

# DesHCA: designing homes for healthy cognitive ageing

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DesHCA team  
Semington ILC  
October 2022



**Healthy Ageing Challenge**  
Social, Behavioral and  
Design Research

**UNIVERSITY of  
STIRLING**



# Working with partners

## Partners:

Clackmannanshire Council  
Construction Scotland Innovation Centre  
Faithful and Gould (construction management)  
Holmes Miller (architects)  
HousingLIN  
Inch Architecture  
Kingdom Housing Association  
Mediva (Japan) and the Japan-UK network  
Robertson Group (builders)  
Silviahemmet/BoKlok/IKEA  
Space Group (architects)  
Stirling Council  
Stone Paper Scissors (gaming technology)

## Also supported by:

- Royal Institution of Chartered Surveyors Scotland
- Institution of Civil Engineers Scotland
- Chartered Institute of Public Finance and Accountancy



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# Aims of DesHCA

- Identify housing innovations that support living well with cognitive change.
- Ensure these are
  - What suits people as they age
  - Practical, affordable and scalable for housing developers and providers
  - Suitable for newly built and existing homes.
- Design and test homes in collaboration with stakeholders.
- Produce guidance for making decisions about homes.
- Working in partnership with older people, architects, construction sector, local councils, housing associations, chartered surveyors, civil engineers, accountants.



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# Research methods - triangulation of data

- Review of literature on evaluated home designs for living with cognitive change
- Analysis of ELSA data about home adaptations in relation to cognitive change and quality of life.
- Home mapping exercise with 50 diverse older people, including people with cognitive impairment, to understand how they use their homes, what they like and dislike about them, what they would like to change/would be willing to change.

And also:

- Electronic monitoring of homes and how they are used
- Co-design of homes with older people, designers and the building industry using VR models, through several iterations informed by findings
- Development of a Serious Game to support decision making about home design for healthy cognitive ageing



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# Evaluation literature review - key gaps

- Tendency to focus on particular innovations or tech, rather than home design more broadly.
- Little understanding of costs or business aspects.
- Little attention to diversity of older people.
- Innovations are small scale and scalability is rarely considered.
- Most outcomes are researcher defined and quite narrow, missing the multiple positive and negative effects of environmental changes.
- Promising practice includes:
  - Earlier intervention
  - Good information and reinforcement
  - Consultation with older people
  - More focus on how people engage with home environments
  - Recognition of individual context and circumstances
  - Alertness to unintended consequences



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# ELSA analysis: relationships between home adaptations, cognitive change and well-being (Lisa Davison/Alasdair Rutherford)

- English Longitudinal Study of Ageing
  - Waves 7-9 (2014-2019)
- Cognitive impairment
  - Modified Telephone Interview for Cognitive Status (TICS27)
  - Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE)
- Wellbeing: Quality of Life
  - CASP19 Scale - scored 0-57
- Random effects panel regression model
  - Adaptations (one overall variable)
  - Adaptation types (three variables)



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# Findings from ELSA

- Bathroom adaptations are the most common kinds of modifications made to homes (59%-65% of participants had these over waves 7-9).
- Passive property based (e.g. wide doorways, ramps) and active movement based adaptations (e.g. handles, rails, alerting devices) are less common (24%-32% and 22%-24% over waves 7-9).
- People with cognitive impairment are more likely to have adaptations than people without (in wave 9, 76%/68%).
- Wellbeing scores are higher in higher income and wealth quartiles and among ages 60-74.
- Wellbeing scores are lower for people with mobility problems, ADL/IADL difficulties, people buying or renting homes and people aged 80+.



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# Findings (contd)

- More people living with cognitive impairment install adaptations than people without cognitive impairment.
- Living with cognitive impairment is associated with lower quality of life scores.
- Installation of adaptations does not mediate the reduction in quality of life, even after controlling for mobility problems and difficulties with ADL/IADLs.
- Suggests that people living with cognitive impairment may require different types of adaptations to promote improved quality of life.
- So what do people want and need?



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# Home mapping: what works, and what changes would be helpful

- 50 participants (older people) making maps of their homes and talking through how they use their space, and what they like and dislike about it (using drawing, cut out templates, photos or videos).
- 100 participants (older people) using EADDAT (our Environments for Ageing and Dementia Design Tool) to review their home and consider what could change to support healthy cognitive ageing.

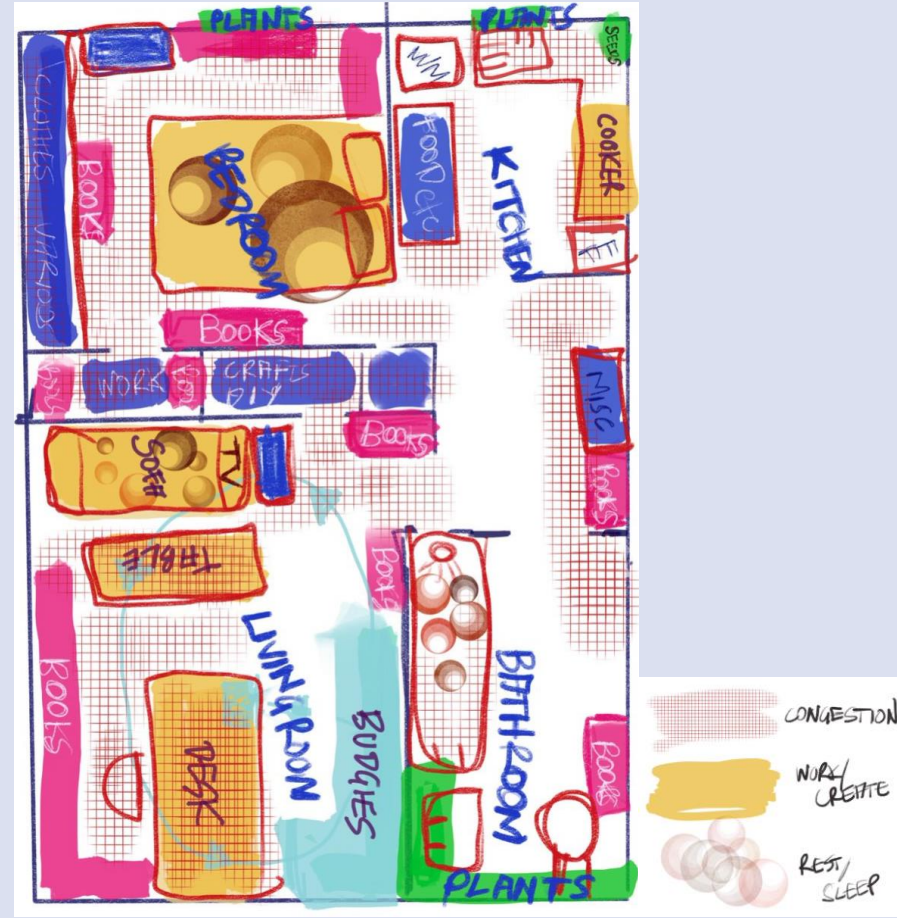
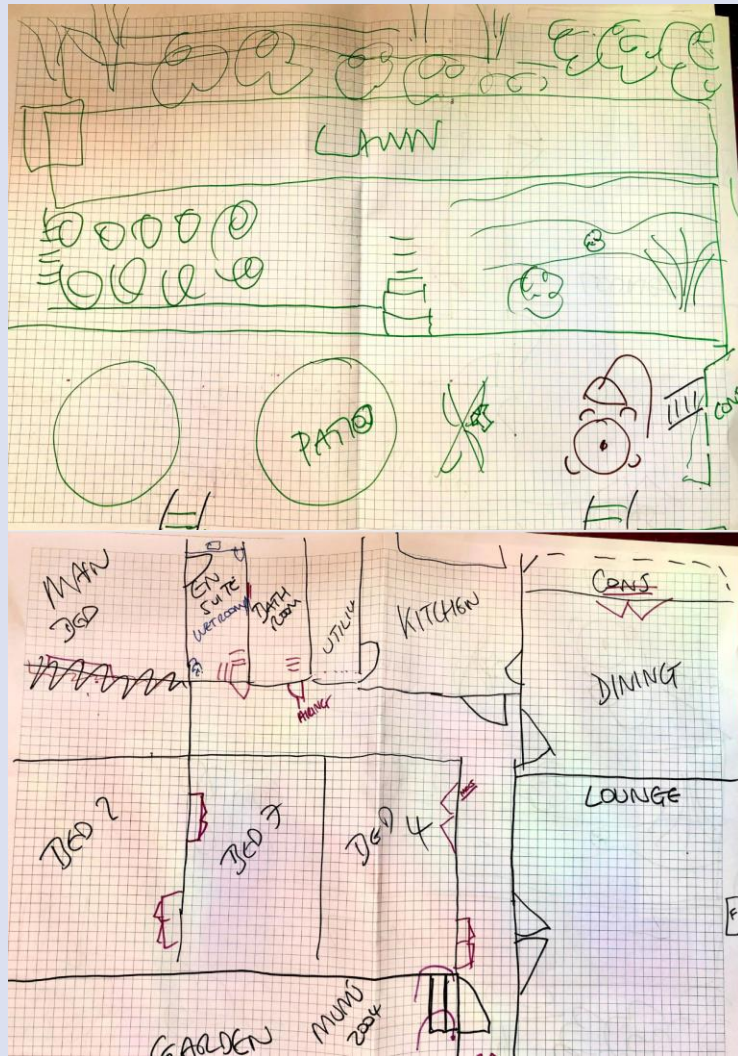


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# Examples of maps



# Emerging insights (Melanie Lovatt and RF team)

Analysis is in progress:

- Significance of the home varies: a place of central importance for self identity or 'just a house'.
- Lack of timely provision of suitable adaptations for people living with dementia.
- Difficulty identifying sources for adaptations and negotiating access-often leading to private adaptation.
- The pandemic restricted the ability of some participants to access adaptations, meaning that they spent more time than usual in homes unsuited to their needs.



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- Importance of garden in experience of home/garden adaptations should be considered when supporting people to age in place. Love/hate relationships with the garden.
- Mundane/small adaptations are important. The home may become both a 'home space' and a 'care space', with small changes that make a big difference (e.g. equipment).
- 'Stuff', clutter and storage that change: 'big clear outs' or more and more clutter.
- Choices about adaptations: new windows? 'handicap handles'? A steep ramp?
- Ageing in the right place? The anticipated/imagined/desired location may contrast with the reality and intersects with relationships, health, sense of belonging.



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# Conclusions and next steps

## Insights so far:

- Home design can make a difference to living well with cognitive change.
- But achieving an appropriate living environment is difficult.
- Researchers have not yet produced clear understanding or proposals at scale.
- Older people are not getting the adaptations they need.
- Their own perspectives have been neglected.
- Their own perspectives are nuanced and varied.
- Next steps for DesHCA:
  - Taking the data about what older people want and need into designs for new and retrofitted homes for healthy cognitive ageing.
  - Testing the designs with housing sector stakeholders, including older people, home designers, builder and providers.
  - Understanding costs and benefits for everyone, including business.
  - Cracking scalability!



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# Thank you

For further information, please visit our website at <https://www.deshca.co.uk/>

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If you would like to take part in the DesHCA project, please contact me!

For further information about designing for ageing and dementia see <https://www.dementia.stir.ac.uk/>, the website of the Dementia Services Development Centre



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