Office for Product
Safety & Standards

Ageing Society: product design for older people

Research Report: 2021/026

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Contents

1. Executive summary

HMG's Industrial Strategy includes four Grand Challenges, one of which is our Ageing Society, and outlines the goal that by 2035, people are enjoying at least 5 extra healthy, independent years of life. One of the ways Government seeks to achieve this is through improving the safety and accessibility of older people's environments and the products they use, enabling older people to live unassisted for longer, have fewer accidents and enjoy better overall wellbeing. The Office for Product and Safety Standards (OPSS) commissioned BritainThinks to conduct qualitative research to understand more about how design processes and practices affect product safety for older people.

Through desk research, qualitative mini-groups, interviews, ethnographic research and a co-creation workshop, this research engaged with 66 older people, 23 carers of older people, 11 younger people and 22 experts, including representatives of older people, consumers and designers. Fieldwork was conducted between January 2020 and July 2020 – meaning the fieldwork period overlapped with the outbreak of Covid-19, which impacted the methodological approach. The remaining qualitative fieldwork with older people was moved to teledepths and the co-creation workshop was moved to a virtual workshop platform. See section 2.3 for more details.

1.1 Key findings

Changes to ability vary greatly among older people, though commonly include changes to strength and dexterity, mobility, sensory function, and cognition and memory. Age on its own is not a straightforward predictor of the level of need – changes in ability can be very different from one individual to the next, and relate to a number of factors such as wider physical and mental health, living situations, social support and financial circumstances.

Changes in ability and circumstances create difficulties among the older population when interacting with everyday products, particularly:

- Products requiring grip (e.g. twisting)
- Heavy products requiring lifting, especially at awkward angles
- Products with small display settings or buttons that are difficult to read
- Appliances with complex set-up or settings

While many of the difficulties using products are driven by changes in individual ability, older participants and experts described how certain features of products could be difficult for everyone, and tended to exacerbate issues among those with higher levels of need. This was confirmed by younger people in the research who experienced frustration when engaging with products with complex settings, such as thermostats and washing machines. It was noted that once-simple products had become 'modernised', with simple functions being replaced by digitised, more complex settings, making them less inclusive for all consumers as a result.

There are a number of safety implications of certain products being less easy to use for older people. Some of the main safety issues participants referred to included risks of:

- Tripping over corded products, or falling on slippery surfaces or in the absence of handrails or grabrails

- Burning or fire when using products with heating elements, especially those that do not switch off automatically

- Injury from dropping heavy products or straining to lift them

Another source of risk stems from the use of 'workarounds', employed to enable continued use of a product. Examples included:

- Using knives instead of can openers

- Placing damp kitchen towels on countertops to prevent chopping boards and utensils from slipping

- Fixing custom adjustments to handrails or banisters that could be unsafe

There are also indirect safety issues caused by some products being hard to use, such as individuals relying on strangers to help them open their front door, or no longer heating the home as a thermostat becomes too complicated. In addition to these issues, participants described the emotional impact of no longer being able to complete tasks they had done their whole lives, causing feelings of frustration, embarrassment and loss of confidence.

There are a number of barriers to older people sourcing and purchasing products that would better suit their needs. Firstly, there is an underlying reluctance to engage with products in the 'specialist' category, as these are somewhat stigmatised, and seen as aimed at those people with very high needs. Secondly, there is low and patchy awareness of retailers selling inclusive, accessible or specialist products, and mixed use of online retailers to search for products. Thirdly, these products are regarded as quite expensive, not aesthetically pleasing, and are limited in range.

Participants and experts were clear that more inclusive design, which factors in those with higher needs, would be beneficial for all consumers, as products would have greater longevity. A benefit identified for manufacturers was that consumers would require less support from customer helplines to set up and use products, such as new appliances.

Yet there are a number of barriers to inclusive product design, meaning that products are often designed without factoring in older people. Experts felt that manufacturers do not necessarily recognise a market for inclusively designed products, as there is not an explicit or loud 'ask' for this from consumers currently. Experts with experience of the design process described a wider industry focus on younger consumers, with design, marketing and user-testing (if it happens) directed towards younger audiences.

Even where manufacturers are motivated to develop more inclusive products, designers described feeling overwhelmed by the different guidance and design principles available. They also noted that guidance often felt very abstract, and the process of implementation unclear. They wanted to see a single centralised resource or 'official' set of guidance, which provided practical information about how to apply the principles to products. Ultimately, though, expert participants felt that change would be most effective if senior leadership within organisations bought into the benefits of inclusive design.

2. Background and methodology

2.1 Background to the research

The Office for Product and Safety Standards (OPSS) was established in January 2018, by the Government as a directorate of the Department for Business, Energy and Industrial Strategy (BEIS). Their remit as the UK's national product safety regulator includes, among other issues: responsibility for product safety; recalls and responding to incidents; enforcing regulations; and encouraging the use of standards They are also an official sponsor of the British Standards Institution, and in some cases take part in the creation of standards.

The project was part of OPSS' wider work relating to the Ageing Society Grand Challenge, set out in the Industrial Strategy, and the goal that by 2035, people are enjoying at least 5 extra healthy, independent years of life. One of the ways Government seeks to achieve this is through improving the safety and accessibility of older people's environments and the products they use, enabling older people to live unassisted for longer, have fewer accidents and enjoy better overall wellbeing.

In pursuit of this goal, OPSS commissioned BritainThinks, an independent insight and strategy consultancy, to conduct research to understand more about how design processes and practices affect product safety for older people. This research was designed to explore issues in product safety, and whether improved safety of products in the home can help support independent living. OPSS also identified issues in product design and sought to understand whether solutions to product safety may lie in better product design, as well as what barriers are in place that keep products from being designed to be safe and usable for older people.

2.2 Research objectives

The research aimed to understand the experiences of older people using products around the home, as well as to understand the design process and the extent to which older people are considered as part of this process. Specifically, the research aimed to explore:

- Key safety issues relating to product design among older people

- The impact of products that are not designed inclusively, or with older people in mind

- Principles of inclusive design and the challenges in uptake of these principles for manufacturers and designers.

2.3 Methodology

The research consisted of three phases, beginning with a problem definition phase, with scoping research to inform the structure of and topics for the primary research. Following this phase, the research was split into three product 'topics': everyday products1 (with a broader focus on inclusive design), technological products and specialist products (i.e. products developed specifically for older people/people with specific needs). The second phase of the project consisted of qualitative research with older people and their carers across a wide spectrum of needs, as well as with younger people without a long-term health condition, disability or impairment. The final phase was a co-creation phase, where the project team

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1   The following products were excluded from the research as they are not part of the OPSS's remit: cars and public transport, food, and medicines.

engaged with expert stakeholders to brainstorm solutions and actions based on the research findings.

- Problem definition phase
  - Desk research
  - 8 x expert interviews with representatives of older people, consumers and designers
- Primary research phase
  - 10 x face to face mini-groups with 6 older people per group (of which 2 sessions were replaced by teledepth interviews)
    - This includes the initial pilot group
    - Groups were split by product focus and level of need (see fig. 1)
  - 3 x face to face focus groups with 7-8 carers per group
  - 10 x face to face ethnographic interviews with older people (of which 6 were conducted via telephone) – 2 of which were filmed
  - 6 x expert teledepth interviews with representatives of older people, consumers and designers – each lasting up to an hour
  - 2 x online mini-groups with 5-6 younger people per group
- Co-creation phase
  - 12 x experts including representatives of older people, consumers and designers
    - Participants took part in a live launch and interacted with an online workshop platform for a week and a half

Covid-19

Fieldwork was conducted between January 2020 and July 2020 – meaning the fieldwork period overlapped with the outbreak of Covid-19. The methodology for the primary research phase was moved to telephone depths as a result, given the high likelihood of difficulty or discomfort among this audience participating in research online.

The remaining 2 mini-groups with older people in Peterborough were substituted with 8 teledepths with group participants, each lasting up to an hour. The remaining 6 ethnographic interviews in Newtown, Peterborough and London were each substituted with 2 teledepths per participant (allowing for more extensive conversations with participants, while avoiding fatigue). Each ethnographic teledepth lasted up to an hour and a half (3 hours in total per participant).

The 2 mini-groups with younger people were conducted online, via Microsoft Teams. The co-creation workshop was also conducted online. The workshop was launched with a live session on Microsoft Teams, in which the key findings from the research were shared and a demonstration of the workshop platform was provided. The remainder of the workshop was held on Miro, an online workshop tool, where experts brainstormed solutions and actions to take in response to the key challenges that emerged from the research. The workshop took place from Monday 29th June through Wednesday 8th July.

2.4   Recruitment and sample

Experts

Relevant organisations were identified at the outset of the project by OPSS and BritainThinks. These were approached by OPSS and provided with an introductory letter outlining the purpose of the research. Participants were also approached through referral and cold contact recruitment methods.

BritainThinks conducted 14 expert interviews with representatives of consumers, older people and designers. This included:

- 6 x interviews with organisations that represent older people
- 5 x interviews with designers
- 1 x interview with a consumer representative body
- 1 x interview with an organisation representing both consumers and older people
- 1 x interview with an organisation representing both consumers and designers

Twelve experts took part in the co-creation workshop. 6 of these experts had previously taken part in the expert interviews and 6 were fresh participants. This included:

- 5 x designers
- 2 x consumer representative bodies
- 2 x organisations representing older people
- 2 x organisations representing the technology sector
- 1 x organisation representing both consumers and older people

Older people and carers

Recruitment of older people and carers was conducted in-house, using our network of professional social research recruiters. A combination of free-find, snowballing and referral recruitment methods were adopted, using a pre-agreed screening questionnaire. Participants were recruited from a mix of urban and rural surrounding areas, with fieldwork locations across England, Scotland and Wales, including London, Peterborough, Manchester, Newtown and Glasgow.

Older people were recruited to reflect a spread of experiences in terms of level of need and products they experienced difficulty with. A total of 56 participants took part in the mini-groups and 10 participants in ethnographic interviews, for a total of 66 older participants.

BritainThinks recruited participants by self-defined level of need rather than by age, as the desk research showed that age is not a reliable indicator of ability. Participants were recruited on the basis of being low, moderate, high or severe need. Classification was based on responses to a number of needs-based questions during recruitment. Those with more severe needs were offered in-home or teledepth interviews to ensure they were not excluded from participating in research. As the participant sample was defined by ability and need associated with ageing, BritainThinks did not aim to achieve a comprehensive sample of disability. However, some participants volunteered this information resulting in the involvement of participants with arthritis, visual impairments, and mobility impairments.

All participants were aged 50 or over, and all experienced some level of difficulty using products. More details about the sample are provided in Figure 1.

Figure 1. Achieved sample: older people

Age	• All participants aged 50+
Gender	• 36 x female • 30 x male
Ethnicity	• 12 x BAME • 54 x white British/Welsh
Socio-economic grade	• 15 x AB • 29 x C1/C2 • 22 x DE
Need level	• 23 x "Low Need": This includes those who exercise regularly, who feel more forgetful than in the past, or who have some health problems which for the most part do not have a big impact on their day-to-day life • 19 x "Moderate Need": This includes those who rely on lists and reminders to keep track of things, who struggle to lift heavy items like a footstool or chair, who take longer to complete tasks on a day-to-day basis, or who tend to get tired during the day • 22 x "High Need": This includes those who sometimes forget appointments, who find it difficult to use stairs, who have someone accompany them to go shopping or run errands, or who struggle to cook a meal from scratch • 2 x "Severe Need": This includes those who find it difficult getting around their home, find it difficult getting ready in the morning, who struggle to grip/lift/move small objects like mugs or the remote control, or who struggle with their own personal care
Product focus[2]	• 24 x everyday products • 21 x technological products • 21 x specialist products[3]

Three focus groups were conducted with professional carers and those who cared for family members or friends. Carers were recruited to speak about the individuals they looked after, as in the majority of cases, these individuals were those with high or severe levels of need

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[2]   See Appendix 8.4 for more detail on the products included in each product focus category.
[3]   Specialist products were defined in this research as products specifically designed to aid older or disabled people in response to specific needs. This could include mobility scooters, grab rails etc.

who may not have been able to take part in the research themselves. Each group had 8 participants, with 23 participants in total. This included:

- 10 x professional carers
- 13 x those who care for family members or friends.

Carers were recruited for focus groups in London, Manchester and Newtown.

Younger people

Recruitment of younger people was conducted in-house, using our network of professional social research recruiters using a pre-agreed screening questionnaire. Participants were recruited from Peterborough and Glasgow, two of the locations visited in the primary research with older people. The groups were split by age with five participants aged 18-31 and six participants aged 32-45 (for the remainder of the report, these participants will be referred to as 'younger people'). None of the participants had a long-term health condition, disability or impairment. This was to ensure the groups with younger people acted as a control when analysing any overlap with challenges described by older people in the primary research.

The small sample size should be noted. The findings here are meant to provide a sense check of whether there are areas of overlap in terms of issues with product usability found in the primary research and are indicative only.

2.5   Structure of the report

This report summarises the research findings. The report has five key sections, summarised below:

Chapter 3. Factors affecting product safety and usability among older people

Explores the factors that affect safety and usability of products among older people, relating to their changing abilities, as well as the products themselves.

Chapter 4. Impact of non-inclusive product design

Explores the physical and emotional impacts of non-inclusive product design for older people, as well as the impact on safety.

Explores examples of 'workarounds' that are put in place in order for people to continue using certain products, and the safety implications of these.

Chapter 5. Barriers to inclusive design

Identifies some of the barriers to putting the principles of inclusive design into practice, at various stages of product design and development.

Chapter 6. Access to inclusive products

Identifies barriers to access of inclusive products among older people, including low awareness of their own needs, not knowing what products are available, or not knowing where to look.

Chapter 7. Primary research with younger people

Explores the overlap between the types of challenges younger and older people face when using products around the home, as well as the impact of these challenges.

Chapter 8. Conclusions

Provides an overview of the challenges faced by older people in using products that have not been designed inclusively, how industry experts suggest addressing these challenges and some principles for inclusive design.

Throughout the report, findings are illustrated with verbatim quotes. Quotes are selected on the basis that they are illustrative of the point being made and of one participant's perception and experience. All quotes illustrate one participants opinion and should not be taken as fact. These quotes have been anonymised as follows

"Quote."

(Carer/Expert/Older person, level of need, location)

Case studies are also added throughout the report where appropriate, to offer a more in-depth understanding of a participants' life. These, again, illustrate only this participant's experience and should not be thought of as representative of an entire audience. These have been anonymised and pseudonyms used in order to protect the participants' identity.

3. Factors affecting product usability and safety among older people

Summary

People's needs and capabilities change as they grow older. Commonly experienced features of ageing include changes in strength and dexterity, memory and cognition, sensory ability and mobility. These changes, often experienced gradually, can create physical and mental challenges for older people as they carry out everyday tasks around the home. While difficulty often arises as a result of changes in ability, issues can be exacerbated by certain features of products related to how heavy they are to operate, how fiddly they are to use, and the complexity of set-up or operation.

3.1 Changes to ability

The primary research confirmed several common features of ageing that have an impact on the usability of products and consequently on independent living for older people. Changes in ability lead to a number of difficulties when interacting with everyday products[4]:

Changes to bodily strength and dexterity

Across the sample, participants reported that their strength and dexterity had changed as they got older. Participants often described how the onset of arthritis had led to a decline in dexterity, particularly strength and grip in their hands. For others, a decline in overall bodily strength was felt to be a result of growing older, rather than being linked to a particular condition. Changes to strength and grip were a common cause of frustration among participants, as they were no longer able to complete simple tasks. These included:

- *Lifting and carrying* e.g. heavy products including armchairs or sets of kitchen plates from cupboards
- *Gripping* e.g. preparing food, such as using can openers, and carrying out personal hygiene routines, such as using a toothbrush or razor
- *Turning or twisting* e.g. using keys or can-openers
- *Fine-tuned movements requiring precise and small-scale work of the hands* e.g. chopping vegetables, using the television remote control, or using touchscreens (with participants saying they often pressed too gently or too hard)

  "Products are quite difficult because I can't grip. I can't open toothpaste because it's too small, it hurts to even squeeze the tube. Anything you have to pick up is painful, everything is so heavy. Knives and forks are a nightmare. Once something is on the floor, it's even more difficult to bend down and pick it up."

  (Older person, severe need, London)

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4   The impact of these difficulties is addressed in the following chapter, Impact of non-inclusive product design.

Changes to memory and cognition

Several of the participants described finding it increasingly challenging to remember and understand information. This was felt to be especially difficult when having to remember new information, particularly how to use a new and unfamiliar product. Challenges included:

- *Remembering / understanding instructions* e.g. instructions that are text-heavy and long were more difficult to understand and remember. In some cases where the instructions were felt to be insurmountable, the product went unused

- *Remembering passwords* e.g. participants reported using simple passwords or writing passwords down to help them remember

- *Remembering to switch things off* e.g. appliances with heated elements that do not switch off automatically were a concern for participants, with several fearing or having had safety incidents where they had left heated appliances on for too long

- *Dealing with complex settings* e.g. appliances with multiple different settings for operation, with no basic or simple options. Participants often described finding one setting they understood and only using that, ignoring the rest of the product's functions

    "Mobile phones do 100 more things than you need, but they are often still usable – you can find the function you want and ignore the others. It only becomes complicated if and when you get a new phone, particularly if it's a different brand. The answer is to just stick to the same brand."

    (Older person, low need, Glasgow)

Experts commented that cognitive change can be particularly difficult to spot. One representative of older people indicated that people often think of dementia as the primary cognitive change older people might face, and that this tends to overlook other changes in ability to remember information, speed of processing and learning styles.

> *"All of the different thinking skills change at a different rate throughout life… Processing speed slows down as we age. That's why people often want to compensate for it by writing things down."*

> (Older person representative)

Limitations to mobility

Participants reported changes to their mobility and often saw this as part of growing older. Several participants also described conditions that had severely affected their mobility, such as osteoarthritis and hip replacements, with a number of participants using wheelchairs or mobility scooters and many others using walkers and canes. Often those affected described moving, or desiring to move, into a bungalow as a result. Participants also described relying on support networks of family and friends to help them carry out tasks that they once were able to do themselves. Challenges relating to changes in mobility included:

- *Bending and reaching* e.g. taking food out of the oven, reaching to turn on a plug socket switch near the floor or viewing a digital display below waist level meaning users have to bend to see the screen properly or view it at an angle

- *Carrying out longer, more strenuous tasks* e.g. home maintenance and deep cleaning

- *Tasks that require standing for long periods* e.g. cooking, cleaning, vacuuming and ironing

These tasks were frequently described as causing pain for participants, especially when the tasks meant standing at an awkward angle, such as leaning over the counter or pushing a vacuum cleaner. This caused difficulties for participants who felt less steady on their feet, needing a handle to support them when standing for long periods of time.

> *"If I'm doing anything in the kitchen for too long a period I have to sit on a stool as I can't stand for too long… I walk now, I take smaller steps, I don't stride. I'm very unsteady on my feet."*

(Older person, moderate need, Peterborough)

Changes to sensory abilities

Participants frequently described changes in their vision and hearing and, less commonly, to their sense of touch and smell. Participants often found it difficult to relearn how to complete tasks and recognise products without relying on senses they felt had declined. Challenges relating to changes in sensory abilities included:

- *Making out fine print / small buttons* e.g. television remote controls and washing machines with small print on the control panel. Difficult to read instructions, and small control panels or remotes exacerbated the difficulty of learning how to use a new product

- *Viewing and setting digital displays* e.g. LCD and LED displays with poor contrast, small text and no backlighting. This made the displays difficult to read and set

- *Applying pressure to products that require touch* e.g. setting touchscreen displays Often, participants described becoming frustrated at deciphering how hard to press and where

- *Differences in hearing ability* e.g. appliances that beep to communicate with the user. Participants described the beeps from appliances as very quiet and all sounding the same, making it difficult to figure out which appliance was making the sound

- *"Remote controls are complicated to use. The text is small, there's too many keys, too many instructions, too many things I have no interest in using. Finding the right button is difficult."*

(Older person, low need, Glasgow)

While changes in ability were often linked to older age, individual level of ability varied substantially across age groups, with multiple factors contributing to level of need, as well as the extent to which participants were affected by their change in ability. These included:

- Participants' broader physical and mental health, and the existence and severity of other health conditions

- A support network of friends and family, which in turn supported mental health, as well as providing support for tasks around the house that required physical strength

- Financial circumstances, as limited budgets were seen as having a significant impact on one's ability to adapt to changing needs (e.g. upgrading the home)

These factors, and the way they interact, mean that needs among this audience are varied and can be difficult to predict.

> **Case study: Lucy, severe need, London**
>
> Lucy lives with her adult son and has sever osteoarthritis. She finds that this greatly limits her ability to move around and complete tasks around the house. She has particular difficulty keeping up with personal hygiene as she finds her shower very difficult to use.
>
> Lucy lives in an old cottage provided by the council. While she loves her home, the council has been unable to convert the bathroom into a wet room to allow her to bathe more easily. They have however added a shower seat, which Lucy thought would make it easier for her to use the shower. While Lucy is now able to get in and sit in the shower, she is unable to get up from the seat. She is currently waiting for two knee replacement operations and has difficulties lifting herself up, a task which is exacerbated by the wet and slippery shower floor. As a result, she is only able to shower when her son is available to help her up from the seat and out of the shower. Lucy worries what will happen when her son eventually moves out.

"I don't think the Government do enough for arthritis anyway. I'm not in work anymore, and I'm just on disability, which is not a great deal of money every month. I'd say it is my budget that stops me from getting more of the things I need."

(Older person, moderate need, Peterborough)

The changes in ability detailed above are well documented in the literature on capabilities and needs among older consumers. Desk research suggests that as the abilities of older people vary substantially, regardless of age, needs assessments should be based on differences in ability rather than age alone.

The 'pyramid of need' in the Cambridge Inclusive Design Toolkit provides an alternative way to consider differences among older people, assessing need on the basis of the difficulty they experience ranging from none, minimal, mild, to severe[5].
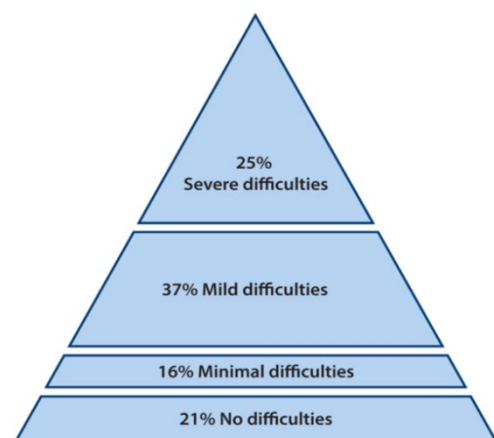
Figure 2. Pyramid of need

This model suggests that only those with the most severe needs should require specialist products, with products that have been designed inclusively accommodating for needs throughout the rest of the pyramid[6]. The Global Journal of Health Science similarly suggests design changes to accommodate changes in mobility, sensory   function and cognition, as described above, thus making products more accessible for older users[7].

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[5] The pyramid of need is based on the full range of ability variation within a population. The prevalence data and definitions of difficulty levels are drawn from research commissioned by Microsoft (2003) to investigate the benefit of accessible technology.

[6] Inclusive Design Toolkit, University of Cambridge (2017)

[7] Design Principles to Accommodate Older Adults, Global Journal of Health Science (2012)

3.2   Barriers to recognition

Changes to the body take place slowly and over time, impacting people in subtle ways and making changes difficult to recognise. Participants' ability and willingness to recognise and understand how their abilities had changed were varied throughout the audience. Those that did not fully recognise, or in some cases accept, their changed abilities were less likely to have bought products that could be more suitable for them. This is in line with findings from the Centre for Ageing Better (CAB), whose research found that people delay adapting their home until they reach a crisis point due to the negative associations of vulnerability with home adaptations[8]. The same research found that older people often prefer to adapt their behaviour rather than adapting their homes, making it difficult to assess changing abilities and needs.

Participants occasionally discussed struggling to come to terms with getting older, and their declining abilities and independence. These participants described not wanting to change the way their homes looked by purchasing assistive products or adapting their homes by installing mobility aids. Aids such as stairlifts, walkers and wet rooms were thought to be signs of 'getting old' and participants who did not see themselves as 'old' struggled to accept that their changing abilities may require these adaptations. Participants also perceived a social stigma around home adaptations. The use of mobility aids in particular was described as 'embarrassing', especially in front of friends that remained in good health.

> *"I do think there's a stigma, especially around wheelchairs. It's like they just mean you're totally incompetent. If I had anything, I'd have an electric scooter just to get me down to the town, and then I could get out and walk the rest of the way."*

(Older person, moderate need, Peterborough)

Others did not feel their abilities had changed enough to justify a change to their lifestyle or home. These participants felt that buying new products specifically for 'older people' or adapting their home was not yet an appropriate or necessary measure.

> *"There is no barrier at the moment for me buying one of the personal alarms to wear in the house. Fortunately, I feel reasonably fit, and I've got an Apple watch that I can summon help with, so that's halfway there. I keep thinking that's all right, but if I haven't got my watch on, I sometimes think about what I would do should I have a fall."*

(Older person, low need, Peterborough)

Some participants compensated for their changing abilities by creating workaround solutions to difficulties they were having around the house. This often masked difficulties and impairments in their abilities from both their own view and from family and friends who might otherwise have offered assistance.

In contrast, a number of participants referred to incidents or diagnoses as the start of their changing abilities. These participants were largely more aware of adaptations they wanted to make to their homes and often thought more about their needs when purchasing new products. Participants in this audience described having larger support networks in recognising and adapting to their needs, often in the form of medical support as well as family and friends. This is in line with findings from the expert interviews which suggested

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[8]   Homes that help, Centre for Ageing Better (2018)

that disabled people are often more aware of their needs and are more proactive in making adaptations and seeking out inclusive or specialised products. Experts suggest that this is especially likely for those who are either born with their disability or become disabled at a younger age. This was reflected in one of the ethnographic interviews with a participant who had struggled with rheumatoid arthritis since her late 20's. Whenever this participant had the opportunity to replace something in her home, she thought about how the new product might better suit her needs as her condition worsened with age.

> *"We've put in a wet room upstairs because I struggled getting in and out of the bath. And we put in a little downstairs toilet, basically to save me going up the stairs to go to the toilet… I can't bend down and use strength at the same time to stand back up with anything. That's why I decided when I was doing the kitchen to get the oven at my height, so I get a bit of independence during the day. Even if it's just a sausage roll, I can shove it in the oven and do it."*

(Older person, high need, Glasgow)

Case study: Susan, high need, Newton

Susan is aged 74 and lives alone in a small old cottage. She bought it four years ago, both as a DIY project and to stay long-term into retirement. Susan is a retired bricklayer and considers herself to be physically active, however she feels she may have underestimated the amount of work she would need to put into the cottage when she purchased it.

Susan described noticing changes in her strength and dexterity over the past few years. Noticing difficulties when vacuum cleaning have made her feel 'inadequate' as she sees this as a result of her own physical decline, rather than a heavy vacuum cleaner. She also finds bending to take thinks out of the oven more difficult than it used to be and is worried that she will burn herself when doing so. These experiences have made her more hesitant to complete other tasks around her home.

While Susan did not anticipate her needs changing when she purchased her cottage, she believes she is able to manage without making any major adaptations. For instance, in the bathroom she uses the towel rail as a grab rail to keep from slipping and thinks this adequately reduces the safety risk of slipping on a wet floor.

3.3   Challenging products

Although the desk research outlined many difficulties older people face around the home, there were few examples given of the specific types of products that older people find challenging to use. In the primary research, the following types of products were highlighted more often as being problematic:

Everyday products

- Can openers – these require grip strength to turn and operate
- Kettles – these were described as heavy to lift, particularly when filled with water

- Ovens – lifting items in and out of the oven from a low level was often difficult for participants, particularly those with visual and mobility impairments. This challenge became a safety risk for some when lifting hot items out of the oven

- Irons and ironing boards – corded irons were felt to be particularly dangerous, given the trip hazard, and participants were particularly worried about falling while holding the iron. Ironing boards also posed difficulties as they require a great deal of strength and bending to open, and are often unstable to lean upon once opened

- Vacuum cleaners – participants frequently described vacuum cleaners as heavy to push and pull around the home, and those with cords present a trip hazard. This activity also required participants to stand for long periods of time, often at an awkward angle

- Cleaning products – in particular those with child-safety lids, required a firm grip and hand strength to open. Those with flip-top lids were also difficult when the lids were stiff and required force to push up to open

- Toiletries – opening and squeezing toiletries was difficult for participants as this required dexterity and strength to use the product

- Toothbrushes and razors – products that are narrow required hand strength to grip and operate. These products are also slippery and difficult to hold when wet

- Hair dryers and tongs – heated appliances that did not turn off automatically were a safety concern for participants experiencing cognitive decline, who described often forgetting to switch off appliances

    "The hoover is really heavy for me. I can just about manage the cordless one because it's a lot lighter. I had a Henry Hoover before, and even that one was too heavy for me to use."

    (Older person, moderate need, Peterborough)

Technological products

- Remote controls, radios, thermostats, smartphones, washing machines and TVs/smart TVs – difficulty due to size of the buttons, small writing on appliances, and complex digital displays and settings. Products that did not allow for easy error recovery created further challenges in operating these products

    o Participants with decreasing dexterity and/or eyesight found these products particularly difficult to use. Tech products that alert the user via sound caused difficulties for those with decreasing hearing, particularly in distinguishing which product the sound came from

    o These products were also frustrating for those experiencing cognitive decline who found learning to use unfamiliar tech products, especially those with many options, very challenging

    "With our thermostat, they put a digital one three years ago, and I still haven't worked out how to use it. Every year they come to check it, I ask them how it works, they show me, do this do that. Which is why I made my life easy, bought a heater, and I use that instead."

    (Older person, high need, London)

Specialist products

- Grabbers – while grabbers can be helpful in picking up small items, they require a certain level of grip and dexterity to operate. Participants who had grabbers described them as useful only when they dropped something, whereas using them to reach and lift down an item in a cupboard was thought to be risky, for fear of dropping items on themselves

- Shower seats – shower seats were helpful for those who could not stand for long periods of time. However, these presented some difficulties for participants who then could not stand up from the shower seat

- It is important to note that relatively few participants in our sample were familiar with or used specialist products themselves, while others spoke from previous experience of purchasing specialist products for their parents

3.4   Summary of challenging features

There were common themes that emerged across the products described in section 3.3 with regards to the features that older people found more difficult to use, regardless of the type of product. These features are summarised below alongside participants' views of what would improve the usability and accessibility of products with these features. Features are categorised by their relation to product shape and size, product display and product function.

Product shape and size

Feature	Specific difficulties	What would improve accessibility and usability
Features requiring grip or twisting	Products that require a certain amount of grip strength and/or force to open and use can be difficult for those with diminishing strength in their hands.	Hand-held features to be designed using an ergonomic shape and material that encourages better grip for hands. Would like to have a choice of whether to have safety cap or a replacement cap that is easier to use.
Buttons that are small / close together / fiddly	Buttons that are close together are difficult to press individually. It can also be difficult to see each button and determine what it does when they are small.	A simpler version of the product, with only the key buttons/ features needed. Larger buttons that contrast with the background, are well-spaced out and where possible, have icons depicting what each button does.

Feature	Specific difficulties	What would improve accessibility and usability
Products that are low to the ground	Requires bending and coordination to stand back up, especially when holding something.	Installing products at waist height to eliminate the need to bend.
Corded products	Cords along the floor create trip hazards, especially for those with worsening vision.	Cordless products at an affordable cost to eliminate trip hazards.
Heavy products	Requires strength to lift, which is especially difficult for those with worsening grip. Mobility products that are too heavy for use on public transport.	Lightweight products that are smaller and easy to lift and grip. Mobility aids that can be used on public transport, as well as clear guidelines on what can and can't be used (e.g. weight, size, dimensions, etc.)
Unstable products	This can cause falls if the person is putting their weight on the product to support them and it gives way.	Handrails throughout the home to prevent falls. Products built to be sturdy and provide support
Narrow products	Gripping narrow products can be difficult. These can slip out of hands easily.	Wider handles with a better rubber grip.
Slippery products	When products become wet, they can be more difficult to grip or pick up. Non-slip mats become slippery in the shower when shampoo or shower gel come into contact with them.	Products that have a rubber grip that is easy to grasp even when the product is wet.

Product display

Feature	Specific difficulties	What would improve accessibility and usability
Complex options and menus	Products with numerous different options and	Simplified menus and options.

Feature	Specific difficulties	What would improve accessibility and usability
	features leave more room for error.	A 'basic' model of a product with limited features.
Lack of error recovery	Not having the option to move back one step can be frustrating to people less accustomed to technology.	Features such as a 'go back' button to take the user back one step.
Unclear displays	Small text that blends into the background can be difficult to see for those with diminishing eyesight. Digital displays that are not backlit can also be difficult to make out.	Large, bold text that contrasts well with the background. Digital displays that are backlit.

Product functions

Feature	Specific difficulties	What would improve accessibility and usability
Complex set up	Instruction manuals were thought to have text that was far too small, with too many steps, and complex diagrams. Many were felt not to be in plain English and it was not always clear whether accessible functions existed.	Very simple instructions with large text and simple icons. Pictures and steps outlining what set up should and shouldn't look like. Videos showing how to set up.
Products that do not switch off automatically	Particularly for heated products, products that don't switch off automatically can be a safety concern for those who are becoming more forgetful.	Automatic switch off if product is not in use. Products with on/off buttons on the body of the product as wall switches can be stiff and difficult to operate.
Products that alert users via sound	This sound can be too quiet and it can be difficult to recognise which product it is coming from.	Products that communicate information to the user in multiple ways e.g. by using auditory, visual and tactile cues wherever possible.

Case study: Dorothy, low need, Peterborough

Dorothy is in her 70s and lives alone. She cares for her mother, who is in her 90s, and through observing the needs of her mother, she has also begun to be concerned about her own decreasing abilities, particularly her strength, which may hamper her ability to care for her mother effectively.

Dorothy highlights shampoo and toothpaste as particularly difficult products, describing her frustration at throwing away a week's worth of product due to not being able to squeeze the tubes. She complains that you shouldn't need "a man's strength" to squeeze toothpaste.

Dorothy has purchased a specialist product online that fits over the top of the toothpaste tube to help squeeze the product. She often uses scissors to cut the end of shampoo or make up bottles to get at the contents, although she finds this very difficult due to the thick plastic that is used with these products.

4.   Impact of non-inclusive product design

Summary

The impacts of non-inclusive product design for older people and those with more complex needs can be far reaching. Aside from poor usability, there are a number of safety implications, particularly in relation to products with heating functions or when people develop their own 'workarounds' to using products. In some cases, individuals may stop trying to use certain products, which can indirectly cause safety issues, such as no longer heating their home if they cannot use their thermostat. In addition, reduced ability to use products can have an emotional impact, linked to the frustration of no longer being able to complete tasks one once did, and a reduced sense of independence. While support from family and friends, and increasingly from smart technology, can be vital in helping older people use the products in their home, this is not necessarily an option available to everyone.

4.1   Safety issues

Participants described a number of safety incidents that had occurred in their homes as a direct or indirect result of struggling to use certain products. These included:

- Falls or trips e.g. over corded products such as vacuum cleaners or irons; on slippery surfaces such as showers and bathrooms, or when going down the stairs without handrails or grabrails

- Burns e.g. from using heated products such as an iron, kettle or oven

- Risk of fire e.g. from products with heating elements that are used incorrectly, or do not switch off automatically, such as hobs, hair irons/tongs or portable heaters

- Cuts e.g. from using a knife to open products with safety caps such as cleaning products

- Dropping heavy products e.g. furniture or tools that require lifting

- Straining and exacerbation of existing injuries/conditions e.g. from using products that require strength to lift or grip them

- Loss of heating e.g. from not being able to set the thermostat

- Risk of harm and/or theft from strangers e.g. asking strangers for help using products such as using keys to open the front door or opening products

Case Study: Liam, low need, Glasgow

Liam is retired and lives with his wife in Glasgow. Liam describes himself as in good health, although he's noticing difficulties with his eyesight and has started wearing glasses for reading. Liam described having difficulties using his microwave oven, particularly seeing the LCD display that shows how long the microwave has been set for. He attributes this to the microwave being in a sunny part of the kitchen, although hasn't considered wearing his glasses while using the microwave as he doesn't wear these around the house.

This is Liam's third microwave; his first two microwaves having caught fire after he set them for 30 minutes instead of 30 seconds. As he wasn't able to see the display clearly, Liam assumed he had set the microwaves correctly and walked away. He then forgot he was using the microwave until he came back some time later and saw smoke billowing out. Liam is worried that he will do the same thing with this microwave and considers it to be a fire hazard.

Case Study: Frances, high need, Newtown

Frances lives in the countryside. She moved there with her husband who has since passed away. As her osteoarthritis has worsened, she has had increased difficulties moving around and spends the majority of her time in her home alone. Frances does not have a local support system and often struggles completing tasks around the house by herself.

In particular, Frances has difficulty opening products. Whenever she wants to clean her home, she goes outside and waits for a passer-by or the postman to help her open the product. Frances feels safe doing this, although she acknowledges that she will often ask strangers for help opening products, presenting a potential safety risk.

4.2   Creating workarounds

The challenges that participants faced when using various products led participants to use them in ways other than how they were intended. For example:

- Use of a damp kitchen towel on the countertop to prevent chopping boards and utensils from slipping – this was felt to allow for easier grip of utensils on the countertop and to prevent items from falling on the floor where bending would be required to pick them up

- Placing screws in the locks of doorways – these kept doors inside the home from closing all the way and latching, reducing the need to grip the door handle and push down to open the door

- Using gloves with enhanced grip, such as gardening or painters' gloves, for tasks around the home – repurposing these gloves for a broader range of tasks around the home aided the user in gripping products

- Using the camera on a mobile phone to zoom in on things that are difficult to see – zooming in on television screens or text that is far away allowed participants to view the product without standing directly in front of it and blocking the view of others

    "Putting lotion on your back is so hard if your joints are stiff. It's difficult to think of something that might be able to do it, but I have thought before about something like a loofah. You could put cream on that and wipe it across your back."

    (Older person, low need, Peterborough)

> **Case Study: John, low need, Peterborough**
>
> John is a self-employed painter-decorator. He has continued to work through increasingly bad arthritis but has found that the strength in his hands to hold and grip things is making it difficult for him to do his job. John plans to keep working for as long as possible, as he knows many other painters with arthritis and says his industry has been particularly good at developing tools, such as paintbrushes with wide, rubbery handles, to ease the pain of arthritis while working. John has found a lot of workarounds in his business, such as painters' gloves with a rubber grip covering the whole of the palm and fingers that he now also uses around the house to help him complete tasks.
>
> John has also begun to make changes to his home after having difficulty coming down the stairs due to no longer being able to grip the banister. John asked a friend to help him make a new rectangular handrail that has wide notches between the rail and the wall where he can slide his arm in and grip it with his elbow as he comes down the stairs.

While these workarounds allowed participants to continue to use products and complete activities around the house that they otherwise might not have been able to, some workarounds also caused additional safety issues. For example:

- Keeping kitchen knives blunt – this was felt to reduce the chance of cutting oneself on a knife. However, blunt knives are more at risk of slipping when chopping and so this could inadvertently increase the risk of cutting oneself

- Using a knife to open products with child safety locks, including bleach bottles and boxes of laundry detergent pods, or in place of a can opener

- Leaving products open – products with lids and caps that were difficult to open were often left off once participants had them open. For products like bleach, this can be dangerous if the product is spilled or if a child comes into the house

- Installing home-made modifications in the home – including adjustments to handrails, which may be unsafe

    "I have trouble with the detergent pods box. If your hands are even slightly arthritic, it's really awkward to open. I end up breaking the top of the lid and pry it open with a knife, which can be pretty dangerous because I could slip and cut myself."

    (Older person, high need, London)

Case study: James, low need, Peterborough

James is 75 and lives on his own after being widowed five years ago. James tries to keep active, however he has noticed that his strength is decreasing and he often has a difficult time lifting heavy products such as chairs. To move items like this around, James puts a sheet of hardboard or a tray and puts it under one or two legs of the chair and slides or drags the chair to where he wants it to be.

James finds this difficult as it requires him to bend down and push or pull an item. He does not consider that the product could fall when he does this and has not thought about how he would lift it back up if it did. James has acknowledged that if he fell when completing this task or at any other time, he would be unable to get back up and no one would find him until his daughter, who visit a few times a week, came to the house. James has considered getting a personal alarm because of this but does not think he is at that point yet.

4.3   Products that are unused

Another impact of products being inaccessible to those with changing abilities is that the product is abandoned and goes unused. This could mean a waste of money if an alternative is required, frustration or loss of confidence and, in some cases, safety issues.

Participants described trying to replace the products around their home that they had difficulty using. Participants often had trouble finding alternatives that did work for them, and frequently described buying several replacements for a product but not being able to use any of them. This purchasing cycle had cost implications for participants, especially for those who described being on a limited income.

> *"I asked my son about which mobile phone I should get but got poor advice. He said 'X decibels' would be sufficiently loud for me to hear callers talking to me, but I bought the phone and it wasn't loud enough."*

(Older person, moderate need, Manchester)

Exclusion from products that are inaccessible to older people can also result in older people not being able to take advantage of products that would otherwise be beneficial to them. This often led to frustration as well as impacts on participants' confidence and their social lives. For example:

- Difficulties keeping up with personal hygiene – participants who experienced challenges using products such as razors and toothbrushes, due to the narrow shape of these products that make them slippery and difficult to grip, had trouble keeping up with personal hygiene. This was felt to cause embarrassment and reluctance to leave the house and socialise with family and friends

- Increasing social isolation – difficulties setting up and using telephones led to increasing social isolation from family and friends, especially in cases where the user struggled to make and receive phone calls

> *"I bought it [BT phone] in Sainsbury's and there wasn't a manual in the box and you have to go online to find an instruction manual, but I haven't even tried to do it because I'm not good with the computer. I just played about with it and got frustrated… It can't be that complicated but it is... I get frustrated because it's hard to use, I can't seem to retrieve my calls."*

(Older person, high need, London)

In some cases, no longer using a product could lead to safety issues.

- Lack of heating – participants who were unable to use their thermostats to set their heating used various workarounds to heat their homes, including cheap portable heaters that are not always reliable. In addition to the safety concern of a lack of heat for older people, those experiencing cognitive decline often forgot to turn off appliances, resulting in a serious fire hazard

- Ill-fitting specialist products – specialist products are often one size fits all. For example, wrist braces are provided by the NHS to reduce pain from arthritis and alleviate pressure in the joints, making it easier to grip and hold things. However, where these do not fit properly, they are clunky and often go unused as they make it difficult for the user to complete even the most basic tasks

"I bought a heater, which I am sure is dangerous, I try to sit in front of it for one hour and then I switch it off, because I am scared if I leave it. What if I fall asleep? It's really scary."

(Older person, high need, London)

Case Study: Adam, high need, London

Adam is 68 and is a retired production stage manager. The council recently installed a Honeywell digital room thermostat in his home, which Adam finds very difficult to use. When it was installed, the service person went through how to use the thermostat with him, but Adam thought he went through it too quickly. Adam also does not think any instructions were left for him on how to use the thermostat. As a result, Adam never uses this thermostat and leaves it off.

After speaking to a neighbour with the same thermostat, Adam learned that he could use a 'boost' function on his boiler to boost his heating and get hot water. Adam says that due to this function and his double-glazed windows, he does not feel he needs to learn to use the thermostat, as it is too complicated. However, he does wish he could use it to turn his heating up in the winter or if he's feeling unwell.

4.4   Emotional impact

Difficulty using household products took an emotional toll for participants. Beyond frustration at not being able to use products and complete tasks they once did with ease, participants found themselves having to learn new skills at an older age. Additionally, participants that were recently bereaved described having to learn how to do the tasks their partner was once responsible for. Taking on these new responsibilities and encountering inaccessible products tended to make participants blame difficulties on themselves, rather than considering that the products they were using were not suitable for them. In some cases, this led to a decrease in confidence.

"I've always been an intelligent person and so it really frustrates me that I can't use technology. It makes me feel like an idiot."

(Older person, moderate need, Peterborough)

For those who rely on others to assist them around the house and with using products, this can lead to tension between partners or family members. Participants described feeling embarrassed at being unable to use products, as well as taking longer to learn how to use new products. When they did ask for help, participants felt it was important that people took the time to explain to them how to use a new product and be willing to go through this with them more than once.

> *"If your family are not too sympathetic and they're saying, well I've showed you this once, that would not help at all. You need somebody who's going to talk to you a little bit if you're not good with technology."*

> (Older person, low need, Peterborough)

The emotional impact of inaccessible and unsafe products furthered feelings of frustration and inadequacy for participants, who described this as adding to the challenge of dealing with and accepting the changes in their abilities as they got older. For those whose conditions deteriorated rapidly in a short space of time, finding that they couldn't do activities around the house that they were accustomed to doing resulted in feelings of inadequacy and self-blame.

Case Study: Chris, moderate need, Peterborough

Chris recently retired after being diagnosed with osteoarthritis and diabetes. Chris lives with his wife, who works as a full-time carer. As his wife now provides care for him as well, Chris feels guilty that he can no longer do the things around the house that he used to do for her. He's particularly frustrated by his difficulties in the kitchen and often puts himself through a great deal of pain to cook dinner for his wife.

Chris has had a number of bad falls recently, resulting in broken ribs and a concussion. Chris knows he is unsteady on his feet but has refused to consider getting a walker, describing this as 'giving up'. He says he would feel embarrassed if his friends were to see him using a walker or a cane. However, Chris has become reluctant to go out and socialise recently, for fear of falling over in public.

"All my friends have always known me as a hardworking bloke, I don't want to walk down the village with a walking stick. Then it'll be all 'oh what's the matter with you?' I just keep myself to myself now."

4.5   Support from others

Younger people, often family members, are sources of necessary support in making products 'work' for older people. The research found that across the product focus areas, older people described needing assistance from others.

- Participants often described receiving help from their family to do heavy tasks around the house or to help them set up a new tech product

- Specialist products often required assistance from another person in order to use the product. In these cases, specialist products may solve one difficulty but create another, thus not supporting completely independent living

> *"I would struggle a bit if I didn't have my daughter. I ask her to put crockery away, empty the dishwasher or Hoover. But I do as much as I can myself."*

(Older person, moderate need, Peterborough)

However, not all participants felt comfortable asking for support or were even aware that they may have needed support, meaning that difficulty with products were often unseen or unspoken. Participants described not wanting to appear 'in need' to others, making it difficult for their family and friends to spot where they may be able to offer help. This was particularly the case for participants who remained independent in some areas of their lives but had begun to experience difficulties with certain tasks around the home.

> *"I had to rely on someone to help me. My friend used to give me a foot massage, but I didn't want to ask her all the time, so I went to a salon as I felt like no one really wanted to do this. You don't want to put your problems on other people."*

(Older person, moderate need, Peterborough)

While some participants described high levels of support from family members, not all older people have this option. Family members may not live close by or may be unwilling to provide the level of support needed. Participants whose children now had children of their own described feeling reluctant to repeatedly ask for help, as they perceived that their children were too busy raising their own children to also be assisting them. For those who were recently bereaved, learning to cope without support from their partner led to increased difficulties doing tasks around the house, with those who were socially isolated resorting to asking for help from strangers.

> *"My biggest problem is undoing the tops of things. I grab the postman sometimes, he's the only person I ever see."*

(Older person, high need, Newtown)

4.6 Support from technology

Some participants found that technological products could offer solutions to some of the challenges they experienced. For example, technology that used fingerprints or Face ID to unlock a device removed the need to remember passwords. Smart technologies were also found to alleviate some challenges. Digital assistants, such as Alexa, were used to set reminders to take tablets each day and control functions in the home, such as turning the lights on and off. Smart TV's were found to help avoid the use of remote controls for those who struggled pressing buttons. In some cases, these technologies replaced the support usually given by a family member, reducing the pressure on these relationships.

However, technological products are not accessible to everyone. Older people described difficulties with products they found overly complicated. These ranged from feeling overwhelmed by the number of options available on many technological products, to having difficulty using touch screens or products with small buttons. Participants often needed assistance setting up new technological products and required multiple tutorials on how to use a product before they felt comfortable with it. Often, these products are also prohibitively expensive for older people.

> *"Face recognition I actually think is very good… your face comes up and it opens up your phone, and some of them do fingerprints…The only thing about so many of these products is they're cost prohibitive… I couldn't believe how much they wanted for a new phone."*

(Older person, moderate need, Glasgow)

5. Barriers to inclusive design

Summary

While guidelines for inclusive design are plentiful, there are multiple barriers throughout the design process that impact whether or not these guidelines are applied. Research with experts showed that manufacturers do not always recognise the case for inclusive design or think that older people are an attractive market. Additionally, designers may view designing for older people as a constraint, as accessible products are often seen as having to prioritise function over form. For those who do want to design inclusive products, there is often limited time and budget available for user testing, and barriers to including older people in any user testing that does take place. In addition, the literature on inclusive design can be overwhelming to designers – who can feel unsure about which advice to follow, or how to interpret the guidance.

5.1 Context

Changing abilities associated with ageing, coupled with a lack of awareness or acceptance of ageing can mean individuals often aren't using products specifically designed to meet their needs. These issues are exacerbated by a lack of attention on older people in the design process. While there are multiple sets of guidelines available to inform design for older people to avoid the common challenges with particular features set out in Chapter 3, experts identified multiple barriers throughout the design process in ensuring these principles are applied. These relate to:

- A lack of consideration of older people in the design process, not just by designers, but also by manufacturers

- Without a strategic shift at the top level within manufacturing companies, designers will continue to be left without the resources and time to design inclusive products

5.2 Making the case for inclusive design

Experts suggested that many companies do not view older people as a priority market. Generally, companies do not want to be seen as making products 'for older people', believing that it will limit the market reach of their products. This is not completely unfounded. Research from the International Longevity Centre (ILC) has shown that older people spend less at an individual level[9], and experts suggested that products marketed as being 'for older people' are less popular with other age groups.

> *"You can sell a product designed for young people to older people, but you can't sell a product that is designed vice versa."*

> (Design expert)

However, evidence from the ILC also shows that there is a strong opportunity in this market. As the population of older people in the UK grows, spending by older consumers is expected to rise from 54% (£319 billion, excluding housing) of total consumer spending in 2018 to 63% by 2040 (£550 billion). This is £221 billion more than projected spending by younger

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[9]   The missing billions, The International Longevity Centre UK (2016)

households in 2040[10]. Additionally, products that are designed with older people in mind tend to be easier for everyone to use. When these products are designed well, they reach an expanded market across generations[11]. Well-known and successful examples of such products are OXO Good Grips, the BT big button phone, and the Ford Focus.

Experts also suggested that manufacturers have either misunderstood, or not made an effort to understand, the needs of older people as a consumer market. When older people are considered in product design, this is often based on outdated stereotypes of older people and fails to take into consideration the wide variance in needs and desires that this market requires. This is evident in the broad segmentation categories many marketing teams traditionally use, classifying older people as aged 55+. Experts recommended thinking of this audience by level of need, rather than by age, as age tends not to be a reliable indicator of a person's abilities, as discussed in Chapter 3.

Many experts in design and representatives of older people interviewed for this study advocated for increased user testing with older and disabled people. However, in many cases they noted that there is limited time or budget available for user testing in any capacity. This is especially the case for user testing with older and disabled people who are more difficult and more expensive to include in testing, due to being more difficult to find individuals willing and able to attend a research session. As a result, user testing and evaluation are frequently deprioritised within the product development process. If manufacturers and senior management do not prioritise time and budget for user testing, it is unlikely that this will take place at the design level.

> *"The CEO is probably the right person to engage on inclusive design. The biggest opportunity from a commercial perspective is to take a strategic approach and to embed it as a core mantra from the top down, from how you hire people to how you engage with consumers."*

> (Design expert)

This suggests that there needs to be a cultural and strategic shift at a high level within manufacturing companies to encourage inclusive design. Experts suggested that as products that are not designed inclusively are still selling, the stories and needs of those who would benefit from inclusive design need to be shared more widely to motivate manufacturers to prioritise inclusive design. Additionally, experts advised emphasising the economic benefit of designing inclusive products that reach the largest audience and market possible.

5.3   Barriers in the design process

At the design level, designers can also dismiss older people as a target audience for their products. They may assume that older people would not be interested in their product. This becomes a self-fulfilling prophecy where older people are assumed to be uninterested in certain products, often in the technology sector, and so are effectively 'designed out' of the product from the outset.[12] A lack of understanding of older people as a consumer audience, in terms of their needs, abilities and wants, contributes to this misunderstanding.

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[10]   Maximising the longevity dividend, The International Longevity Centre UK (2019); These figures exclude spending on housing as they use Labour Force Survey data to measure consumption. This cannot be compared to national statistics on consumption as a proportion of GDP as this data is not broken down by age.
[11]   Older people as a focus for inclusive design, Gerontechnology Journal (2006)
[12]   Future of Ageing: Influence of new technologies, The Government Office for Science, (2015)

Expert representatives of older people also identified a widespread misconception among designers that designs for older people must sacrifice aesthetics for function. Incorporating accessibility features into design can therefore be seen as a creative 'sacrifice' for designers, rather than as an opportunity for inclusive design. For this reason, some experts discussed reframing the narrative around 'inclusive design' to become simply 'good design'.

> *"We see a lot of designs for older people but they're not necessarily 'good' design. The designers are still looking at function, rather than looking at what is desirable."*

(Older people expert)

As discussed above, if user testing is not prioritised at a corporate level, it is unlikely to occur at the design level. Design experts state that if user testing does occur, it is most likely to take place with younger users, who are easier, cheaper and faster to recruit, or with other designers. Where older or disabled people are considered, 'personas' are often used to inform design. While personas are not necessarily always ineffective, representatives of older people state that those used are often based on limited and outdated stereotypes that do not take into account the wide variance in people's abilities and needs. Where user testing with older or disabled people does take place, it often occurs after the initial design stage. This results in accessibility features being retrofitted to a product, rather than integrated into the initial design.

> *"You have to think about multiple perspectives at the beginning of the design process. When you think about it at the end as an add-on, it's not as desirable and may make a product accessible, but not necessarily inclusive."*

(Design and older people expert)

Even where designers want to design inclusively, inclusive design principles can be difficult to apply. Experts in design told us that principles can be too abstract, meaning they are not easily applied to specific products. A lack of specific case studies showing user experience and interaction with products makes it difficult for designers to imagine the needs of an older or disabled user in relation to a particular product. While there are some case studies of good and bad product design out there, these often highlight the design and function of the product, without including the lived experience of the older person and how they interact with the product. This precludes designers from understanding the initial experiences and needs of the user that led the product to be designed inclusively, making it difficult to apply these case studies to their own product designs.

Additionally, experts in design discussed the sheer number of principles for inclusive design available. This was thought to be overwhelming for designers, making it challenging to locate the 'best' or 'definitive' version of inclusive design principles. With a lack of one central or 'official' source or guidance, experts commented that principles are not used in a systematic way.

> *"There's an awful lot of literature on inclusive design. Within the industry it's used in a piecemeal way… It's not used in a systematic way."*

(Consumer and design expert)

6. Access to inclusive products

Summary

There are a number of barriers to purchasing inclusive products among older people, including low awareness of their own needs, not knowing what products are available, or not knowing where to look for these products. Safety and usability may not be factors that are explicitly considered in the purchasing process, unless people have already clearly defined needs, though older people described generally looking for products that were simple and high quality. When purchasing any type of product, older people report feeling more comfortable purchasing products in-store, rather than online, so they can get a first-hand impression of whether the product might suit their needs before purchasing it.

6.1 Barriers to purchase

Throughout the purchasing journey, there are barriers which may prevent older people from buying products that are safe and suitable for their needs. These barriers include:

- Low awareness of their own needs – Where changing needs and abilities went unrecognised, participants found it difficult to assess what types of products would be most suitable for them

- Low awareness of features that make a product accessible – Participants found it difficult to articulate what features they would look for to ensure a new product would be accessible to them

- Low awareness of products available to meet their needs – Often, participants described receiving recommendations from friends and family on products to buy and preferring to purchase products in-store, rather than online. As many older people are digitally excluded, this means they will not see the full range of products available. Participants without internet access, or who were not comfortable using the internet, were unable to read reviews on products and compare prices. This meant they often spent more money than was necessary on a new product and may not have purchased the product most suitable to their needs

  "I see stairlifts advertised, but not many other products. Sometimes I get little leaflets through the door for a long shoehorn."

  (Older person, low need, Peterborough)

- Low awareness of where to look – Participants described going to local high streets to purchase products. For those with mobility impairments, there was a reliance on catalogues when they were not able to find someone to accompany them to the shops

  "I'd like to just be able to get it at a supermarket. But a lot of the products I'd guess you need to buy mail order or from a specialist shop. It should be in a place you go to regularly and it should be at a reasonable price."

  (Older person, low need, Peterborough)

- Products are not considered to be 'for me' – Participants tended to describe products marketed towards older people as not being for them. There was a stigma attached to

these products for these participants and as such, they were unlikely to purchase them unless absolutely necessary

- Products are not aesthetically desirable – On the whole, participants felt that specialist products in particular looked 'medical' or too basic. Participants felt that these products did not fit in with the aesthetic of their homes, giving their homes a 'clinical feeling'

  "I bought these knee braces online to support me while I'm walking around, but they just look absolutely hideous. I can't say I wear them much."

  (Older person, high need, Newtown)

- Products are too expensive – A significant number of participants stated that their limited budget prevented them from adapting their homes and upgrading to more inclusive products

- Products are not seen to meet their needs – Participants with specific health conditions and impairments often felt that products on offer did not meet their particular needs. Where knowledge of specialist products was low, this barrier was more common. In cases where products were 'one size fits all', participants described having to replace products that could not be adjusted to suit them

  "The stool just does not feel sturdy, and it is too small for me to get into. Maybe I'm just a big guy."

  (Older person, moderate need, London)

- Technological products are thought to be too complicated – Often participants related to past experiences where they had been unable to use technological products as having shaken their confidence in purchasing these products in the future

- Hard to adapt to new products – Participants felt that they may not be able to learn how to use a new product or would struggle to get used to something new. This was also true when trying to introduce safer alternatives for older people with dementia, who particularly struggled to learn how to use an accessible version of an everyday item

6.2   Purchase considerations

On the whole, participants preferred shopping for new products in-store rather than online. This contributed to numerous other factors in how participants made purchases of new products. Importantly, participants did not often explicitly consider safety and usability as factors when buying the majority of new household products. The primary consideration instead was function, with participants assessing a product based on its ability to perform what they needed the product to do.

  "I just want something that's going to be straightforward and easy to use."

  (Older person, moderate need, Glasgow)

Other secondary factors were important to participants in varying degrees, largely based on personal preference and the product being purchased. These include:

- Price – participants looked for products within their price range

- Aesthetics – participants described not wanting products that looked like they were for older people, but rather wanting products that match the aesthetic of their home

- Familiarity – participants looked for products that were simple and where possible, that they had used previously and would know how to use

- Emotional connection – participants described purchasing from brands and shops they knew, such as John Lewis and Curry's. For these participants, maintaining a familiar shopping pattern made them feel more comfortable making large purchases, such as for new household appliances

Generally, the process of researching and buying a product has remained similar to how it has always been – consumption behaviour hasn't changed significantly. Participants described relying on familiar shopping patterns and making purchasing decisions based on brand, cost and look of the product. Often participants felt that switching to online shopping would lead to them purchasing unsuitable products, as being able to see, touch and feel the product was felt to be very important.

> *"I don't shop online. I want to see it and touch it with my hands and make sure it feels right. Some things just don't feel right to use."*

> (Older person, high need, London)

Participants rarely reported explicitly considering safety and usability in the purchasing process. However, when prompted, participants tended to use 'proxies' to make decisions about products, some of which appear contradictory. On the whole, participants considered more expensive products as being of higher quality, and therefore more likely to be safe. Yet when participants described purchasing replacements for inaccessible products, they often looked for simplicity in products. These basic models often had fewer features and were seen to be more user-friendly. They also, however, were often the cheapest item in the product range. The simplicity and usability of a product was generally thought to override concerns about product safety, if this was even considered.

> *"Everything nowadays is getting more and more difficult. That's why I'm keeping hold of all my old devices."*

> (Older person, high need, London)

On prompting, some participants raised concerns about perceived decline in the safety of products. This came down to two main factors:

- The perception that products from online websites, such as Amazon or eBay, are not being regulated or tested

- A small number of participants gave examples of recent prominent recalls by brands such as Whirlpool or Hotpoint, leading to distrust in bringing products from these brands into their homes

In the small number of cases where safety was considered, often for larger appliances that involve heat or electricity such as boilers or ovens, safety was assumed. Participants assumed that as these products are potentially dangerous, they must have been tested for safety already and would not be on the market otherwise.

> *"I think most people take it for granted, that it's safe. You just assume it's been tested before."*

(Older person, high need, London)

6.3   Purchasing journey for specialist products

The purchase of specialist products can differ slightly to the purchase of everyday household products, bringing its own set of specific challenges. These include:

- Low awareness of available products – Specialist products are often sold only by particular manufacturers, and thus there is particularly low awareness about how and where to purchase these products. Those without the internet rely on individual networks and word of mouth to hear about these products

  "There's not many places to get disability products. You usually have to go online, and you can't see it as well and half the time you have to send it back because it's not good."

  (Older person, severe need, London)

- Products can be prohibitively expensive – Specialist products are often sold by only a small number of manufacturers and can be very expensive. As a result, participants spoke about receiving products from friends or family or purchasing these products second-hand. While this can save money, if often meant the product was not suited to their specific need, e.g. was the wrong size

- Local Authority/NHS provision – Participants were unlikely to be aware that specialist products could be provided for free through the NHS or through their local authority. However, for those who had experience of this, they did not always find the process or the product to meet their needs:

  o Products were described as utilitarian and 'one size fits all', rather than being suited to an individual's specific needs

  o Some participants described products being installed incorrectly, putting them off using the product because of safety concerns

  o Confusion around what local authorities and the NHS would provide, with participants often reporting inconsistencies around service provision

- Poor choice of products available – Participants who had looked for or purchased specialist products commented on the lack of choice due to the small range in these products. For people with very specific needs, this became even more difficult, with participants often needing to institute complex workarounds to use even specialist products

- Reaction, not prevention – Specialist products are often purchased when they are needed, rather than wanted, after an incident has occurred. This can lead to rushed decisions far removed from the usual purchasing process or making a positive choice about introducing a new product into the home

- *"You still see the 'disabled shop' and the 'normal shop'. I'd rather go into Curry's than buy out of the disabled shop."*

  (Older person, high need, Glasgow)

Challenges around learning how to use new products can be exacerbated when considering specialist products. Some of these challenges occur when the user is experiencing cognitive

decline, making learning to use new products difficult and increasing the importance of using products the individual is familiar with. This means that even though specialist products that are safer and easier to use may be available, some older people will have difficulties adopting them and continue to use products that may no longer be suitable for them.

> **Case Study: Chloe, carers focus group, severe need, Newtown**
>
> Chloe has been caring for her mother for a number of years, as her mother's dementia has progressively gotten worse. In the early stages of her mother's dementia, Chloe commented that her mother was determined to maintain her independence and so she had to be "imaginative" in how she integrated more specialist products into her mother's daily routine. Any change in the house or to products can be confusing for her mother.
>
> For example, when Chloe placed pressure mats around the home to stop her mother, who was becoming more unsteady on her feet, from slipping, her mother would move them to the side. Chloe now places these mats underneath the rugs so her mother won't see them, although she worries they might present a trip hazard.

6.4   Finding the right products

As discussed previously, participants in this research stated a clear preference for purchasing products in-store, rather than online, where possible. This allows them to touch and feel the product, getting a better idea of whether it may suit their needs. Participants also highlighted the ability to ask questions and receive advice as a very important part of the purchasing process, as this allowed them to bypass potentially confusing research on their end. In-store shopping also allowed participants to ask questions relating to their own needs and requirements, try out the product and even receive a demonstration.

> *"I am now looking at new hoovers, and it will be John Lewis that I go to. I've bought all my electrical equipment from them because I prefer to handle the products and see what they're like. I think they offer an extremely good deal, and there's never any quibble if you've got a problem with anything."*
>
> (Older person, moderate need, Peterborough)

However, participants noted that retail employees are not always trained to recommend the right products to suit older people's needs, and said they felt employees sometimes recommended a more complex model than was necessary.

There was also a sense among participants that this method of retail is increasingly in decline, with the sale of larger products especially shifting online. Participants who preferred shopping in-store were frustrated by this trend and expressed a reluctance to switch to an online method of shopping.

Case Study: Claudia, high need, Newtown

Claudia lives alone in a bungalow in Newtown. Although her mobility is "no good", she tries to get out as much as she can and relies on a mobility scooter for help.

Claudia enjoys going to the shops and interacting with people there. When she needed a new landline telephone, she went into the local electrical shop. She's known the owner (and his parents) for years and has bought multiple other products from them, such as her television. She feels that they understand her needs and are able to recommend appropriate products for her. When purchasing her new phone, she says the shop owner recommended to her the same phone that his mother uses and she's been very happy with the new phone, as well as the social experience of purchasing it.

7   Primary research with younger people

Summary

The primary research with older people identified a number of features that they find challenging when using products, and highlighted the safety implications of these challenges. The expert interviews also suggested that inclusive design has benefits to all consumers, as simpler, easier to use products would be an improvement for everyone. To explore the impacts of more inclusive design for all consumers, and explore the extent to which these issues are specific to older consumers, OPSS commissioned BritainThinks to conduct two mini focus groups with younger people (i.e. 18-45) to explore the overlap between the types of challenges younger and older people face when using products around the home. Various features emerged as challenging regardless of age; however the impact of these challenges tended to have fewer safety implications for younger people.

The small sample size should be noted, and findings should be considered indicative only, as their purpose is to provide a sense check of whether there are areas of overlap in terms of challenges with products around the home as described by older people in the primary research.

7.1   Differences between the age groups

There was a fair amount of variation in the use of household products based on life stage.

While the 18-31 age group were experiencing similar challenges to their slightly older peers (in the 32-45 age group), these were discussed less spontaneously. For some, this may have been because they were living at home or in rented accommodation, meaning they rarely purchased new products for their homes, especially larger appliances. Some may also not have been using certain appliances if living at home (e.g. if their parents did their laundry). These participants were more likely to describe their challenges with products as 'frustrations' that were seen as 'temporary' and thus not necessarily worth the time or effort to remedy (e.g. to learn how to use a certain product).

> "I've never used a thermostat in my life so if you were to ask me to set one up, I wouldn't have a clue how to do it."

> (Younger person, age 18-31, Glasgow)

The 32-45 age group spontaneously raised more challenges they experienced with products. Challenges often stemmed from having young children – linked to safety concerns of their children interacting with certain products, particularly those with heating elements. Some of these participants also felt that they didn't have time to learn how to use complicated new products due to their other responsibilities, whether child-caring or work.

7.2   Overlap with challenges among older people

Participants were asked to think about challenges they experienced when using everyday products and technological products. Participants spontaneously identified some similar challenges to those described by older people, and when prompted with challenging features uncovered in the research with older people, could identify with many of these as well. Examples of challenging products spontaneously discussed include:

- Thermostats – difficulties with thermostats were widely shared, with some saying they had never learnt to use the features beyond turning the heating on and off

- Washing machines – younger participants also discussed difficulties with the number of settings on their washing machines, again with most only using the basic settings

- Microwaves – younger participants reported finding most microwave features to be confusing, and often only using the basic settings

    "We bought the house we're in now 9 months ago and the previous owners' settings were on the thermostat. It has two buttons and I tried googling any of the words on the boiler but couldn't find anything. In the end we had the boiler man out and he kindly spent 20 minutes programming it all. I still don't know how to actually work it. For something that only has two buttons, it's very overcomplicated."

    (Younger person, age 32-45, Peterborough)

Several common themes emerged with regards to the features that participants found more difficult to use, regardless of the type of product. These features are summarised below, alongside where these views overlapped with challenging features described by older people.

Product functions

Feature	Specific difficulties faced by younger people	Overlap with difficulties described by older people
Complex set up	This was one of the most commonly expressed difficulties for participants. Many described attempting to follow cues from the product during set up, and findings these instructions unclear. Instruction manuals that used pictures instead of written step-by-step instructions were thought to be particularly difficult to follow.	Older people thought of this challenge in terms of navigating both the product and the instruction manual. Some older people expressed a preference for pictures in instruction manuals, along with step-by-step instructions.
Products that do not switch off automatically	Particularly for heated products, products that do not switch off automatically were a concern for participants, especially those with young children.	Older people were also concerned about this, within the context that some acknowledged they are becoming more forgetful.

Product shape and size

Feature	Specific difficulties faced by younger people	Overlap with difficulties described by older people
Features requiring grip or twisting	Safety caps on cleaning products requiring a certain amount of grip strength and/or force to open.	Older people discussed difficulties opening safety caps,

Feature	Specific difficulties faced by younger people	Overlap with difficulties described by older people
		as well as other products that required strength to open.
Corded products	Corded products were described as being more unwieldy to carry around the house, although this was seen as more of a 'frustration' than a challenge.	Older people saw the trip hazard of corded products as a potential safety risk.
Heavy products	Lighter models were preferred to heavier models of products, although this was described as more of a preference than a particular difficulty.	Older people described difficulties lifting and gripping heavier products.
Slippery products	Products such as shampoo bottles and razors were described as difficult to grip when wet.	Older people expressed a preference for products with rubber grips that are easier to grasp when wet.
Fiddly products	Products with wires and small plugs for chargers (e.g. USB inserts) were also thought to be difficult to grip and pull out of wall sockets.	Older people were less likely to mention difficulties with chargers. It is possible this is because some described leaving chargers permanently plugged into the wall so as not to have to bend down to reach them.

Product display

Feature	Specific difficulties faced by younger people	Overlap with difficulties described by older people
Complex options and menus	Electrical products with numerous different options and features were seen as over complicated.	Older people expressed a preference for 'basic' features on some appliances.
Lack of error recovery	Not having the option to move back one step was described as frustrating when setting up new technologies, as well as when using appliances like washing machines on a regular basis.	Older people expressed often having difficulty with tech products that they were learning to use.

Feature	Specific difficulties faced by younger people	Overlap with difficulties described by older people
Touch displays	Induction hobs and washing machines with touch interfaces were thought to require a lot of force to operate. These were seen to be particularly difficult if hands were wet or greasy.	Some older participants found the touch screens on their phones to be too sensitive. It is possible this challenge did not come up in relation to appliances as older people may be less likely to purchase appliances with touch screens in the first place.

7.3   Impact of challenging products

While younger participants expressed some similar challenges to those described by older participants, as detailed above, the impact of these challenges was far less. There was a sense amongst younger participants that they would be able to work out a solution to a challenge if they needed to. Younger participants often resolved these difficulties in one of two ways – by looking up how to use the product online or by asking someone else, typically partners or older children, for help. On the other hand, with older participants, challenges tended to become increasingly insurmountable. Our research has shown that these two options present various difficulties for older people:

- Older participants were less likely to know where to find product information online and how to access this information. Older people are also more likely to be digitally excluded, making this an unviable option for some13.

- Older participants who were acting as carers for their partners or who had lost their partners often described taking on new tasks for the first time. Learning to use new products in the context of a diminished support system left some feeling overwhelmed and embarrassed to ask others for help.

    "[When I encounter a problem], I go online. I don't think there's ever been an issue I've had that someone else hasn't. There's blogs and help sections, or you can watch a video."

    (Younger person, age 18-31, Glasgow)

Younger participants also differed in their perception of why the difficulty with the product had initially occurred. They were more likely to discuss challenges with a product as resulting from poor product design and usability, whereas older participants were more likely to blame themselves for difficulties using the product. This was particularly the case with technology products, which many older people were encountering for the first time.

    "I've always been an intelligent person and so it really frustrates me that I can't use technology. It makes me feel like an idiot."

    (Older person, moderate need, Peterborough)

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13   The Office for National Statistics states that in 2014, 13% of UK adults have never used the internet (6.4 million). 88% of this group (5.6 million) are over the age of 55. (The Government Office for Science, 2015)

It was striking that younger people generally expected not to be able to use most features of appliances – they assumed that most of the settings would be too time-consuming to work out and not worth the effort. As a result, it was the norm for participants to simply use the basic settings on appliances and stick to these.

Creating workarounds

As with older participants, younger participants described using various products in ways other than how they were intended in order to overcome challenges. For example:

- Pressing 'start' numerous times on a microwave to add 30-second time increments rather than setting a certain amount of time

- Manually turning the thermostat on/off rather than pre-setting scheduled times

- Only buying appliances or tech products from 'big brands' to be reassured that there will be support available about the product online

- Figuring out the most basic features or settings on a product and using only these

7.4   Making the case for inclusive design

Findings from this phase of research helps to support the case for inclusive design, by highlighting difficulties that both younger and older people face and illustrating the positive impact that inclusive design would make across age groups. Across both age groups, there was clear commonality in products that were difficult to use:

- Products with complex settings, functions or set up were considered difficult to navigate and were under-used

- Heated products without automatic switch-off were considered a potential risk

- Products that were heavy, corded or slippery were considered frustrating

People with young children (most often those in the 32-45 age group) were keen to point out how poor design leads to safety issues in the home. A more inclusive approach to design could therefore help to mitigate problems of safety across generations.

> *"I definitely think about whether my children will be able to reach [a product] or open it or get to it. That's one of the main things I look at when I'm buying a new product."*

> *(Younger person, age 32-45, Peterborough)*

Some participants described a division of labour in their relationships. In these cases, one partner was unable to operate various products in their home but did not feel the need to learn how to use these products as their partner was able to operate them. This was most commonly the case with technological products where one partner was more tech-savvy than the other, products to help with domestic chores or products that required a great deal of strength to lift. This was also reflected in the primary research with older people, where participants described having to learn how to use new products after their partner had passed away. In these cases, participants found that learning to use products their partner had managed, while coping with bereavement, presented an increased challenge.

> *"My partner does everything for me and connects everything. He just set up Zoom for me, he's showed me how to get on Netflix through the app on Sky… He's pretty good at putting things together."*

While younger people did not experience the same severity of impact of challenges with using products as their older counterparts, poor design can lead to frustrations for younger people and can lead to them only using certain products in a basic capacity. A drive to make products simpler, more convenient and usable was seen by younger people as a positive development.

Younger people were also concerned about poor product safety and design in the context of the older people in their life, with many participants spontaneously mentioning challenges that their parents or grandparents had experienced using products. Thus, many supported the principle of inclusive design on this basis too.

When thinking about what inclusive design should look like in practice, nearly all younger participants agreed that simplicity should be a key consideration in inclusive design. This was seen to be most important for tech products, such as smart home devices, as well as for small and large appliances, such as microwaves, dishwashers and washing machines. Simple step-by-step instructions were also seen as key to making a product inclusive to use and understand.

> *"Get the basics right with simplicity at the core before things get too fancy and complicated."*

(Younger person, age 18-31, Glasgow)

8. Conclusions

Summary

In response to challenges with product safety and usability raised by older people in the primary research, BritainThinks held a virtual co-creation workshop with industry experts to further develop these challenges. Experts also brainstormed ideas and potential actions to take in response to challenges and how to overcome barriers to realising inclusive design.

For further detail and discussion of these topics, please see the accompanying briefing papers: Key challenges to realising inclusive design, Making a case for inclusive design, Inclusive design resources and Co-creation workshop ideas and solutions.

8.1 Key challenges to realising inclusive design

Below are summaries of some of the key challenges of realising inclusive design that emerged from this research, relating to the complexity of the audience and their needs, the difficulty connecting this audience with inclusive products, and barriers faced by industry and product designers. These were further developed through discussions with industry experts during the co-creation workshop.

- Manufacturers and brands are not necessarily bought into the idea that there is a market for inclusive design, or that pursuing this would represent growth for them. Generally, companies do not want to be seen as making products 'for older people', believing that it will limit the market reach of their products.

  o Without support at a senior level, it is unlikely that interventions targeting designers or just the design stage of the process will lead to meaningful change. Strategic and cultural change is needed at an organisational and industry level.

- 'Personas' used to shape product design are based on outdated stereotypes that homogenise the abilities and needs of older people, making it difficult for designers to design for this audience.

  o Furthermore, user testing is often neglected due to time and budget constraints and where this does take place, it often does not include older or disabled users as they are considered difficult to access and potentially too expensive and time consuming to include in user testing.

- There is a tension between the need to communicate clearly to consumers that a product is accessible or suitable for people with particular needs, and the stigma of needing to buy products that are seen to be 'for' older people.

  o The fact that abilities tend to change very gradually, coupled with the emotional impact of coming to terms with this, mean that consumers who could benefit from products are unlikely to engage with 'accessible' or 'inclusive' products without a very clear and sensitively framed message.

- There is a lack of understanding among designers and manufacturers of the cognitive challenges older people may face in adapting to new products, technologies and ways of doing things.

  o Cognitive challenges may be due to different mental models, life experiences and generational differences in our ability to learn new things.

- This can lead to products going unused, as well as a reluctance among older people to purchase a new product or upgrade the products in their home, as there is an assumption that new products will be more complicated to set up and use.

- There is appetite for accessible products that look like other products and do not sacrifice aesthetics for function. However, products specifically adapted to fit the needs of older people often look 'clinical' and are not seen as desirable products to have in one's home.
  - There can also be cost pressures for this audience who are often living on pensions or reduced incomes. However, it is a misconception among older people, and often among designers as well, that inclusively designed products must be expensive.

- Needs are very wide-ranging and cover a variety of changes in ability, and as a result there are a considerable number of features that older people find difficult when using products. This presents a number of challenges:
  - Whether inclusive design should aim to cover as many needs as possible across the spectrum.
  - Whether there should be minimum requirements for inclusivity (in terms of type of need covered and level of severity), and whether/how this could be incorporated into guidance.
  - How to communicate the range of specific challenges, without overwhelming designers – in the context of designers finding the existing landscape of guidance quite confusing.
  - Where to start and what to prioritise. Experts consulted as part of this research had mixed views on whether priority should be given to products that are most commonly used, such as kitchen and bathroom fittings, or products where safety issues commonly arise, such as those with a heating element, or that are sharp or heavy.

8.2   Co-creation workshop: responses to key challenges

During the co-creation workshop, representatives of older people, consumers and designers brainstormed ideas and actions to take in response to the key challenges that emerged from the research. Their views are presented below according to the audience to which they relate (whether designers, manufacturers or Government) and ideas for how these could be achieved.

Response to challenges for the design sector

- Experts suggested that those working in the design sector could develop a model of cognitive interaction with products to acknowledge the cognitive challenges faced by many users.
  - Experts hoped that this model could help bring to life the cognitive challenges that many users face due to different mental models, life experiences and generational differences in our ability to learn new things.
  - This model could be designer-led and provide guidance for how to account for these challenges in product design.

- While experts acknowledged that user testing can be difficult due to time or budget constraints, it was nevertheless emphasised as critical to inclusive design. Experts stressed that designers should advocate for user testing with diverse audiences within project briefs and budgets.
    - Experts emphasised that wherever possible, accessibility should be considered integral to the original product design, rather than as 'add-on' features later in the design process.
- Experts recommended a Double Diamond design structure[14] to focus on truly inclusive design, rather than focusing on older people only. This process emphasises placing the user at the heart of the design, leaving room for multiple iterations of a products, while still in the design stage, to spot errors early and further innovative solutions throughout the process.
- Experts also encouraged designers to engage in design partnerships with Universities, manufacturers, retailers and consumer networks. Partnering with organisations that already have access to specific audiences was thought to be particularly useful in facilitating user testing and the promotion of inclusively designed products.

Responses to challenges for manufacturers

- Experts recommended manufacturers spread the message that 'inclusive design is good design is good business', highlighting the large market for inclusive design across generations and level of need. Additionally, manufacturers could highlight that products designed with older people in mind tend to be easier for everyone to use.
- Experts emphasised that getting the message right is really important, as many older people do not see themselves as 'old' and therefore products marketed as being 'for older people' will not necessarily be popular with this audience.
    - Experts suggested that manufacturers could consider conducting research to improve marketing and message around inclusively designed products to see what language works in communicating inclusivity.
    - This could also include moving on from personas based on an 'average' customer or outdated stereotypes of older and disabled people. Instead, experts advocated for user-centred research to develop more sophisticated personas for older consumers, with a spectrum of user needs, motivations, abilities and circumstances[15].
- Experts also suggested that there may need to be a cultural and strategic shift at a high level within manufacturing companies to encourage inclusive design, as the culture of an organisation is reflective of those who occupy senior positions. Experts recommend manufacturing boards reflect diverse populations in terms of SEG, age, gender, ethnicity and disability.

Responses to product-specific challenges

- With the wide variety of challenges that emerged from the research with older people, some experts suggested drawing a distinction between products where safety issues arise from use, or misuse, and products that are difficult to use.

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[14] What is the framework for innovation? Design Council's evolved Double Diamond, Design Council (2019)
[15] Kill your personas: How persona spectrums champion real user needs, Margaret Price (2018)

- o Focusing on products that have safety implications, such as those with heating elements, was one area where it was felt attention is needed.
- When thinking about everyday products, experts suggested the focus could be on products in kitchens and bathrooms that are standard in most homes, as improving these could have benefits for many.
  - o Experts suggested that inclusive kitchen and bathroom fittings could be instituted as the default in new builds wherever possible, as this may allow people to remain in their homes for longer, while avoiding expensive and often 'clinical looking' adaptations to their homes as they grow older.
- For digital products, experts suggested the focus could be on simple, scaled back versions of products without complex set up or settings.

Responses to challenges for Government

- Some experts suggested that the Government could issue guidance on inclusive design for the sector. It was suggested that this guidance could act as a helpful resource for designers and manufacturers, rather than a piece of legislation.
  - o Experts also suggested the Government could play a role in compiling existing resources and guidance on inclusive design in one centralised location. It was not suggested that the Government necessarily be the body to host this information, but rather could play a role in convening conversations between those who currently host inclusive design guidelines and seeing if any sort of 'best practice' could be agreed upon.
- Some experts also suggested that a Government representative could act to help promote inclusive design within industry networks and design partnerships. It was suggested that one way of doing this could be hosting, or enabling others to host, a high-profile inclusive design competition.

Cross-cutting themes

The ideas detailed above offer responses to challenges within different audiences, including designers, manufacturers and Government. However, there are some cross-cutting themes throughout where experts suggested a cultural and strategic shift is needed across audiences to promote inclusive design. These include:

- Experts suggested encouraging discussions and education about inclusive products and services and the full range of user needs that inclusive design can accommodate.
  - o Experts suggested that short films about real customers could help highlight lived experience of users. This could help widen the evidence base on how products are used by those with a wide range of abilities and highlight where challenges and accidents may occur.
- Experts supported several key messages which they encouraged both organisations and wider industry to take up, such as:
  - o Inclusive design is good business.
  - o Simple features benefit the majority of consumers and promoting simple, easy to use products will access a larger, cross-generational audience.
  - o Inclusive design does not mean aesthetic must be sacrificed for function.

- Experts considered the utility of re-imaging inclusive design to focus on 'good design'. They argued that inclusively designed products could be marketed as cool, new and aspirational, rather than as 'design for older people' or 'design for disabled people'.

  o Experts suggested that guidance on how to design inclusively without compromising aesthetic or greatly increasing cost could be helpful in shifting the narrative around inclusive design.

  o Experts emphasised that inclusive design is not the same as design-for-all and that there will be multiple ways to achieve inclusive design. The goal is a market full of competing and diverse solutions where consumers have choice among a number of products that are accessible and safe for them to use.

8.3   Principles of inclusive design

As discussed in Chapter 5, there are already a number of guidelines and principles for inclusive design in use, that specifically consider the needs of an ageing population. Some of the key themes across these sets of guidelines include:

- User involvement: Involve users in the design process from the beginning. Test designs with consumers of varying ability levels, including older consumers and those with more complex needs.

- Flexibility: Accommodate a range of preferences and abilities in the product design. Users should be able to adapt product settings to their own needs where possible.

- Simplicity: Make products easy and intuitive to use, reducing the level of ability needed to use a product.

- Communication: Products should clearly communicate any necessary information to the user. Key information should be communicated in multiple ways, such as visual, auditory and tactile cues.

- Error prevention and recovery: Error-prone conditions should be eliminated. If an error does occur, fail-safe features should be in place, such as a 'go-back' feature. Error messages should use clear language to indicate a problem precisely and suggest a solution.

These principles are supported by the findings from this research, in that they reflect the changes that older people needed and wanted from product design, particularly around simplicity, communication, and flexibility. There was also strong support for user testing and involvement with older consumers. However, a limitation of the existing principles was that they are often seen as abstract, and that users can find it difficult to see how the principles should be applied and why specifically they are important (i.e. the implications should they not be followed). This report aims to respond to that challenge by bringing to life some of the very specific challenges that older people face, illustrating the impact this has on their everyday life, wellbeing and independence.

8.4   Perceptions of the role of Government

There was already a baseline of confidence among participants that Government plays a role in holding businesses to account for product safety, particularly the safety of appliances. When asked what else they thought Government could to improve safety of products for older people, a key theme that emerged was around the regulation of products purchased

through online retailers (specifically, Amazon) to ensure these high standards are maintained.

> *"Well we have health and safety to keep an eye on safety issues so that probably involves the Government. They already have regulations to make sure businesses don't sell unsafe electricals. My son tells me about a lot of regulations."*

(Older person, moderate need, Peterborough)

Beyond this it was difficult for participants to conceive of what the Government's role might be in improving product inclusivity, but there was support for the idea of the Government encouraging more user involvement, and for improving the affordability and accessibility of inclusive products.

> *"They should make people more aware of what's out there. It's similar to benefits, you don't know what you're entitled to. There should be more free products and more easily accessible products, or somewhere they're promoted. I wouldn't mind paying if I knew what was available. People in everyday life might not realise what they don't know."*

(Older person, low need, Peterborough)

9. Appendix

9.1 Desk research source list

1. About: Inclusive Design, Design Council, 1999

2. Adapting for ageing: Good practice and innovation in home adaptations, Centre for Ageing Better, 2018

3. Design for an Ageing Population, Future, Foresight and Horizon Scanning Blog, 2016

4. Design Principles to Accommodate Older Adults, Global Journal of Health Science, 2012

5. Foresight future of an ageing population, The Government Office for Science, 2016

6. Future of Ageing: Adapting homes and neighbourhoods, The Government Office for Science, 2015

7. Future of Ageing: attitudes to ageing - influence of new technologies, The Government Office for Science, 2015

8. Future of Ageing: Future of an Ageing Population, The Government Office for Science, 2016

9. Homes that Help, Centre for Ageing Better, 2018

10. Inclusive Design Toolkit, University of Cambridge, 2017

11. Investigating perceptions of manufacturers and retailers to inclusive design, The Design Journal, 2004

12. Kill your personas: How persona spectrums champion real user needs, Margaret Price (2018)

13. Making the case for inclusive design, University of Cambridge, 2013

14. Maximising the longevity dividend, International Longevity Centre UK, 2019

15. Older people as a focus for inclusive design, Gerontechnology Journal, 2006

16. Patterns of Functional Loss Among Older People: A Prospective Analysis, Human Factors, 2009

17. Room to Improve, Centre for Ageing Better, 2017

18. Specific issues of the design for the elderly, IOP Conference Series: Materials Science and Engineering, 2016

19. Technologies for when I'm 'old', Futures, Foresight and Horizon Scanning Blog, 2018

20. That Age Old Question, Royal Society for Public Health, 2018

21. The principles of inclusive design, Design Council, 2006

22. The missing billions, International Longevity Centre UK, 2016

23. Usability Heuristics for User Interface Design, Nielsen Norman Group, 1994

24. What is the framework for innovation? Design Council's evolved Double Diamond, Design Council, 2019

9.2   Recruitment materials

Recruitment overview

Below is an example of the recruitment specifications used to recruit older people for ethnographic interviews, older people for mini-groups and carers for focus-groups.

Recruitment overview: ethnography	
Older person, ethnography	1 x high need, specialist products
Older person, ethnography	1 x moderate need, tech products

Group A: Older people, everyday products, high need 1 x mini focus group with older people (6 participants)	
Number of participants	6 participants
Gender	A mix
Age	All participants 50+ (with a good spread of ages)
BAME	Min. 1
Experience of product safety	All to have experienced some level of difficulty with product focus of the session, with min 1 to have experienced issues with product safety
Care/support from friend or family member	Record
Need level	High need
SEG	C2DE
Product focus of session (i.e. all participants regular users of these products)	Everyday products

Group B: Carers of older people with severe needs 1 x full focus groups with carers (8 participants)	
Number of participants	8 participants
Gender	A good mix
BAME	Min. 2
Influencer relationship	Min 3 family member or friend

	Min 3 professional carer
Experience of product safety	Min 3 to have experienced issues with product safety and the older person they support
Need level of the older person they support	High need
Living situation	A mix of living situations
SEG	C2DE

Screener questions on level of need – Older people

Below is an example of the screener questions used to recruit older people based on level of need. A modified version of these questions was used to recruit carers, based on the level of need of the older people they care for.

- Do you receive care from a friend, family member, professional carer or anyone else?
    - o Yes, from a professional carer
    - o Yes, from a friend or family member
    - o Other, please specify
    - o No
- Have you ever experienced difficulty or issues with product safety while using everyday products such as appliances, phones, or kitchen utensils?
    - o Yes, have experienced difficulty (struggling to use a product the way it was intended – e.g. difficulty turning knobs or reading displays)
    - o Yes, have experienced issues with product safety (e.g. have injured yourself or others because of difficulty using products)
    - o No
- I am now going to read out a series of questions about everyday activities. Could you please tell me yes or no if the question describes you or your circumstances? [Participant was allocated to the highest category ticked]

Need level	Statement	Group A
Severe	Do you find it difficult to get around your house?	Thank and close if yes to more than 2
	Do you have help with getting ready in the morning/your personal care?	
	Do you have someone who helps you prepare meals every day?	
	Do you struggle to grip, lift and/or move small objects, like mugs, toothpaste or the TV remote	

High	Do you sometimes forget events or appointments, even if you have written them down?	Recruit 6 who answer yes to at least 3
	Do you need someone to come along to help when you go out to do your shopping or run errands?	
	Do you find it difficult to use stairs?	
	Do you find it difficult to cook a meal from scratch?	
	Do you find it takes you a long time to get ready in the morning?	
Moderate	Do you rely on lists and reminders to keep track of things you might forget?	Record
	Do you find that you can still get by on you own, but that some day-to-day tasks take a little longer than they used to?	
	Do you find that you get tired during the day?	
	Do you ever have a friend or family member come over once in a while to help you with big tasks like fixing things around the house, cleaning or managing the garden?	
	Do you struggle to lift large objects like a heavy suitcase, footstool or chairs?	
Low	Do you find you have good energy levels and are very active?	Record
	Do you exercise regularly? (e.g. tennis, cycling, hiking – or light exercise including swimming, golf, bowls, etc.)	
	Do you find that you do have some health problems but for the most part these do not have a big impact on your day-to-day life?	
	Do you feel more forgetful than you have in the past?	

- Do you have one (or more) long-term illness, health problem or impairment that limits your daily activities?
    - Yes
    - No

- Which of the following best describes how your impairment or illness affects you? (Please select all that apply)
    - Vision (blindness or visual impairment)
    - Hearing (deafness or hard of hearing)
    - Physical (wheelchair user, mobility issues, amputee, dwarfism)
    - Learning, concentrating or memory difficulties
    - Mental health
    - Social or behaviour (e.g. due to neurological diverse conditions such as Autism, ADD, or Asperger's' Syndrome)
    - A long-term health condition that doesn't fit any of the above
    - Don't know
    - Prefer not to say
    - None

9.3   Discussion guide

Below is an example of the main questions used on the discussion guide for the mini-groups with older people. The purpose of this guide was to serve as a guide to inform the flow of discussions, rather than a definitive list of questions to cover. The moderator used the guide flexible and was guided by what comes out of the discussions. In particular, the needs of each group vary, and so moderators will adapt the guide to ensure questions are relevant for a high to low level of need. In the discussion guide, instructions to the moderator are italicised.

Pre-task

Please think of a product that you use around the home that you find difficult or challenging to use. This could be a large product (e.g. a washing machine, oven, or microwave) or a small one (such as a toothbrush, can opener, or phone). It could be that you are frustrated with the product as a whole, or one specific aspect of the product or its use. It shouldn't be a food product such as a jar or can, a medical product like tablet packs, or any products associated with your car since the car is outside the home.

If the product is a small one, please bring it with you to the group! If not, please just come to the group ready to talk about what it is, and why it is that you struggle with it.

Section 1: Introduction

Ask participants to introduce themselves:

- Name / occupation (if working) / who they live with

Section 2: Challenging products

Moderator to place A3 sheets of paper with multiple pictures of products that are in scope. Products should include: large appliances, small appliances, toiletries, digital devices, specialist products and kitchen utensils.

- Please can each of you tell me which product you brought in or thought about?
    - What is the product? How often do you use it?

- What is it about the product that you find difficult to use, and why?
    - Can you talk us through an example? How does that affect how you use the product? What are the impacts of this difficulty?
- Does anyone else have a similar experience to this (e.g. similar product or similar difficulty)?
- Are there types of products you find more difficult/frustrating to use than others?
    - Why is it that you find them particularly difficult?
- How much of an impact does this have on your day-to-day life?
    - How does this affect your happiness/health/independence?
    - Are there any safety implications to any of these?
- Are there any other specific aspects or features of products that you find difficult?
    - Why is it that you find them particularly difficult?
- Are there ways to get around these challenges?
    - *Moderator to probe on self-implemented adaptations or changes to the product, replacements, etc., whether they need to rely on family members to help them, whether they have had to replace any products or stop using any products*

Section 3: Changing ability

Moderator to read/pass out two case studies and ask participants to answer the following worksheet questions in small groups of two or three.

- How have changes in Lena/Joseph's abilities had an impact on her/his ability to use certain products?
    - In the kitchen/bathroom/living areas?
- What has been the impact of Lena/Joseph using products differently? This could be the impact on their happiness, health or wellbeing
- Pick one of the products you suspect Lena/Joseph might struggle with. Imagine Lena/Joseph is planning on buying a new version of this product. What should they be thinking about or looking for when they purchase it?

Moderator to bring back for group discussion

- Can you tell the group who you had on your case study, and describe them in 3 words?
    - What kinds of challenges were they facing? What kinds of difficulty did they have with products? How do you think this might have impacted on their life?
- What do you think are some of the key difficulties older people might face when using products and appliances around the home?
    - Do you think this could cause any safety issues?
- Have you or anyone you know had similar experiences to this person?

Section 4: Specific product focus

Participants were asked about one of the following: everyday, tech/digital or specialist products.

Everyday products

Moderator to allocate participants one 'category' of household products. Categories include large appliances, small appliances, toiletries, kitchen utensils, furniture. Moderator to explicitly let participants know they can choose another product that doesn't fit in these categories as long as it is within the project scope.

Worksheets contained the following questions:

- What is the product?

- Where did you buy it?

- What did you think of the range that was available for this product?

- What features of this project were you looking out for when you were shopping for this product?

- Where did you look for information about which version of this product to buy?

- Is there anything you know about how this product works now that you wish you knew before you bought it?

Participants feedback on their category and responses to the questions above. Moderators to explore:

- Any spontaneous mentions of engagement with the usability of a product before purchase

- Any spontaneous mentions of engagement with the safety of a product before purchase

- Any sources of information on usability and/or safety

We now want to take a detailed look at some of the products we all might have around the house that can be difficult for consumers to use – this could include older customers and more vulnerable customers. We're going to allocate you a category of products, we want you to think of two products in this category and let us know what 'good' and 'bad' looks like for each.

Moderator to allocate participants one 'category' of household products. Categories will include large appliances, small appliances, toiletries, kitchen utensils, furniture. Moderator to explicitly let participants know they can choose another product that doesn't fit in these categories as long as it is within the project scope.

Each worksheet to ask:

- What is this product?

- What does a good design of this product look like? You can think about how easy it is to use and how safe it is to use.

- What does bad design look like? You can think about how difficult it is to use and how unsafe it is to use.

- What is the impact of good design of this product? You can think about the impact on your happiness, health or wellbeing

- What is the impact of bad design? You can think about the impact on your happiness, health or wellbeing

- Are there any similarities between the information you've written about both products?

Pairs feedback their categories and responses to the questions above. Moderators to explore:

- Are there any great examples of well-designed versions of these products?

- What is the effect on you / consumers of the challenges you've included?

- Probe for any workarounds to these problems, if not already covered

- Looking at the worst offenders of the products we've discussed, what changes would you make and why?

- Looking at the best products on our list, what do you think other manufacturers and product designers have to learn from this?

Tech/digital products

- What are the different types of digital products do you have in your home? *Moderator to write different products or product types on Post-its*

Moderator to ask participants to work in pairs to through about a digital product they have both purchased in the past five years, to the kinds of considerations you might make when you buy a digital product.

Each worksheet to ask:

- What is this product?

- Where did you buy it?

- What did you think of the range that was available for this product?

- What features of this project were you looking out for when you were shopping for this product?

- Where did you look for information about which version of this product to buy?

- Is there anything you know about how this product works now that you wish you knew before you bought it?

Pairs feedback their categories and responses to the questions above. Moderators to explore:

- Any spontaneous mentions of engagement with the usability of a product before purchase

- Any spontaneous mentions of engagement with the safety of a product before purchase

- Any sources of information on usability and/or safety

Moderator to direct participants back to the list of digital products brainstormed earlier.

- Can we sort these by which ones are easier to use and harder to use?
    - What makes things easier to use? i.e. what characteristics
    - What makes things difficult to use / frustrating? Any examples?
    - Have any of these products ever caused anyone any safety issues? *If so, probe fully*
- How do you respond to / cope with these difficulties?
    - *Spontaneous, then probe:* e.g. avoid using them, ask others for help, call helpline or look online for help, do not use full functionality
- Does anyone have any examples of workarounds / 'cheats' or tips?
    - *Spontaneous, then probe:* e.g. attaching instructions to the product
- Are there any types of digital products that you think are getting more difficult to use, as time goes by? In general/for everyone? For older people in particular?
- What do you think needs to change to make these products easier to use?
    - Looking at the worst offenders on our list, what changes would you make and why?
    - Are there any examples of really good digital products, that you think other companies or product designers could learn from?

Specialist products

- Have you, or anyone you know, had experience of these kinds of products? *Moderator to work with participants to write down different types of products that participants have had experience of.*
    - What types of products? How did you find out about them? Where did you go to buy them?
- What was the experience of purchasing the product like?
    - How did you feel?
    - What did you think of the range / quality / availability of the products you were looking for?
    - What features of this project were you looking out for when you were shopping for this product?
    - Where did you look for information about which version of this product to buy?
    - Is there anything you know about how this product works now that you wish you knew before you bought it?
    - *Moderator to probe on any specific mentions of considerations related to usability or safety.*
- Have you or anyone you know ever experienced any safety issues relating to these products?

If no experience:

- Where would you go if you needed to buy these types of products?
- Are you aware of any brands / websites / shops that sell them?

- What are your expectations in terms of choice, quality, price – of these types of products?

Moderator to show 5-6 examples of specialised products – including pictures, prices, descriptions e.g. stairlift, handles for kitchen utensils, grab rails for bathroom, big button phone or radio, reacher/grabber, shower chair.

- What are your first reactions to these products?
- What words do they bring to mind?
- Would you want to buy them? Why / why not?
- Do you think the people from the case studies would want to buy them? Why / why not?
- If you were designing these kinds of products, what if anything would you want to change? Why?
  - *Moderator to probe on price / aesthetics / function / marketing / etc.*

Section 5: Principles and recommendations

Thinking about all of the challenges that we've been talking about so far this evening…

- What changes do you think could be made to improve the safety and usability of products in the home?

Moderator to flipchart responses and begin to group into principles.

Probe as to whether the changes are to improve safety for everyone, or for people with specific types/levels of need.

- Are there any overarching principles, or things that designers should bear in mind?

Lots of people have attempted to create sets of these kinds of principles, with the aim of making products more inclusive for everyone to use – regardless of their age, ability, or needs.

- What do you think about this idea of designing for everyone?

Moderator to show a list of the titles of potential principles on flipchart. For each moderator to ask:

- What do you think is meant by this principle?
- Can you give me an example of it being done well? Can you give me an example of where it might be done badly?

Show full description of principle

- What's your reaction to this idea?
- How important would you say this is to you? How important would you say this is to the people in our case studies?
- Are there any other things that you think designers should bear in mind?
- What, if anything, do you think Government is doing to address the issues we've discussed today?

- o Should the Government be doing more, less on this issue? Or are they doing the right amount?
- What role, if any, do you think regulation should have in addressing some of the issues we've spoken about today?
  - o *Moderator to probe specifically on the role regulation should play in ensuring products as safe and easy to use for older people.*
  - o Is there anything specific things regulators should require manufacturers and designer to do?

Section 6: Conclusion

Ask participants to complete closing worksheet – one piece of advice to designers when thinking about how to make products safer and easier to use for people like yourself.

Thank and close.

9.4 Product focus categories

Group and ethnography participants were asked to think about the challenges they experienced relating to a certain category of products. These were everyday products, technological products and specialist products. To help prompt participants, as well as remind them which products were out of scope for the project, moderators provided the following examples of products for the relevant category:

- Everyday products:
  - o Small appliances: Drills and tools, clocks and watches, safes and locks, blenders, steam cookers, irons, vacuum cleaners, doorbells and security appliances, lawnmowers and hedge trimmers, fans, heaters, dehumidifiers, hairdryers, kettles, microwaves and toasters
  - o Large appliances: Ovens and hobs, dishwashers, washing machines and dryers, boilers, fireplaces, garages and garage doors, lamps, blinds and curtains, fridges and freezers, wardrobes and cupboards
  - o Disposable products: Toothbrushes and toothpaste, scissors and stationery, DIY fillers, pastes and glue, shower gels and soap, gloves, clippers and razors, wipes and paper towels, cleaning products
- Technological products: Computers and tablets, telephones and mobile phones, televisions, fire alarms and detectors, batteries, thermostats, headphones and speakers, smart home devices, websites and online shopping, printers
- Specialist products: Stairlifts, grab rails, personal alarms and fall alert bracelets, medicine organisers, hearing aids and spectacles, walking trolleys and walking aids, mobility scooters, memory aids and trackers, ready reachers, showers and shower aids

Office for Product Safety and Standards

Department for Business, Energy and Industrial Strategy
4th Floor, Cannon House, 18 The Priory Queensway, Birmingham B4 6BS
https://www.gov.uk/government/organisations/office-for-product-safety-and-standards