakability, the national nonprofit organization for people with aphasia, and information was provided to regional centers of the Stroke Association.

A questionnaire was designed for the study, after considerable consultation with deaf people and deaf organizations, including a focus group organized by the nonprofit organization deafPLUS. The questionnaire was produced in ordinary and in large print, and people were offered a variety of ways to complete it. A total of 381 usable questionnaires were received in time to be included (between December 2003 and March 2004), the vast majority (82%) being self-completed postal questionnaires (6% of these being large print), 16% being e-mailed, five British Sign Language (BSL) interviews, and one a text relay interview. Few people gave BSL interview as their sole choice for response to the questionnaire.

**Characteristics of Respondents**

**Gender**

Female respondents (62%) outnumbered male respondents.

**Age**

Respondents covered a wide age range, 10% being aged from 15 (the starting age for the survey) to 18, 7% between 19 and 29, 8% 30–39, 11% 40–49, 19% 50–59, 17% 60–69, 17% 70–79, and 11% 80–91.

**Hearing**

Forty-one percent of respondents said that they were profoundly deaf, 20% could “hear sounds but not understand words” (termed “severely deaf” in this paper), 13% reported they had “difficulty in understanding speech even if quiet,” 23% “had difficulty in understanding speech if noisy,” and 3% said that they had “no problem” with hearing. Of the 12 with no problem, five had a speech impairment and five were students in hearing-impaired units in schools.

**Age at the Start of Hearing Impairment**

Almost one third (31%) of respondents experienced hearing impairment before the age of 3 (the prelingually deaf), and 20% from the age of 50 or later. One third of the prelingually deaf respondents had a severe or profound hearing impairment.

**Speech and Language Impairment**

Fifteen percent of respondents had a speech or language impairment, but only six people did not also have a hearing impairment.

**Preferred Communication Methods**

Twenty-two percent of respondents gave BSL/Sign-Supported English (SSE) as among their preferred methods.

**Ethnic Group**

Ninety-three percent of respondents said that they were White.

**Economic Status**

Forty percent of respondents were retired, 11% of these before the normal retirement age. Taking those of working age, half were in employment, 15% economically inactive because of illness or disability, and 21% were full-time students.

Women were overrepresented in the sample. According to the Royal National Institute for Deaf and Hard of Hearing People (RNID, 2007), after the age of 40 more men than women become hard of hearing. However, women aged 16+ in the U.K. population outnumber men by 1.07:1, the difference being small up to the 75- to 84-year age group, when there are 1.5 times as many women as men. The gender difference in the population only provides a small part of the explanation for the preponderance of women in the sample.

According to the RNID, there are 688,000 people with severe or profound deafness in the United Kingdom, 108,000 (15.7%) being aged 16–59. In this study, 57% of the severely or profoundly deaf were aged 15–59, meaning that older people are considerably...
underrepresented. For this reason, analyses, where appropriate, have been made by age group. In addition, as people who are deaf before the age of 3 have particular language difficulties, separate analyses have been made for prelingually deaf groups, as appropriate. Differences between groups, using chi-square, are regarded as significant if they reach the 5% level.

**Results**

**Text Communication Preferences of Different Groups**

There were striking and highly statistically significant age differences in the personal use of electronic communication (Table 1). In general, use of electronic text communication was highest in the 19- to 29-year and 30- to 49-year age groups. SMS was the most frequently used form of communication for the 15- to 18-year and 19- to 29-year age groups, whereas e-mail was most frequently used by all other age groups.

**Table 1** Proportion of respondents using different forms of electronic text communication for their personal use

<table>
<thead>
<tr>
<th>Age range</th>
<th>E-mail%</th>
<th>SMS%</th>
<th>TTY%</th>
<th>Fax%</th>
<th>IM%</th>
</tr>
</thead>
<tbody>
<tr>
<td>15–18</td>
<td>72</td>
<td>92</td>
<td>22</td>
<td>17</td>
<td>44</td>
</tr>
<tr>
<td>19–29</td>
<td>85</td>
<td>100</td>
<td>58</td>
<td>48</td>
<td>73</td>
</tr>
<tr>
<td>30–49</td>
<td>91</td>
<td>87</td>
<td>70</td>
<td>67</td>
<td>46</td>
</tr>
<tr>
<td>50–69</td>
<td>79</td>
<td>66</td>
<td>54</td>
<td>45</td>
<td>22</td>
</tr>
<tr>
<td>70+</td>
<td>54</td>
<td>29</td>
<td>50</td>
<td>26</td>
<td>6</td>
</tr>
<tr>
<td>All age groups</td>
<td>74</td>
<td>65</td>
<td>53</td>
<td>41</td>
<td>28</td>
</tr>
</tbody>
</table>

Note. Use e-mail/age groups, χ²(4, N = 360) = 36.051, p < .001; use SMS/age groups, χ²(4, N = 360) = 96.333, p < .001; use TTY/age groups, χ²(4, N = 355) = 22.090, p < .001; use fax/age groups, χ²(4, N = 359) = 37.467, p < .001; and use IM/age groups, χ²(4, N = 359) = 67.815, p < .001.

Use e-mail/age groups, χ²(4, N = 358) = 4.023, p < .045. There was a much higher use of SMS, fax, and IM among those who were prelingually profoundly or severely deaf than for the whole group with severe or profound deafness (Table 2). This is partially due to differences in age distribution between the groups, only 27% of prelingually severely or profoundly deaf respondents being aged 50+, compared with 82% of nonprelingually severely or profoundly deaf respondents. However, SMS and IM were also more frequently used among those aged 50+ in the prelingual than in the nonprelingual group.

**Table 2** Personal use of text communication for different groups of deaf respondents

<table>
<thead>
<tr>
<th>Deaf groups</th>
<th>E-mail%</th>
<th>SMS%</th>
<th>TTY%</th>
<th>Fax%</th>
<th>IM%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severely or profoundly deaf respondents</td>
<td>70</td>
<td>66</td>
<td>65</td>
<td>48</td>
<td>28</td>
</tr>
<tr>
<td>Not severely or profoundly deaf respondents</td>
<td>79</td>
<td>62</td>
<td>33</td>
<td>29</td>
<td>26</td>
</tr>
<tr>
<td>Prelingually severely or profoundly deaf respondents</td>
<td>75</td>
<td>91</td>
<td>68</td>
<td>62</td>
<td>46</td>
</tr>
<tr>
<td>Prelingually severely or profoundly deaf respondents and prefer sign language</td>
<td>73</td>
<td>95</td>
<td>73</td>
<td>65</td>
<td>48</td>
</tr>
<tr>
<td>Severely or profoundly deaf from age 3 onwards = not prelingually deaf respondents</td>
<td>66</td>
<td>52</td>
<td>61</td>
<td>40</td>
<td>16</td>
</tr>
</tbody>
</table>

Note. Prelingually severely or profoundly deaf respondents/other severely or profoundly deaf respondents by use of SMS, χ²(1, N = 194) = 28.65, p < .001; prelingually severely or profoundly deaf respondents/other severely or profoundly deaf respondents by use of fax, χ²(1, N = 196) = 8.32, p < .004; and prelingually severely or profoundly deaf respondents/other severely or profoundly deaf respondents by use of IM, χ²(1, N = 197) = 20.64, p < .001.

TTY (called textphone or Minicom in the United Kingdom) and fax were comparatively little used by the youngest age group (by 22% and 17%, respectively). Use of these forms of communication increased sharply in the 19- to 29-year age group, reached their height in the 30- to 49-year age group, and then decreased. IM was used most frequently by the 19- to 29-year age group.

Men used all these forms of electronic communication more than women, the difference reaching statistical significance for e-mail (χ²(1, N = 371) = 6.178, p = .013); fax (χ²(1, N = 370) = 8.816, p = .003); and IM (χ²(1, N = 380) = 6.4044, p = .014). However, the frequency of use of the different forms of communication was in the same order for men and women.

There were also some clear differences among different groups of deaf people (Table 2). Those who were severely or profoundly deaf used fax, χ²(1, N = 366) = 13.469, p < .001, and TTY, χ²(1, N = 362) = 36.536, p < .001, significantly more than those with a lesser hearing impairment and e-mail less, χ² (1, N = 366) = 4.023, p = .045. There was a much higher use of SMS, fax, and IM among those who were prelingually profoundly or severely deaf than for the whole group with severe or profound deafness (Table 2). This is partially due to differences in age distribution between the groups, only 27% of prelingually severely or profoundly deaf respondents being aged 50+, compared with 82% of nonprelingually severely or profoundly deaf respondents. However, SMS and IM were also more frequently used among those aged 50+ in the prelingual than in the nonprelingual group.
Table 3  Choice of preferred means of text communication for different age groups

<table>
<thead>
<tr>
<th>Age range</th>
<th>SMS</th>
<th>E-mail</th>
<th>TTY</th>
<th>Letter-writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>15–18</td>
<td>64</td>
<td>12</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>19–29</td>
<td>74</td>
<td>17</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>30–49</td>
<td>53</td>
<td>32</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>50–69</td>
<td>27</td>
<td>44</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>70+</td>
<td>13</td>
<td>25</td>
<td>27</td>
<td>20</td>
</tr>
<tr>
<td>All ages</td>
<td>35</td>
<td>32</td>
<td>12</td>
<td>9</td>
</tr>
</tbody>
</table>

Preferred Means of Communication

Respondents were asked: “If you could have one form of text communication, what would it be?” Answers are in Table 3.

SMS was the predominant choice of the under-50s, particularly of the under-30s. E-mail was most popular among the 50- to 69-year age group. The 70+ group favored TTY and e-mail, and letter-writing was much more likely to be their choice than it was for any other group. Other choices were fax (4%), IM (3%), “something visual” (1%), and various others each made by only a few respondents (4%). There was no clear pattern with degree of hearing impairment. However, a higher proportion of profoundly deaf respondents (42%) chose SMS than did those with lesser hearing impairment (31%), this being mainly due to prelingually deaf respondents, 68% choosing SMS compared with only 28% of the rest of this group, \( \chi^2(1, N = 108) = 16.119, p < .001 \). This difference was not attributable to the difference in age structure, a higher proportion of prelingually profoundly deaf respondents choosing SMS in each age group up to 60–69.

Respondents were also asked in an open-ended question to give reasons for their choice (Table 4).

Table 4  Reasons for choosing one form of text communication

<table>
<thead>
<tr>
<th>Reasons</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy</td>
<td>27</td>
</tr>
<tr>
<td>Speed of operation/setup</td>
<td>16</td>
</tr>
<tr>
<td>Portable/mobile</td>
<td>14</td>
</tr>
<tr>
<td>Wide availability</td>
<td>13</td>
</tr>
<tr>
<td>Can send messages anywhere/internationally</td>
<td>10</td>
</tr>
<tr>
<td>Cheap</td>
<td>9</td>
</tr>
<tr>
<td>Familiarity</td>
<td>6</td>
</tr>
<tr>
<td>Keeps record</td>
<td>5</td>
</tr>
<tr>
<td>Can have live conversation</td>
<td>3</td>
</tr>
<tr>
<td>“Equality” for deaf people</td>
<td>2</td>
</tr>
<tr>
<td>No third party involved</td>
<td>2</td>
</tr>
</tbody>
</table>

Note. Percentages do not add up to 100% as more than one reason could be given.

Reasons given by severely and profoundly prelingually deaf people were similar to those for the respondents as a whole, with being portable (44%), ease of use (31%), and speed of operation/setup (17%) dominant. “Can use SMS any time, anywhere in the world. No equipment needed other than the handy light mobile” (profoundly prelingually deaf, under 20 years old, using variety of communication methods). “Contact deaf and hearing friends easy” (profoundly prelingually deaf, under 20 years old, BSL user).

Respondents under the age of 30 were significantly more likely to give ease of use as a reason for having SMS as their first choice than those over this age (46% compared with 20%, \( \chi^2(1, N = 102) = 6.947, p = .008 \)). The difference was similar across the whole sample, for people who were severely and profoundly deaf and for people who were severely or profoundly prelingually deaf (though not reaching statistical significance for the last group).

About one fifth of respondents in the older age groups did give ease of use as a reason for selecting SMS. One respondent in her 80s said “It is so easy to use,” but noted elsewhere in the questionnaire: “I needed a bit of practice. Instructions with mobile were not easy to follow. I had help from friends.”

There were many comments about the convenience of the mobile being able to be used anywhere for SMS. “Practical and can be used anytime in the day/during travelling and in emergencies” (profoundly prelingually deaf respondent in 50s, using SMS. For those choosing SMS, the predominant reasons were portability (39%), ease of use (29%), speed of operation/setup (17%), wide availability (14%), and that this can be used to send calls anywhere (10%). This comment sums up most of the reasons: “Easy to use—direct to the person—can use anywhere—can be quick—it’s the same for hearing people” (profoundly deaf respondent, uses BSL and lipreading, age unstated).
BSL). “It’s portable, can be used anywhere—useful if needed for an emergency” (profoundly deaf respondent in 70s, with progressive hearing loss from mid-adulthood, using speaking and lipreading).

**E-mail.** E-mail was predominantly the choice of the 50- to 69-year-old age group, though by no means confined to this group. This choice was not related to degree of hearing loss, but it was less likely to be the choice of prelingually severely or profoundly deaf people (20%) than of others in the sample (36%), $\chi^2(1, N = 288) = 5.186, p = .023$.

The overwhelming reason for choosing e-mail was that it was easy (35%); the only other reasons being given by more than a few individuals were that it was cheap (17%) and could be used to communicate anywhere (11%). “For me, this is the easiest, simplest and most accurate way of communication” (respondent in 60s, with hearing deteriorating from mid-20s, profoundly deaf but with cochlear implant). “I can use it easily. Mobile phone would probably be more useful to me, but I’m hopeless at texting” (respondent in 60s, with moderate-degree deafness, since mid-30s, uses lipreading). “Problems with [RNID] Typetalk [the UK text relay service] and e-mail is easy and my friends have it” (respondent in 70s, profoundly deaf, with deteriorating hearing since childhood, using writing and lipreading).

**TTY.** TTY was the preferred means of communication only for the 70+ age group, a small proportion of those in the 50- to 69-year age group also selecting it. Almost no one (four people) among the prelingually deaf respondents chose it as their preferred means of communication. Even among the 70+ group e-mail and letter-writing were as likely to be the preferred means of communication.

There was no predominant reason for preferring TTY, but the reason given most often was wide availability (21%), in the sense that most hearing people have phones, and communication was possible through the text relay service. This reason was mainly given by people in their 60s. “It’s immediate with [RNID] Typetalk [text relay service], communication is possible with anyone with a phone” (respondent with moderate deafness, in 60s, with gradual hearing decline since childhood, using variety of communication methods). “Most accessible to/from other people, not everyone has computer, most have phone” (respondent in 60s, profoundly deaf since late 20s, uses variety of communication methods, including SSE).

Familiarity (18%) was the next most common reason, mainly given by people aged 70+. “I am now profoundly deaf, although born with perfect hearing. Nearly 80 years old, I can’t be bothered with e-mail” (respondent profoundly deaf for the last 10 years, uses lipreading). “Because I am used to it. I cannot do without it” (respondent in 80s, deaf from childhood, uses lipreading, writing).

**Likes and Dislikes of Different Forms of Text Communication**

All the users of the different forms of text communication were asked, in open-ended questions, about their likes and dislikes of these.

**SMS.** Ease of use (35%), portability (30%), and speed of operation (23%) were the chief likes of respondents using SMS, as they were of those who selected this as the form of text communication they would choose, if they were limited to one means only. Again, there was a difference between the age groups, with older people putting more emphasis on portability (33% compared with 20%) and the under-30s on ease of use (44% compared with 32%), though differences did not reach statistical significance this time.

The most common dislikes were inputting problems (24%), cost (19%), and not knowing whether a message had been received (14%). Proportions of respondents indicating that they had inputting problems increased with age, from 16% in the 30- to 49-year age group to 36% in the 70+ age group ($\chi^2(4, N = 191) = 8.247, p = .083$, verging on statistical significance). In contrast, complaints about cost decreased with age, from 44% in the 15- to 18-year age group to only 5% in the 70+ age group ($\chi^2(4, N = 192) = 20.962, p < .001$).

**E-mail.** As with those who would choose e-mail as their only means of communication, if they had to make such a choice, the main liking of all respondents...
in the survey using e-mail was that it was easy (39%). This was followed by it being fast (35%) and cheap (13%), whereas some respondents mentioned aspects not possible with SMS, particularly sending attachments (10%) and unlimited text length (9%). There was a tendency for the percentage of respondents saying that they liked e-mail because it was easy to increase with age, but this was not statistically significant.

By far the largest dislike with e-mail was spam (37%), followed by technical/computing/operational problems (19%), and not knowing whether e-mail was received (16%).

TTY. Although only a small proportion of respondents, mainly those in the 70+ age group, chose TTY as their preferred means of communication, over half the respondents actually used one. The reasons given for liking TTY differed from those given for SMS and e-mail, by far the most common reason given being independence (42%), followed by the possibility of live conversations (28%), which, of course, are not possible with SMS or e-mail. Being easy was not nearly as prominent a response as for SMS and e-mail, though it was given by 12% of the respondents. Independence was given less often as a reason by prelingually severely or profoundly deaf respondents (28%) than by nonprelingually severely or profoundly deaf respondents (52%), this being a statistically significant difference ($\chi^2(1, N = 94) = 5.211, p = .022$). Those who selected this as their preferred means of communication if they could only have one, which is rather different from having a TTY as one of several communication methods, stressed rather its use for contacting both deaf and hearing people through the text relay service, without the latter having to have any equipment other than an ordinary phone. The older respondents preferring this method also stressed its familiarity to them.

Dislikes of TTYS by the whole group of survey respondents using these were diverse, including operating failures or difficulties (21%), typing difficulties and arduousness (19%), and problems with companies receiving calls (8%).

Fax. Although very few people would select a fax machine as their means of communication if they had to choose only one method, they were nevertheless used by over 40% of respondents for their personal use.

As with SMS and e-mail, being fast (34%) and easy (28%) were prominent reasons for liking faxing. Keeping a copy and/or sending pictures and diagrams was the next most important liking (16%).

The main dislike with faxing was transmission difficulties (29%).

IM. Although only 3% of respondents would use IM as their sole method of text communication, were they limited to one method, 29% of the sample did use this form of text communication for their personal use. The main liking by over a third of respondents (34%) was the ability to have live conversations, the percentage giving this as a liking being higher for the under-30s (48%) than for those older than this (25%) ($\chi^2(1, N = 80) = 4.850, p = .028$). The next common reason for liking IM was for it being easy (20%) and fast. The chief dislike was not knowing when other people would be online.

Reasons for Not Using Different Types of Text Communication

The most common reason given for not using a form of text communication was that the respondent did not have the equipment, the proportion of respondents saying this being highest for e-mail and next highest for using fax (Table 5). Saying that they do not have need was given most often for TTY, some respondents indicating that they could still use a voice telephone with a struggle, some relying on others to voice telephone for them, and some saying that they had sufficient other means of communication. A lower proportion of severely or profoundly prelingually deaf respondents (13%) than of other sample members (37%) said that they had no need of a TTY ($\chi^2(1, N = 146) = 3.774, p = .052$). (There was a similar difference between prelingually and nonprelingually severely or profoundly deaf respondents, but it did not reach statistical significance.) Relatives and friends not having the requisite equipment was an important reason for not using a TTY or fax, but not for SMS or e-mail. Not knowing how, in contrast, was a much more prominent reason for not
sending SMS or e-mails than for not using a TTY or faxing. However, this reason was given far more often for IM than for any other form of communication. Generally, there was a trend for older people to give “not knowing how” as a reason for not using the different forms of text communication more often than younger respondents, but this only reached statistical significance for IM, possibly because of the small numbers. (Sixty-five percent of those aged 30 and over compared with 40% of the under-30s, $\chi^2(1, N = 211) = 3.850, p = .050$.) Not knowing how to IM was also more common among nonprelingually deaf respondents than the rest of the sample ($\chi^2(1, N = 199) = 4.825, p = .028$) (this also being the case among severely and profoundly deaf respondents), age differences between prelingually deaf respondents and the rest of the sample not entirely accounting for the difference.

Uses of Different Forms of Text Communication

Table 6 indicates that TTY has the most all-round use. E-mails are used for communicating with companies as well as friends and relatives, but not to any great extent with doctors and hospitals. SMS has its greatest use in communicating with friends and relatives and is also said to be useful in emergencies. As it is not possible in the United Kingdom to send SMS text messages directly to the emergency services, respondents must have been thinking of emergencies in a wider sense. There was a highly significant trend for decreased use of SMS in emergencies with age, 68% of 15- to 18-year olds saying that they would use it in this way, 35% of the 50- to 69-year age group, and only 18% of the 70+ age group ($\chi^2(8, N = 370) = 59.156, p < .001$). Fax has its main use in communicating with companies, its use with friends and relatives occurring mainly in the 30- to 40-year age group, and to a slightly lesser extent in the 50- to 69-year age group. On average, respondents used 3.6 forms of text communication.

Trends Over Time

Table 7 indicates the increasing use of SMS, e-mail, and IM among respondents and the decreasing use of the fax.

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**Table 5** Reasons for not using different forms of text communication

<table>
<thead>
<tr>
<th>Reasons</th>
<th>SMS%</th>
<th>E-mail%</th>
<th>TTY%</th>
<th>Fax%</th>
<th>IM%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not have mobile</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do not have computer/Internet access</td>
<td>62</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do not have TTY</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do not have Fax machine</td>
<td>25</td>
<td>34</td>
<td>11</td>
<td>8</td>
<td>64</td>
</tr>
<tr>
<td>Do not have IM</td>
<td>3</td>
<td>7</td>
<td>33</td>
<td>39</td>
<td>15</td>
</tr>
<tr>
<td>Others do not have</td>
<td>8</td>
<td>7</td>
<td>35</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>No need</td>
<td>13</td>
<td>14</td>
<td>10</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td>47</td>
<td>11</td>
<td>22</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>87</td>
<td>165</td>
<td>195</td>
<td>217</td>
</tr>
</tbody>
</table>

*Note: Percentages do not add up to 100% as more than one reason could be given.*

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**Table 6** Personal use of different forms of text communication

<table>
<thead>
<tr>
<th>Communication with deaf friends/relatives</th>
<th>E-mail%</th>
<th>SMS%</th>
<th>TTY%</th>
<th>Fax%</th>
<th>IM%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication with hearing friends/relatives</td>
<td>61</td>
<td>53</td>
<td>33</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>Communication with doctors/hospital</td>
<td>13</td>
<td>2</td>
<td>32</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Communication with company</td>
<td>43</td>
<td>6</td>
<td>33</td>
<td>26</td>
<td>1</td>
</tr>
<tr>
<td>Use away from home</td>
<td>8</td>
<td>51</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Emergencies</td>
<td>7</td>
<td>39</td>
<td>32</td>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>
Sources of Information About Text Communication

Respondents were asked where they obtained the best information on text communications.

Table 8 shows respondents’ views on the four best sources of information about text communications and indicates age-related differences. There is an increase with age in the proportions seeing magazines for deaf people and the information provided by the text relay service as best sources. Friends and relatives are an important source of information for all groups, but there is a steep drop in the proportion giving this source in the 70+ age group.

General Views of Text Communication

Respondents were given the opportunity at the end of the text communication survey questionnaire to add any other comments about text communication, and a large number did so. Comments can very broadly be grouped into the following themes:

1. Expressions of gratitude that electronic text communication was possible nowadays
2. A few calls for more technical development
3. Suggestions that text communication was too expensive and/or it should be available more cheaply for deaf people
4. By far the most common response was that there should be better information available about text communication.

Some comments on the benefits of text communication:

I have a severe hearing loss. I take full advantage of all the equipment suitable for my life-style. I need to feel independent and to participate in what is going on, and I wouldn’t be able to do so without my Uniphone [TTY]. It is not a perfect [original emphasis] means of communication but it is certainly a great help to me so I accept the odd frustration and annoyance as inevitable. It is only a machine and, and people are only human, so sometimes I swear a little. (70 years old, worsening deafness since 20s.)

It has changed my life. I LOVE it. For the first 20 years after we left school my school friends and I could only communicate by writing letters. They got down to once or twice a year. Now we chat on MSN Messenger once a week. I can (and do) chat to my deaf friends from uni mainly by e-mail and sometimes “bump into” them in MSN Messenger. I can do a lot more for myself, am more independent, thanks to e-mail. (40+ prelingually profoundly deaf respondent.)

It is wonderful being able to communicate in all these ways. I will never stop appreciating being able to do these things—my formative years at school and university were spent having to beg...
people to make phone calls for me or write letters. (40+ profoundly deaf respondent, deaf since childhood, uses SSE, writing.)

I lost my hearing very suddenly four years ago and without my mobile phone to text message I don’t know how I would have coped. (Profoundly deaf 50 years old.)

Having access to textphone [TTY], fax, mobile phone (SMS) and e-mail has made me completely independent. ( Severely prelingually deaf respondent, uses BSL, in 60s.)

**And on the need for technical improvement.**

I wish all phones had text facilities, work, home, everywhere, so no matter where you went you had the same as hearing people, no worry or fears if the batteries go dead in your mobile, if you are on the move. (50+ deaf respondent, deaf since 40, uses lipreading.)

**On the need for reduced charges.**

“I think it would be better if all the family or friends with one deaf member could have cheaper text messages to them because they can’t hear the phone.” (Profoundly deaf BSL user, aged under 20.)

I feel that it would be greatly appreciated by deaf and hard-of-hearing people, if the Internet were provided free or on reduced terms than charged to hearing people (also SMS texts). Whilst it is not as good as having a one-to-one conversation, it is a great confidence booster to be able to communicate by e-mail and SMS without the fear of not understanding what the other person on the end of the line is saying. (60+ profoundly deaf respondent, deaf since 20s.)

**On the need for reduced charges and more information.**

I would like to see text charges reduced in general or for more hard-of-hearing/deaf people. I would also like to see mobile phone companies assisting hard-of-hearing/deaf people as mobile phones are becoming technologically advanced. And therefore it can be difficult to grasp when first operating the mobile phone and sending/receiving text messages. (Moderately deaf respondent in 20s, using writing as main means of communication.)

Information should be available and shown at audiology departments in hospitals—not in separate areas but in waiting sections. Should be advertised in ordinary magazines for all—given the extent of hearing loss in the population. If there is financial help needed, it should be available as necessary on NHS [National Health Service]. The isolation of deafness is tremendously misunderstood. (60+ moderately deaf respondent, deaf since 30s, uses some lipreading.)

**And on the need for better information.**

It’s not easy to know if you have the best deal or there’s an easier phone or deal to get. Information is difficult to access and phone shops look at you as if mad when asking for a phone for text only. Mention hard-of-hearing, deafness anywhere and you suddenly become a problem. (50+ severely deaf respondent, deteriorating hearing since 40s.)

I would like more information about mobiles. I like the idea of texting on a mobile obviously as they are used by hearing people …. More information in “deaf” magazines as to how they can be used by deaf people. Being deafened as an adult, I do not go to “deaf” clubs and so I do not find out what is new. How can I get this information? Most news is for hard-of-hearing or “Deaf.” (70+ profoundly deaf respondent, lost hearing 7 years previously.)

It might be useful to attend classes in the local community to learn how to text message using mobile phones …. (Severely deaf 70+ respondent, deaf for 60 years, uses lipreading.)

**Discussion**

Results of this survey in the United Kingdom are very similar to those of the Australian study by Power et al. (2007). In that study in which the sample consisted almost entirely of sign language users, over 90% of
respondents used SMS. Similarly in our study, among prelingually deaf sign language users almost all (95%) used SMS. Among our sample as a whole, e-mail was the form of text communication used by the highest proportion of respondents, but the situation may be changing. Use of SMS was increasing more than any other form of text communication. It was the form of text communication used most by the under-30s. Use of TTY and of fax were greatest in the middle-age group, from 30 to 49. These forms of text communication were also used more by those with a greater degree of hearing impairment. Use of TTY and fax are somewhat lower in our study, even for severely or profoundly prelingually deaf sign language users, than for the study by Power et al., but the findings reported here relate only to personal use, whereas that study combined personal and work use. TTY was used by 73% of respondents in this group in our study, compared with 89% in the study by Power et al., and fax by 65%, compared with 74% in theirs.

Evidence of the preference of younger people for SMS is also seen in that this would be the choice of the under-50s, particularly the under-30s, if they were limited to one form of text communication. E-mail would be the choice of the 50- to 69-year age group. TTY was used by 73% of respondents in this group in our study, compared with 89% in the study by Power et al., and fax by 65%, compared with 74% in theirs.

Likes and Dislikes

Overall, the most prominent reasons given for liking different forms of communication in our study were that they were easy or fast. In the case of SMS, portability was the second most common reason given for liking this method of communication, both among those who selected it as the method they would choose if limited to one, and among all users. Ease of use was more prominent among younger users and portability among older ones. Perhaps this is because older respondents were implicitly contrasting SMS with other forms of text communication, and some may have found it harder to use than younger respondents. Respondents in the study of Power et al. favored SMS because of its availability and portability.

The main exception to easy and fast being prominent reasons for liking particular forms of text communication was for TTY. Here independence and the ability to have live conversations were the main reasons for liking this form of communication. Being able to have live conversations was also the main liking in relation to IM. Respondents also mentioned the particular advantages of different forms of communication, such as being able to send attachments with e-mails and pictures and diagrams with faxes. Respondents appreciated the distinctive features of particular forms of communication, but their nonavailability does not deter use if they are easy to use and widely available among friends and acquaintances. A prominent reason by those who selected TTY as the method of communication that they would choose, if limited to one, was its wide availability, in the sense that it could be used to communicate with hearing people (through the text relay service) without their having to have any special equipment. This was similar to findings of the Australian TTY study (Eureka Strategic Research, 2005).

Differences in Uses of Different Forms of Text Communication

As in the study by Power et al., findings indicated that people use a variety of communication methods, for the purposes for which they find them best suited. SMS was mainly used for personal and social communication in both studies. It was rarely used with companies or for making medical appointments. A study of young hearing adults’ use of SMS in Australia found that SMS was mainly used with close friends and that they disliked companies using it for business purposes (Horstmanshof & Power, 2005). E-mails were used for companies as well as for social purposes. TTY had the most all-round usage, including being used for medical appointments and communication with doctors and hospitals. Another study carried out by the authors (Pilling, Fleming, Pechey, Barrett, & Floyd, 2006) found evidence on the careful consideration by deaf respondents of which form of communication would be best for particular purposes.

Information Needs

There was a tendency for older respondents to give “not knowing how to” as a reason for not using
particular forms of communication more often than younger people. There was also a striking drop in the proportion of people aged 70+ saying that friends/relatives were one of their best sources of information on text communication. Added to this, there are many comments by older people, mainly those who became deaf in later life, to say that they would like more information about text communication, particularly on how to select and use mobile phones for texting, and possibly even some training on this. There was also a lack of knowledge about IM among respondents generally.

Benefits of Text Communication

There is no doubt, from the comments made, of the improvements in deaf people’s lives from the means of text communication now available. This is despite all the methods having some drawbacks. A recent study in which deaf and hard-of-hearing students in two Canadian high schools and their parents were provided with two-way text messagers found that this helped to increase their independence (Akamatsu, Mayer, & Farrelly, 2006). Parents were less restrictive because they were less worried about their children’s difficulty in communication and general safety. Our study showed that deaf people of all ages felt that the availability of various forms of text communication gave them independence, which would have been impossible otherwise. The study findings suggest that there is a need for more information and guidance on different forms of text communication, particularly for older people who become deaf later in life, if all who could benefit from them are to be reached.

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References


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