

2021-06-24

Socio-spatial relationships in design of residential care homes for people living with dementia diagnoses: a grounded theory approach

Ricky, B

<http://hdl.handle.net/10026.1/17254>

10.1080/00038628.2021.1941749

Architectural Science Review

Taylor & Francis

All content in PEARL is protected by copyright law. Author manuscripts are made available in accordance with publisher policies. Please cite only the published version using the details provided on the item record or document. In the absence of an open licence (e.g. Creative Commons), permissions for further reuse of content should be sought from the publisher or author.

Socio-spatial relationships in design of residential care homes for people living with dementia diagnoses: a grounded theory approach.

Ricky Lea Burke ^a and Alejandro Veliz-Reyes ^b

Name Ricky Lea Burke (Corresponding author)

Affiliation School of Art, Design and Architecture

University of Plymouth

ORCID 0000-0002-2156-5532

Email ricky.burke@plymouth.ac.uk

Name Alejandro Veliz Reyes

Affiliation School of Art, Design and Architecture

University of Plymouth

ORCID 0000-0002-5044-1782

Email alejandro.velizreyes@plymouth.ac.uk

Socio-spatial relationships in design of residential care homes for people living with dementia diagnoses: a grounded theory approach.

This paper presents a grounded theory study conceptualising the socio-spatial relationships and lived experiences of residents with a dementia diagnosis in two residential care homes in the United Kingdom. The study challenges generalisations and abstractions of occupants in the design and construction of the built environment, such as through design guides, and prioritises the lived experiences and aspirations of care home residents as rich sources of design knowledge, enabling the articulation of new conceptual and spatial relationships between residents and their physical environment. Mixed qualitative methods were used to build knowledge and construct theory directly from participants in fieldwork, and the constant comparison method was used to systematically derive a grounded theory of the research context. A theory model is constructed that encompasses embodied spatial characteristics, famed as 'liminalities', 'affordances' and 'enablement', and discrepancies in the representation and realisation of residential care homes, in 'ideologies of spatial conception', and in 'veridictions'. Moreover, the paper illustrates ethical and methodological approaches to architectural research fieldwork in environments with vulnerable people and suggests further research to address co-design methodologies, and ethics in architectural research.

Keywords: grounded theory; socio-spatial relationships; care home design; design for dementia; architecture fieldwork

Introduction

While models of person-centred care are generally normalised in residential care practice, the dominant focus in building design guidance from instructional bodies (DSDC 2018, 2013, 2011, HM Government 2015) and academic research (e.g. (Fisher et al. 2018, Fleming and Bennett 2015)) views the physical environment as a therapeutic treatment to counter behavioural and mechanical difficulties caused by the symptoms of living with dementia (Day, Carreon, and Stump 2000, Gramegna and Biamonti 2017). However, studies from this perspective tend to problematise resident difficulties and seek solutions to symptomatic challenges from mechanical and ergonomic perspectives, limiting their scope to explore the relationship between more structural architectural concepts in the spatial design of care environments (such as thresholds, space sequencing and scale) and residents' wellbeing. This problem is confirmed by Lundgren (2000), who describes a tendency toward technological and decorative veneers to otherwise unchallenged and default spatial-material considerations (Pollock and Fuggle 2013, Fisher et al. 2018) instead of comprehensive understandings of more fundamental spatial design concepts in the residents' experiences. Furthermore, studies primarily concerned with the treatment of symptoms (Zeisel et al. 2003, Brawley 2001) frame research questions and methods according to the pre-determined priorities of external observers (e.g. researchers, designers, and healthcare workers) before entering the field (Morgan and Stewart 1999). This again constrains the scope of inquiry by invisibilising the participation of residents in shaping methodological and theoretical research practices surrounding their own spatial experiences.

Behavioural recommendations of the sort collated by Day, Carreon, and Stump (2000) are well-documented and many of the findings are embedded and normalised in design guidance (Pollock and Fuggle 2013) for residential care settings. The piecemeal prioritisation of medical and behavioural approaches to design addressing the symptoms of dementia

within industry guidelines has led to the manifestation of a consistent dominant typology: centralised homecare facilities and common spaces, from or between which span internal corridors that serve cellular private spaces with rectangular footprints and en-suite bathrooms (figures 1 and 2). However, there is widespread acknowledgement of residential care homes as uninviting (Davis et al. 2009), and a rejection of a 'one-size fits all' approach (Fisher et al. 2018). This suggests this typology paints, at best, an incomplete picture. Further, focus primarily on the health and medical concerns of the resident has been suggested to impact negatively on residents' quality of life (Torrington 2007) and tends to drive spatial layouts in which a 'default' built fabric is veiled with idealised notions of home; where calls for 'homelike' environments result in superficial ornamental (Fay and Owen 2012) and generic (Van Hoof, Kort, Hensen, et al. 2010, van Hoof, Kort, Duijnste, et al. 2010) references to designer and commissioner values, rather than reflecting the needs and priorities of the occupants' living experiences. This superficiality often communicates an institutional feel, generally considered the antithesis of homelike (Lundgren 2000, Timlin & Rysenbry 2010).

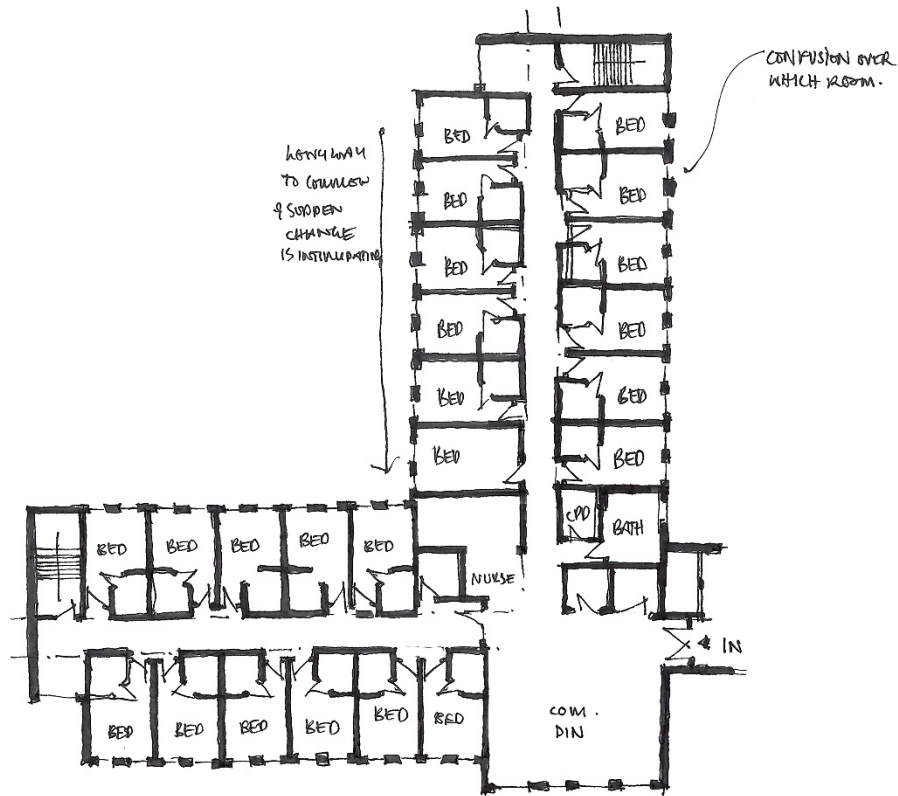


Figure 1: Floor plan of a residential care home that conforms to the typology of centralised provisions and social spaces, and wings of cellular en-suite personal rooms.

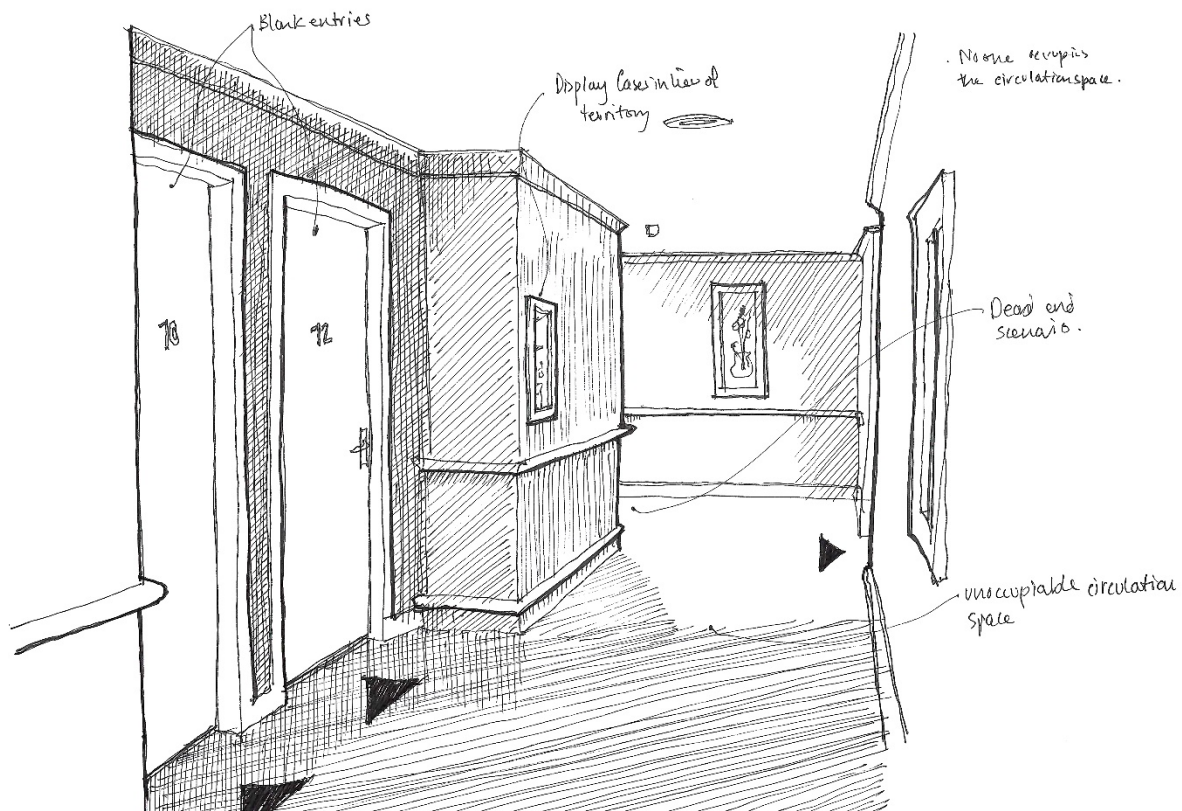


Figure 2: Sketch from fieldwork in a purpose-built residence. Bedrooms accessed from a long and repetitive hallway. The space is finished with framed paintings, cornice and display cabinets intended to promote a domestic aesthetic.

Recent years have seen a growing consensus on the importance of experiential qualities of the built environment that complement medical and mechanically supportive characteristics of the home (Verbeek et al. 2009). Studies such as Davis et al. (2009) suggest the physical environment can support residents' personage, will and quality of experience, and enable personal growth and development with others. Also, Molony's (2010) meta-synthesis of dementia design literature highlights a myriad of social and personal concerns important to residents that fall outside of the medical remit and for which there is insufficient spatial-material guidance for designers. As Lundgren (2000) spotlights, recommendations for personally and socially supportive environments are generally framed in a vague dichotomy between institutional and homelike aesthetics (van Hoof et al. 2016), or as aspirational

qualities (Yeoh 2004), without grounding in examples of spatial-material configurations (Barrett, Sharma, and Zeisel 2019, Fay and Owen 2012).

With particular relevance to this study, the work by Quirke (2018) framed support for residents' wellbeing in structural-spatial configurations and uses pre-established environmental audit tools to examine the floorplans of existing residential care settings to ascertain consistent supportive qualities. Quirke's analyses highlight the importance of greater openness and accessibility between parts of the home, with particular emphasis on access to outside space and good levels of daylighting. These analyses remain however within the remit of the floor plan and are based on audit criteria rather than the views of the residents. Further, support of residents' wellbeing is framed as "support (for) cognitive impairment" rather than realising potential or fulfilment. Additionally, Eijkelenboom et al. (2017) conducted a designerly inquiry (Breen 2002) of supportive characteristics of an adapted residence, investigating spatial sequencing and inhabitation. Through the design and construction of a habitable environment, this project brought the collective aspirational qualities of background studies under occupational scrutiny and design contexts. However, the environment was a self-contained flat and thus findings are hardly applicable to the complexities of communal residential care settings.

This study sits at the intersection of architectural research and participatory design methods and addresses, then, a gap in the understanding of connections between the design of the physical environment and the fulfilment, restriction and potential of residents' sociability and self-determination in shared specialist residential care homes.

Methodology

To achieve this, the study followed a constructivist grounded theory (GT) methodology (Charmaz 2006, Corbin and Strauss 2014). GT is suited to the knowledge gap addressed

through this project, as it builds 'a fresh slant on existing knowledge about a particular phenomenon' (Goulding 1999), and speaks to the need to acknowledge residents' perspectives by building research outputs directly from the observed context (Charmaz 2006, Corbin and Strauss 2014). Residents' input and on-site fieldwork observational methods are therefore prioritised over pre-determined theories and evaluative frameworks. GT additionally responds to calls, such as from (Zeisel et al. 2003), to consider the cumulative effects of spatial-material configurations in the built environment, as opposed to focusing on fragments of the environment or specific resident behaviours determined *a priori* from predetermined theoretical and methodological positions.

As mentioned, however, residents' experiences are multidimensional and multifaceted and comprise senses of wellbeing, spatial inhabitation, and complex architectural conceptualisations of space. As a consequence, the constructed GT study necessarily included a mixed-methods approach that enabled the capture of meaningful thick data (Charmaz 2006). This section details the design and application of fieldwork methods used to gain an understanding of the core research question: How does space planning and sequencing support residents' ongoing social and personal fulfilment? Methods were thus applied to collect data relevant to structural-spatial configurations over veneers and technological devices. Data was collected through participant interactions, comprising semi-structured interviews and participant and passive observations. Upon institutionally approved ethical approaches (the institution is omitted for peer review purposes) to the field and research participants and their care communities, the resulting fieldwork documentation involved fieldnotes (including written notes and sketches (see figure 3)), reflective memos (written and drawn upon conclusion of interactions), and written interview accounts.

Fieldwork Design

Fieldwork was conducted in two medium-sized (10-50 residents, in line with (CQC 2017)) residential care homes that cater specifically to the care of people living with dementia diagnoses. One location comprises a purpose-built specialist care home accommodating 40 residents, and the other is a building converted from residential use to provide 30 bedrooms. This is representative of the two-dominant forms of medium-sized residential care setting in the United Kingdom, and the study was constructed as such to exclude neither the contingent qualities of diverse spaces (Fisher et al. 2018) nor the material knowledge materialised in a purpose-built facility.

The study included a total of 21 interview participants, comprised of 10 residents of mixed gender, 5 visitors, and 6 care support workers (including hands-on care management staff). Interview duration and format varied according to participants' capacity to engage and sometimes required lengthy breaks and re-questioning to return to lines of inquiry. A methodological adaptation was then, required, shifting across open and semi-structured interviewing modalities. As fieldwork proceeded and key topics and areas of enquiry emerged, semi-structured interviews focused axial codes, such as the effects of central conveniences, the relationship with outside and internal access restrictions, among others.

Concurrently, observations served to identify patterns in behaviour and visualise understandings formed through interviews and analysis in their social and spatial context. Observation sessions lasted between 1.5 and 4 hours at different times of the day and generally began passively; watching and listening to life in the home and the routines and times in between. Observations became participatory when questions about behaviour arose – often concerning emergent categories – or when the researcher was approached or invited to join in activities - again, requiring adaptation and transitions between research modalities, in this case, between observer and participant-observer roles.

Field sketches recorded spaces of popular and recurrent inhabitation and meeting, and the relative and personal space of social interactions. Fieldnotes generally took the form of annotations and questions added to sketches to describe behaviours and movements. Observations recorded through sketching were generally undertaken in common parts of the home and grounds, and in residents' private spaces upon invitation.

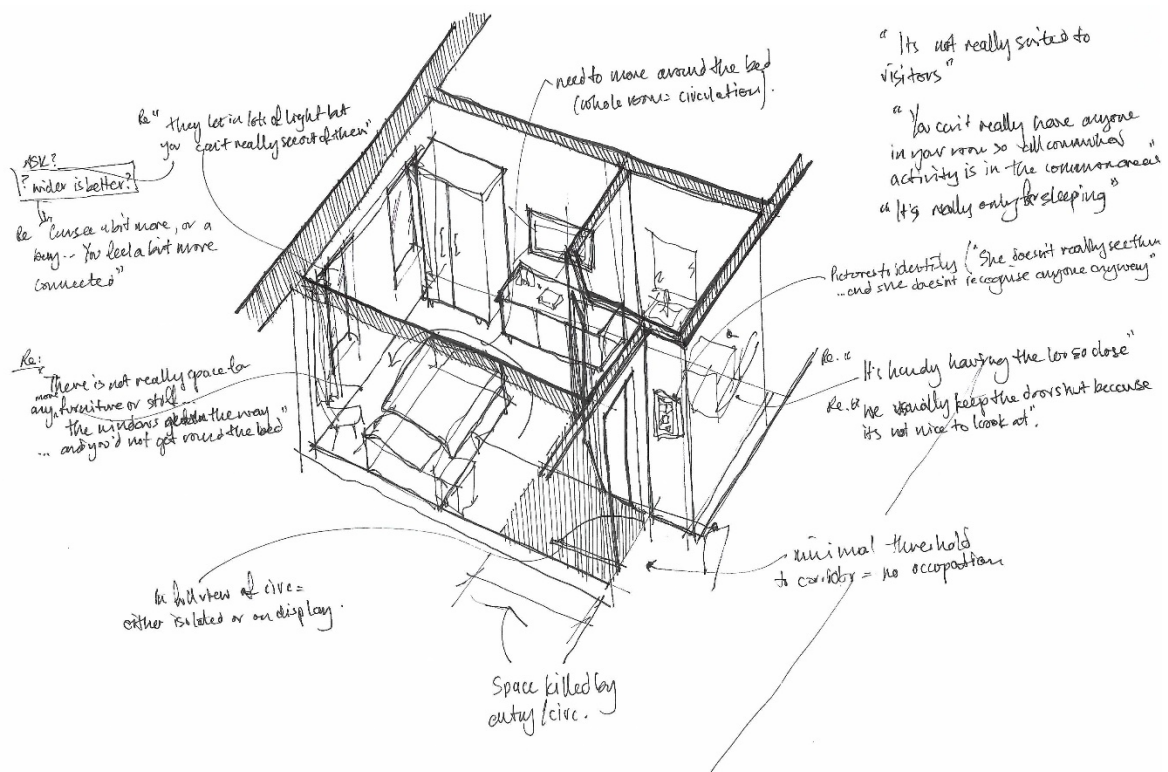


Figure 3: Example of fieldnote sketches after interaction with a resident; their bedroom.

Constant Comparison Analysis and Theory Derivation

Data were simultaneously collected and analysed through a constant comparative method, following a GT methodology (Glaser and Strauss 1968) to identify key patterns and topics (emergent concepts), which upon further elaboration and inquiry were grouped and defined within categories. This transition from a more open-ended inquiry into a more focused categorisation of the data was facilitated by the process of theoretical sampling (Charmaz

2014), where observational contexts and participants are selected to better define theoretical outputs until a point of saturation (when further data fails to transform or augment those outputs) (Charmaz 2007).

In this study, participants were first selected from residents through homogenous sampling, following instruction from Glaser and Strauss (1968) to start an inquiry with a small number of participants who seem to have the experience of the phenomenon in common. Through the constant comparison method, initial categories were framed around clusters of data pertaining to socio-spatial relationships. Later, following theoretical sampling guidelines (Charmaz 2014), the participant pool expanded to include residents, carers, visitors, and care managers. The need to include non-resident participants became clear as theoretical concepts emerged, both to elaborate upon resident relationships and histories they otherwise struggle to communicate and to include the broader social environment of the home of which they are a key part. For instance, residents frequently referenced when another comes to visit; the duration of the visit; and the things they do and used to do with their visitor(s) that frame their understanding of the relationship. The picture of visitor interactions, and how they manifest socially and spatially was better understood by engaging with others involved in these interactions, and the data building the results thickened in doing so.

This sensitive approach to data collection formed an observational framework that guided later interactions, as understandings from one cluster of participants framed inquiry in similar social contexts, in other parts of the home and with other residents at different times. Through theoretical sensitivity, GT thus drives the rapid construction of theory from the grounded context (Charmaz 2007).

Entry questions

How do you spend your time in the home?
 How has (resident) settled at (name of home)?
 Tell me about your room?
 What do you think of (resident's) personal space?
 Tell me about home before (name of residence)?
 What was (resident's) home like before (name of residence)?
 What do you like to do with your time?
 How does/ did (resident) pass their time?
 Who are you/ is (resident) closest to?
 Where do you/ does (resident) spend most of your/ their time?
 Who are your friends here at (name of residence)?
 Does (resident) spend a lot of time with anyone in particular? – Where do they usually spend time?

Intermediate Questions

How do you feel life has changed since living at (name of residence)?
 How do you feel moving to (name of residence) has changed things for (name of resident)?
 Tell me about your/ resident's friendships/ social life (before and since at the home)
 Describe your/ resident's typical day (probe about different times of the day)
 How is that different to a day when (an event or interaction noticed or mentioned) happens?
 Do you like to go outside (follow up with; where to? Why not? With whom? How often?)
 How have you personalised, or made the home your/ their own?
 How often do you like to be with others?
 To what extent do you get involved in housekeeping? (to what extent? does it work for you?)

Following up and Building on emergent concepts

Ask participants to describe activities routines and events raised. (Encourage spatialisation (where was that, with whom/ what were/ do you do that?))
 Inquire further into emergent threads from entry questions (can you tell me more about _____ (bathrooms for instance)?)
 How often do you (refer to personal interest)?
 Why do you suppose you do/ don't do/ behave _____?

Wrapping up

Is there anything you are particularly unhappy about at (name of residence)?
 How about your/ resident's room?
 What do you like most about (name of residence)? Encourage detail (people, actions, places, spaces).
 Is there anything else you want to tell me about (name of residence)?
 Is there anything you want to ask me?

Figure 4: Interview question prompts. Questions adapted to respond to emerging concepts throughout fieldwork

Similarly, working from standard opening questions, further interviews helped home in on emergent concepts through theoretical sampling, facilitating a shift to a more detailed inquiry concerning those emergent concepts (see interview guide in figure 4). As a result,

categories shifted and combined until clear distinctions between them were visible, and further fieldwork sought to challenge discrepancies or thin areas of understanding.

Results: A Grounded Theory

A theory model (Figure 5) was constructed following the recorded instances of fieldwork described above. Concepts, derived through constant comparison analysis, are organised in two core categories. As, theoretical concepts are derived and arranged according to residents' relationships with the care environment, some spatial references converge between concepts, where typological traits and designerly decisions have manifold implications in residents' social and personal experiences. The first category charts the physical architecture of the home and its influence on the occupants' experience; framed here as 'embodied spatial characteristics' and explained through the notions of 'liminalities', 'affordances', and 'enablement'. The second category frames 'processual discrepancies'; concepts highlighting inconsistencies between resident priorities and the ideation and design of the built environment. This category is explained through the concepts; 'ideologies of spatial conception' and 'veridictions'.

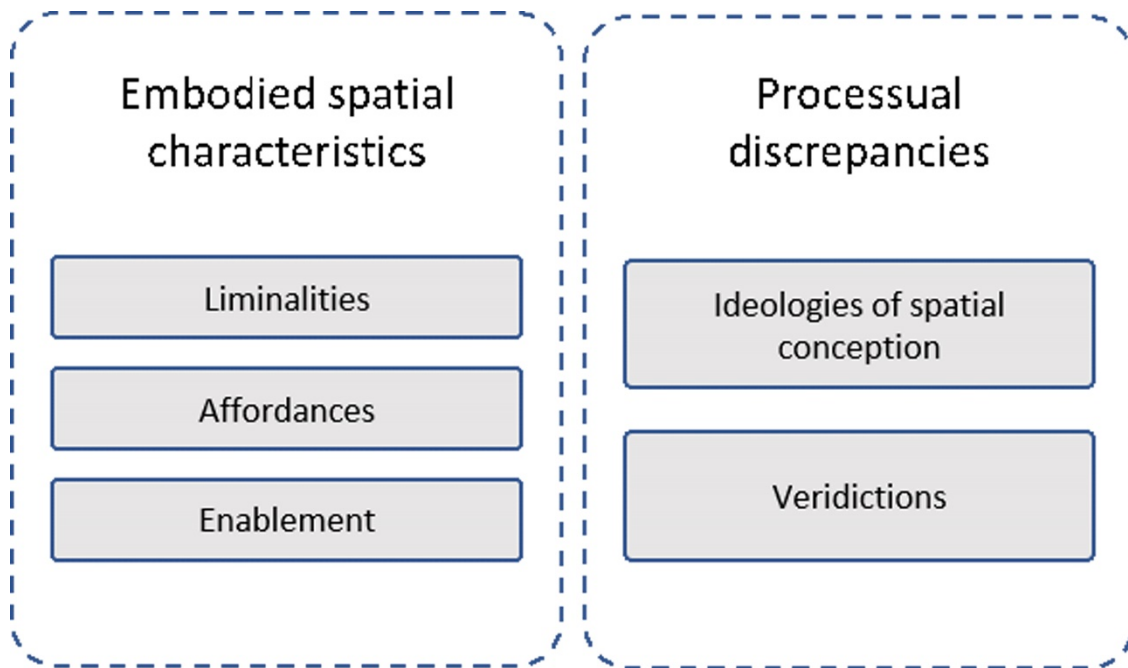


Figure 5: Grounded Theory model of embodied spatial characteristics and processual discrepancies in socio-spatial relationships in residential care

Embodied spatial characteristics

In communicating the relationship between their personal and social life and the built environment, participants both reflect on the conditions of their current and past living spaces, and project imagined aspirational alternatives. They frame and define concepts of daily life by reference to what they are and what they are not; what is helpful and how it is thus compared with other conditions; what is difficult and how it could be better. Thus, concepts in the category of embodied spatial characteristics are constructed through participants' reflective as well as projective insights.

Liminalities

Residents' personal and social lives are characterised by change. For instance, residents often speak of relationships in life formed from a state of unknowing to familiarity, through a liminal state of 'getting to know each other', 'settling in' or 'beginning to like'. These liminal states are distinguished from the conditions of strangers or kin, in their uncertainty and

negotiation, as opposed to being clear or normal. Privacy is a prominent concern in the transition through a liminal state, in that much of the development of a relationship between the self and a new socio-spatial context involves unveiling and gradual increases in self-publicity as familiarity builds.

“(...) you don’t just meet people sitting still, and with nothing to do (...) but then it’s not always what you want to do (go into the common spaces) with everyone there. It’s not like out in the normal world, where you meet up and get to know each other (...) and they don’t really hang out in each other’s rooms much (...)”
(excerpt from an interview with a resident’s family member).

When contextualised in a residential care home, a tension between this graduation through space and time in the environment is evident. Personal spaces are absolute and confined within private areas (bedrooms), whereas common areas are typically centralised and large in scale to accommodate a large proportion of residents at any moment. Spatial privacy in residential care broadly manifests as clean divisions of in/out dualities: personal v. common; permissible v. off-limits (figure 6); and neglects to appreciate the importance of liminal spaces with the potential to blur these distinctions. This is evidenced in repetitive acknowledgement of the ‘all or nothing’ conditions of being in a busy and exposed common environment or isolated in privately allocated quarters; the space between the two uninhabitable (except for moving between both conditions i.e. hallways). This poses difficulties for the personal appropriation of spaces as the spatial manifestations of graduated relationships with other residents, care home staff, or visitors are neglected (e.g. private bedrooms are hardly able to accommodate visits).

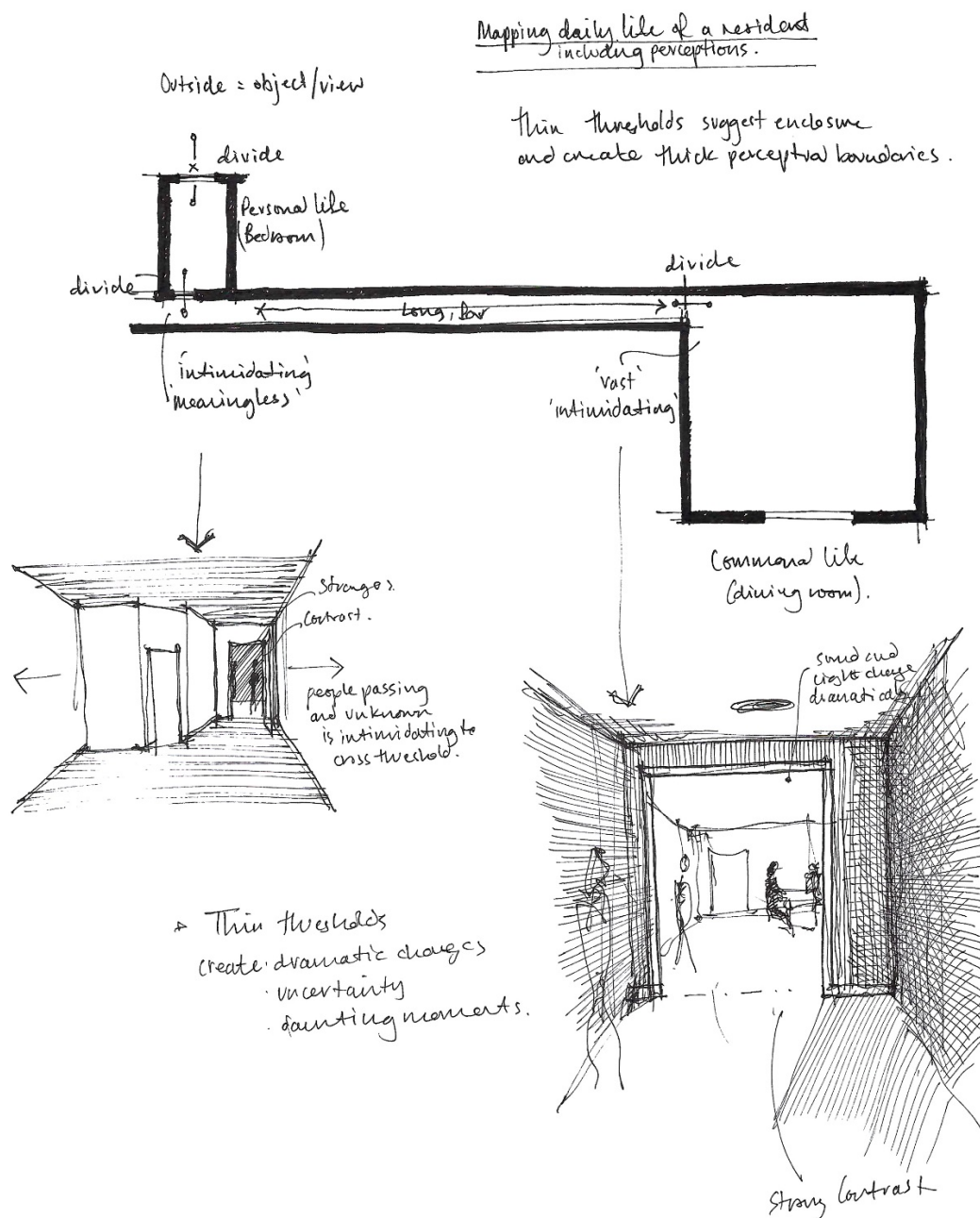


Figure 6: Mapping daily life of a resident in the context of hardlines and thin thresholds highlights abruptness and separation between moments and spaces.

Affordances

Closely related to 'liminalities' is the importance of the home to afford flexible modes of occupation. Life outside of residential care is experienced in multiple environments, where variations in occupation, mood, recreation, and sociability throughout the day, seasons, or life

are accommodated. Conversely, life in residential care homes is monotonous, which is reflected in the static architecture and social life it facilitates, and residents have fewer environmental choices. Thus, problems posed by inflexible planning that could once have been avoided by a change in location or scenery, now restrict residents' sociability and self-determination. These restrictions, paradoxically, are often results of mechanistic design solutions intended to provide a higher degree of independence. Spaces in residential care homes tend to be designed for functional purposes defined by an optimum or end state (the bedroom is designed to support high levels of cognitive deficiency, physical disability and incontinence, for instance), serve as reminders of residents' incapacitation and eventual complete dependency. Analysis of fieldwork data suggests the intensity of the relationship between a need for flexible modes of accommodation and spatial configuration is greatest in residents' personal space (bedrooms and bathrooms), and that the need to accommodate varied forms of occupation is expressed in residents' varying needs for privacy and inclusion, space for different forms of social and recreational occupation, and sensory connections with spaces outside the wall boundaries of the room. These factors are described by three recognisable personas below and in figure 7:

- Residents feeling isolated, particularly acute in bed-bound and frail residents, with little connection to the rest of the home from their personal space. People in this scenario suggest a desire for greater sensory connection to the home.
- Other residents prefer a more private connection to the home, suffering self-consciousness and vulnerability from invasive eyes off circulation spaces. These residents would prefer personal space more distinct from the rest of the home, however, here lies a tension between the need for privacy and residents' potential isolation, in which the conditions of privacy and publicity are largely binary (open or shut-off).

- In a third condition, residents are more highly dependent on care and require a flexible physical configuration that affords complete access all around the bed area and a direct connection to the bathroom. Residents in this condition often found verbal expression difficult but show preference for stimulating views and connection with outside spaces. Carers and families speak of the need to preserve their dignity from view from the rest of the home, and the benefits of visitation and sensory stimulus.

Rather than flexibility to accommodate varied patterns of occupation, most resident bedrooms in new and existing residences conformed to the narrow and deep plan form that permits a greater number of rooms along a corridor and external elevation. Analysis of fieldwork data from residents in bedrooms of this typology revealed their limited flexibility and capacity to accommodate varied socio-spatial configurations.

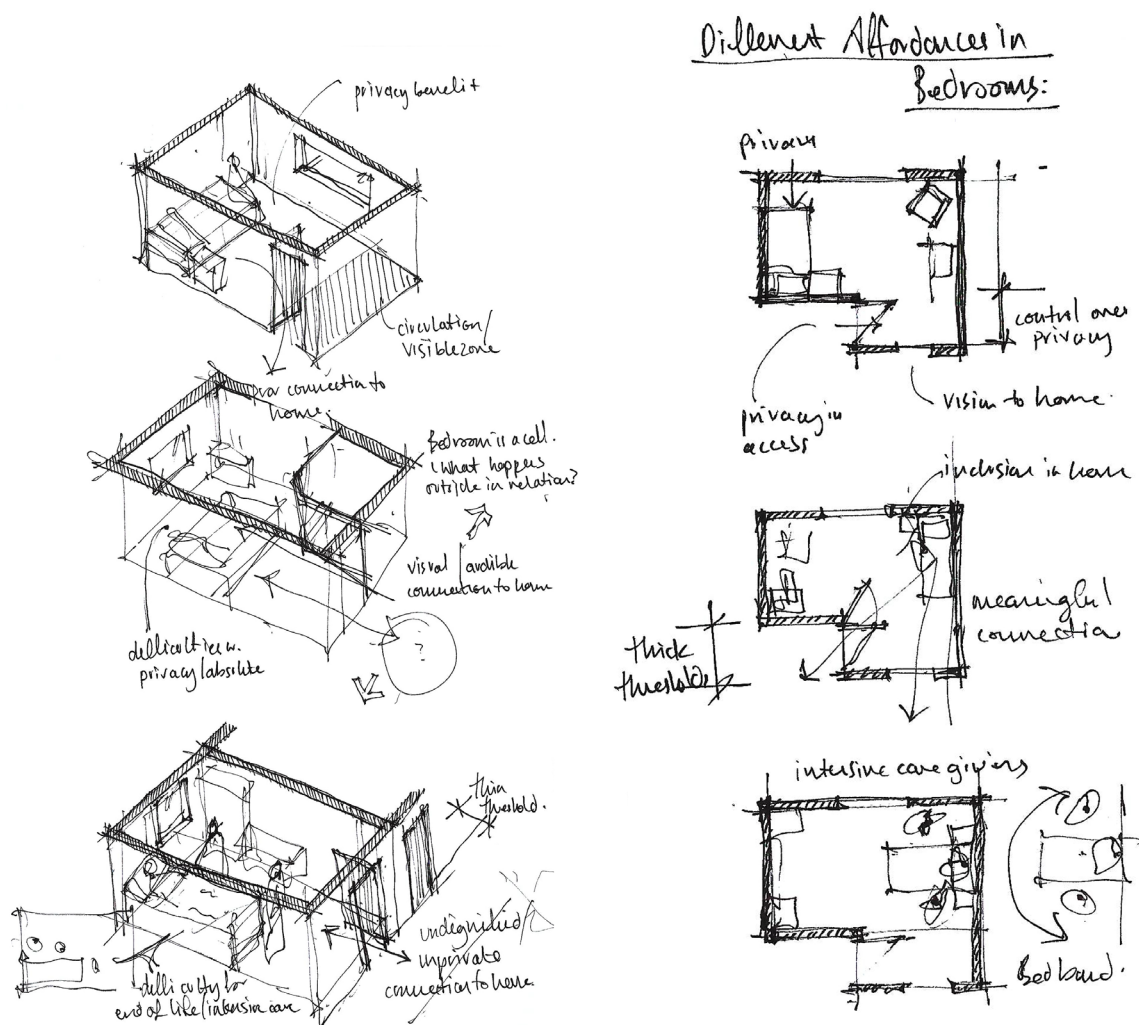


Figure 7: Exploring resident-spatial personas; complements in the layout of personal spaces for different stages of personhood

Enablement

Participants discussed the close relationship between the physical and social dimensions of accessibility in the home. Residents' sense of belonging and self-determination is framed on a continuum of enablement; of support and constraint of their will and opportunities.

Commonly arising socio-spatial configurations are discussed here with respect to participants' perceptions of freedom and unfreedom in residents' personal and social lives

which helps build a picture around the concept of enablement, and here participants give insight into how space planning can facilitate feeling shut-in or liberated; empowered to engage or demotivated; an unsettled temporary visitor or settled. For definition purposes, this concept is here explained from the perspectives of freedom of movement, freedom of use and exposure, and self-determination.

Freedom of movement:

Participants frequently referenced uncertain understanding of their freedom of movement in the home, most frequently in relation to the ability to access spaces, and cross thresholds. When experienced, this uncertainty is linked to feelings of impermanence, hesitant behaviour, and subservience.

Researcher: “Shall we go somewhere in there (the lounge area for an interview)?

Resident: “I don’t know if we are allowed. It’s by the staff bit, and I think it is locked. I don’t like to ask (staff) things, so I think we can stay here”.

(Excerpt from interview with a resident).

Medium-sized homes are generally divided into wings or floors and residents have a bedroom in one or another zone of the home, and common spaces are centralised. Residents’ lives, therefore, play out in a relatively small part of a much larger space. This centralisation of personal and common space instils an alienation from spaces residents do not access. Those sufficiently cognisant to perceive the alienation are generally unsure if they were allowed to access the space to which they had no specific reason to, and referenced a sense of disorientation to their surroundings; unable to contextualise their location relative to what happens nearby.

“No, I don’t go down there (a wing of bedrooms) (...) I don’t know what’s there. I’m not sure what’s out there either (points past main entrance) but it is locked so I don’t go there... I mostly stay here” (excerpt from an interview with a resident)

“There is no need to spend time (in another wing),... Nan is either in (the dining room) or her bedroom. She gets out in the garden whenever we come around (to visit)”.
(excerpt from an interview with a resident)

This alienation extends from areas of the home to rooms and spaces that are perceptibly off limits, which on the one hand is helpful (residents generally perceived privacy to each other’s bedrooms, which though sometimes crossed in curiosity or confusion was generally respected). On the other hand, centrally positioned nurse stations, cleaning cupboards and other management facilities are explicitly off-limits (often with locked doors and signs) and add to the perception that they are in an institution and behave more cautiously than families recognise from their own homes.

Some residents are more comfortable in busier spaces than others. Those less comfortable must often choose between immersion in a busier common room or isolation in their bedroom. Of the two homes visited, this tendency was more prevalent in the purpose-built home, where central communal spaces were highly visible, abruptly accessed, and regular in plan form with no quieter niches or breakout spaces. In the adapted residence, common areas are less regular in plan form, and volumes are broken down into smaller areas, into which residents often settled in different social configurations; singular and quiet, paired, in groups and more engaged. Variance in plan form and spaces outside the bedroom offer residents greater levels of social comfort and illustrate the socio-spatial dimension of accessibility to the home outside the bedroom (figure 8).

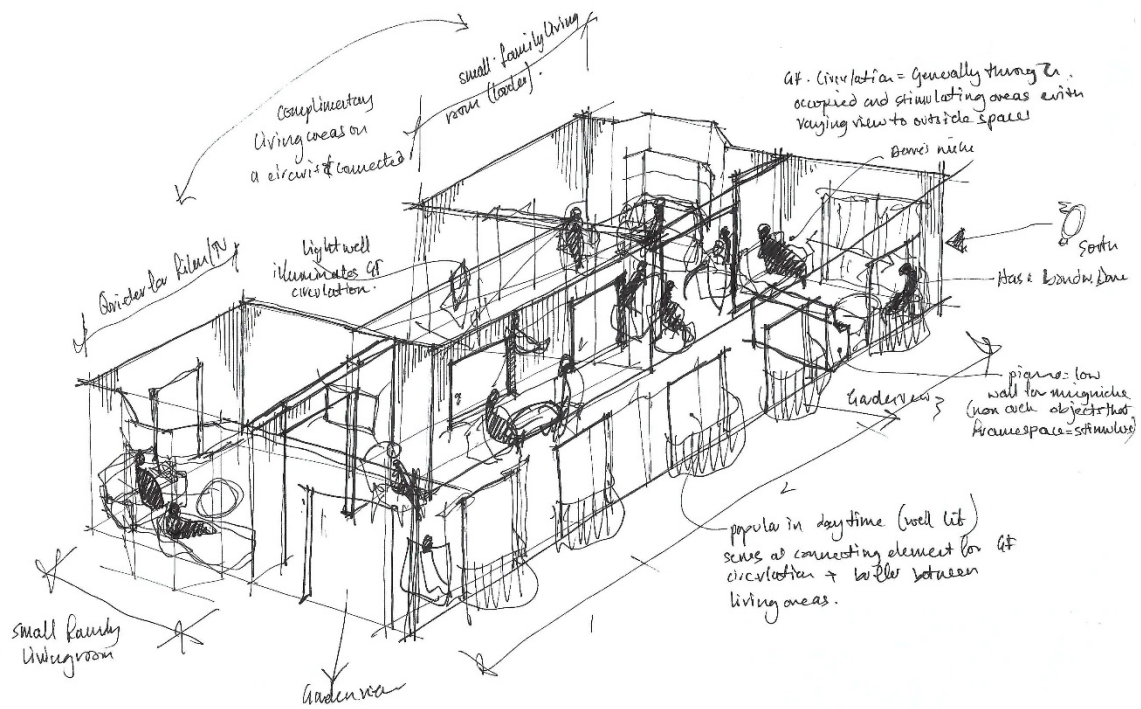


Figure 8: Multiple spaces appropriated in common areas of the converted residence.

Freedom of movement also relates to residents' will to wander and move, commonplace behaviour in residential care. Wandering residents often paused at points of interest or distraction without noticeable disturbance, while dead-end scenarios tended to impede movement or cause distress. Participants from both fieldwork settings suggested that circular movement and variation in interest provide more fulfilling movement and encourage residents to move more day-to-day (figure 9).

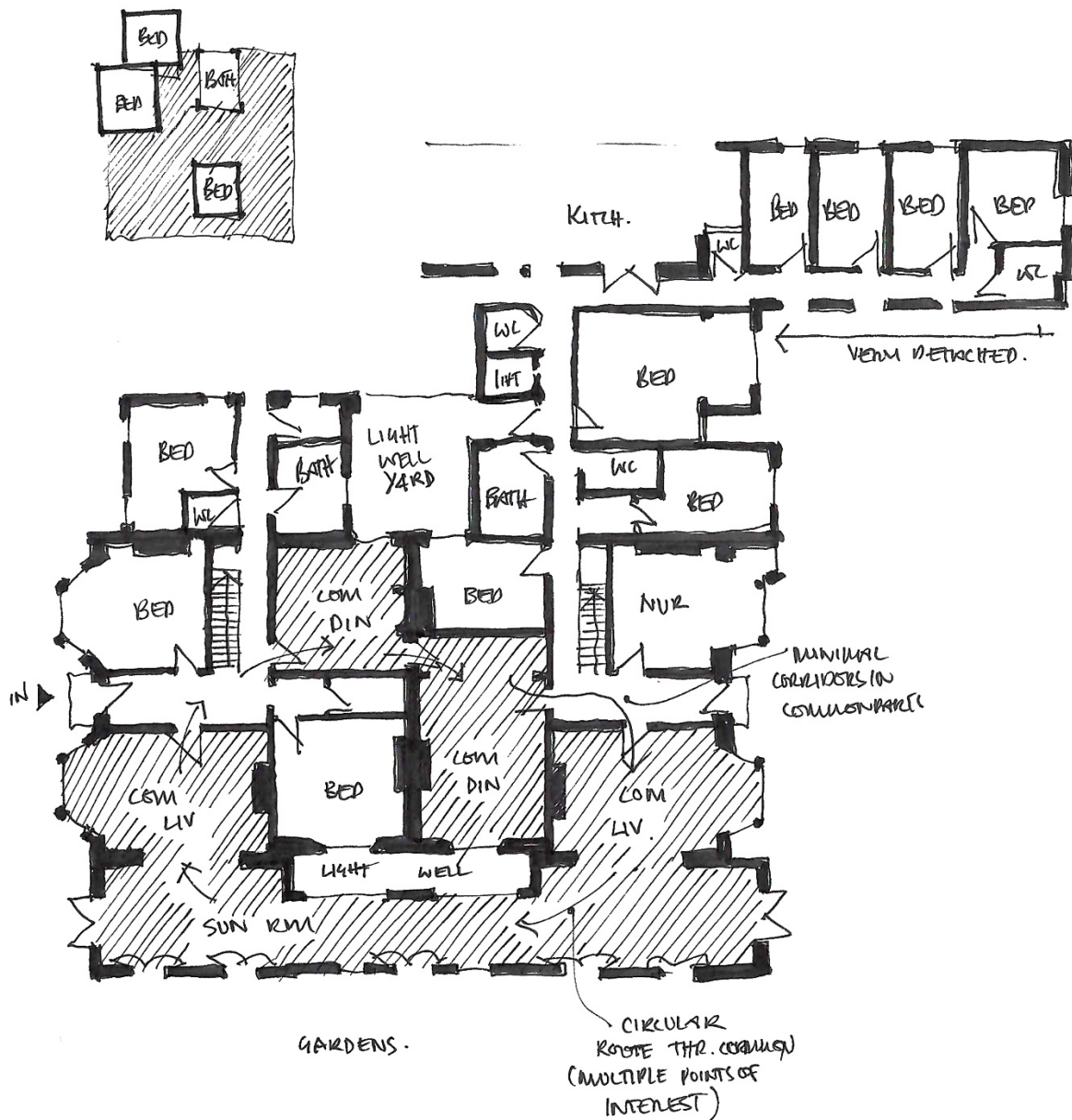


Figure 9: The plan of adapted fieldwork setting provided a circular route through the various communal spaces in the ground floor of the home, contrasting with the purpose-built home (fig. 1) divided into wings, this plan affords greater variation in scale and interest.

Confidence to move across thresholds was commonly linked to self-determination. Many residents were uncertain of their permission to access outside space and were commonly hesitant to ask for permission from care staff to take them outside.

Researcher: “Do you go outside often?”

Resident: “Not much now, no. I am not sure how.”

Researcher: “What do you mean?”

Resident: “I don’t think I am allowed out there, and I don’t know how else to get down (...) “I don’t want to be a bother, so I don’t ask (the carers to take me)”.

(excerpt from an interview with a resident)

Further, the will to connect with the outside extends to intrigue and sensory experience, whether a view, sounds, smells or changes in light, temperature or humidity, residents appreciate access to the temperate stimuli of the outside environment. Here bay windows and inside-outside spaces were favoured spaces of occupation and offer many of the benefits of being outside in contrast with a more controlled and enclosed communal balcony of the purpose-built care home. There is a general sense that freely and gradually accessible outside space increases residents’ freedom and will to access.

Freedom of use and exposure:

A similar will to freedom is referenced concerning spaces for creative and fulfilling pursuit, often as self-determined effort rather than planned or organised by care home staff.

Communal areas in the home are for all residents, and hence must generally be kept clear and free from clutter, and residents cannot generally leave their personal effects or recreational equipment out for free use and access. This is particularly problematic in the generically designed common space of the purpose-built home, without niches for appropriation, storage, or longer-term occupation with personal effects. Thus, bedrooms become the space where materials for personal creative pursuit are accessed. This, however, relies on the ability of the bedroom layout to accommodate different modes of occupation and separate spaces for recreational pursuit. Many residents had had longstanding hobbies, such as painting, playing the piano, and making, which form part of their identity and personal association to a homely environment, and require access to materials. The spatial layout of a room can facilitate or

impede residents' abilities to freely access these types of stimulation, and the importance of rooms divisible into separate zones of activity was highlighted (figure 10).

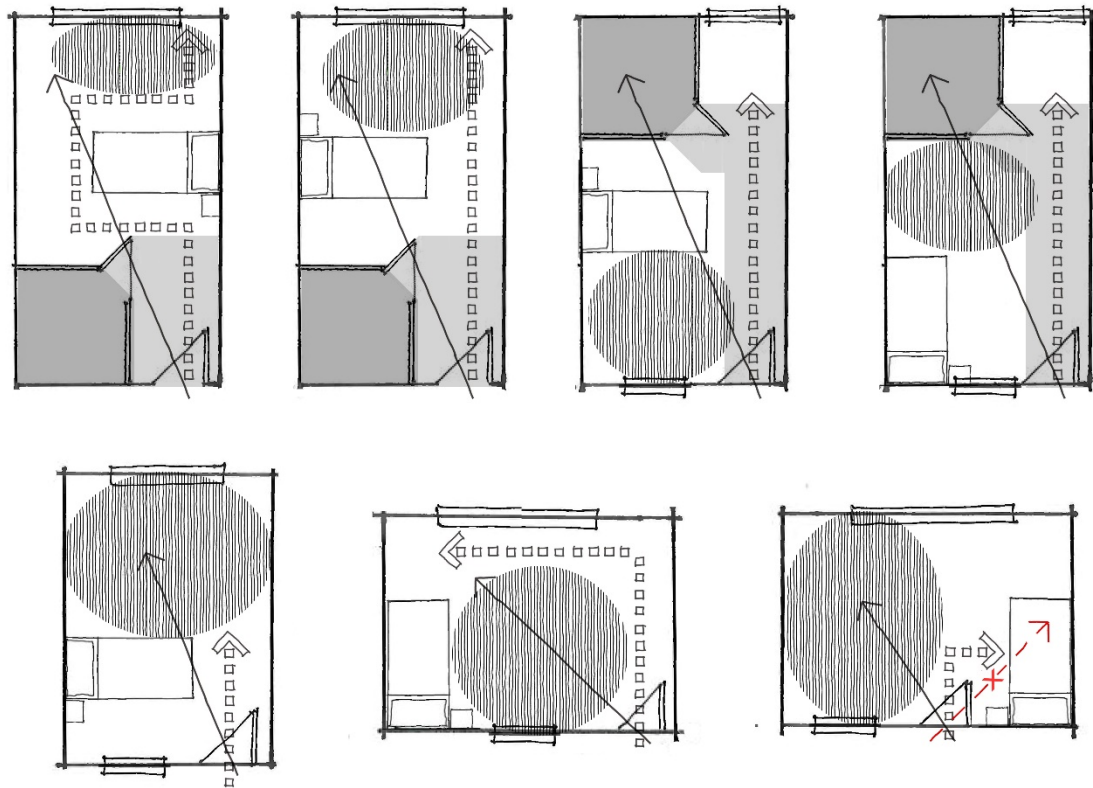


Figure 10: Difficulties with accessing hobbies were highlighted in rooms accessed from the narrow edge, and with access past en-suite bathrooms. Additionally, the rigidity of furniture and circulation layouts in bedrooms is a potential barrier to alternative fulfilling uses.

Similarly, residents ability to host visitors (from within or outside the home) in a more intimate manner than in the common dining and living areas relies on personal spaces able to accommodate social gathering; sitting on the bed is considered uncomfortable and temporary, whereas grouped in a circle or arc around a focal point, such as a coffee table, is seen as a spatial representation of the act of hosting and socialising (Figure 11).

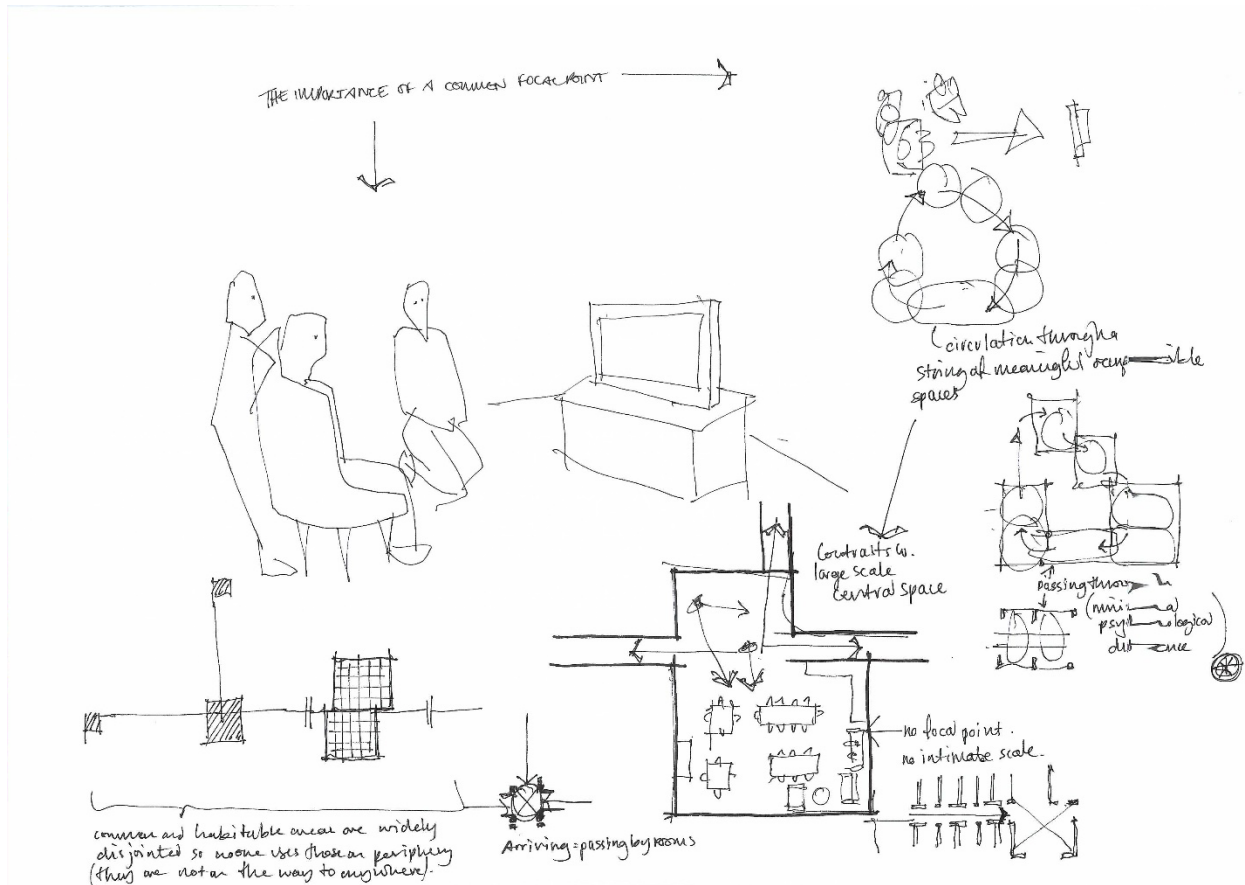


Figure 11: Notes comparing different forms of local interaction and clustering. The Multiple smaller spaces of varied scale and form afford greater complexity of inhabitation, whereas central simple forms create detachment and afford fewer modes of occupation.

Self-determination:

Residents generally respond with uplifted mood when invited to engage in the work of daily life, such as cleaning, laying the table or helping in the garden. However much of this work, such as laundering or cooking, is centralised in core spaces and staff. Residents tended to wait to be served food and drink rather than access it themselves and, unless invited to assist in the production of everyday life or engage in entertainment, lack purpose;

‘There is not much to do (...) I don’t know what to do. I sit here a lot. The days are long (...) I used to do things for myself’. (resident on lacking purpose in daily life). (excerpt from interaction with resident)

Processual Discrepancies

Embodied spatial characteristics were derived from participants' reflections on the social-spacetime of residences, as experienced. Implicit in much of the data gathered is perceived tensions between the home as 'lived and aspirational', and the home as 'received'. These tensions suggest a tendency to misrepresentation and different priorities and understandings of the supportive capacity of the home between those who occupy it, and those who design it. These tensions are unpacked here in the representation of the home as a productive process.

Ideologies of Spatial Conception

Participants framed the lived care home as governed by absolute conceptions of social space-time, in which space is framed by material (boundaries and planes of enclosure to spatial allocations), through which social life is enacted (interaction of humans, technology and systems of daily life in residential care). The suggestion here is that daily life, as an experience of fulfilment, connection and creativity, is marginally present through organisational structures that allocate measurable space-time constraints based on pre-defined activities: the 'film room', the 'common room', the 'bedroom' or 'dining area'. Residents' social lives are hence designed from a managerial framework in which designated activities are prescribed to spaces in the home, around which residents must move to partake in a 'designed' social life.

This absolute social space-time frame contrasts, however, with more flexible and collective experiences of daily life outside care environments. Here participants identify more closely with relational understandings of social space-time, in which the space of interaction is understood through sensory memory and stimulation, proximity and number of the persons gathered, and changes in the mode of occupation and interaction with things and others. This space-time is not absolute, but instead a shifting experiential construct with fluctuations and

sudden occurrences, and in which personal perceptions of space are in a state of continuous transformation as patterns of appropriation and occupation evolve: a corner becomes Terry's corner; the space where Theresa and Julia began to meet in the mornings is now anticipated and routinely visited. The repetition and variation in occasions of meeting is structural to the relationship between the two, and their interpretation of the relationship is enmeshed in the spaces of meet and interaction.

Tensions between the perceived absolute conception of lived residential care spaces and the relational space of memory and aspiration are embedded in the category of embodied spatial characteristics, which drive functional spatial allocations ('Liminalities'), static configurations ('Affordances'), and distinct centralised facilities ('Enablement'), that speak to the importance of fluctuation and change. Participants reflected on frustrations with access to positive social stimulation in personal spaces, distanced and separate from prescribed spaces of interaction; personal space designed around the necessities of physical care is limited in its capacity to accommodate other socially vital but fluctuating (less absolute) experiences. Hence exposure to those qualities of life, that evoke memory of previous experiences, and aspiration for continued creative and expressive social lives are unsupported and restricted by the efficiencies of an absolute social space-time framework.

Participants referenced the clear distinction of spatial allocations (rooms) based on ordained functions in the context of personal and group routines. Though varied in time and to some degree in space (some residents cannot or will not leave their rooms to eat, while others take longer to do so than others, for example), these environments are largely homogenous and conform to the systems of central provision (of food, recreation, laundry, etc):

'you can't just hang out in the hallway, you have to go to the living room' (care worker to resident); "we bring them their food at lunchtime, and they can eat in the dining room, or in their rooms if they are tired... They would be on their own if they ate in their room,

or we could set up for two residents that get along to eat in one room; but it hasn't ever happened," (excerpt from an interview with a care worker).

While there is an argument that these examples are a matter of care administration, there is truth to the impracticalities of inhabiting a domestic hallway or the corridors between bedrooms with their straightedges and abrupt thresholds. When asked in interviews, no carer could imagine occupation of the spaces in manners other than transitioning between spaces or wandering through the home. Residents, however, commonly referenced the alienating disconnect between their personal space and the rest of the home, including reference to the desire for varied scales of interaction in and out of personal spaces, which spaces communicating an absolute spatial conception largely fail to support. Instances of unorthodox spatial appropriation are observed and remarked by many as unusual, such as Theresa and Julia spending time waiting in the corridor for each other.

Veridictions

Residential care homes are often their occupants' final residence. The rate of reoccupation is higher than most residential circumstances, given residents' ages and vulnerable state. Residential care homes are thus nearly constantly on the market for new occupants and common areas are the 'shopfront' advertising to the families of would-be residents and maintaining a standard-as-promised to visitors of current residents. As one participant put it;

"it's hard to understand the kind of care or relationships they'll have (in the home), but you get a feel for the place, and you ask around about its reputation... if it's tidy and nicely decorated and don't (sic) smell too bad, and the staff (are) friendly, you go with it". (excerpt from an interview with a resident's close family member)

The exchange that underpins the veridictions in the realisation of residential care homes, relies partly on maintaining outward appeal in which truths about quality living are constructed to appease residents' families and friends. The competitive nature of this appeal

has an equalising tendency to which homes must aspire, but which does not necessarily best support residents' personal and social lives. As described by a care worker,

“I don't think we should have en-suite bathrooms – they are ugly, and you can't stop the smell of cleaner in the bedrooms (...) and who wants to be looking at a toilet all day? The trouble is it's one (the families) always point out when they see rooms don't have an en-suite (...) it's expected now”. (excerpt from an interview with a care support worker)

The necessity for luxuries and individualities such as en-suite bathrooms and show-home common spaces are cases where truths of quality living are constructed in direct tension with spaces of personal and social fulfilment. Other forms of veridiction create truths that overlook the importance of environmental factors in support of residents' fulfilling social and personal lives such as technological solutions in response to the difficulties of living with the symptoms of dementia. This is an arena in which care homes advertise their ability to best care for residents, and participants are conversant in benefits such as surface colour contrast and inclusion of TV screens that relay the time of day to residents. Meanwhile, the nature of deep planned rooms, hardlines and other constraints outlined above remain, reinforcing a typology that remains largely unchallenged.

The veridiction here frames a truth of fulfilling ageing that only partially considers the conditions of life as a resident in specialist care environments. It is inferred that residents are transformed reductively and selectively within the frame of what is possible in the context of a naturalised typology, rather than understood and accommodated in a careful and personal manner.

Discussion

Five prevalent categories emerged from the study. Three framed embodied socio-spatial characteristics that residents experience physically in the instant; liminalities, affordances and enablement. Two categories frame processual discrepancies in the design of residential care

space and representation of residents therein: ideologies of spatial conception and veridictions.

Research results provide evidence bridging gaps in knowledge in relation to previous studies, such as the need to acknowledge the views of residents on the development of design knowledge in residential care settings (Quirke 2018), as well as the complexities associated with medium-sized care home environments in terms of spatial layout, design typologies and the relevance of core architectural concepts such as thresholds and spatial sequencing (Eijkelenboom et al. 2017). More broadly, however, the resulting theory framework underscores discrepancies between care home design and delivery frameworks and residents' lived experiences. Residents frame their experience of care home inhabitation in moments and trajectories, yet space is generally constructed with absolute functional definitions that, at best, misrepresent the spatial qualities of meaningful experiences and activities. This insight supports claims from (Fisher et al. 2018) who acknowledge the complexities of inhabitation and call for environments that afford more heterogeneous forms of inhabitation. Likewise, results echo Nolan, Davies, and Brown (2006) who emphasise the importance of "relationship-focused" models of care.

This should not, however, be read purely as recommendation for different spatial typologies and functions. Rather, it is suggested that understanding how design proposals accommodate shifting and contingent forms of occupation should be fundamental to the design approach for care environments. As Davis et al. (2009) poignantly illustrate, "the person experiences living with dementia: they do not experience themselves and the physical and social environments as separate". The physical environment is part of residents personal and social world, and the ways that this environment is represented (see "Veridictions") is

largely guided by a service provision framework with a need to fulfil care home occupation by marketing to the families of residents, prospective and in situ.

Emphasis on idealised luxuries of ‘good living’ and the technologies of health and safety dominate visitors’ discussions about the appeal of and decision to choose the home, and care managers reinforce the need to showcase these qualities to compete in the selection market. However, closer interrogation suggests residents have different priorities, and that some of the luxuries and technologies conceal more structural concerns (lack of authentic daylighting, flexible forms of inhabitation, or self-determination in the home), and at times directly conflict with residents’ contingent and relative spatial requirements (as illustrated in the example of private bathroom configurations). These findings support arguments made by (Lundgren 2000) and (Fay and Owen 2012), on the concealment of institutional confinement by veiling with aesthetically idealised notions of home, and Torrington’s (2007) who suggest a negative impact on residents’ quality of life in buildings that emphasise health and safety over more experiential qualities.

Methodologically, this highlights the need to not only include residents’ perspectives in the design of their own care environments but additionally co-constructs a theoretical model through interactions with residents and their support networks, including family members and care workers. It is, however, acknowledged that the capacity for these methods (i.e. interviews, observational fieldwork) to understand the experiences and priorities of residents with particularly advanced dementia or in an end-of-life state is limited, given communication complexities and ethical consideration. The need for a greater understanding of supportive environment characteristics for this group is also highlighted by (Fisher et al. 2018) and may be facilitated through disciplinary collaborations for joint studies between researchers from the fields of architecture and care support work. This echoes suggestions from Zeisel et al. (2003) for more inter-disciplinary research practice to explore the design of

supportive environments, as well as the origins of grounded theory methodology itself (Glaser and Strauss 1968) on the investigation of care environments in the field of nursing.

Further Work

GT results in flexible research outputs, able to grow, evolve and accommodate further insights, data and results obtained through diverse methods and contexts (Glaser and Strauss 1968). This study was conducted in two medium-sized residential care homes in the United Kingdom. While fieldwork and analysis are concurrent tasks throughout the study, and results are grounded in the context they are expected to explain, in the traditions of GT (Glaser 2007) further work is encouraged to test concepts in other contexts and areas of expertise, setting the scene for further multi-disciplinary work involving expertise and methodologies derived from cognate areas such as psychology, health, e-health or architectural design. In the spirit of (Eijkelenboom et al. 2017) elaborations on concepts should include hypothetical and design contexts, as well as additional empirical work investigating environmental qualities in plausible spatial-material exemplars. Findings have additional implications for social theory of the ecologies of residential care environments, and fieldwork methodologies for architectural research in environments with vulnerable participants. Theoretical concepts imply alternative ways to imagine the production and realisation of care environments from residents' perspectives and are thus relevant to practitioners, educators, and academics.

Acknowledgements

Work with vulnerable people with cognitive difficulties requires tact, patience, and the sensitive application of methods, and the authors are thankful to all research participants of this study. The ethical considerations for work in this context are wide-ranging and have been approved by the Research Ethics Committee of [institution is omitted for peer review

purposes]. This approval is based on a two-tier approval process, both institutional as well as local approval sought in the form of care managers granting signed informed consent to conduct fieldwork methods.

The lead author is a registered architect, researcher, and former care support worker.

The second author is an architect and researcher.

References

- Barrett, Peter, Monika Sharma, and John Zeisel. 2019. "Optimal spaces for those living with dementia: principles and evidence." *Building research and information : the international journal of research, development and demonstration* 47 (6):734-746. doi: 10.1080/09613218.2018.1489473.
- Brawley, E. C. 2001. "Environmental design for Alzheimer's disease: a quality of life issue." *Ageing Ment. Health* 5 (2):S79-S83. doi: 10.1080/13607860120044846.
- Breen, Jack. 2002. "Design Driven Research." In *Ways to Study and Research Urban, Architectural and Technical Design*, edited by T. M. de Jong and D. J. M. van der Voordt. Amsterdam: Amsterdam: IOS Press, Incorporated.
- Charmaz, K. 2006. *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*: SAGE Publications.
- Charmaz, K. 2007. "Constructivist and Objectivist Grounded Theory." In *The SAGE Handbook of Grounded Theory*, edited by A. Bryant. London: SAGE Publications.
- Charmaz, Kathy. 2014. *Constructing grounded theory*. 2nd ed. ed. London: London : SAGE.
- Corbin, J., and A.L. Strauss. 2014. *Basics of Qualitative Research*: SAGE Publications.
- CQC. 2017. The State of Adult Care Services 2014 to 2017: Findings from CQC's initial programme of comprehensive inspections in adult social care. In *State of Care*. Newcastle: Care Quality Commission.
- Davis, Sandra, Suzanne Byers, Rhonda Nay, and Susan Koch. 2009. "Guiding design of dementia friendly environments in residential care settings: Considering the living experiences." *Dementia* 8 (2):185-203. doi: 10.1177/1471301209103250.
- Day, K., D. Carreon, and C. Stump. 2000. The therapeutic design of environments for people with dementia: A review of the empirical research. In *Gerontologist*.
- DSDC. 2011. *Dementia design audit tool : design to develop a better quality of life for people with dementia*. 2nd ed.. ed. Stirling: Stirling : Dementia Services Development Centre, University of Stirling.
- DSDC. 2013. *Improving the Design of Housing to Assist People with Dementia*. Stirling: University of Stirling.
- DSDC. 2018. "Accreditation." Dementia Services Design Centre, accessed 20.12.2017. <http://dementia.stir.ac.uk/design/accreditation>.

- Fay, Roger, and Ceridwen Owen. 2012. "'Home' in the aged care institution: authentic or ersatz." *Procedia - Social and Behavioral Sciences* 35:33-43. doi: 10.1016/j.sbspro.2012.02.060.
- Fisher, Lee H., David John Edwards, Erika Anneli Pärn, and Clinton Ohis Aigbavboa. 2018. "Building design for people with dementia: a case study of a UK care home." *Facilities* 36 (7/8):349-368. doi: 10.1108/F-06-2017-0062.
- Fleming, Richard, and Kirsty Bennett. 2015. "Assessing the quality of environmental design of nursing homes for people with dementia: Development of a new tool: The Environmental Audit Tool-High Care." *Australasian Journal on Ageing* 34 (3):191-194. doi: 10.1111/ajag.12233.
- Glaser, Barney G., and Anselm L. Strauss. 1968. *The discovery of grounded theory : strategies for qualitative research*. Edited by Anselm L. Strauss: Weidenfeld and Nicolson.
- Goulding, Christina. 1999. "Grounded Theory: some reflections on paradigm, procedures and misconceptions."
- Gramegna, Silvia Maria, and Alessandro Biamonti. 2017. "Environment as non pharmacological intervention in the care of Alzheimer's disease." *The Design journal* 20 (sup1):S2284-S2292. doi: 10.1080/14606925.2017.1352744.
- HM Government. 2015. *Dementia-friendly Health and Social Care Environments*. edited by Department of Health. London: HM Government.
- Lundgren, E. 2000. "Homelike housing for elderly people - Materialized ideology." *Hous. Theory Soc.* 17 (3):109-120. doi: 10.1080/14036090051084405.
- Molony, Sheila L. 2010. "The meaning of home: a qualitative meta-synthesis." *Research in gerontological nursing* 3 (4):291. doi: 10.3928/19404921-20100302-02.
- Morgan, Debra G., and Norma J. Stewart. 1999. "The Physical Environment of Special Care Units: Needs of Residents with Dementia from the Perspective of Staff and Family Caregivers." *Qual Health Res* 9 (1):105-118. doi: 10.1177/104973299129121721.
- Pollock, Annie, and Liz Fuggle. 2013. "Designing for dementia: creating a therapeutic environment." *Nursing and Residential Care* 15 (6):438-442. doi: 10.12968/nrec.2013.15.6.438.
- Timlin & Rysenbry. 2010. *Design for Dementia: Improving Dining and Bedroom Environments in Care Homes*. London: Helen Hamlyn Centre, Royal College of Art.
- Torrington, J. 2007. "Evaluating quality of life in residential care buildings." *Build. Res. Informat.* 35 (5):514-528. doi: 10.1080/09613210701318102.

- van Hoof, J., H. S. M. Kort, M. S. H. Duijnste, P. G. S. Rutten, and J. L. M. Hensen. 2010. "The indoor environment and the integrated design of homes for older people with dementia." *Building and Environment* 45 (5):1244-1261. doi: 10.1016/j.buildenv.2009.11.008.
- Van Hoof, J., H. S. M. Kort, J. L. M. Hensen, M. S. H. Duijnste, and P. G. S. Rutten. 2010. "Thermal comfort and the integrated design of homes for older people with dementia.(Report)." *Building and Environment* 45 (2):358. doi: 10.1016/j.buildenv.2009.06.013.
- van Hoof, J., H. Verbeek, B. M. Janssen, A. Eijkelenboom, S. L. Molony, E. Felix, K. A. Nieboer, E. L. M. Zwerts-Verhelst, J. J. W. M. Sijstermans, and E. J. M. Wouters. 2016. "A three perspective study of the sense of home of nursing home residents: the views of residents, care professionals and relatives.(Report)." *BMC Geriatrics* 16 (1). doi: 10.1186/s12877-016-0344-9.
- Verbeek, Hilde, Erik van Rossum, Sandra M. G. Zwakhalen, Gertrudis I. J. M. Kempen, and Jan P. H. Hamers. 2009. "Small, homelike care environments for older people with dementia: a literature review." *Int Psychogeriatr* 21 (2):252-264. doi: 10.1017/S104161020800820X.
- Yeoh, Robert. 2004. *Dementia Care and the Built Environment: Proposition Paper 3*. Australia: Alzheimers Australia.
- Zeisel, John, Nina M. Silverstein, Joan Hyde, Sue Levkoff, M. Powell Lawton, and William Holmes. 2003. "Environmental correlates to behavioral health outcomes in Alzheimer's special care units." *Gerontologist* 43 (5):697-711. doi: 10.1093/geront/43.5.697.