

StudioLR

Making the Difference

Inclusive Symbols for People Living With Dementia

Feasibility Research




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Creating better lives.



LOTTERY FUNDED

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Project Summary

Background and Objectives

Symbols occur in everyday life, and in a variety of contexts. A 'symbol' is a mark or thing that stands for something else. As part of the drive to empower and enable independence for those living with dementia, this research sought to explore what types of symbols might be difficult to understand and investigate the feasibility of designing symbols that might be more effective for this group. The research aimed to identify any particular areas of improvement in symbol design, (not just wayfinding directional signage), with the view of producing a new, 'inclusive symbol set' that could be adopted across society, the whole population living in Scotland, and potentially the rest of the UK.

Methodology

Qualitative research took place through six discussion groups held across Scotland in Summer 2016. Using partners to recruit participants living with dementia, researchers joined existing social occasions to present a variety of symbols across different subject areas. Participants with a mixture of types of dementia, mostly over 80 years of age, took part for 45 minutes, with the support of their carers where appropriate. A mapping review of the existing literature informed the structure of the topic discussion guide. The stimulus consisted of two symbol sets, compiled with input from a variety of stakeholders and experts. Symbols were shown without text, within and also out of context (of a typical relevant environment), and included a minimum use of colour.

Results

The results clearly demonstrated an inconsistency in responses to a variety of symbols presented. Hesitancy, confusion and a variance in opinion was evident for some 'everyday' signs. A 'literal' translation of a symbol was frequently observed. Often there were too many elements presenting information within the symbol itself. Lack of associations and relevance to their present day lives was also a factor impacting a symbol's degree of success in clearly communicating what it stood for.

Conclusions and recommendations:

There would appear to be scope to improve symbol design for those living with dementia. Symbols that cross cut domains (for example; toilets, stairs, lifts, escalators) would benefit from development of alternative designs with a view to incorporating quantitative testing and ethnographic research – involving placing new symbols in everyday ‘real life’ situations of relevance for those living with dementia. For example in hospitals, GPs, Community Centres and supermarkets.



Including more input from those with early onset of dementia would also be beneficial. Future research should take into consideration the use of text, colour, and a more ‘realistic’ representation of an object or thing. The presentation of different elements to enhance certain symbols, such as arrows, warrant further investigation, as well as positioning, size and overall legibility of the symbol itself.

Next Steps:

Further discussion of results, conclusions and recommendations with those living with dementia to get feedback, explore validity of the findings and input into the design of the next research phase is now required. Key questions to discuss should be focused upon; immediate areas of priority, factors enhancing symbol communication, use of text, and what other disabilities could/should be represented in symbols.

Note:

StudioLR worked with support from University of Edinburgh. The Life Changes Trust solely funded an initial three month research phase with a ‘Life Changes Trust Award’. The Life Changes Trust is funded by the Big Lottery Fund.

Main Report

Background

Symbols occur in everyday life, and in a variety of contexts. A 'symbol' is a mark or thing that stands for something else.

This is in contrast to 'signage', which includes graphic designs, emblems, or words used especially for the identification of giving directions or warning, (e.g. a combination of symbol, words, and direction). Currently there is a British 'standard set' of recommended symbols that are adopted across Scotland and the rest of the UK (BS8501:2002).

A great deal of information is communicated through symbols e.g. labels on food packages, road signs, toilet doors, exits and entrances, health and safety, clothes washing labels etc. Often these symbols are supported by written text. People living with dementia may have difficulty interpreting some of these symbols and this is not always obvious to outsiders who may take it for granted that they have understood the message simply because they appear to have seen it.

Everyone, from local governments and health boards to the local corner shop and hairdresser, shares part of the responsibility for ensuring that people with dementia feel understood, valued and able to contribute to their community.

Part of that community involves the labelling of places and things in a way that clearly communicates relevant information to this group – including symbols. As part of the drive to empower and enable independence for those living with dementia, it is important that symbols work clearly, are easy to read, understand and communicate the right information.

In 2015, StudioLR took part in a project, 'Wayfinding in dementia environments – collaborating to improve the built environment for people with dementia'. A Scottish Funding Council Innovation Voucher through Interface, Scotland's knowledge connection between business and academia, supported the collaboration.

They worked with the Universities of Edinburgh and Stirling, who together had extensive expertise in understanding the care and lived experience of people with dementia. The project's priority was to use insights from people living with dementia to develop signage that was both effective and attractive. This would make the product more likely to be used in a variety of settings, increasing people's independence, and reducing stigma. It also included an extensive literature review of studies on dementia and living environments, which highlighted key factors relating to orientation and disorientation. The StudioLR team then used these findings to develop a set of design guidelines for creating consistent, helpful, and attractive signage.

Building on from the success of this, StudioLR, alongside University of Edinburgh and Life Changes Trust, looked to repeat a similar review with a particular focus on 'symbols'. The aim was to create appropriate research stimulus for participants to ascertain how symbols can be more explicit in their meaning and communication of objects and places.

The idea was inspired by participants in a workshop discussing the design of toilet signage. Henry Rankin (Chair of the Scottish Dementia Working Group) sowed the seed when he pointed out that the male and female toilet symbols often appear ambiguous and therefore are of very little help at a time of need!

This research project aimed to explore the feasibility of developing a new 'inclusive' set of symbols (as opposed to way finding signage), in order to improve the independence and confidence for those living with dementia as they go about their everyday lives.

The results look to inform the start of a design process working towards creating a new set of 'inclusive' symbols that would be further tested and validated with the wider Scottish/UK population (Research Phase 2 – subject to funding). The Life Changes Trust solely funded an initial three-month research phase with a 'Life Changes Trust Award'. The Life Changes Trust is funded by the Big Lottery Fund.

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Research Aims

The research set out to capture some of the consequences for those living with dementia of confusing or unrecognisable symbols in various places in their community. It also looked to identify where improvements could be potentially made to create the most impact and positive change.

(Please see Appendix A, on page 50, for more detailed information on our specific research objectives, methodology, sample, recruitment, and overall research design.)



Main Report

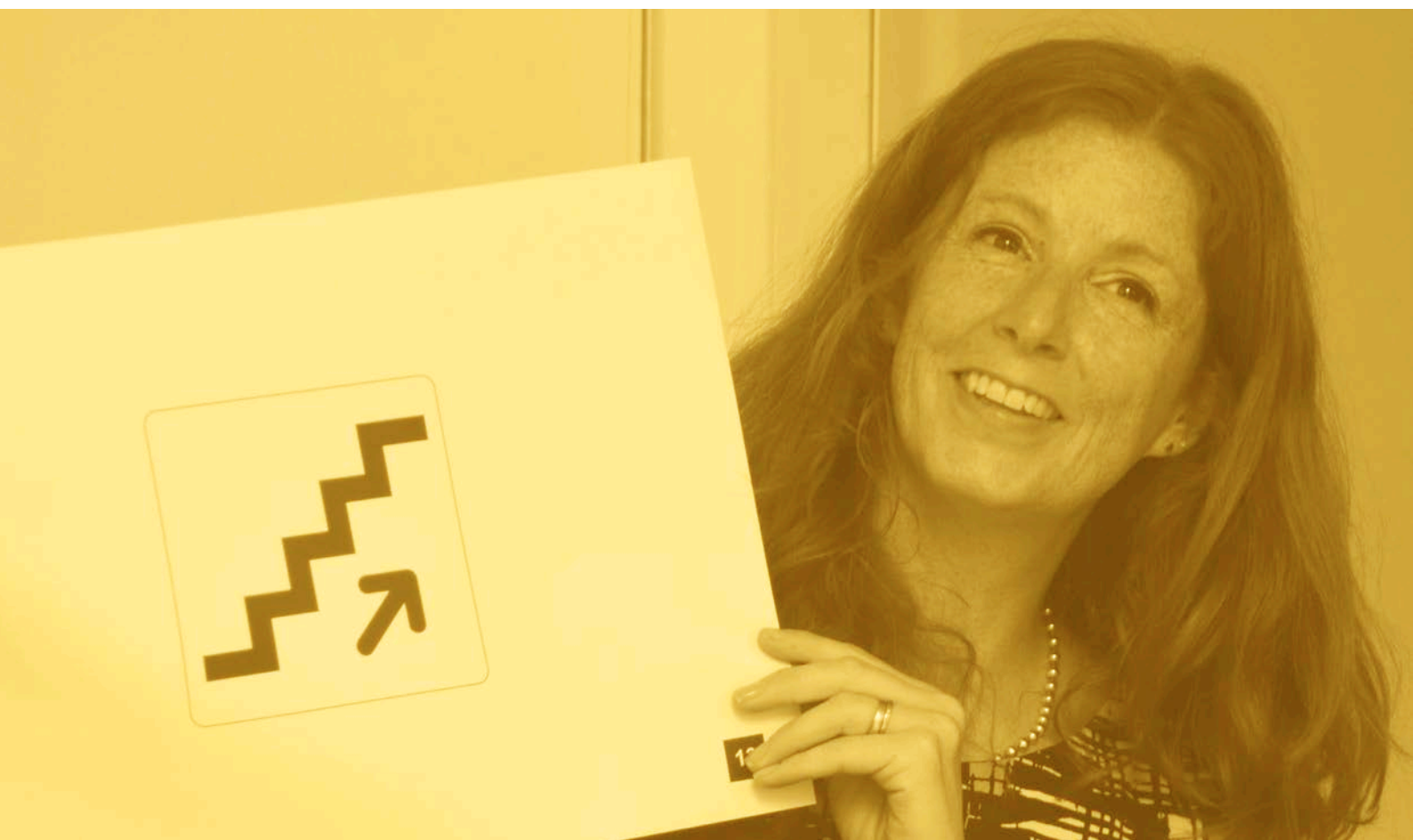
Findings

There would appear to be a potential need to develop a 'new and improved' set of symbols that are 'dementia friendly'. It was apparent that certain symbols were not easily comprehensible or recognisable for those living with dementia.

Although there was not a particular 'domain' or area of life that appeared to be of critical priority for symbol redesign – such as in the home, shop, a train station, or healthcare setting – improvement in symbols that 'cross cut' could potentially create the most impact and positive change.

By doing so, this could enhance and sustain the self-efficacy for future independent living for those with dementia.

Symbols for future testing would include those such as toilet, stairs, escalators, lifts, information/help desks and way out/exit.



Main Report

Factors for Future Design

The following factors should be taken into consideration for symbol design when creating, testing and researching new symbols as part of a new and improved 'inclusive' set – for both those living with dementia and the population as a whole.

How obvious is it?

Literal interpretation. Many responses were direct 'reads' of the symbol, as descriptions of the thing itself and not what it might represent. Symbols were often described at 'face value'. For many there was loss of 'paired' associations (e.g. male and female symbol not paired with going to the toilet anymore). Symbols that required a meaning to be inferred were less likely to be attributed a correct meaning.

Use of text for communicating symbol meaning may need to be explored further with this group. Respondents often thought that text was definitely required, but this may have been because symbols were confusing and unclear. However, this variable in research cannot be ignored in terms of enhancing communication and its impact for symbols going forward.

What benefit does the symbol serve?

Goal directed. Participants did not always decipher between wayfinding directions and a symbol (fire escape). There was a requirement by some to know what was happening next (e.g. people would query 'where are those stairs going?' 'where is that arrow pointing?'). The definition between a symbol and sign was not distinct for the majority of participants. Most participants felt they knew where they wanted to go, but it was getting there that was the problem.

The use of different elements?

Levels of stimulus. Occasionally there was too little information contained in the symbol itself. An inclusion of a 'person' in the graphic could sometimes help an individual work out 'what was happening'. Conversely, some symbols contained too much information – i.e. those consisting of lots of elements, and were often confusing. If there were many 'parts' contained within the symbol (ticket machine or lost property) it became more difficult to get the overall symbol 'concept'.

Three dimension images. The three test images that incorporated a realistic portrayal of an object (e.g. toilet, plate, stairs) did stand out and generate positive impact and these should be explored further.

Colour would appear to influence interpretation – in terms of communicating an action, as well as making elements contrast. Symbols with colour required compliance, e.g. ‘no parking’ symbol enhanced by the colour red that is known to ‘prohibit’. Green in the fire escape sign – implied positive action. This needs to be explored more rigorously in the next phase of research.

Positioning and legibility. The environmental context of a symbol would be important, such as lighting, size of symbol and ‘readability’.

Questions for discussion


1. What particular places would benefit from new symbols?
2. What things influence visual communications of symbols for objects / things / places (such as size of the symbol, height and lighting)?
3. How can text be used and perhaps enhance symbols?
4. What other disabilities could/should be represented in symbols? (i.e. not a wheelchair)

Main Report

Results for Individual Symbols

Overall, there was a consistency in responses across all six groups to the first set of symbols. The use of contextual pictures (see Appendix D, page 66) i.e. photographs of symbols 'in-situ' rarely enhanced the quality or the specificity of the answer itself but did confirm what they thought they knew already.

Warm up discussions focused on where the areas of difficulty were – particularly when understanding or recognising symbols (as opposed to signs). This open-ended question did not generate an overwhelming number of responses, and which might be due to the nature of the recall task. However, in some instances toilet signs, which were 'not conventional', were cited.



**“Even before I had
this (dementia)
I had difficulties
when it was
unusual and now I
don’t think I would
recognise them”**

Main Report

Symbol 1. Ladies Toilet



“That is a female”

Although this sign was well recognised, there was often a literal response to this sign. A comparatively smaller number of participants paired this symbol with the use of a toilet out of context. However, this was enhanced by the context picture (in-situ) for some.

“It’s a picture of a woman” (Male, Glasgow)

“I don’t think I’d walk through that. It’s a toilet. It distinguishes between a male and a female toilet” (Male, Aberdeen)

“That is a female” (Female, Edinburgh)

Symbol 2. Male Toilet



“That man’s head has been knocked off”

Similar to symbol 1, there was a very literal interpretation of the figure, with half respondents making the association with toilet facilities. The symbol in context did not always help everybody.

“That is a man. I am a man, so that one is for me” (Male, Edinburgh)

“That man’s head has been knocked off” (Male, Glasgow)

“Sometimes I wear a kilt, so that other one (female) – could be for me!”
(Male, Glasgow)

Other Toilet Symbols (set B)



There was some confusion over a symbol that presented male and female signs next to each other (i.e. if gender-neutral toilets or a sign for a place near both toilets). A preference to a literal 3D representation of the toilet was evident across all groups, although one group found it slightly disconcerting to see an actual toilet.

Symbol 3. Wheelchair Accessible



“That is for a disabled toilet”

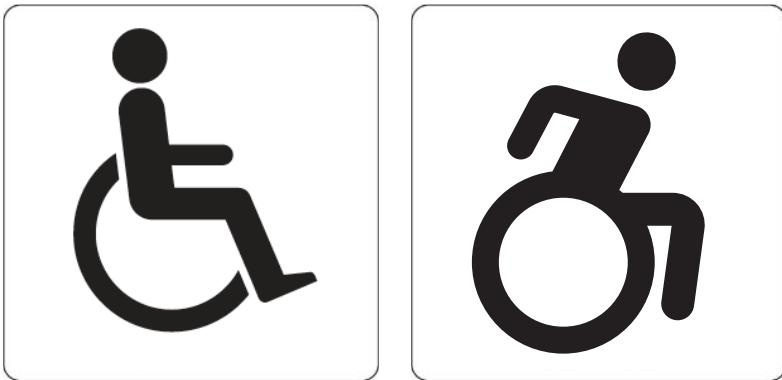
Everyone recognised it as a wheelchair. Many assumed it was disabled toilet following symbols for ladies and men’s toilets. Most people when they saw it in context recognised disabled toilet.

“That is someone sitting in a chair”
(Male, Glasgow)

“That is for a disabled toilet”
(Disabled, Female, Edinburgh)

“I have a walking stick, and when I see that symbol, even though I am not in a wheelchair, I know that is a sign for people like me” (Female, Edinburgh)

Other Wheelchair Symbols (set B)



The seated upright version was thought to be clearer than the symbol that depicted a moving wheelchair. There was a literal interpretation around the active wheelchair user;

“That person looks like they are about to fall out of their chair” (Female, Edinburgh)

“The first one he’s blowing bubbles” (Aberdeen)

Symbol 4. Escalator



“I have no idea where they are going, where are they going?”

Again, approximately two thirds recognised it as an escalator. Some were confused around if it was a stair or an escalator. A few recalled a similar sign for different circumstances that they regularly encounter in their daily lives.

“I have no idea where they are going, where are they going?” (Male, Edinburgh)

“That person is just a blob to me” (Male, Glasgow)

“There are escalators in Marks and Spencer, but I have never seen that sign” (Women, Edinburgh)

“There are escalators in the Glasgow trains, but I don’t go on those any more” (Male, Glasgow)

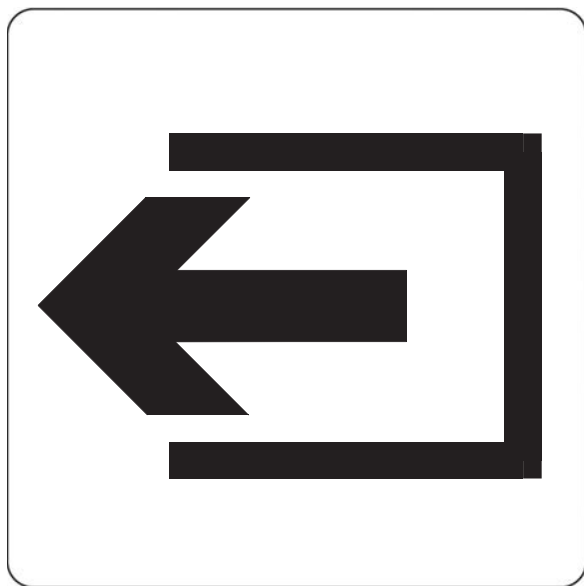
Other Escalator Symbols (set B)



When faced with a number of variations. Arrows on escalators generally were useful. There was a variance on whether there was a preference for people or not, nor how many people.

“I like direction” (Aberdeen)

Symbol 5. Exit



“Like in the hospital, you follow the colour then it disappears”

This symbol caused a relatively high degree of confusion, and was not always understood as a symbol for exit. Some groups agreed they wanted to know where it was pointing to and that there was not enough information.

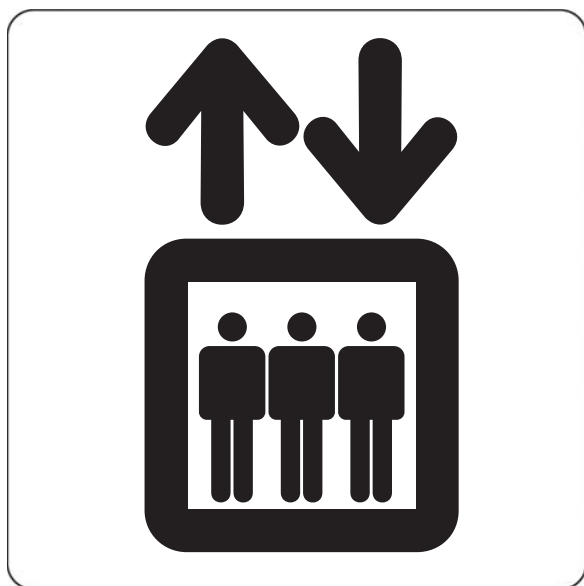
“Just go this way?” (Male, Glasgow)

“Follow the exit or whatever” (Male, Aberdeen)

“Follow the arrow but where is it going? Where are you following it to?”
(Female, Glasgow)

“Like in the hospital, you follow the colour then it disappears” (Male, Aberdeen)

Symbol 6. Lift



“Only three people can get into that lift!”

Most could tell it was something that went up and down. The exact meaning was not always clear. For those who did get it might mean lift, some thought it was trying to communicate maximum capacity. There were discussions around whether you could only get three people in. In terms of within a situation, understanding was influenced slightly when the symbol was seen in a corridor. Nevertheless, for some it was no better, they had not spotted the lift in the picture so it seemed to be in isolation.

“Is it a lift?” (Female, Aberdeen)

“You can’t see the buttons to press to go up and down, but the arrows would suggest it could” (Female, Edinburgh)

“Only three people can get into that lift!” (Male, Glasgow)

“Why is it there?” (Female, Aberdeen)

Other Lift Symbols (set B)

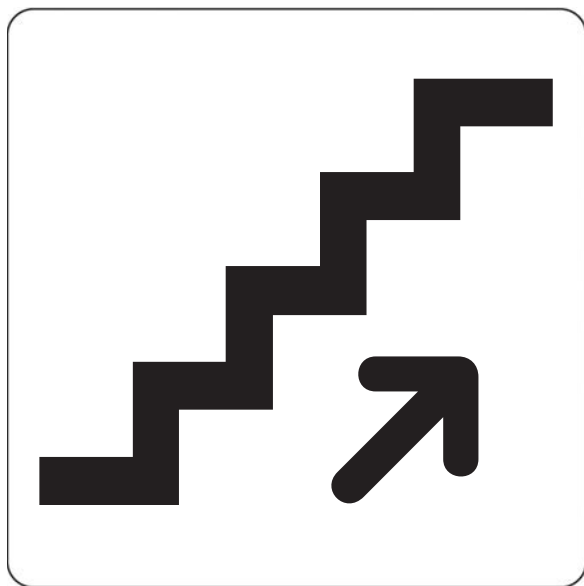


Again, the arrows were important to help decode what would happen next. The presence of one arrow meant confusion;

“The top one with arrows going up and down because I can’t understand why that’s just going down down” (Aberdeen)

There was discussion around the purpose of the dots – some were confused as to whether that just meant there were three floors because there were three buttons. When looking at the symbol of a wheelchair in a lift, some people said they would not use wheelchair accessible lifts as they presumed they were just for people in wheelchairs.

Symbol 7. Stairs



“That doesn’t look safe, you don’t have anything to hold on to”

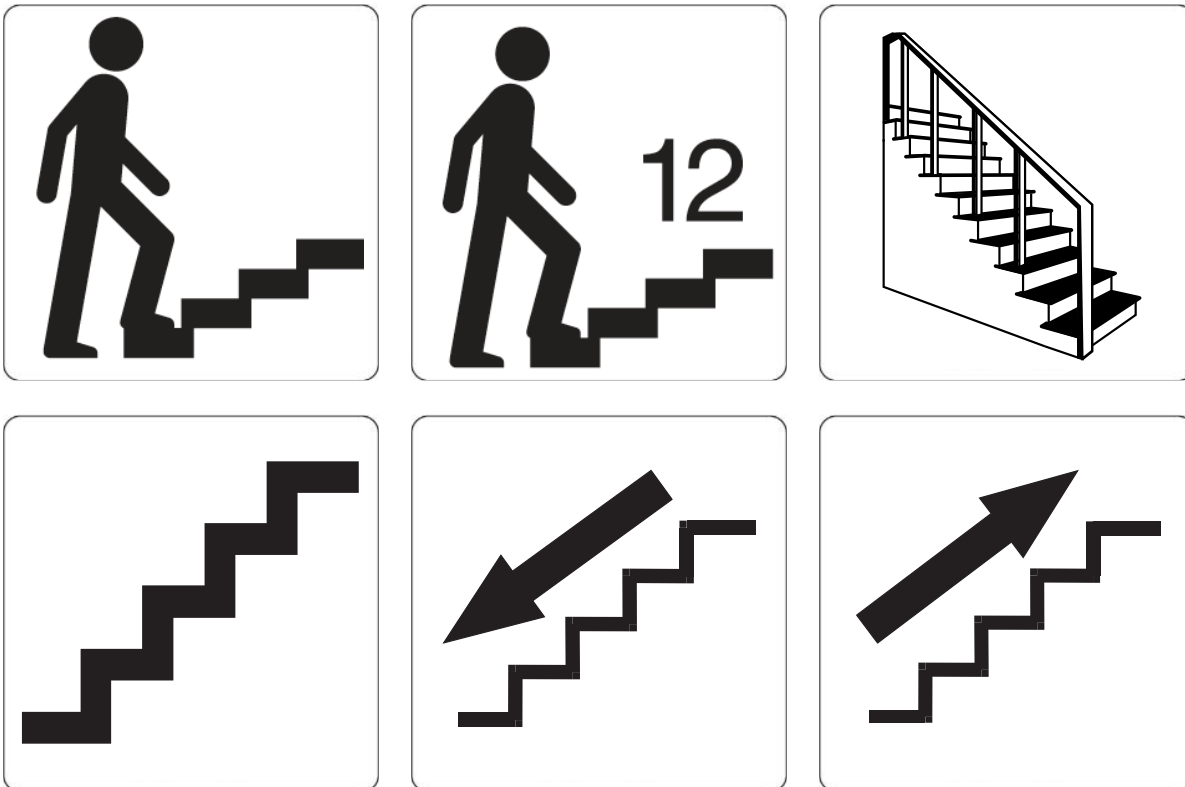
This symbol was commonly understood as stairs, but the arrow sometimes left participants bewildered to where the stairs were going to or if they were just one directional. People were unsure whether the stairs only went the way of the arrow. However, most people appreciated it was stairs going up.

“That is a stair – but I don’t where it leads to” (Female, Edinburgh)

“That doesn’t look safe, you don’t have anything to hold on to” (Male, Edinburgh)

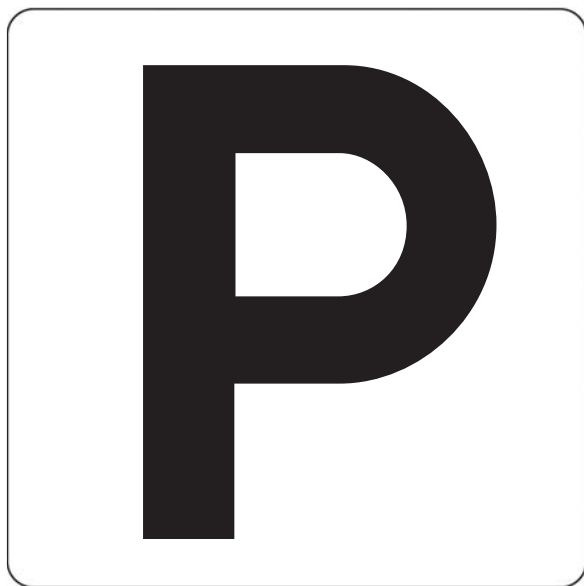
“That’s stairs but why is there an arrow?” (Male, Aberdeen)

Other Stair Symbols (set B)



They liked having a person on the stairs but some found the arrow going up or only going down misleading or confusing.

Symbol 8. Parking



“That is a P, could be a P for person”

This was seen as parking, but for those people that had not driven for a while, or had stopped going out in a car, there was some who did not understand what the P stood for.

“That is a P, could be a P for person” (Female, Edinburgh)

“I didn’t know what this is, but I don’t drive now” (Female, Edinburgh)

“Parking. Mind if you saw a Pee on the window you’d wonder if it was a toilet!” (Aberdeen)

Symbol 9. No Parking

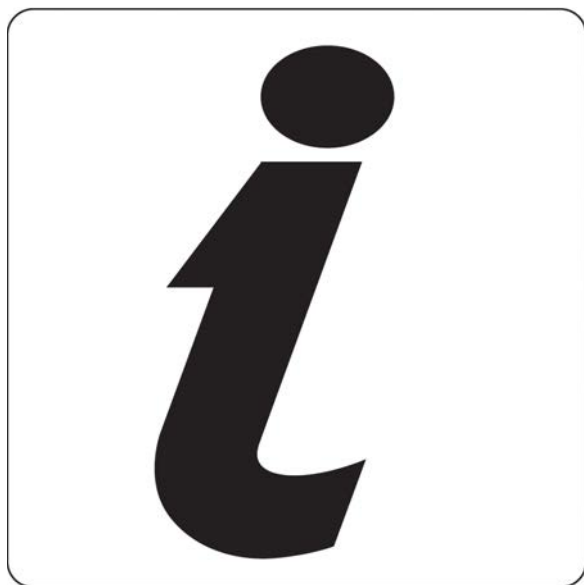


“The opposite of the last one, but no parking!”

This was more apparent for people who still drove and some thought the colour sign for No Parking was easier to spot. The use of colour helped alert people to the fact it was prohibitive.

“The opposite of the last one, but no parking!” (Male, Edinburgh)

Symbol 10. Information Point



“Is that a bin?”

This symbol was polarising. Quite a few participants understood this symbol immediately, recognising this was for information, but some had no idea. They thought the symbol in context was more recognisable and related it to local signs for information (such as Tourist Information in a Railway Station).

“That is for information, I know that one” (Female, Edinburgh)

“Is that a bin?” (Male, Glasgow)

“Its an 'I', but not sure what the I means” (Female, Edinburgh)

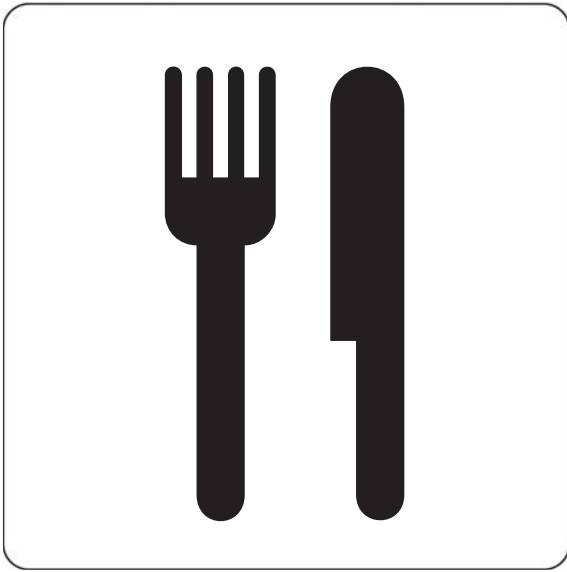
“Looks like a J though” (Female, Aberdeen)

Other Information Symbols (set B)



Again, some confusion of response here with the ‘i’ symbol itself... (“**that looks like a light**”, Aberdeen). They felt none of them in isolation gave them enough information.

Symbol 11. Restaurant

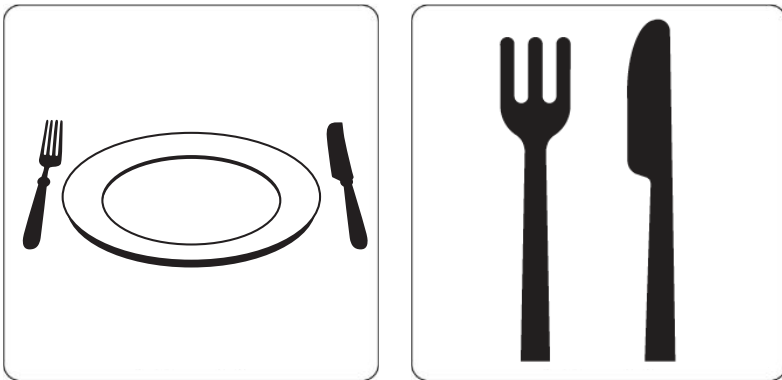


“Where you get something to eat”

Most respondents understood that this was somewhere to eat, a café or restaurant.

“Where you get something to eat” (Male, Aberdeen)

Other Restaurant Symbols (set B)



This was split between some liking the plate version, some finding the knife and fork clearer but overall they felt that this was equally communicated a place to go to eat.

Symbol 12. Café



“Coffee or tea.
Maybe for a café?”

A cup of tea or coffee was the main answer for this. Again, although everyone generally recognised the symbol, there were discussions and ambivalence around whether you could get something to eat too.

“Coffee or tea. Maybe for a café?” (Woman, Edinburgh)

Symbol 13. Ticket Offices, Machines



“Is that for your cinema ticket,
or your bus ticket?”

This symbol caused a variety of responses, with respondents answers depending on if an individual had experience of using a cash machine on a regular basis. Some people thought you put money in and get something out like car parking ticket and some people thought it was a cash machine and some people had no idea what it meant. Generally, this was not enhanced by seeing it in context.

“I have no idea what that means” (Male, Edinburgh)

“Is that for your cinema ticket, or your bus ticket?” (Female, Edinburgh)

“I don’t go to the cash machine, I go to the bank” (Male, Glasgow)

“I have never seen that sign before. Someone else pays for me when I go out” (Male, Glasgow)

Other Ticket Offices, Machines Symbols (set B)



None of these generally appealed to the group, with a general ambivalence surrounding the 'card' element.

Symbol 14. Priority Seating



“It’s someone disabled and a mother and baby”

This symbol generated much discussion. It was not something they were familiar with in local buses. As a symbol, it was recognised more in Edinburgh than in other places, particularly by people who are still using Edinburgh Lothian Buses (where it is actually used on the inside of the bus). In comparison, no one in Aberdeen recalled seeing it before.

For those who no longer use public transport, this symbol caused some confusion and was often given a literal interpretation. When seen in context people thought it was a seat for the people shown in the symbol but didn’t know whether that meant anyone could sit there.

“That is a man with a stick and a person with a baby” (Male, Edinburgh)

“If there are a certain number of people on the bus, then you will see this sign to give up your chair if someone else needs this” (Male, Glasgow)

“It’s someone disabled and a mother and baby” (Female, Aberdeen)

Symbol 15. Waiting Area



“That would make me anxious – seeing the clock and thinking that was how long you had and would have to be out by a certain time”

This symbol for a waiting room caused wide spread confusion. Particularly the time of the clock, which caused a distraction to the overall meaning of the symbol. Respondents did not recall seeing this symbol in their everyday lives, despite spending quite a bit of time in medical environments. They could not work out whether the clock symbolised the amount of time allowed for appointments.

“That person is coming off their chair, he looks like he is going to float off!” (Male, Glasgow)

“That would make me anxious – seeing the clock and thinking that was how long you had and would have to be out by a certain time” (Female, Aberdeen)

Symbol 16. Fire Escape



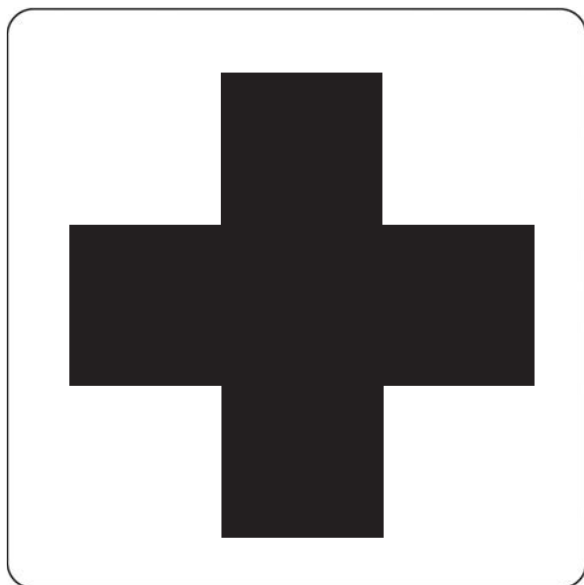
“That is someone running away from a fire!”

This sign was well recognised. Only one respondent got it confused with a ‘bush fire’. The fact that it was in green did not stop people understanding that it was a hazard sign or a symbol for danger. Everyone knew it was a fire escape. They thought it was clear and the colour helped.

“That is someone running away from a fire!” (Male, Glasgow)

“Somewhere to run away from a fire” (Male, Aberdeen)

Symbol 17. Medical



“That is where you go to get your prescription”

Most knew that this symbol was prevalent within the area of healthcare but not what it represented specifically. It was something that they felt they regularly came across and was familiar to them. A medical cross is universally recognised and most people assumed it was for a doctor or some form of medical treatment. There was not a lot of consensus as to where it would be seen. Suggestions were in a hospital, accident and emergency department, first aid and pharmacy. When looking at mixed sheets (appendix D, page 94) they all thought this was the clearest. The others had too much information on them.

“That is for the doctor” (Female, Edinburgh)

“That is where you go to get your prescription” (Male, Glasgow)

Other Medical Signs Symbols (set B)



When a bed was shown under the cross, it was often recognised as a hospital.

“Oh that’s a hospital” (Female, Aberdeen)

The simplicity of a cross on its own was sometimes preferred to variations as the additional bits of information were sometimes confusing in themselves.

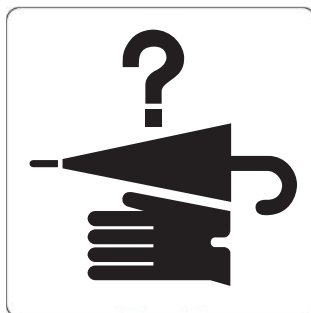
Unprompted, self-selected stimulus (Appendix D, page 83)

Overall, when asked to pick symbols that stood out for participants, there was a mixture of responses. Pictures that were chosen as easier to understand were the toilet and the stairs. Those symbols that were designed by StudioLR (toilet, stairs) and were three dimensional – were picked out for being clearer and different in style to the rest.

Some groups did not like seeing an actual toilet, despite it being clearer. There was a preference towards what is familiar. The picture of the plate with the knife and fork (and not just the knife and fork) was liked but did not enhance the meaning of the symbol. The stair with the bannister appealed to those who felt they needed one and felt a degree of reassurance of having it in the picture.
“I like the one with the bannister – it looks safer!” (Male, Edinburgh)

Other points to note: (Appendix D, page 97)

Lost property symbols were seen as very confusing and the majority of respondents did not understand what it meant, or ever recall seeing it. They wanted a picture of a suitcase or a bag/purse. The items were not deemed explicit enough. **“Rain, rain and more rain!”** (Aberdeen)



“That is a clear picture of a toilet”
(3 dimensional, line drawing).

Main Report


Summary

Overall, there was difficulty in spontaneously recalling past instances of experiencing 'symbol confusion'. Some respondents did volunteer difficult situations in their past, but this was infrequent and generally at the end of the group discussion after being exposed to a large amount of symbol stimulus.

The general impact of presenting a 'confusing' symbol was that it caused hesitation, ambivalence, and sometimes anxiety in participants.

"Tends to leave me feeling baffled" (Male, Edinburgh)

Often the most familiar symbols were those already encountered regularly or had the most relevance to the respondent's individual life and day-to-day living experience. Frequency of exposure in the context of their own lives meant the likelihood of recognising a symbol was increased. For instance, less travel meant less familiarity with travel related symbols. Those who decline to go out on their own did not understand symbols for lost property or information desk. Similarly, some were unsure and confused about symbols relating to car related activities or card withdrawals/ ticket machines (tellers preferred). Community Centres can also be difficult to navigate and people rely on carers or staff to help them become familiar with them until they know layouts after attending a few times.



**"I get worried if I
don't know where
I am or where
I am going"**

Participants' motivation for 'psychological' and physical safety – such as knowing where the toilet is located in a new environment, or a safe set of stairs, were key issues that meant certain symbols held more prevalence for the majority of people (similarly for stairs, exits and entrances, food and drink). For instance, those with a disability (movement, hearing etc.), know that people with a disability are represented by a wheelchair and will identify with that symbol.

**“I am not in a wheelchair, but I use a stick and can't walk easily.
So if I see that sign I know it is for me”** (Female, Edinburgh).

More symbols were requested for different types of disability, not just those in a wheelchair. They also discussed the need for a symbol that implies anyone who needs help can use a facility e.g. toilet not just people who are physically disabled.

In terms of symbols and symbol design, wrap up discussions in the groups indicated that size and position seem important. For instance, if a sign was placed too high, it could be missed. If it was too big, it could be overwhelming.

“I don't like them too big” (Female, Aberdeen).



Having a person on a symbol could help identification with the action/verb associated with that symbol (i.e. someone climbing the stairs). However, equally this could cause some confusion if providing too much stimulus by conflicting with other elements (i.e. three people in a lift). If there was too much information present in a symbol, this could be confusing with too much stimulus interfering with cognition. For this reason, and maybe sometimes due to additional heightened stress, hospitals tend to be confusing venues.

Colour could potentially enhance a symbol (despite the majority of the stimulus being in black and white). When talking about this concerning symbols this was generally in terms of contrast to make the symbol stand out more obvious compared to the background.

“Colour makes a difference” (Aberdeen)

Respondents cited colours in hospital to help wayfinding but, although intended as an aide, could often also be confusing.

“It starts off well then suddenly it changes colour and you don’t know where you should be” (Female, Aberdeen)

Despite the parameters of the research being explained, most groups spontaneously suggested that the use of text with symbol would enhance clarity of communication, and their subsequent understanding.

Main Report

Recommendations for further research

It is hard to draw conclusions around differences between individuals due to the nature of different dementia conditions, co-morbidity with other age related health issues and the combined impact this has on memory, recall and 'knowing' what a symbol stands for.

This was pertinent when evaluating relative importance of 'symbol sets or domains' with younger participants (60-70 years old), who are living more active lives, and may have different priorities to older participants. Physical and learning disabilities, as well as dementia type should be considered as this will impact on symbol recognition and comprehension. A wider and larger sample is required, and input and 'co-creation' from those with early onset of dementia would also be beneficial.

Research in this area needs to take into consideration the 'in the moment' nature of dementia and the variety of memory limitations for recall that will shape research approaches going forward. Other environmental elements that will also influence perception to symbol 'in-situ' (e.g. noise, lighting, surrounding activity) and could potentially influence results for a symbols impact.

Some symbols are cross cutting domains and therefore very important and should be given priority. For instance – toilets can be found in a variety of places and environments, as well as fire exits, stairs and lifts.

Testing of existing symbols compared to new symbols should look to involve a variety of variables and potentially incorporate a quantitative approach (such as A/B testing – where two different but similar versions of one given symbol are compared with each other for effectiveness). This may include specific design elements for further testing and consideration; clarity of image, use of colour, text, contrast, perspective, 3D versus 2D, a more realistic representation (not abstract). More contextual information within the symbols representation may also be required – the placement of a human being for example.

Ankara Afacan (2013) refers to six key design principles when designing urban environments for the elderly, and these warrant future consideration in methodological research design, particularly:

- familiarity
- legibility
- distinctiveness
- accessibility
- comfort
- safety

Next Steps

Further discussion of results, conclusions and recommendations with those living with dementia to get feedback, explore validity of the findings and input into the design of the next research phase is now required. Key questions to discuss should be focused upon; immediate areas of priority, factors enhancing symbol communication as discussed on pages 9 and 10.



Main Report

Results from the mapping review of the literature

A brief report from the mapping exercise summarised the following themes and recommendations for factors to consider in any future research around symbol design. Here is a brief overview of the findings;

- Use of symbols and text: what role might text have (or not) alongside the symbols being developed in this current study?
- Realistic symbols; symbols that are encountered regularly, obvious symbols, symbols known since childhood seem to work well: what constitutes a 'realistic' symbol? To what extent are symbols more recognisable when encountered regularly.
- Obvious representation: what constitutes an 'obvious' symbol? Are symbols and logos harder to decipher? Are text signs (e.g. for a toilet) more effective than a picture (of a toilet)? When designing symbols, is it more effective to import symbols that will have been known from childhood? Universality and symbols: what cross-cultural factors are being addressed in the research? What cross-cultural factors are out with its scope?
- Symbols and non-verbal communication; to what extent are the symbols being designed reaching out to people with dementia who no longer communicate verbally or find verbal communication difficult?
- Co-creation. There is no evidence of people with dementia being involved (beyond basic participation) in research and symbols. This supports the involvement of people with dementia in the next phase of this current study.

Legibility

Mitchell et al (2004) research the importance of legibility to people with dementia, and design factors that affect legibility.

Loss of Cognitive Functioning

In outlining lessons to be learned in elderly-friendly inclusive urban environments, and the importance of accounting for loss of cognitive functioning amongst older people / people with dementia.

Main Report

In Conclusion

There would appear to be scope to improve symbol design for those living with dementia. Symbols that cross cut domains (for example; toilets, stairs, lifts, escalators) would benefit from development of alternative designs with a view to incorporating quantitative testing and ethnographic 'real life' situations.

Including input from those with early onset of dementia would also be beneficial. Future research should take into consideration the use of text, colour, and a more 'realistic' representation of an object or thing. The presentation of different elements to enhance certain symbols, such as arrows, warrant further investigation, as well as positioning, size and overall legibility of the symbol itself.

Endnote:

ISO guidelines for future symbol research could be incorporated to the next phase. The international standard [ISO 9186] defines procedures for testing the comprehensibility of graphical symbols. The procedures describe two testing methods, the comprehensibility judgement test and the comprehension test. Each test is intended to determine the most comprehensible variants of a graphical symbol. The standard defines rules for the selection of respondents in a representative way, as well as rules for selecting the most comprehensible graphical symbol variant for each referent.

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Making the Difference

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