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Experience of people with upper-body mobility and dexterity impairments in the communications market

Research report prepared for:



Provided by: GfK NOP

Date: September 2009

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Table of Contents

1	Executive Summary	1
1.1	Introduction	1
1.2	Main Findings	1
2	Introduction.....	5
2.1	Background.....	5
2.2	Objectives.....	6
2.3	Method.....	7
2.4	Sample	8
3	Main Findings.....	11
3.1	Take-up and Use	11
3.2	Barriers and adaptations	28
4	Comparison of Findings across the Disability Research Programme .	36
4.1	Take-up and use of communications services.....	36
4.2	Barriers to Use of Communications Services.....	38
4.3	Assistance and adaptations	38

1 Executive Summary

1.1 Introduction

This qualitative research project explored the experiences of consumers with an upper-body mobility or dexterity impairment. The study included people aged 17 to 81 with different types of dexterity and mobility impairments and included those with mild, moderate and severe impairments. The level of impairment was self-defined and based on the impact it had on the participant's life. Qualitative research aims to deliver detailed insights into individuals' experiences rather than providing quantitative outcomes and it should be noted that the sample achieved was not intended to be representative of the UK population of people with upper-body mobility and dexterity problems.

40 individual depth interviews were carried out in-home. All interviews were supplemented by a pre-task completed by the participant beforehand. Each interview lasted 1½ hours, was carried out in the respondent's home and involved an observational component, allowing researchers to compare their statements with their behaviour.

The core objective of the research was to explore the experiences of people with dexterity and mobility impairments in relation to take-up and use of communications services, identifying whether there were areas where these consumers may be more vulnerable than others. GfK NOP was also required to report on how findings from this research compared with those from research previously carried out by Ofcom amongst people with hearing impairments, visual impairments and learning disabilities and to identify common issues across these groups.

Quotations given represent the views and experiences of the individual respondent and are intended to enrich understanding of the respondent's experiences and the issues they have faced.

1.2 Main Findings

A) Take-up of communications services

Across the sample there was high take-up of digital television, digital radio and the internet, as well as mobile phone and landline services.

Take-up of all of these communications services was near universal. Of the 40 participants that took part in the research, 40 had digital TV, 40 had access to digital radio (in most cases this was via their TV service only service and not everyone who had access was aware of this), 38 had a landline, 38 had a mobile phone and 36 had internet access in their home.

Those respondents who did not have internet access in their home were older people (aged 59 to 80), who had little or no previous experience of using the internet and showed little interest in adopting this technology.

All respondents had either a landline or a mobile phone. The two who did not own a mobile were both younger people (aged 17 and 18). One had a disability that affected his speech and made him feel uncomfortable using a phone, whether mobile or landline. The other had severe cerebral palsy which made it very difficult for him to use the phone at all due to difficulties with dexterity and speech as well as profound learning difficulties.

B) Internet access and use

Use of the internet was widespread but use of keyboards was a barrier to extended use and there was little awareness of the adaptive technologies available.

While levels of household internet take-up were quite high (36 out of 40 households had internet access), so were levels of internet use. Only one respondent was unable to use the internet at all. This was the respondent with cerebral palsy mentioned above, who had a combination of dexterity problems and profound learning difficulties which prevented him from operating a computer.

However, many respondents had fluctuating conditions which prevented them from using the internet at certain times. For instance, one woman with multiple sclerosis said she could not operate a computer on days when her condition was particularly bad and her hands lacked the strength and dexterity needed to turn a computer on and operate a mouse and keyboard.

Many respondents were not able to get out and about as much as they wanted to, due to their medical condition. For these people, the internet often provided a way of doing basic tasks, such as shopping or banking, which they would have been unable to do in person.

Many of those using the internet were also using social networking sites to stay in contact with friends when they could not get out and about. One respondent said she was using Facebook to communicate with old school friends so that she did not have to reveal that she had multiple sclerosis and could have a 'normal' conversation with them.

Typing was difficult for a minority of respondents, as it required them to use both hands. Most were managing this by typing with just one hand (or even one finger). While this meant they were unable to type as quickly as they would have liked, very few had investigated alternative adaptations.

C) Barriers to use of communications services

Set-up and installation was an important barrier to use of televisions and computers. There was low awareness of adaptive technologies.

Installing equipment (whether a computer, set-top box, etc.) posed a greater barrier for most respondents than operating that equipment. While all could manipulate a remote control or telephone, many could not connect a printer to a computer or plug in a television.

Consequently, many relied on family and friends to set-up their communications technology for them and resolve any problems with it (such as loose connections). When their family and friends were not available to do this, some respondents had resorted to paying service providers to come out and fix relatively minor problems.

Overall, there was limited awareness of adaptations (such as computer voice recognition) that may have been of help to respondents. However, it was evident that most did not want to use adaptive technologies for as long as they could avoid it, as using an adaptation was often viewed as a sign that their condition was worsening.

D) Comparison with previous Ofcom studies

Take-Up of communications services

While levels of telephony take-up (whether mobile or landline) were consistently high across the four strands of research, levels of internet use were variable.

Household internet use was fairly high in the research amongst people with visual, hearing and mobility and dexterity impairments. However, it appears to have been lower in the research amongst people with learning disabilities due to lower literacy levels and the greater impact of the costs involved.

All four strands of research have included a mix of contract and PAYG mobile phone users. While some PAYG users found it difficult to type long numbers into their mobile handset to activate this service, this was most pronounced amongst visually impaired people and those with learning disabilities.

Take-up and use of the internet

Visually impaired respondents were most aware and most likely to use adaptive technologies to help them access the internet (such as magnifying and voice activated software). However, cost was a major barrier to accessing these technologies. Those with mobility and dexterity impairments were most resistant to using such adaptations.

Respondents in all four strands of research were using the internet for entertainment (watching videos, looking at photos, etc.) and social networking. Those with visual, hearing and mobility and dexterity impairments were also using the internet to do basic tasks such as shopping or banking, which they would have been less likely to be able to do in person. Those with learning difficulties were less likely to engage in these kinds of activities due to their higher levels of dependency and lower levels of literacy.

Barriers to use of communications services

Levels of independence varied greatly across the sample, from those living relatively independent lives to those who were totally dependent on carers. However, most respondents required assistance at some stage in accessing and using communications services.

One of the key differences between the four respondent groups was that many of those with mobility and dexterity impairments had fluctuating conditions while those with visual impairments, hearing impairments and learning difficulties had persistent conditions. Given this, many respondents with mobility and dexterity impairments could use communications technologies much more easily on certain days than on others.

Amongst those with learning disabilities and mobility and dexterity impairments, there was limited awareness of adaptations that may have helped them use communications technology more easily. However, those with visual impairments and hearing impairments tended to be more aware and were more likely to be accessing services such as subtitles or audio description on television¹, or keyboard stickers².

Being part of a wider network supporting people with similar impairments (whether a school, community group, Motability scheme, etc.) affected respondents' awareness of the services and adaptations available to them. Those who were not part of a wider network typically had more limited access to this information. The research shows that those with visual and hearing impairments were more likely to belong to these kinds of networks than people with learning disabilities or mobility and dexterity problems.

¹ Audio Description is a service on digital TV designed to improve the enjoyment of TV for people who have difficulty seeing what's happening on the screen. An additional commentary describes body language, expressions and movements.

² These are high visibility stickers that help people with visual impairments use a keyboard more easily.

2 Introduction

2.1 Background

Ofcom regulates the UK's broadcasting, telecommunications and wireless communications sectors, setting and enforcing rules on fair competition between companies in these industries. Under the UK Communications Act 2003, its main legal duties are to ensure:

- The UK has a wide range of electronic communications services, including high-speed information services, such as broadband
- A wide range of high-quality television and radio programmes are provided, appealing to a range of tastes and interests
- Television and radio services are provided by a range of different organisations
- People who watch television and listen to the radio are protected from harmful or offensive material
- People are protected from being treated unfairly in television and radio programmes, and from having their privacy invaded
- The radio spectrum (i.e. the airwaves used by everyone from taxi firms and boat owners, to mobile-phone companies and broadcasters) is used in the most effective way

Ofcom is funded by fees paid by the broadcasting, telecommunications and wireless industries and by grant-in-aid provided by the UK government. Ofcom is independent of the UK government but does answer to Parliament and is sponsored by the Department for Business Innovation and Skills (formerly BERR) and the Department for Culture, Media and Sport.

In performing its duties under the Communications Act 2003, Ofcom must have regard to the needs of people with disabilities, older people and people on low incomes. Given this, Ofcom has carried out an extensive programme of research examining the communications experiences of a variety of different groups of disabled people. Over the last two years, qualitative research has been conducted amongst people with visual impairments, hearing impairments and individuals with learning difficulties. This work has attempted to move beyond the limitations of single studies carried out amongst people with a broad range of disabilities and has endeavoured to produce detailed insights into the experiences of people with particular impairments.

This report relates to the latest stage of this programme of research and details the experiences and opinions of people with upper-body mobility and dexterity problems. Findings from this research are documented in full and comparisons made between this study and the previous research amongst disabled people carried out by Ofcom. Findings will feed in to Ofcom's 2009 Consumer Experience Research Report (which measures how well consumers have fared over the past year with regard to the communications services they are receiving), providing a clear perspective on the views of people with a range of disabilities.

2.2 Objectives

The overall aim of this research was to examine the experiences and attitudes of people with mobility and dexterity problems in relation to their take-up and use of communications services. The research aimed to address the objectives detailed below.

- **Business objectives:**
 - > The research will feed into Ofcom's 2009 Consumer Experience Research Report
 - > It will form the penultimate stage of a four year research plan focusing on people with disabilities
- **Overall research objectives:**
 - > To explore how respondents with a mobility or dexterity impairment use communications services and identify existing barriers to their use of and access to communications services
 - > To understand how this differs or is similar to the experience of hearing impaired and visually impaired individuals and those with a learning difficulty and to identify common issues across these groups
- **Detailed research objectives:**
 - > Understand how respondents with a mobility or dexterity impairment use communications services in their daily lives
 - > Investigate awareness of various communications services and benefits.
 - > Explore awareness and access to new digital services
 - > Identify any problems respondents are experiencing with accessing and using communication services (fixed line, mobile, internet and multichannel television)
 - > Explore ideas for overcoming barriers to access and usage
 - > Identify coping strategies and mechanisms people use to manage their communication services and needs
 - > Identify whether current formal and informal initiatives help them meet their communications needs
 - > Identify what information they seek and what information sources they use when switching or finding out about services and costs
 - > Identify what mainstream and specialist equipment / technologies they use or have adapted to their needs
 - > Investigate whether higher take-up of technology among young people in general is reflected in younger people who have a mobility or dexterity impairment
 - > Undertake secondary research to draw comparisons between this research and that undertaken in previous years concerning visually, hearing and learning impaired individuals

2.3 Method

GfK NOP carried out 40 in-home interviews amongst people with upper-body mobility and dexterity impairments across the United Kingdom. Each interview lasted 1½ hours and all interviews involved both question-and-answer and observational components. Researchers were able to observe participants using communications technologies and services in the home and recorded their observations using digital video cameras. Footage from the interviews was delivered to Ofcom in the form of a 15 minute DVD.

In-home interviews were chosen for this research for the following reasons:

- Demonstration and observation:
 - > Participants could demonstrate the communication devices they used
 - > Researchers were able to compare participants' verbal responses with their behaviour
 - > Researchers were able to record video footage of participants' use of communications technology to illustrate and support research findings
- Context:
 - > Conducting the interview in the home provided valuable context for the moderator; for instance, the location of devices could be observed, along with any challenges this presented
- Case studies:
 - > Detailed observational participants enabled GfK NOP to develop case studies of individual respondents to illustrate the findings of this report
- Convenience:
 - > In-home interviews gave participants flexibility in when the interview was carried out as venues did not have to be booked and interview times were not dependent on the availability of others (as with focus groups)
- Candid views:
 - > Interviewing participants in home helped them feel relaxed and comfortable, which can have an impact on levels of openness and honesty during an interview

A discussion guide was produced by GfK NOP and approved by Ofcom. In addition, all respondents were given a pre-task to complete prior to taking part in an interview. The pre-task took the form of a short workbook in which participants were asked:

- To list the communications services and providers they were using
- To comment on the strengths and weaknesses of each of these services / providers
- To say what made a good service / provider and what good experiences they had encountered

The pre-task was intended to help participants prepare for the interview by reflecting on the services and providers they used and their views of these. They also helped stimulate

discussion during the interviews and participants were able to refer back to their pre-task to help them answer relevant questions. The pre-tasks also provided researchers with a clear indication of the services and providers used by each participant and a summary of their views on these. Pre-tasks were fed into the analysis process, alongside data from the interviews and observations.

2.4 Sample

The table below outlines the sample for this research:

Location		Total	Impairment Type		
			Mild	Moderate	Severe
England	London	4	1	1	2
	Nottingham	4	1	2	1
	Liverpool	4	1	2	1
	Newcastle	4	1	1	2
Scotland	Edinburgh	4	1	1	2
	Glasgow	4	-	3	1
	Aberdeen	4	1	2	1
Wales	Bridgend	4	1	2	1
	Colwyn Bay	4	1	2	1
N. Ireland	Belfast	4	2	1	1
Total		40	10	17	13

The sample size for this research was in line with previous qualitative studies carried out by Ofcom to explore the experiences of people with disabilities in the communications market. A total of 40 in-home interviews was chosen as this enabled us to carry out research in a variety of locations across the UK and to include a broad spread of demographic criteria (age, social grade, ethnicity) as well as by disability type. Qualitative research aims to deliver detailed insights into individuals' experiences rather than providing quantitative outcomes and it should be noted that the sample achieved was not intended to be representative of the UK population of people with upper-body mobility and dexterity problems.

People living in England, Scotland, Wales and Northern Ireland were all represented in this study. The number of locations and people participating in each country were intended to be reflective of population size. Consequently, 16 people participated in England, 12 in Scotland,

8 in Wales and 4 in Northern Ireland. In Nottingham, Aberdeen, Colwyn Bay and Belfast, a proportion of respondents were recruited from outlying rural areas.

As shown in the table above, the sample was structured to include people with impairments of different levels of severity. Level of severity was self-defined by each respondent according to criteria set in the recruitment screener. The questions used to define severity were as follows (these can be viewed alongside all other questions asked in the appended recruitment screener):

- 1) Do you have any long-standing illnesses, impairments or medical conditions?

Prompt if necessary: 'Something you consider to be a disability'

By 'long-standing' I mean anything that has lasted for a period of at least 12 months or that is likely to affect you over a period of at least 12 months.

Respondent to code against a variety of impairments, including: mobility impairment (upper body), mobility impairment (lower body), dexterity impairment, visual impairment, etc.

- 2) Which of the following statements best describes your illness, impairment or medical condition?

Mild impairment: the condition does not have a significant impact on my normal day-to-day activities. My manual dexterity or upper body mobility are generally good and any pain or discomfort wears off quickly

Moderate impairment: the condition has a significant impact on my normal day-to-day activities. My manual dexterity or upper-body mobility are regularly restricted.

Severe impairment: the condition has a significant and detrimental impact on my normal day-to-day activities. I have very limited manual dexterity or upper-body mobility.

(Normal day-to-day activities include everyday things like eating, washing, walking and going shopping)

Quotas were not set on different types of condition, although recruiters were required to recruit people with different conditions in each location for the research. Conditions were defined by participants themselves. People with the following conditions were recruited:

- Arthritis
- Multiple Sclerosis
- Paralysis
- Loss of limb (through accident or amputation)
- Parkinson's disease
- Stroke
- Spina bifida

- Myalgic encephalopathy
- Fibromyalgia
- Frozen shoulder
- Degeneration of lower spine
- Cancer (affecting upper-body movement)
- Sickle cell anaemia

A total of 22 women and 18 men participated in the research and there were 4 participants from ethnic minority groups. The table below shows the spread of ages achieved in each country:

Age	TOTAL	Location			
		England	Scotland	Wales	Northern Ireland
16-34	10	4	3	2	1
35-54	10	4	3	2	1
55-74	10	4	3	2	1
75+	10	4	3	2	1
TOTAL	40	16	12	8	4

All fieldwork on this study was carried out by Michael Thompson, Polly Hollings, Pauline Fitzpatrick, Lauren Small and Catherine Evans of GfK NOP between 28 July 2009 and 20 August 2009.

3 Main Findings

3.1 Take-up and Use

This section of the report details use of the following communications services:

- Internet
- Mobile phone
- Landline
- Digital television
- Digital radio

For each of these we have discussed level of take-up, ways in which these were being used and cited restrictions to using them.

3.1.1 Internet

A) Take-up

36 participants had access to the internet at home, although not all used the internet frequently. Four participants did not have internet access. These were older people (aged 59-81 years old) who voiced little interest in using the internet.

B) Current use

For many, the internet was considered a lifeline and enabled them to communicate with friends and family via email and social networking sites.

"I do an awful lot on the internet...email people, use Facebook and generally keep in touch with people"

(Colwyn Bay, White British, 52, D, Female)

Due to their disability, many participants were unable to leave their home on a regular basis and resultantly found it difficult to meet up with friends and family. For these participants, keeping in touch online was vital.

Case study

The participant was an 18 year old male from Belfast with cerebral palsy. He used the internet to communicate with friends as it was convenient, and enabled him to keep in touch with people who did not live locally.

"I like using the internet 'cos it helps me communicate with my mates through email and through Bebo. A lot of my mates are spread all over the place and it's not as easy for us to meet up, so I like the internet for that way, to communicate"

This participant lacked confidence in using the telephone, particularly because he had a speech impairment. For him, being able to communicate via the internet was extremely important.

"My other way of communicating would probably be the house phone but as I say, my main one would be the computer. I would prefer that because sometimes I find it difficult maybe talking on the phone I would try and rush and maybe my communicating doesn't come out as clear"

Where participants were restricted in how often and easy it was to leave their home, being able to carry out daily tasks such as shopping or banking online was also considered very important.

"With the internet you don't have to leave your home to do anything...I like the convenience, switch it on and you have everything in front of you that you need... The internet is my lifeline"

(Aberdeen, White British, 42, C1, Female)

Many participants carried out grocery shopping online and noted that they would otherwise struggle to walk around a supermarket, handle heavy goods or stand in queues.

Case study

This participant was a 24 year old female with cerebral palsy. She lived in a flat alone in Aberdeen having recently left university. She used an electric wheelchair which meant that she sometimes came across difficulties in accessing local shops. This was particularly the case for local corner shops where resultantly she was unable to buy her groceries.

"I can't even get around the area in my electric wheelchair, and the corner shops aren't wheelchair friendly"

Because of these accessibility issues she relied on doing her grocery shopping from Asda online.

As she lived alone, it was important that she was able to do this. This meant that she was very reliant on her internet connection, and had chosen to go with BT. Whilst it was the most expensive option, she was worried that other internet connections would be unreliable.

"It's important that it [the internet connection] doesn't crash when I get my Asda shopping"

Without the internet she would feel isolated and dependent on her family to carry out tasks such as shopping.

One participant used the internet for business purposes. For this participant having a good broadband connection was important, but he had recently experienced problems with this.

"I went with Talk Talk 'cos I thought I would get the bigger bandwidth, which is what I needed for the business. They guaranteed me I'd get up to 10 meg, I only get 3 so I was very disappointed."

(London, Black African, 38, C2, Male)

Problems with broadband speed were echoed by other participants across the research.

Typically, older people within the sample who did have internet access at home had been encouraged to get this by members of their family (usually children or grandchildren). These participants noted that their children had actively been responsible for sourcing and arranging internet connections in their home. A couple of participants had attended formal computer skills training at a local college to help them use the internet, but most had taught themselves, or had been shown by family members.

Case study:

This participant was a 71 year old female living in Bridgend. She was encouraged by her son to get an internet connection in her home as he thought she would find it interesting for keeping in touch with people and getting information for her hobbies (family history, reading). She noted that she was initially unsure about using the internet, so signed up to do two courses at a local college.

"Because of my age I find technology quite frightening really, but then my son...said 'go on'...I did go on two computer courses...at the technical college"

Her son recommended that she take up a special offer from where she would get a free laptop. He helped her arrange this, and set it up for her when it arrived.

"AOL were doing a special offer last year. If you signed up to broadband for two years you could have a free laptop...my son suggested it...he sorted it out for me and set it up for me as well."

Since then she has used the internet for a range of activities including email, buying books and researching topics of interest.

C) Restrictions to use

Whilst most participants had access to the internet, for many, their disability meant that they were restricted in how they used it.

Some of the research sample had fluctuating conditions. This meant that they experienced good and bad days which would impact on the types and number of activities that they could carry out. On bad days, using the internet was difficult and usually not possible. One participant described how she increased her medication during bad days which affected her ability to use the internet.

"The hardest for me at the moment would probably be the internet. I seem to be struggling because it is just that I am on more medication, and I am a bit doped up you know."

(Edinburgh, White British, 42, B, Female)

Participants discussed their comfort when using the internet, and noted that they often had to reduce the frequency and duration of time spent online.

"Sometimes I think the pain in my hands and everything, like with typing and things I get sore fingers. So probably that is why I am not on it [the internet] as long"

(Edinburgh, White British, 45, C1, Female)

Comfort often depended on how easy it was to use computer hardware such as the keyboard and mouse.

Computer keyboards were usually difficult to use because of their size and the spacing between keys. Many noted that a larger keyboard would be easier to use. In particular, laptop keyboards were considered too small which was difficult for those unable to keep their hands in a particular position for any length of time. Laptop keyboards were also felt to be too flat especially when compared to desktop computer keyboards. There was some preference for computer keyboards where the spacing between keys was more delineated.

"On the laptop the keys are very flat and close together...on a computer keyboard you get more of a sensory thing as well, the keys are raised up...I find the laptop a little bit too restricting for me to be honest, but it's nice to have it on your lap or I have it up in bed"

(Bridgend, White British, 60, E, Female)

Using a computer mouse could prove difficult because it relied on a certain degree of movement in the arm. Where possible some participants had overcome this by learning to use the mouse with their other arm.

"I was knackered when it came to the mouse. They keep your wrist at that angle, like bent and you can't hold the mouse. I just learn to do it with my other arm"

(Bridgend, White British, 21, D, Male)

For participants that used a laptop the integral mouse was considered small and difficult to control.

Using computer hardware was often time consuming, and typing could be laborious, especially for those who typed with one finger, or who found it difficult to manipulate their hands across the keyboard.

Case study

This participant was a 50 year old male living alone in Nottingham. He had Parkinson's and was currently using the internet to look for employment.

This participant found using a keyboard difficult due to tremors in his hand, and found that any typing took a long period of time. He frequently found that completing job application forms or other documents took too long, and he would be timed out of a page before he could complete it.

"The other problem I've found is that I do my tax returns on the internet and you type out a page and you get to the bottom and it says you've timed out"

He suggested that this problem could be overcome by providing options for length of time required by the individual to fill out any forms/pages online.

Sitting in a comfortable position was a key consideration when using the internet. One participant discussed how he was unable to fit his wheelchair under his desk which affected his comfort. Other participants noted that they had specifically chosen to get a laptop so they could use it anywhere in their home, and sit in the place that they found most comfortable.

I think that when my husband got my laptop that was, in his mind that was helping me communicate with people...because he would say to me 'there is an email for you from such and such' and I was like, I have to climb up the stairs and the chair is not that comfy, and all that, so this [laptop] is much, much easier"

(Edinburgh, White British, 42, B, Female)

3.1.2 Mobile phone

A) Take-Up

38 participants owned a mobile phone. The two participants without a mobile phone found using a telephone (both mobile and landline) difficult because of their dexterity and speech impairment issues.

"I'm really not that confident on the phone, even if it's somebody I know I would still panic and try and get everything in the one sentence and then start to stutter a bit"

(Belfast, White British, 18, D, Male)

B) Current use

Participants tended to use their mobile phone to make and receive telephone calls and text messages. Few mentioned using other applications such as games, cameras or accessing the internet.

For some participants their mobile was considered a lifeline when out and about. Having a mobile phone with them meant that they felt confident in being able to quickly contact family, friends or an emergency service if needed.

"Mobile is a lifeline, I couldn't live without my mobile...there have been one or two occasions when I have fallen badly outside, so I have been able to call someone and say come to this place. Or even I'll go out and I'll need to phone for a taxi 'cos I can't get home, I can't drive"

(London, White British, 42, B, Female)

"Essential as we have very serious illnesses in our family so phones are very important. This is the key reason that I got my mobile phone. We need to ring to see how each other is"

(Colwyn Bay, White British, 36, E, Female)

Others tended to use their mobile phone to keep in touch with friends and family from a social point of view. Again, they tended to keep their mobile phone on them at all times when in and out of the home so that any contact could be instantaneous.

"I find it easier to keep in contact with people, because of my illness I don't get to see as much and go out with as much, so it's easy enough to sort of text them and they text me how I am doing today and what I have been up to"

(Edinburgh, White British, 45, C1, Female)

This desire and need for instantaneous contact meant that network coverage often determined which provider participants chose to use.

One participant used their mobile phone for business purposes. He ran an online business so it was important that he could access email via his mobile phone. This participant was technologically savvy, and familiar with a range of mobile phone functions.

"When I'm not here I can get my emails on my phone. I can also check out the website and I can do online banking...When you're running a business your customers have to know they can call you up and find out what's going on with their order"

(London, Black African, 38, C2, Male)

A small number of participants had their mobile phone for 'emergencies only'. This meant that whilst they had it with them when out and about, they used it only very occasionally for telephone calls, and did not utilise any further functions.

"The arthritis is a bit limiting really, and of course with a mobile phone being so small...I do tend to use it but only for emergencies really"

(Bridgend, White British, 71, B, Female)

C) Restrictions to use

Size of mobile phone, size of buttons and spacing of buttons were frequently mentioned as problematic by participants. Small mobile phones were difficult to hold and manipulate. Buttons that were small and close together were problematic and participants noted that they often pressed more than one button at once.

"They keep making them smaller which is most annoying...the buttons are always too close together and the screen is small. They are just smaller and I would much rather they were bigger."

(Glasgow, White British, 42, E, Female)

Some participants used older mobile phones as these were larger, and easier to use. It was noted that mobile phone providers typically encouraged take up of smaller, newer mobile phones, but participants felt that this was not always the best option for them.

Some participants were aware that newer mobile phones were available with touch screens. There were mixed responses with regards to this. Those who had limited strength in their hands envisaged that touch screens would be easier to use than conventional buttons because they did not require a great deal of force to navigate the screen. Others were worried that touch screens would be too sensitive.

"You can send a message when you haven't finished it, or call someone when you didn't mean to. It's maybe a bit too sensitive"

(Aberdeen, White British, 24, C1, Female)

Those who used text messaging noted that it was an activity that was tiring and often difficult to do on a frequent basis.

"My mates will send essays, if I have to something really long to say I will ring them. I won't text especially because it gets annoying being like all the time...it will start irritating my wrist"

(Bridgend, White British, 21, D, Male)

"I have to really concentrate and I am there for a lengthy time as I am pressing the numbers. Numbers are so tiny, and I have problems with grip"

(Colwyn Bay, White British, 52, D, Female)

Some participants found that predictive text made texting easier and quicker, but some found this function complicated.

Case study:

This participant was in his 50s, and lived alone. He had Parkinson's disease. The participant owned a Motorola mobile phone but preferred to use an older model because the buttons are larger.

"My problem is with a mobile phone is that the newer ones are so small and they're so sensitive that if I'm pressing the buttons, bang! I press four...I've got an old Motorola, the size of a brick just because the buttons are big and I can press them"

His Parkinson's meant that sensitive buttons were difficult to use because he found it difficult to control the motion of his hands. Texting was a time consuming activity because of this.

"For me to sit and text somebody, it would take an hour because I've just not got the dexterity to press the button 3 times to get the third letter"

3.1.3 Landline

A) Take-Up

Across the sample, 38 participants had a landline at home. The two participants without a landline did have a mobile phone and preferred to use this for their telephone calls rather than pay for two separate telephone services.

B) Current use

Landline telephones were used to make calls to friends and family when at home. Whilst most people had both a landline and mobile phone most tended to use their landline at home as calls were more cost effective.

Some participants had a cordless landline so that they could keep it with them at all times when at home. For these participants, it was important that they felt connected with friends, family or the emergency services at all times in case they fell, or became ill.

C) Restrictions to use

Again small phones were problematic and difficult to use. Smaller phones were difficult to hold and the buttons were difficult to press. One participant had put Blu-Tack on the back of her telephone so that it was easier to grip.

"When I first got it I could not hold it very well. It was too smooth so I found the Blu-Tack just gave me a better grip"

(Glasgow, White British, 42, E, Female)

Another participant had recently replaced their telephone, and had specifically chosen one with large buttons.

"The old phone had smaller numbers. We used to press two together rather than one. This had bigger numbers...for the new phone, we were looking for better buttons"

(Colwyn Bay, White British, 66, C1, Male)

Speakerphone was an important function for many participants. This was used when participants found it difficult to hold the telephone for any length of time.

"I often have my phone on speakerphone...I don't have to hold it then. That's one of the reasons why I bought the telephone. I wanted a phone that I didn't have to lift up"

(Glasgow, White British, 45, B, Female)

Another function that was considered useful was speed dial. This was used by participants who found it difficult to key in numbers.

"I had an incident where I could not press my Mum's number into the phone. I got speed dial so that is a lot easier"

(Colwyn Bay, White British, 36, E, Female)

A couple of participants noted that comparatively, mobile phones offered a better functionality for storing telephone numbers. They noted that their landline could store 10 telephone numbers, but that they personally would like to be able to store more.

"They don't let you store enough. You can only store about 10 numbers"

(Glasgow, White British, 57, C1, Female)

Aside from the telephone functionality, some participants described problems that they had experienced when calling companies or organisations with automated services. Two key issues were raised. Firstly, some participants found it difficult to comply with routing requirements as they found it difficult to press numbers on a telephone within a short space of time.

"I do not like automated services...you have got to press loads of buttons and it is not easy for me"

(Glasgow, White British, 42, E, Female)

Other participants disliked when automated services resulted in being given another telephone number to call. In this situation, they did not have time to write down the telephone number which was typically read quickly, and only once.

"A couple of the calls I've made, you phone up and they say 'if you're phoning regarding X ring this number'. Then it's gone, the calls cut off, they're given you the number once and I've only got the first two numbers written down. Because you haven't got the dexterity to write quickly, so when they're giving you an 8 digit number in 3 seconds you physically can't do it"

(Nottingham, White British, 50, D, Male)

3.1.4 Digital Television

A) Take-Up

Two participants across the research sample did not have digital television. Both of these participants were postponing getting a digital television until the official switchover later this year/next year.

B) Current use

Nearly all participants owned and frequently watched digital television. Across the sample a high number of participants spent much of their time at home due to their disability, and resultantly were highly reliant on television for entertainment and companionship.

"This is my first time living on my own...I use the TV as a comfort, and a security thing"

(Aberdeen, White British, 24, C1, Female)

"When [my son's] at school, it's a companion, it saves the silence"

(Aberdeen, White British, 42, C1, Female)

A small number of participants used functions such as the red button to access information via their television, or to buy things from television shopping channels.

"I do a lot of shopping. I buy a lot of things off the TV from QVC"

(Glasgow, White British, 42, E, Female)

A minority of the research sample had Sky Plus, and these participants it greatly valued it. They liked the range of channels, and the record, rewind and series link functions. A few participants had decided to get Sky Plus because they spent a lot of their time watching television and felt that there were many repeats on terrestrial television. This was echoed by other participants across the research who felt that terrestrial channels repeated many of their programmes.

"When I'm sitting at home all day I need something different and terrestrial TV is always showing the same programmes"

(Aberdeen, White British, 42, C1, Female)

C) Restrictions to use

Overall, digital television was considered accessible and easy to use. However, some participants mentioned problems with remote controls specifically mentioning button size and spacing and difficulties in replacing batteries.

"Remote control...the problem comes when I have to put batteries in...I tried to replace the batteries last week and it took me about 45 minutes"

(Bridgend, White British, 71, B, Female)

"Some things I find difficult because some days I have got more strength in this hand than others and some days I don't feel anything. The buttons have got to be really easy to push"

(Glasgow, White British, 57, C1, Female)

Case study:

This participant was female and lived with her family in London. She had multiple sclerosis which greatly restricted her movement, and activities that she could carry out. Resultantly, she spent most of her time in her home and watched a lot of television.

"I have a non-life so when they're at school I'll sit and watch daytime telly".

This participant was interested in television; she felt that it would provide a greater variety and choice of television programmes. However, she felt that it was prohibitively expensive for her family.

"We don't have Sky mainly because my husband works but I only get my disability allowance, I don't work any more so we can't afford £20 a month or whatever it is. So although I'd like all those channels, especially being in so much, I can't justify financially doing it".

3.1.5 Digital Radio

A) Take-Up

As outlined above, two participants did not have access to digital radio as they did not have a digital television or a separate DAB radio. However, it should be noted that most participants who did have access to digital radio via their digital television, did not listen to it.

B) Current use

Across the research few participants reported using digital radio. Whilst some did listen to the radio, this was often on analogue sets in their kitchen or their car.

Those who did listen to digital radio were very positive about the service and enjoyed listening to it frequently.

"I have trouble falling off to sleep sometimes and I find if I put the radio on and I time it for an hour I'm asleep"

(Bridgend, White British, 60, E, Female)

One participant noted that digital radio was easy to set up and did not require complicated wiring or programming. This made it an easy service to use.

"A digital one...what I like about that one is it doesn't matter what happens...if you plug it in it tunes everything back in. It gets the time back. It just does everything itself"

(Glasgow, White British, 57, C1, Female)

C) Restrictions to use

Most participants were not using digital radio. Many had limited knowledge regarding digital radio, and did not know what the differences between analogue and digital radio were. Whilst some were aware that they had access to digital radio via their television, they had not listened to it through this channel.

"I just watch the television as a television and the radio as a radio"

(Glasgow, White British, 74, C2, Male)

3.1.6 Providers

Experiences of providers were mixed across the research. Key issues focused on:

- Call centres
- Set up and resolving technical problems
- Cost and billing
- Disability services

These are fully discussed below.

A) Call centres

Across the research, if people experienced problems with any aspect of their communications services they tended to contact their provider over the telephone. Experiences of call centres were mixed and participants highlighted a number of issues:

- Call centres based outside of the UK
- Automated systems
- Queues

It should be noted that these are typically the types of issues that we would expect to be raised by the public in general, but these issues were more pronounced for those with upper mobility and dexterity problems, for reasons such as holding a handset for a long time or speech impairment.

Call centres based outside of the UK were problematic for a number of participants. They reported difficulties in understanding call centre staff accents and determining what they were saying. Equally, those with speech impairments often struggled to make themselves understood by call centre staff, and this was even more difficult when the call centre was not based in the UK.

"I have a bit of a problem understanding the staff from BT. Sometimes I have a problem getting them to understand me too...sometimes I am slurring a little bit too. If I'm having a day like that, I would get my husband to call them for me. Or wait until I am feeling better"

(Colwyn Bay, White British, 52, D, Female)

Some participants also found call centres difficult to deal with where there was an automated system. This was particularly difficult for those who used a portable landline handset where they needed to manipulate the telephone handset from their ear to type in numbers and back to their ear again.

"I hate this new thing that they have got where you press 1 for this and 2 for that...you are holding a phone and it is 'press button whatever' so then I have got to bring it down and look for a button and press it and then get it back up. Sometimes you can miss something in between so you are waiting a long time"

(Glasgow, White British, 57, C1, Female)

Call centre queues were also cited as problematic by some participants. This was particularly the case for people who found it difficult to hold a telephone hand set for a long period of time.

"We used to have cable [and phone] from NTL but they were so rubbish you'd wait forever if you were trying to call them and I can't be bothered with that because I can't walk around and hold a phone. So if they're going to keep you on hold for two hours, that's no good to me...if had come on and said 'leave your number, we'll call you back' [that would have been better]"

(London, White British, 42, B, Female)

B) Set up and resolving technical problems

Setting up and installing communications services as well as resolving technical problems were challenging for participants. Many cited difficulties in plugging in devices, wiring them, lifting heavy hardware and switching appliances on.

Set up and installation sometimes came as part of an introductory package to a service. However, most participants had to rely on friends and family to set up or resolve problems, or resorted to paying the service provider to do this.

"These things are not easy for disabled people because even something simple like plugging something in the back is not possible for me, so I really need somebody to do it all for me...it is not cheap but as a disabled person you need that."

(Glasgow, White British, 42, E, Female)

"I will call my son if I am not sure how to use something, he will tell me"

(Colwyn Bay, White British, 66, C1, Male)

"I usually have to bribe and cajole friends and family to come and help me to get things set up, wire things or put things together for me"

(Glasgow, White British, 45, B, Female)

Resolution of problems was particularly important for participants, who often heavily relied on their communications services. One participant described how her telephone provider had been unreliable, and that resultantly she had switched back to a more reliable service. Whilst this was more expensive she felt reassured that technical problems were less likely to arise.

"I tried cable companies and it was a nightmare...there were problems with the service. There were problems with the connectivity and stuff. It is not reliable. I didn't want to pick up the phone in the middle of the night with an emergency and find I couldn't phone somebody"

(Glasgow, White British, 45, B, Female)

Finally, a small number of participants mentioned that call centres operated under premium rate numbers which made it an expensive service to use.

"AOL...every time you phone them it's a premium rate number and you're paying for it"

(Bridgend, White British, 60, E, Female)

C) Cost and billing

Cost was a key consideration for participants when choosing their communications service provider. Many had shopped around for a good deal and chosen their provider on this basis. For example, some had chosen a specific internet provider as they received a free laptop. Others had chosen their particular landline supplier to ensure that they got competitively priced telephone calls abroad. However, it was clear that for many, reliability was more important than price, and therefore some used more expensive providers to ensure that the service they received was consistent.

A number of participants across the research were on a low income, and felt that communications services were expensive.

"[Landline is about £100 per quarter]...to me on benefits, that is an awful lot. Could do with a discount. Even if it was £60 that would leave me with some money left"

(Colwyn Bay, White British, 36, E, Female)

One participant noted that she preferred to have a Pay As You Go mobile phone as it enabled her to better budget her benefits. Other participants who were on low incomes felt that paid and premium television (satellite and cable) services were prohibitively expensive.

Overall, when thinking about the packages that service providers offered, some felt that the packages lacked flexibility for those with fluctuating conditions. Participants with fluctuating conditions noted that they were often unable to use the internet during bad days, but that they still had to pay for access during these times. They would prefer a system that allowed for good and bad days.

Billing was also mentioned across the research. Those on a low income noted that transparent billing was important to help them budget. A couple of participants noted that they could only see their bills online but would have preferred to have received paper bills. Where the same provider was used for more than one service (e.g. internet and fixed land line), participants preferred to receive one bill as this made things simpler.

"I have got the internet from BT as well, so I only get one bill which is much handier than getting two separate bills"

(Glasgow, White British, 42, E, Female)

D) Disability services

Across the research one participant used disability services offered by a service provider.³

Case study:

This participant was a female in her 40s, living with her family. She used her provider's disability service, and found this service extremely useful and helpful. She initially came across the service when she went into a mobile phone shop to get a new mobile phone. She was using her wheelchair on this occasion, and the staff in the shop asked her whether she knew about the disability service. Since this time she has used the service and her experience of it has been very positive. Typically she used it to top up her Pay As You Go mobile phone, but has also used it to ask general questions related to functionality on her mobile phone.

"I plumped to go with T-Mobile because they are fantastic. You don't have to ring and hold on for ten hours. I've registered as a disabled customer and I can just phone their disabled line and somebody's on within seconds. I can do my top up and I don't have to go and buy a voucher"

A key benefit of the service is that they take time to understand her query, which is important as she had a speech impairment.

"Quite a lot I slur my words. I can't get my voice out properly and because this service is purely disabled they don't put the phone down on me because they think I'm drunk! It's much easier"

She has decided to stay with her provider because of this service and does not know whether a similar service is offered by other service providers. This participant also used an emergency alarm service provided by her landline provider.

"BT have a helpline. You put a buzzer round your neck. I fall a lot and if I fall badly and I can't get up I can buzz my buzzer and neighbours have got keys also they can just phone them. So when we had a problem with the phone lines going down BT put me on a priority because I had that service."

However, overall there was extremely low awareness amongst this sample of any disabled services that people could use. A couple of participants thought that something might exist, but nobody had looked into whether there was anything that they could utilise.

³ Some businesses provide disabled customers with access to a specialist disability services team; others use an inclusive approach in which customers do not have to identify themselves as disabled. Each approach has advantages and disadvantages.

“BT...I think they have a special policy for disabled people...instead of waiting three days for a repair you only have to wait one day”

(Glasgow, White British, 42, E, Female)

People with disabilities are entitled to certain service under Ofcom’s General Conditions of Entitlement. The services suppliers are required to provide are provided under Condition 15.

General condition 15 requires communication providers to:

- consult with Ofcom’s Consumer Panel – an independent research and policy body who advise Ofcom and others on how to achieve a communications marketplace in which all consumers can confidently choose and use products and services that suit their needs;
- ensure that disabled users are able to access free DQ (directory enquiries) services;
- ensure access to a text relay service, including access to emergency numbers and operator assistance;
- provide a priority fault repair service as swiftly as practically possible to any subscribers with disabilities who have a genuine need for an urgent repair;
- provide special billing arrangements for users dependent on telephone service;
- offer contracts and billing in large print, Braille or other formats usable by vision-impaired users; and
- widely publicise the availability of these services.

3.2 Barriers and adaptations

The barriers to service use experienced by respondents have been discussed above. This section of the report will summarise the barriers participants experienced, whether in relation to use of communications technology or in their dealings with providers, and will identify the ways in which participants attempted to overcome these barriers. Before dealing with the individual barriers faced and the adaptations made by service users to overcome them, two key findings of this research should be noted.

Firstly, the main barriers to use of communications services and technologies fell into three broad groups:

- Set-up
 - > A major barrier for many participants was setting up and switching on the communications technology they were using. Participants had to get family members or friends to help with this. More participants found set-up and switching on more difficult than operating equipment once it was in a functioning state.
- Manipulation of keypads
 - > Participants often experienced difficulties using computer keyboards, telephone handsets (whether landline or mobile) and remote controls and it was clear that adaptations could have enabled most of these participants to use keypads more effectively.

- Cost
 - > While no participants claimed that they had been prevented from using telephone, internet or digital terrestrial television services, it was evident that cost prevented them from taking up 'premium' services. It could be argued that this had a more pronounced impact on people with upper-body mobility and dexterity impairments than the general population. Participants were heavily reliant on television and, as they often spent long periods at home alone, watched it a great deal, often leaving the set on all day for company.
 - > Cost was also a barrier to take-up of formal adaptive technologies in certain instances. For instance, the respondent who used an electronic pen and a roller-ball mouse at work could not afford these for his personal use at home and the respondent who used a descending keyboard at school could not afford this for use at home.

Secondly, there was very limited use of 'formal' adaptive technologies (such as telephone headsets or alternative computer controls such as electronic pens). This was partly due to lack of awareness and partly because many participants viewed the need for formal adaptations as a sign that their condition was deteriorating. Use of 'informal' adaptations was more widespread, however, and included modifications such as participants using Blu-tak to help them hold their telephone handsets.

Individual barriers and adaptations are discussed in detail under the following headings.

3.2.1 Set-up

Setting up communications technologies, particularly televisions and computers required participants to move heavy items of equipment around, plug them into the mains and attach them to other items of equipments. Computers had to be connected to printers and monitors. Televisions had to be connected to set-top boxes and DVD players. For many with upper-body mobility and dexterity problems this was extremely difficult. The majority of participants were unable to lift heavy items and many did not have the strength or dexterity in their hands to plug items into the mains or connect computer printers and set-top boxes.

Furthermore, a minority of participants were unable to turn their television sets or computers on, either at the mains or at the machine, as this required their fingers to be stronger than they were. While the vast majority of these respondents were able to operate a television or computer with little difficulty using a remote control, keyboard, etc., turning them on was a significant barrier to use. Consequently, many left televisions and computers on at the mains, even though they knew this cost them more and was damaging to the environment.

Consequently, many participants had to seek help from family and friends to set-up and install televisions and computers. Where participants were living with their families, this did not usually pose a problem. However, where they were living alone, or where other family members had similar impairments or were not confident with technology, set-up could be more problematic.

The following case study shows how one participant was dependent on a friend to set-up his computer printer.

Case study

The participant was an 80 year old man with arthritis, living at home with his wife. He used his computer frequently but when he purchased a new printer was unable to install it himself, mainly because his arthritis affected his legs (as well as his hands) and prevented him from kneeling down to connect it with his PC. Although his wife was unable to help, he did have a friend living locally who he called for assistance. The friend came to his house and installed the device.

Where participants were unable to get anyone to help them set up their equipment (or to reinstall or adjust it where problems had been experienced), they were forced in some situations to pay their service provider to help them. In some cases they might even have to pay to resolve quite minor difficulties with their set-up, as illustrated by the case study below.

Case study

The participant was a 43 year old woman with multiple sclerosis who was unable to connect the wires linking her PC to the modem or to turn the PC on at the machine.

One weekend her husband and daughters were away and she was in the house alone. The PC stopped working. She could not remember exactly why this happened but thought the problem had been one that was quite easy to resolve. However, she was unable to do this herself, due to her physical impairment.

Consequently, she had to call out the provider to come to her house and manually restore the connection. Her provider charged her for this service, which she accepted while finding it unfair that she would not have had to pay if she had not been disabled.

When considering future solutions to the barriers raised above, participants made the following suggestions:

- Voice activation
 - > Televisions, computers and other devices could be switched on by voice activation
- Remote activation
 - > Instead of having to switch an appliance on at the machine, this could be done via a function on the remote control
- Dedicated services for disabled people
 - > Only one participant used a dedicated service for disabled people. This was provided by her mobile network operator. It was suggested that television and internet service providers could also offer this service so that disabled customers could be given priority if their services stopped working, perhaps at reduced cost. As noted above, communications are required to provide and publicise priority fault repair to disabled customers.

3.2.2 Manipulation of Keypads

Many participants found it difficult to use a computer keyboard, telephone handset or remote control. While these difficulties rarely prevented participants from using a technology or service at all, they often affected the way in which the technology or service was used. The main ways in which use was affected were:

- Computer keyboard / mouse
 - > Participants unable to/unwilling to type for extended periods of time for the following reasons
 - Only able to type with one hand/single finger
 - Typing difficult or uncomfortable
 - Unable to type for long periods
 - Unable to type quickly
 - Laptop keys too close together
 - Difficulty using mouse
 - Unable to get wheelchair into comfortable position, fully under desk
- Telephone handsets (mobile and landline)
 - > Button size (especially on mobile phones) made it difficult to enter numbers accurately
 - > Unable to hold handset for duration of conversation
 - > Unable to get downstairs quickly enough to answer landline
- Remote controls
 - > Button size sometimes made it difficult to enter numbers accurately

Participants were more likely to have problems typing than with using telephone handsets or remote controls as typing required use of both hands. It was often the case that participants had one hand which functioned better than the other and were therefore better able to use handsets which could be operated one-handed.

"The keys are so close together, the keyboard is so smooth your hands are in a very tight confined area and after a while I find that makes me tired."

(Liverpool, Female, 59, C2, Moderate Impairment)

Remote controls were less problematic than phones as they tended to be larger overall and had larger, more highly raised and more widely spaced out buttons. Accurately entering numbers into phones was the most common difficulty with telephone handsets. Mobile phones were seen as particularly problematic in this respect as keypads tended to be smaller and less spaced out than on landline handsets. From a customer service point of view, mobile phone providers were criticised for not providing customers with a choice of larger handsets at

their annual upgrade. These customers felt they were always offered smaller models of mobile phone by their providers and wanted to see models that were more user-friendly from their point of view included.

"I think on phones and remote controls the buttons should be bigger. Bigger and more spaced out ... I don't know about this obsession with small, small, small."

(London, Female, 60, A, Moderate Impairment)

The following table lists the different adaptations used by participants to address the barriers raised above. The table shows 'formal' or manufacturers' adaptations, as well as 'informal' or improvised adaptations.

Technology	Problem experienced	Adaptation	
		Formal	Informal
Computer keyboard / mouse	Only able to type with one hand or a single finger	-	Restricted use to avoid discomfort Got others to type for them
	Typing difficult or uncomfortable Unable to type for long periods	-	Restricted use to avoid discomfort
	Unable to type quickly	Used wrist support	Restricted amount of typing done Got others to type for them
	Laptop keys too close together	-	-
	Difficulty using mouse	Used electronic pen Used roller-ball Used wrist support	
	Unable to get wheelchair into comfortable position, fully under desk	Keyboard and desk top adapted to descend from ceiling	-

Handsets (telephones and remote controls)	Button size made it difficult to enter numbers accurately	Used handsets with larger numbers	Used pen to press buttons
	Unable to hold handset for duration of conversation	Used speakerphone	Used ridge of Blu-tak to support phone in crook of hand Rested handset on table, tray, etc.
	Unable to get downstairs quickly enough to answer landline	Used cordless phone	Carried phone round house in pocket

Not all the formal adaptations described above (all except for the use of wrist supports, speakerphones, handsets with larger numbers and cordless phones) were used in the home environment. Most of those supporting keyboard and mouse use were found less frequently (one respondent was using an electronic pen and a roller-ball mouse and only one respondent was using a descending keyboard) and only in work or school environments. Participants had to make do without them at home, as cost was a barrier to take-up on a personal level.

Overall, there was low take-up of formal adaptations. This was partly due to participants not being aware of the formal adaptations available. Very few were members of disability organisations or other organisations that might inform them of the various adaptive technologies available. Where participants were members of such organisations (for instance Motability), they tended to be aware of adaptive technologies focusing on travel and kitchen appliances but not on communications technology.

I just don't have the knowledge of what's possible to be able to say, 'I'd like to do this' ... I would struggle to suggest something that would improve it [i.e. the way I use the computer].

(Nottingham, Male, 50, E, Moderate Impairment)

It's difficult to find out about adaptive technologies. They're not very well publicised.

(Aberdeen, Female, 42, C1, Severe Impairment)

Nevertheless, very few respondents had proactively searched for adaptive technologies online or in shops. Furthermore, many viewed the need for formal adaptations as a sign that their condition was deteriorating and admitted that they resisted searching for them or using them as a result.

With regard to adaptations participants thought might be of use to them in the future and wanted more information about, voice activation and voice recognition was frequently mentioned. By 'voice activation' participants referred to technologies that enabled them to turn on a television, computer or other device by voice alone (i.e. without pressing a standby button). By 'voice recognition' participants referred to software that enabled them to type by speaking into a computer. Not all those who mentioned these adaptations knew they were available, though some did. None had investigated them in any detail and none were aware of how much they might cost.

"It would be good if you could just talk to it [the computer] and it would do what you ask it to do."

(Colwyn Bay, Female, 36, E, Moderate Impairment)

"Voice activation ... when I have a really bad day it would be ideal if I could activate television, radio, whatever, because I can't explain the exhaustion. Unless you actually felt it ... you wouldn't know how bad it is."

(Liverpool, Female, 59, C2, Moderate Impairment)

4 Comparison of Findings across the Disability Research Programme

The objectives of this research include a requirement to understand how the findings of the research amongst people with upper-body mobility and dexterity impairments compare with findings from previous Ofcom studies amongst people with hearing impairments, visual impairments and learning disabilities. The sample sizes and methods used in each of these studies were broadly similar, enabling effective like-for-like comparison. The approach taken in each study is detailed below:

- **Research amongst people with visual impairments**
 - > Method: total of 40 individual and paired interviews, carried out in-home
 - > Sample: adults and children (aged 8+) with mild to profound visual impairments
- **Research amongst people with learning disabilities**
 - > Method: 27 in-depth interviews and 8 ethnographic interviews
 - > Sample: adults aged 18+ with mild to severe learning disabilities present from childhood
- **Research amongst people with hearing impairments**
 - > Method: total of 55 individual, paired and triad depth interviews
 - > Sample: adults aged 18+ with mild to profound hearing impairments
- **Research amongst people with upper-body mobility and dexterity impairments**
 - > Method: 40 in-home interviews
 - > Sample: those aged 16+ with mild to severe upper-body mobility and dexterity impairments

4.1 Take-up and use of communications services

Across the four strands of research there was general agreement that communications services had improved in recent years for people with disabilities. In this context, those with visual impairments cited the introduction of services such as television audio description and those with hearing impairments cited the degree to which telephony was now accessible with the advent of text messaging. There was less evidence of progress amongst those with learning disabilities who often faced greater barriers in terms of literacy, numeracy and short-term memory problems, but even this group thought they had benefited from developments in mobile phone technology (for instance), which allowed them to keep in closer contact with friends and family.

A) Telephony

Across the studies, levels of telephone take-up were high. Use of landline and mobile phone technology was almost universal amongst participants with visual impairments, learning disabilities and upper-body mobility and dexterity impairments. Use of landline technology was more problematic amongst people with a hearing impairment for obvious reasons. However, many hearing impaired participants were very enthusiastic about mobile phones, as text messaging had allowed them to communicate via a mainstream medium. Those with visual impairments were less enthusiastic about mobile phones, with text messaging and other visual functions proving inaccessible to many.

With regard to mobile phone use, all four strands of research included a mix of contract and pay-as-you-go (PAYG) users. While some PAYG users found it difficult to type long numbers into their mobile handsets to activate this service (due to visual or dexterity problems) this was most pronounced amongst visually impaired people and those with more severe learning disabilities (for whom reading, remembering and repeating long numbers could be problematic).

B) Internet

In contrast to telephony, levels of internet use were rather variable across the studies. While household internet use was high in the research amongst people with visual, hearing and upper-body mobility impairments, it was lower amongst those with learning disabilities, due to lower literacy levels and the greater impact of the costs involved on a sample that tended to be less well off. As would be expected amongst the general population, internet take-up was lowest amongst those in socio-economic groups DE and especially amongst older people in these groups. These findings are only provisional given the methods used and would need to be further explored using quantitative techniques.

However, the qualitative research does indicate that attitudes to the internet were very positive. For instance, the research amongst people with hearing impairments found that, the internet had 'revolutionised' their lives. This was true of many participants across the studies whose lives had been made easier by online shopping, social networking, email, online entertainment and access to information. Where participants found it difficult to leave the home, the internet was particularly valued. Enthusiasm for the internet was less vociferous amongst those with learning disabilities, who often had poor literacy and numeracy which prevented them from using it as extensively as others.

C) Television

Television was widely used across the four strands of research and use of digital television was quite extensive. It emerged that many participants were very reliant on television, as they were often at home for long periods and might be alone for much of this time. Television provided these participants with company and it was observed in more than one strand of the research that televisions were sometimes left on all day, even when participants were not using them, to provide a sense of companionship.

4.2 Barriers to Use of Communications Services

Levels of independence varied greatly across the sample, from those living relatively independent lives to those who were totally dependent on carers. However, most respondents required assistance at some stage in accessing and using communications services.

One of the key differences between the four respondent groups was that many of those with mobility and dexterity impairments had fluctuating conditions while those with visual impairments, hearing impairments and learning difficulties had persistent conditions. Given this, many respondents with mobility and dexterity impairments could use communications technologies much more easily on certain days than on others.

Amongst those with learning disabilities and mobility and dexterity impairments, there was limited awareness of adaptations that may have helped them use communications technology more easily. However, those with visual impairments and hearing impairments tended to be more aware and were more likely to be accessing services such as subtitles, audio description or keyboard stickers.

With regard to providers, the main barriers to good customer service were seen as:

- Use of automated telephone systems (these were a particular problem for hearing impaired participants or those with dexterity impairments who had difficulty using a telephone handset)
- Use of overseas call centres (those with speech impediments often struggled to make themselves understood and those with hearing impairments found unfamiliar accents especially difficult to understand)
- Charging high rates to install or set up equipment (this was a particular concern for those with upper-body mobility and dexterity impairments)
- Lack of information around tailored services for people with disabilities

4.3 Assistance and adaptations

There was low awareness across the four studies of assistance schemes to help people with disabilities to access or use communications technology. Similarly, there was low awareness of the various adaptive technologies available to help people with disabilities use communications technology.

Being part of a wider network supporting people with similar impairments (whether a school, community group, Motability scheme, or disabled group such as RNIB etc) affected respondents' awareness of the services and adaptations available to them. Those who were not part of a wider network typically had more limited access to this information. The research shows that those with visual and hearing impairments were more likely to belong to these kinds of networks than people with learning disabilities or mobility and dexterity problems.

Visually impaired and hearing impaired participants were most aware of the assistance schemes and adaptive technologies available to them (such as magnifying screens, voice activated software and screen reading software). However, cost was often a major barrier to accessing these technologies. Those with upper-body mobility and dexterity problems knew relatively little about the adaptations available but were also more resistant to using adaptive technologies. This was because many had progressive conditions and were concerned that taking up such adaptations would mean admitting their condition was getting worse.

A wide variety of informal or improvised adaptations were used by participants. For instance, some people with upper-body mobility and dexterity impairments used Blu-tak on telephone handsets and remote controls to enable them to grip them and some of those with visual impairments put stickers on their computer keyboards to show them where particular keys were. Participants with learning disabilities were least likely to use informal adaptations and were more reliant on friends and family to assist them in using technologies.

Finally, across the research, few participants were aware of tailored services offered by providers to support people with disabilities. The research amongst people with upper-body mobility and dexterity impairments was indicative in this regard, with only one respondent using a tailored disability service. Participants were often sympathetic to the fact that it was often difficult for providers to identify disabled customers. They understood that not everyone who might be defined as disabled wanted to be so and that customer data had to be protected. However, many also felt that more could be done by providers to promote tailored services to disabled people.