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Learning about design for dementia: lessons from a Japan–UK network

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ABSTRACT

A multidisciplinary Japan–UK Network identified cross-cultural and cross-national lessons for research aimed at improving the design of homes for people living with dementia. Previous research has suggested that improved, multidimensionally sustainable design may improve quality of life for people living with dementia and meet societal challenges of increasing populations of people with the condition. Adopting a social citizenship perspective, the paper argues that people living with dementia are considered equal citizens with rights to enjoy the life they choose. On this basis, research on home design must be underpinned by understanding the concept of home. The definition of good outcomes should be led by people living with dementia. Conceptualisation of costs of design innovations is complex and will involve judgements from a societal perspective. Methodologically, an ethnographic approach is desirable, underpinned by co-production. These points are suggested to inform further research. In conclusion, the paper confirms the value of cross-cultural insights.

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KEYWORDS Dementia; design; home; co-production; Japan; UK

Introduction

There is now widespread international recognition that the environment in which people live can be designed to support them to live better with

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dementia, and that unsupportive environmental design can also be detrimental to living well. A systematic literature review (Bowes & Dawson, 2019), including review of 173 publications, demonstrated a research focus on care home environments (i.e. residential care facilities), although globally, the large majority of people with dementia (93% in the UK – Dementia Care, 2015) live in their own homes in local communities. Despite the literature in this English language review originating from across the world, there was no evidence of systematic cross-national or cross-cultural research on designing for living at home with dementia. There is considerable interest internationally in dementia-friendly environments, with a growing focus on design of buildings, including domestic and public buildings and particularly care environments. A more recent international review of examples from across the world, including Japan and UK, reiterates the existing emphasis on care environments, and notes that most research is focused on affluent Western countries (Fleming et al., 2020).

This paper reports learning from an Economic and Social Research Council (ESRC) funded¹ research network involving academic and business partners from Japan and the UK which aimed to explore and share lessons about designing environments for people living with dementia and to promote future research which benefits from critical cross-national and cross-cultural insights. This group of partners will be referred to as ‘the Network’ throughout the paper.

Background

Dementia is recognised as a societal challenge in both Japan and the UK. In Japan, despite the most rapidly ageing population in the world, little research has focused beyond the development of new drugs (Saji et al., 2016). Annual costs of supporting people living with dementia are estimated at £93.4 billion (14.5 trillion Japanese yen) (Sado et al., 2018), presenting considerable policy challenges.

Japanese research supports the view that research on design of living environments, which learns from international experience and yet is appropriate for a Japanese context, is needed. For example, Arai et al. (2017) study of behavioural issues of long-term care residents with dementia, a difficult issue for carers, finds lower incidence than elsewhere. Unable to explain this, they explore many possible reasons, but not the design of the environment in which people live. This is despite other literature which suggests such environments may indeed either promote or prevent these behavioural issues (e.g. Zeisel et al., 2003). The question arises of whether the environments in the Japanese care homes may be having an unidentified impact: if so, it would be important to understand the lessons this provides. These questions are also relevant for design issues relating to homes in the community.

In the UK, recent figures (Wittenberg et al., 2019) estimate 900,000 people living with dementia in 2019, rising to 1.6 million by 2040, and the cost of their support currently at £34.7 billion per annum and rising. National policy attention is reflected in the fact that each nation of the UK has developed a regularly updated strategy to address how to provide improved care and support for people living with dementia.

There is an extensive record of research in the UK. Marjanovic et al. (2015) identified that whilst 67% of research on dementia in the UK was medical in focus, there were also particular strengths in research on person-centred care including non-pharmacological interventions. Their review does not identify a particular interest in design, but this has been a long-standing focus since the pioneering work of Marshall and others (Judd et al., 1998) in the 1990s

Against this background, in both countries there is increasing interest in designing environments to support people living with dementia, both those who have the condition and those who support and care for them. Classic (Rosenman & Gero, 1998) and recent (Abdel-Azim & Osman, 2018) design literature emphasises the cultural embeddedness of design and hence the Network discussions were established to learn from cross-cultural exchange and comparison.

Project aims and methods

The aims of the Network were to engender shared understandings about designing for dementia, engaging with communities, businesses, care providers and people living with dementia, with a focus on homes in the community. The multidisciplinary team included academic partners across social and clinical sciences, economics, computer science and architecture to ensure essential diversity of insight in this complex field. Non-academic partners included a provider of housing and social care, a policy think tank and several third-sector organisations involved in supporting people living with dementia. As the project progressed, additional links were built with local organisations in both Japan and the UK.

Methods included three whole Network workshops, two in Stirling, Scotland, attended by 18 members and one in Tokyo, Japan, attended by 17, during which participants discussed and developed research agendas in dialogue. During the cross-national visits, Network members also toured innovative, showcase projects which demonstrated new approaches to designing for dementia (Gibson et al., 2022a). Early career members of the Network spent a longer period in each country learning about existing dementia design and visiting additional projects. They also worked on related research which was linked into the Network (Koreki, Kusudo, et al., 2021; Koreki, Sado, et al., 2021; Omata et al., 2021). The project closed with keynote stakeholder events in each country, face-to-face in Scotland in February 2020 and virtually in Japan in

October 2020 (with travel affected by the COVID-19 pandemic). Throughout, regular online meetings of the whole team were held, to monitor project progress and to plan future work.

As the discussions progressed, ideas regarding research on design for dementia developed dialogically. The paper is framed by the overview developed by the Network towards the end of its activity in early 2020, immediately prior to the pandemic. It represents the shared views of the named authors.

Results are presented in relation to four significant issues that emerged from the Network. The issues discussed are firstly, researching the home with people living with dementia from a social citizenship perspective, generating understandings that underpin later sections. Secondly, the paper focuses on outcomes, poorly defined in earlier research. Thirdly, issues of costs and context are discussed and fourthly, some methodological implications of the work are explored, including the role and nature of co-production that, it will be suggested, is merited in future research internationally.

Results

Sharing understanding about research and the home

Taking a social citizenship approach and addressing stigma

The Network adopted a social citizenship approach, which recognises the socio-political context of experiences of living with dementia, including experiences of stigma, diversity and inequalities (Bartlett & O'Connor, 2010). The approach is particularly appropriate for work on home design as it moves beyond the common focus on care and emphasises 'how to think about, relate to and increase the capacity of people with dementia and the community in which they live' (Bartlett & O'Connor, 2010:14). The perspective is in keeping with the orientation of policy in both countries, and with the various projects that were observed in both Japan and the UK, in which the person with dementia was seen as a citizen with equal rights to all others.

Network members agreed that in both Japan and the UK, dementia is constructed as a problem at all levels, socially, culturally and individually, despite governments', public and third sector organisations' efforts to change this. This reflects wider research findings. In Japan, Aihara et al. (2020) identified that over half their respondents reported that having someone in their family develop dementia would continue to be a source of shame. In the UK, a recent report (Stevens et al., 2021) identified continuing stigma attached to dementia, although it also suggests that this has reduced in recent years in the face of public campaigns and government initiatives.

In agreement with the literature, Network members observed a link between the stigma associated with the condition and the current state of support for people living with dementia. In Japan and the UK, the large

majority of people living with dementia are living in communities, often with support only from family carers whose work receives limited support and recognition. Both Ohno et al. (2021) study in Japan and Francis and Hanna's systematic review (Francis & Hanna, 2022) from the UK conclude that the unmet needs of family carers are considerable. They argue that increased support for carers in terms of access to support services, better information and appreciation of cultural aspects of caring are needed: this echoes the experiences of Network members. Alongside these similarities are some key differences including that (also noted by Yamaguchi & Rand, 2019) of the policy recognition of carers in the UK (albeit with limitations) and the existence of limited measures supporting carers, neither of which exists in Japan.

Access to formal care and support outside the family also varies between contexts, the main difference being that UK services largely operate via publicly delivered or commissioned provision, albeit with means testing and payments for some, whereas in Japan, the long-term care system is delivered through private provision, supported by long-term care insurance. The Network observed that these organisational differences engender differences in desired outcomes: for example, in a UK context, keeping people out of hospital or residential care is often seen as a positive way of reducing costs to the public purse, whereas in Japan, hospitals and residential care establishments compete for business, and welcome more older people using their facilities for longer periods.

The Network related these differences to different models of care, grounded in the policy and practice environment of each country. To enable comparative study promoting innovation however, the focus on the person with dementia as a citizen is a conceptualisation that transcends the characteristics of any particular care system. It changes the focus from models of care to models of living with dementia, immediately foregrounding the perspectives of people living with dementia themselves. It also means that, in the context of designing homes, rather than attempting to fit the living environment to the model of care, the model of care follows from and is guided by the environmental design. Thus, leading with environmental design, rather than with the model of care, places more of an emphasis on the person with dementia as citizen first, who, second, has needs for care and support.

Feeling at home and ageing in place

Discussions focused on the design of environments for people living with dementia, centred on the homes in which people live, whether their own homes or communal settings such as care homes. This connects with literature which highlights that 'place' and 'home' are key crucibles of everyday existence (Bailey et al., 2019; Mallet, 2004; Raymond, 2019). For those living with dementia, feeling 'at home' is particularly important as it reinforces a

sense of identity, and a supportive environment can facilitate ability, privacy and dignity (Fleming et al., 2015). In keeping with the preferences of older people themselves in both countries and similar dementia-related government policies in Japan and across the four nations of the UK, Network discussions focused on how home design can support ageing-in-place. The concept of ageing-in-place acknowledges the importance of the environment for ageing well in the right place (Golant, 2015; Sixsmith & Sixsmith, 2008; Sixsmith et al., 2017). It brings the home, community and the wider environment together to focus on improvements to physical and mental health, social participation, autonomy, choice and independence (Sixsmith et al., 2017).

The Network added several aspects to ageing-in-place, emphasising the need for multi-dimensional sustainability and the role of design in ensuring this. Firstly, homes need to be environmentally sustainable, in the sense that they are physically fit to live in (not cold, not damp, not over-heated, well ventilated, etc.); minimise the need to consume resources for building or maintenance, including excessive heating or cooling costs; are safe from natural hazards; and have minimal impact on local eco-systems. Secondly, homes need to be socially sustainable, in the sense that they enable those living there to maintain their preferred social connectedness with their families, friends and communities, ensuring they have access to the facilities they need, such as shops, healthcare provision and social support. Thirdly, homes need to be sustainable in the face of physical and cognitive changes that may come as we age. Fourthly, homes need to enable and support the person living there to live the life they choose and prefer. For the Network, the emphasis was on cognitive sustainability of homes for people living with dementia in the context of these wider dimensions of sustainability. Given the significance of contextual factors, the ability of a social citizenship perspective to include these is essential.

The idea of home

Fundamental to designing homes for people living with dementia is the idea of home itself. Ideas of home differ between the UK and Japan and the kinds of homes and housing stock differ markedly between the two countries.

These differences in ideas about and expectations of the home emerged quickly among the Network. First, during a discussion which included Network members and some Scottish people living with dementia, clear differences in the housing stock were highlighted. Japanese colleagues were more likely to live in apartments, in buildings less than 30-years old. UK members lived in a mix of houses and apartments, reflecting the distribution of these in Scotland (where there are more apartments than elsewhere in the UK – Piddington et al., 2020). UK dwellings tended to be much older than those of Japanese colleagues, often more than 100 years. This reflects the general picture of housing

stock in each country, whereby most Japanese housing is 30 or fewer years old, and 38% of UK housing is pre-1946 (Piddington et al., 2020).

Secondly, features of homes were discussed in relation to age- or dementia-friendliness. Several aspects of current housing that might later prove problematic were identified. In UK homes, these included steps to the front door and inside the house, bathrooms being upstairs, difficulties of enabling living on one level even with modifications to the home, limitations on broadband signals in older houses, lack of natural light and inaccessible outside space. Japanese colleagues identified orientation difficulties in locating apartments in buildings in which every front door was like every other, lack of access to outside space, lack of communication with neighbours in cities and some safety issues relating to older wooden houses, including risk of earthquakes and fires. Also considered was the tradition of the *genkan*, the entryway into the Japanese home where shoes are removed and left before stepping up into the living space. Whilst acknowledging that this feature provides a familiar culturally normative prompt for residents and visitors to remove their shoes, some felt the step could prove difficult for older people. There were differences of views about steps, with the UK perspective seeing these as potentially risky barriers to access, and the Japanese perspective suggesting they could help maintain exercise and muscular strength for older people.

These discussions resonate with literature which highlights distinctive features of both Japanese and UK housing, particularly in relation to privacy and cleanliness. Discussing differing notions of privacy, Ozaki (2002) identifies a more individualised notion of privacy in the UK as compared with an emphasis on family privacy in Japan. More recently, Meagher's (2017) discussion of shared housing (*sheahausu*) in Japan has emphasised dynamic processes of managing private (*uchi*) and public (*soto*) space which are framed in terms of Japanese cultural tradition of which the *genkan* is a component. In relation to cleanliness, Ozaki and Lewis's (2006) study of the housing experiences and preferences of Japanese people living in the UK noted, for example, the importance of the *genkan* as a way of managing the cleanliness of the home; the need for a toilet to be separate from the bathroom; and for laundry facilities to be separate from the kitchen. Many UK houses lack all of these features and Japanese residents in the UK found this both unfamiliar and difficult.

This discussion has implications for cross-national work on design, as developed designs need to be consonant with people's preferences to allow them to lead the lives they wish. Thus, developing an understanding of concepts of home and how people inhabit the design spaces is essential.

Understanding outcomes

Consideration of desired outcomes is critical for understanding what design modifications for dementia are intended to achieve. Researchers in dementia

have identified a wide range of outcome measures used to ascertain the success or otherwise of design for dementia initiatives. A review (Bowes & Dawson, 2019) identified dementia design studies which used outcomes related to physiological health, emotional health, economic considerations, service use, sleep, engagement, behavioural and psychological symptoms of dementia, cognition and physical functioning, including activities of daily living and falls. In most studies, the outcomes were defined by the researchers, with many studies using combinations of outcomes to assess the efficacy of designs. The Network's cross-cultural conversation problematised the issue of outcomes, their desirability, definition and relevance. It became clear that in different contexts, different outcomes might be considered, but also that the perspectives of people living with dementia were noticeably missing from existing specifications of outcomes.

The Network's social citizenship perspective will necessitate considering the outcomes that people living with dementia themselves desire, and the priorities they have for their own lives. For example, it is likely that assessment of risk may differ between people living with dementia and some professionals. Professionals may wish to use design measures to help prevent all falls, whereas a person living with dementia may prefer to maintain the capacity to move about readily, albeit this may involve a degree of risk, and focus on home design which facilitates movement. Risk-enablement approaches have attempted to address this issue (Manthorpe & Moriarty, 2010), but there is continuing evidence that professionals may not assess risk in a person-centred manner (Dickens et al., 2018).

A further example concerns people living with dementia who may leave their homes and become lost, raising questions about why this might happen, and what outcomes might be sought in addressing it. In Japan, this phenomenon has been widely reported in the media, with Murata et al. (2021) study noting nearly 17,000 cases per annum of families reporting a person with dementia as having left home, whereabouts unknown. In contrast, there is less emphasis on this issue in the UK, though a small study (Shalev Greene et al., 2019) suggests there may be as many as 40,000 such incidents annually. Their qualitative work suggests improved ways for police to address such incidents and to be supportive of carers who report them. They also consider how to prevent people from leaving their homes in the first place for example by providing alternative interesting activities. In their study, there is at least some consideration of the motivations of the person living with dementia who leaves the home. A social citizenship approach would focus more clearly on these motivations and consider supporting them. For example, if someone wishes to visit a fondly remembered place and this is not possible, aspects of home design might facilitate exiting the home into a safe space from which getting lost is much less likely. This is in contrast with reported practice in some care

settings where doors are locked to prevent exit and subsequently getting lost (Tufford et al., 2018).

The discussion has already noted that in different care systems, outcomes may be viewed in different ways, for example in the views about steps as a risk or as an exercise opportunity. This creates difficulties for identifying outcomes that can be used in comparative analysis. However, there was Network agreement that in considering quality of life, dignity and independence for people living with dementia were relevant in both contexts, especially where qualitatively ascertained, and therefore embedded in local understandings of these outcomes.

Standard scales that measure outcomes have been used in several research sources (Clarke et al., 2020). These scales present problems, notably in relation to cultural differences including differences in preferred lifestyles across the populations living with dementia. In common with Clarke et al. (2020), the Network preferred scales which avoid a deficit model of dementia in favour of an asset-based approach. Clarke et al. (2020) note, however, that there is still work to be done on ensuring that standard questions are culturally sensitive and hence appropriate for use in cross-cultural studies, as well as for reflecting in-country ethnic variability. This argument further supports the Network's critique of existing outcomes in use.

Costs and context

Issues of costs are linked with desired outcomes, and clarity on these will influence any costs analysis carried out. Network members highlighted that in both Japan and the UK, understanding of costs is important in improving design, both for public and private sector investors. Some wider issues identified included how to conceptualise costs, where costs might fall, and the significance of wider social and political decisions about best use of resources.

Conceptualising costs and asking the right questions about them, as Tinelli et al. (2020) explain, are complex. Identifying relevant costs may necessitate consideration of broad contextual factors, moral questions of priority expenditure, timeline issues and so on. In the case of designing homes for people living with dementia for example, space constraints may be significant. In Japan, this issue relates to shortage of space and in the UK, issues arise from regulations such as space guidelines for social rented housing. Further, moral questions may surround the extent to which a society prioritises investment to support healthy ageing as compared with other public health investments. The timeline of a housing investment needs to be long, whereas budgets of bodies that finance housing may be agreed annually.

The identified outcomes and the conceptualisation of costs will influence what kind of costs analysis is appropriate or desired. One key decision is the

perspective from which costs and benefits should be evaluated. It is common in evaluating health interventions to undertake a cost/benefit analysis from the health service's perspective, where the priority is spending health budgets efficiently. For broader community interventions, it makes more sense to judge environmental design from a societal perspective, recognising wider costs and benefits. Network discussion favoured a focus on analysing costs and benefits with the latter perspective, whilst recognising that this can be complex in a situation in which those who incur the costs (such as builders/developers) do not necessarily reap the benefits directly (where these are realised in savings in care costs for example). The Network suggested ranking costs of design interventions and considering these against ranked evidence of their effectiveness in terms of agreed and specified outcomes to support thinking through costs and benefits and therefore to support decision-making.

This approach is in keeping with the arguments of Pierce et al. (2015) who suggest considering whether the possible benefits of a design innovation outweigh the potential detriments, rather than seeking proof of benefit, which is more difficult, especially given the existing research gaps.

However, whilst this thinking helps conceptualise issues in understanding costs, Network members agreed it would not necessarily deliver the kinds of analysis that would persuade housing providers to deliver innovations. There is a gap in the international research record that has not considered the needs of housing providers (in whatever sector) for information about costs, and the costs of designing homes for people living with dementia have not been adequately explored (Koreki, Sado, et al., 2021).

Methodological issues and the role of co-production

The fourth area of discussion identified three areas of methodological innovation that could contribute to improved cross-national research. These are the use of ethnographic approaches, the potential of electronic monitoring and the adoption of a co-production approach to research.

Ethnography

As this discussion and the literature showed, concepts of home are dynamic and can change over time: these changes may be cultural, or may be related to the individual's lifecourse, choices and opportunities. Accordingly, a set of defined cultural principles that would apply in each country cannot be identified. However, the flexibility and sensitivity of an ethnographic approach can, the Network suggests, demonstrate how concepts operate in reality.

An ethnographic approach, in contrast to methods such as surveys or one-off interviews, has the advantage of being wholly focused on people's own

meanings and understandings and can collect data in ways that are led by research participants. While the direct observation and participant observation that often characterise ethnographic approaches are difficult to conduct in private spaces, including people's homes, methods such as photo-elicitation, diary keeping and repeated in-depth interviews could be used to build a picture of homes from people's own points of view. Akin to Ronzi's et al. (2016) study which used photo-elicitation to gain an understanding of older people's views of their city (Liverpool), this approach could provide a way into people's own perceptions and understandings of their homes, which left them in control of the picture they produced. As people's homes are private spaces, maps and diagrams may prove more acceptable than photographs and current research in Scotland² is working with these to understand people's views about their homes. Encouragingly, in Japan, a combination of interviews and photographs has already been used (Hotta, 2019) and found to be both acceptable to participants and helpful for ascertaining their points of view.

Electronic monitoring

A further key interest is the home itself and how people interact with it. It is possible to use electronic monitoring techniques to record how a home performs (heat, humidity, light and air quality) and how people move around and spend time in it. This is an unfamiliar approach for most social scientists and one illustration of the benefits of having informatics specialists working in the Network's interdisciplinary team. Social scientists immediately worried about the ethical implications of the approach, fearing it would be particularly intrusive. Informatics colleagues, however, helped identify equipment that would be unobtrusive, and that would enable data to be collected completely anonymously, generating important insights about how people and buildings interact.

Co-production

As noted in relation to outcomes, an important focus of discussion that delivers the social citizenship approach was the importance of including people living with dementia both in the research process and in informing research outputs and recommendations. This links with the emphasis above on social citizenship, choice and autonomy in both countries, in which the person living with dementia was seen to maintain the same rights as other citizens. Including older people and those living with dementia via stakeholder involvement increases the ownership, buy-in, legitimacy and insights that research can provide. The Network found this to be the case in both the UK and in Japan in reference to members' research experience involving co-production with older people and people living with dementia.

The concept of co-production has had a worldwide impact, mostly focusing on community involvement in public service delivery (Mitlin & Bartlett, 2018). This includes enhancing the voice, inclusion and participation of people who use services in decision-making processes to break down powerful hierarchies of control in service provision and promote more equal and reciprocal relationships (Mitlin & Bartlett, 2018; Reple & Wallace, 2010). It can also be classed as ‘co-creation’ and involve a wide range of stakeholders aiming to enhance collaboration to produce and deliver public services in both housing and health sectors (Needham, 2008; Reple & Wallace, 2010).

Co-production is becoming a central theme within social policy in both the Japan and the UK, especially in relation to engaging with older people who use services and developing ‘age friendly communities’ (Buffel, 2018). Reviewing Network experience of co-production identifies similarities, barriers and challenges which offer lessons for international approaches to co-production and give insight to how this approach helps generate knowledge.

Examples of co-production in action include in Japan, the Designing for Dementia Hub’s launch of a ‘knowledge library of people with dementia’ based on structured data from 100 interviews (Hotta, 2019) that highlighted the importance of a person-led approach to gathering information and analysis.³ In the UK, ‘A Good Life in Later Years’ recruited and trained groups of older community researchers (some of whom had a dementia diagnosis) and emphasised the importance of the environment, housing and the interdependencies of communities (Greasley-Adams et al., 2017; Robertson et al., 2022). Hand in hand with community researchers, a community toolkit was then developed to help support communities to engage with policy and practice, aligning with the aims of co-production to challenge hierarchical and power dimensions within service delivery (Gibson et al., 2022b).

In both countries, the insights from individuals, community groups and other stakeholders were important for generating evidence and making policy recommendations. There was a general similarity between research methods in both Japan and the UK, such as utilising interviews and focus groups. There were differences in the level of engagement with those living with dementia within each project. Japanese examples aligned strongly to consultation, inclusion and data collection, while the UK research emphasised training older people as researchers themselves. Despite their differences, both these approaches result in insights into the lived realities of older people and people living with dementia.

Despite the policy emphasis in both Japan and the UK on the importance of co-production, this is not as yet mainstream. McCall et al. (2020:31) examining housing and ageing note that co-production can be complex and time consuming. Certain groups, including those living with dementia, are still seen as hard to reach and engage with. Also, little is known about how co-production can influence real and long-lasting change in policy and practice.

Mutual confidence in co-production, and a stronger focus on how to achieve it nevertheless emerged from the Network.

Overview

The discussion has identified several conclusions and recommendations for further research in this area. They are grounded in two different cultural contexts, thus informed by each and both, and providing guidance for others addressing similar issues in cross-cultural research contexts.

In terms of overall approach, an emphasis on the significance of sustainability in a broad sense is needed, in that housing design solutions that support ageing in place with maximised quality of life need to be physically, socially and cognitively sustainable. This is best supported by working with people living with dementia from a social citizenship perspective, recognising capacity, individuality and continuing social belonging, albeit these may prove challenging to sustain. Included in the conceptualisation of 'living with dementia' are people who care and support those who have the condition, and their significance for the systems of care and support in each country has to be recognised. The definition and assessment of outcomes needs to focus on the needs and wishes of people living with dementia, above pre-defined measures decided by researchers, and to ensure that desired outcomes support autonomy and capacity. Costs decisions are complex and inevitably influenced by the policy and practice environment and by the aspirations of the society in regard to supporting people living with dementia. In terms of approaches to research, particularly where an understanding of people's differing and culturally embedded views about their current and future homes is sought, a broadly ethnographic approach tailored to be feasible within people's own homes is appropriate. This could be supported by electronic monitoring of how homes are used, and by a co-production approach to ensuring that researchers understandings are genuinely informed by the views of people living with dementia.

Conclusion

These insights came from the cross-cultural, cross-national discussion within the Network, which enabled the emergence of fundamental issues through interrogating taken-for-granted perspectives and developing a critical approach to issues of housing and cognitive ageing. In research fields where little progress has been made, such as housing for cognitive ageing, there is an undoubted need for new ways of thinking, and the Network activities have facilitated that process. In the UK, these principles have been taken forward in a project funded by the UK Economic and Social Research Council, which explores designing homes for healthy

cognitive ageing (the DesHCA project ES/V016059/1). In Japan, projects are in progress involving co-production with people living with dementia and on the design of dementia care environments.

Notes

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2. Designing homes for healthy cognitive ageing (DesHCA) funded by the Economic and Social Research Council under the Healthy Ageing Challenge (ref ES/V016059/1).
3. These have been translated into resources to aid understanding of the experiences of people living with dementia in the ‘Dementia World Travel Guide’ at <https://designing-for-dementia.jp/dementia-world/en/>

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Data

This is a review paper. All relevant data are included in the manuscript.

Ethical approval

Ethical approval for the work was provided by the University of Stirling General University Ethics Panel on 15 August 2019 (GUEP reference 725).

Informed consent

Informed consent was given by all those who took part in the workshops which formed the basis for this discussion, and all have consented to be named as authors.

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