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Architectural design for Dementia: Exploring alternate contemporary cultures of residential care design

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UNIVERSITY OF PLYMOUTH

Architectural Design for Dementia: Exploring alternate contemporary cultures of
residential care design

By

Ricky Lea Burke

A thesis submitted to the University of Plymouth
in partial fulfilment for the degree of

DOCTOR OF PHILOSOPHY

School of Arts, Design, and Architecture

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Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Doctoral College Quality Sub-Committee.

This thesis has been proofread by a third party; no factual changes or additions or amendments to the argument were made as a result of this process. A copy of the thesis prior to proofreading will be made available to the examiners upon request.

Work submitted for this research degree at the University of Plymouth has not formed part of any other degree either at the University of Plymouth or at another establishment.

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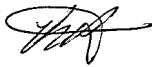
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Abstract

Ricky Lea Burke

Architectural Design for Dementia: exploring alternate contemporary cultures of residential care design.

The Alzheimer's Association (2018) projected the number of people living with a dementia diagnosis to surpass 2 million, reaching 1 in 37.5 of the population of the United Kingdom by 2051: up from 1 in 79 in 2015. This growth in rate and number coincides with an ageing population and a decline in the relative number of people able to care for the needs of people suffering difficulties associated with the symptoms of their diagnosis. The move to a residential care home is not only a viable but necessary step for many, and recent years have seen the growth in demand for and construction of residential care homes to provide residents with the specialist care and supervision that they need.

The built environment has come to be recognised for its therapeutic and supportive role in the lives of people living with a dementia diagnosis, and a great wealth of recent knowledge showcases environmental factors that support cognition, mitigate perceptual difficulties, or assist with wayfinding in the home has amassed. Much of the architectural knowledge on the relationship between residents and their environment takes a medical stance, and a naturalised typology of residential care homes has arisen, as a result. This has led to concerns from some scholars that residents' views and experiences in the home are underrepresented, as medical concerns take priority over their lived experiences or social opportunities. Notwithstanding the importance of the need for the environment to support residents' safety and personal care, contemporary literature from the fields of social care and occupational health emphasises a person-centred approach in which the quality of residents' experiences and personhood are prioritised alongside the treatment of their symptoms. There has been, however, little research into the influence of the built environment on the experiential quality of life in residential care, as well as in codesign processes that appropriately capture the views of residents on the delivery of residential care environments.

This thesis describes the design and application of a research inquiry that seeks to address the question; how does the physical environment in residential care homes for people living with dementia diagnoses influence residents' personal and social fulfilment?

The inquiry is both critical and active and uses a Constructivist Grounded Theory approach to scaffold ethnographic and designerly methods. As a result, insights are constructed into both lived reflections and shared aspirational projections for supportive residential care environments. Transdisciplinary fieldwork was grounded in the lives of the occupants in two residential care homes in the West of England and uses a compliment of traditional qualitative methods, such as interview and observation, alongside disciplinary apparatus including, drawing and the construction of virtual environments, to the explore reflective environmental qualities, in which participants were instrumental in the construction of data and theoretical concepts.

The thesis proposes theoretical and methodological outputs that contribute to new knowledge to emergent insights into the supportive role of the built environment in the lives of people living with a dementia diagnosis. Findings are framed in a theory model comprised of two core categories and five conceptual categories. Embodied characteristics frame experiential qualities of the built environment, and consist of liminalities, affordances, and enablement. Processual discrepancies frame perceived tensions between residents' aspirations and perceptions of the environment and discuss ideological conceptions of space-time and veridictions.

The theoretical outputs offer a model through which to explore other residential care settings, while the methodological outputs offer approaches for both researchers and designers looking to understand and develop supportive configurations of the built environment for vulnerable people.

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“Until such time as cures are found, the best hope for people with Alzheimer’s disease and other dementias is to concentrate efforts on interventions to improve quality of life and to this end, the environment plays a large part”

(Davis et al., 2009).

Chapter 1

Introduction

Symptoms as Contradictions in the Doxa

In research, to know where to look we first seek the symptoms that suggest a problem. We must then seek to understand the symptoms as a paradox within the dominant ideology – the doxa – otherwise, it would already have been resolved and would cease to be a symptom. Then through exploration of the contradictions apparent in the doxa, we can create new perspectives. Design similarly is an endeavour that must look for paradoxes, decode their structure and significance, and work with them productively by redefining paradoxes as fresh perspectives on another level of meaning.

The doxa outlined here is one through which research and knowledge about dementia and life in residential care will produce a better standard of living for our elderly, as they are moved in large numbers to live out their days in secured specialist environments. The symptom is that life in residential care is fraught with loneliness, dissatisfaction, and alienation. The paradox is thus, that the residential care home as a supportive structure in the lives of residents is also the limiting factor to supporting their social and personal fulfilment. The lived environment is vast and complex and comprised of the interactions of many social, material, and economic forces. Hence, it is useful to understand how we arrived at the current situation to clarify some constraints to the research project. To paraphrase Žižek (1989), the truth of a symptom is reconstructed in the future form of its fragments, disappearing into its past. So, the reconstruction of truth as a future act must necessarily begin by looking at the symptoms visible from the past.

This research, therefore, begins with the search for the contradictions experienced by people living in residential care homes; the socio-spatial loci where the places constructed to support their later life also restrict their ongoing fulfilment and autonomy. More than to understand life in residential care homes for people living with dementia diagnoses, or to discern their ailments and possible treatments through adjustments to the environment, this research explores the creation of aspirational environments for the

personal and social fulfilment of occupants by extending social science beyond lived reflection to imagined future alternatives. It does so by opening up design research to collective mediation through ethnographic means beyond those of memory and the present. And more specifically this research views design as a process of testing configurative relationships between the material, spatial and social worlds; as a projective exercise, reliant on grounded knowledge and cultural participation. In this, the research aligns with thinkers such as Blundell-Jones (2016) who explored multiple examples of community building through the understanding of local needs, materials and customs, rather than universalised principles. Or Awan, Schneider and Till (2013) and Blundell-Jones, Petrescu and Till (2005) who discuss the architecture of participation, in which cultural priorities are the key drivers that manifest spatial-material configurations.

This introductory chapter begins, therefore, by examining the social context of the symptoms associated with life in residential care; the dementia problem; the care home as a silo of knowledge; dominant logics of contemporary building design; and the politics of participation. Then the knowledge gap is outlined before framing a research question and set of objectives derived from this context and intended to construct a new perspective on life in residential care. The chapter goes on to describe the research outputs, both theoretical and methodological, and the anticipated impact of the findings, the reach and relevance of the work. And finally, the chapter gives a brief outline of the methods used to explore the research problem, and clarifies the scope of inquiry, before giving a brief overview of the thesis structure.

A Genealogy of Dementia in Residential Care Homes

The Dementia Context

Dementia is a hypernym used to describe a group of specific medical conditions characterised by abnormal brain changes that cause declines in cognitive functioning sufficiently severe to restrict independence in daily life. While the symptoms experienced by people with a dementia diagnosis vary greatly, the British Medical Journal dictates that the most common symptoms leading to a diagnosis are; “difficulties with memory (particularly short-term), disturbances in language, psychological and psychiatric changes, and impairments in activities of daily living” (Burns & Iliffe, 2009). Behavioural psychological symptoms (of dementia) often referred to as BPSDs (Patterson, 2018) include memory loss, debilitated decision making, visuoperceptual difficulties, anxiety, depression, and feelings of agitation and isolation (Harwood & McCulloch, 2017). Dementias usually eventually progress to severe physical debilitations, such as imbalance and dysphagia, which can lead to potentially fatal illnesses (Easterling & Robbins, 2008).

Of the numerous medical conditions that lead to a dementia diagnosis, Alzheimer’s Disease accounts for the significant majority (Gauthier *et al.*, 2021), followed by vascular dementia and then Lewy Body Dementia. Alzheimer’s disease is “a chronic, progressive neurodegenerative disorder” in which progressive senile plaques, neurofibrillary tangles, and a loss of neuronal connections cause gradual and irreversible “impairment in cerebral functioning” (Neugroschi, 2022). Alzheimer’s Disease “often co-exists with other forms of dementia” (Neugroschi, 2022), known as mixed-dementia. This mix commonly includes vascular dementia, where reduced blood flow to the brain causes a loss of parenchyma, resulting in marked losses in planning ability and changes in mood, as well as the typical troubles with memory (Passmore). Lewy Body Dementia is a condition caused by an abnormal build-up of specific protein deposits in the brain, known as Lewy bodies, and is

marked by problems with movement, thinking, and visuo-perceptual cognition (including hallucinations) that impair an individual's independent functioning (Lerner, 2018).

Common among these main types, as well as other less common forms of dementia, is the progressive and irreversible decline in brain functioning that, as well as reducing a person's ability to look after themselves, also has a marked negative effect on their mood, feelings, and relationships with other people. Hence, common psychological symptoms include fear, anxiety, and confusion, which often exacerbate declines in the person's self-identity and quality of life (Burley & Surr, 2022).

A key characteristic that distinguishes dementia from other conditions is the irreversibility and progressive severity of symptoms; dementias are incurable and, as conditions progress, autonomy diminishes and confusion and dependency on others increases (Prince *et al.*, 2015). The severity of a dementia diagnosis is categorised by the intensity of observable symptoms. There are subtle differences in the categorisation of stages across the globe, and medical practitioners may follow a more detailed scale of the stages – such as Reisberg *et al.*'s (1982) Global Scale for Assessment of Primary Degenerative Dementia – than is necessary for general care provision in residential care homes, but a general trend follows from early, to mid, to late stages. According to the Alzheimer's Disease International (Gauthier *et al.*, 2021), many in the early stages of dementia, also known as mild dementia, retain a level of independent functioning while experiencing difficulties with familiar day-to-day tasks and activities. Mid-stage dementia is characterised by a greater loss of independence through more progressed symptoms and is often accompanied by notable changes in mood and behaviour – this stage can last several years and is the most common stage in which people with a diagnosis move to a residential care home (Howard, 2020). As such, people living in residential care homes with a dementia diagnosis tend to be in the mid-to-late stages of dementia. In late-stage dementia, also known as severe dementia, individuals show marked loss in communication skills,

personality changes and eventual losses in movement and bodily functioning. People with late-stage dementia have little-to-no capacity to communicate verbally or through coordinated movement.

Figures from the Alzheimer's Society (The Alzheimer's Association, 2018) showed 850,000 people living with dementia in the UK (1 in 79 of the population) in 2015 and predicted the number to increase and surpass the 2-million-person threshold (1 in every 37.5 people) by 2051. This growth in dementia prevalence is predicted to coincide with a shift toward an aged population with a greater number of people in retirement and care states, the age group most vulnerable to dementia (Prince M. et al, 2014) and proportionally fewer potential carers of working age than ever before (Harper & Walport, 2016). The trend is visible globally and estimates projected 131.5 million people living with dementia worldwide by 2050 (Prince *et al.*, 2015). The scale is such that authorities consider Europe to be in a dementia epidemic, "a priority for European science and society" (Winblad *et al.*, 2016). Worldwide, strategies to tackle the difficulties of caring for this growing dependency, and its associated costs (1.09% of global GDP according to estimates from Prince *et al.* (2015)) vary, but generally an increase in specialist dementia care provision - often in specialist living environments such as care and nursing homes - is increasingly prevalent (Prince *et al.*, 2015; Winblad *et al.*, 2016).

Returning to the UK, the combination of a growing population living with dementia diagnoses, proportionally fewer working-age carers to assist them, and a longer life span has increased the demand for personal care and generated significant demand for the provision of specialist living environments that can adequately accommodate the needs of large numbers of people living with the symptoms of dementia (Competition and Markets Authority, 2017). The move to residential care is most common when people with

a dementia diagnosis are in the middle-to-advanced stages of symptomatic progression¹ (Quirke, 2019) and life at home becomes difficult, even with assistance from carers and social support networks. Intensification of the symptoms associated with a dementia diagnosis is consistently the leading cause attributing to a person's move into residential care (Gauthier *et al.*, 2021; Patterson, 2018; Sloane *et al.*, 2002). The heightened state of physical and medical dependency in mid-to-late-stage dementia is associated with high levels of frailty and risk that often require close attention from care support workers. With the trend to provide specialist care provision in specialist living environments, an increasing number of people will end up living in residential care homes.

Given the complex and encompassing nature of dementias and the breadth of debilitation experienced by living with the symptoms of dementia, research seeking to improve quality of life for those with a diagnosis can be found in many spheres including pharmacology, psychology, occupational therapy, nursing studies, neurology, sociology. Increasingly, research into the design of the built environment as a supportive factor in the lives of people living with a dementia diagnosis has converged around factors that are clearly linked to designerly concerns, for instance, difficulties with spatial cognition and memory in wayfinding (Allen, 1999; Kalantari *et al.*, 2022; Passini *et al.*, 2000; Passini *et al.*, 1998; Pillette *et al.*, 2022; van Buuren & Mohammadi, 2022; Van Schaik *et al.*, 2008). Hence, the built environment has come to be seen as a form of non-pharmacological therapeutic management of the difficulties associated with ageing and dementia (Brawley, 1997; Fleming, Kelly & Stillfried, 2015). Examples of prominent research from this bent are innumerable but some examples are such as Fisher *et al.* (2018) who outline a highly utilitarian model for the design of residential care space focussed on safety and the practical administration of care; or Fleming and Bennett (2015) which takes a functional approach to

¹ Global Deterioration Scale (GDS) is how the cognitive ability of people with a dementia diagnosis is assessed and ranges from GDS1 (no cognitive decline) through to GDS7, where speech and movement are almost invisible and actions such as swallowing are severely impaired.

the relationship between residents and their environment in assessing the quality of residential care homes; and Passini *et al.* (1998) who, among many others since (most recently van Buuren and Mohammadi (2022) and Kalantari *et al.* (2022)), explored the role of visual cues and spatial layouts in assisting difficulties in wayfinding experienced by people with a dementia diagnosis. Other research focusses on colour contrast to assist with the identification of things and surfaces in interior design (Lenham, 2013; Rooney *et al.*, 2017), the design of furniture, fixtures, and fittings (Greasley-Adams *et al.*, 2017; Pollock & Fuggle, 2013), and forms of signage to assist with orientation (Day, Carreon & Stump, 2000; Gresham *et al.*, 2019; Marquardt & Schmiege, 2009). Through increased research and intervention, the built environment has come to be recognised as one of three environmental factors influencing the quality of life of people living in residential care, along with the personal (psychological), and social realms (Rijnaard *et al.*, 2016). Thus the contemporary design of residential care environments stems from a 20th-century tradition that prioritises the functional conditions of bodily safety and mobility, technological assistance, easy monitoring, and economic management in the design and orchestration of residents' support (van Hoof *et al.*, 2016; Van Steenwinkel, Baumers & Heylighen, 2012).

The long-standing tradition of research into the behavioural and medical – that is physiological and psychological – role of the physical environment and the quality of life for its occupants has led to the emergence of a body of design guidance, regulation and accreditation for new and existing homes, intended to assist designers and commissioners to facilitate the delivery of environments that offer therapeutic support to their occupants (DSDC, 2011; DSDC, 2013; DSDC, 2018; HM Government, 2015b). Institutions such as the Dementia Services Development Centre in the UK and Dementia Training Australia stand as leaders in the development of design guidance and assessment tools and protocols to inform and assess the quality of living environments against research-derived criteria for supportive environments (Dementia Training Australia, 2021; DSDC, 2011; Fleming &

Bennett, 2017) and their tools and accreditations are used around the world to inform and evaluate residential care space. This knowledge has undoubtedly improved support for residents and their quality of life (Quirke, 2019) and is valuable in providing a safe environment supportive of residents' mobility and medical-mechanical care. However, the dominant focus of research into the role of the environment in living with dementia is aligned to the medical traditions of treating symptoms and behavioural difficulties and research of this kind tends to seek functional or behaviourist solutions or assistance to overcome the difficulties of symptoms, and social and experiential concerns have been largely overlooked until recent years. Foucault (2012) termed this preoccupation from the external perspective in professional and academic fields "the medical gaze", in which expert academic and medical knowledge objectify the person as 'a body' in a disciplinary perspective that overlooks other forms of knowledge, existence, and truth. Foucault (2012) critiques this positivistic position for its biological reductivism through which the person (body) becomes a field of knowledge reproduction and site of power upon which the authority of the expert is built and exerted. The legacy of this tradition is that a recognisable building typology is manifest, which embodies this research and knowledge history in structural material-spatial configurations that reflect the bodily prioritisation of the resident.

Here the aged body is ensnared in the intertwined histories of symptomatic bodily care management – through medical and mechanical intervention – on the one hand, and spatial management of the body – through the development of buildings in which to house the demographic – on the other. This history is explored below to better understand the operational context for this research.

An architectural history of care homes

The strategic management of aged personal care and the manifestations of its built form in the UK are traceable to Elizabethan times when The Poor Law 1601 determined that local parishes in England and Wales should support their ‘impotent poor’ and ‘idle poor’ through provisions of food, clothing, and shelter (Bloy, 2002). The former – the sick, lame, or aged – were typically sent to hospitals in the case of acute illness or Almshouses (community houses with basic provisions, which kept the impotent poor off the streets) in the event of long-term sickness, whereas the latter were usually sent to correctional facilities where their societal burden would be lessened. The distinction between the two ‘poors’ was by no means clear cut, and many of the ‘impotent poor’ found themselves in correctional institutions alongside the idle poor. What is important here is the co-categorisation of the aged and sick with other ‘societal deviants’, such as the poor and criminally minded; the law sought to manage these troublesome populations through a bodily intervention, which prescribed, among other things, containment in common and similar institutions.

Later, the Victorian era Poor Law Amendment Act (Eyre & Spottiswoode, 1834) concretised the bodily approach to manage the poor by removing the means for local parishes to provide food and clothing (known as outdoor relief) and instated the workhouse as the principal solution for management of the poor and workless (disabled, deranged, unwell and aged), who could not sustain themselves economically. There, their economic and social burden could be managed through work that would support their upkeep and keep them from criminal and disruptive activities, and here the tangible architectural traditions for management of the aged and unwell began to manifest as a typology – in the workhouses of the Victorian era – where the management of unproductive populations through bodily means shares its architectural roots with the development of the modern prison.

Many long term sick and elderly people were not treated in hospitals, which though were well equipped and respected in the Victorian era, could not accommodate their numbers and the population were confined to workhouses on long-term bases and hence many students of medicine were not exposed to geriatric problems (Denham, 2016). Hospital incapacity and the new Poor Law Amendment Act facilitated a boom in the construction of workhouses from 1835 (May, 1987), many of which adopted characteristics of two common forms of prison architecture as an efficient way to accommodate and control the population (May, 1987). Firstly, Bentham's panopticon model for prisons, where a central observation point permitted the monitoring of residents in cells radiant from a central observation point (often a courtyard, common, or guards' space) (Foucault, 1977), and secondly (and more popularly) Kempthorne's radial wings about a central convergence. Each wing contained a co-habiting space or series of cells along a circulation axis, which allowed guards to monitor the population closely (Fowler, 2014). Cellular co-housing in architecture emerged in the modern penitentiary, notably in Walnut Street Prison in Pennsylvania (Johnston, 2000), where solitary confinement was viewed, as per the Quaker ideology of the time, as a form of self-correction, and thus underscoring the relevance of an architecture for the deviant² (Hirsch, 1992). Kempthorne's workhouses served similarly to Bentham's panopticon in observation and confinement of the body but permitted a greater number of residents in a single structure (May, 2008), and the innovation in each is the utilisation of the celled plan. Perhaps the most well-known manifestation of this typology is Pentonville Prison in London (Jebb, 1842), which exemplifies the tri-storey, hub and cellular winged facility visible in the massing of many residential care homes today, and more recently the four-storey spoked form of HMP Oakwood in Staffordshire.

² The etymology of the word 'penitentiary' lies in 'penitence', an expression of regret or remorse for wrongdoing.

Many were critical of the clear relationship between the workhouse and prison, underscoring the shared architectural roots, including architect George Gilbert Scott who described Kempthorne's proposals as "a set of ready-made designs of the meanest possible character" (Driver, 2004), and Oastler (1838) who designated workhouses as 'prisons for the poor'. These sentiments echo commentary from others on the cruelty of prison architecture, such as Fyodor Dostoyevsky, who famously commented on the effects of life in prison in *The House of the Dead*:

"I am firmly convinced that the results achieved even by the much-vaunted cell-system are superficial, deceptive and illusory. It sucks the living sap out of a man, wears down his spirit, weakens and browbeats him, and then presents the shrivelled, half-demented mummy as a pattern of repentance and reform" (Dostoyevsky, 1986).

Fyodor further expanded the notion of cellularity in the penitentiary to the scale of the institution itself, as a colony 'of the living dead', excluded from the rest of civilisation through an impenetrable perimeter, a ghettoised community of non-conforming modern subjects. The key characteristics of the workhouse are defined by this meanness to the management of the resident; just enough to maintain the body but little else; a motivational deterrent to others (Denham, 2016; Munson, 2020).

Workhouses as homes for the aged and unwell were largely condemned through a string of reports through the late 19th Century damning the treatment of the elderly and infirmed (Denham, 2016) and the early 20th Century saw increasing intervention from the UK government to ensure proper care for the aged in the form of hospitalisation and bed-care, and workhouse accommodation began to decline. The shift here is significant, as it introduces the modern conception of the difficulties associated with ageing as medical, as well as socio-economic, which sparked the expansion of gerontological research (Barton, Mulley & Denham, 2012). Care homes as might be recognised today emerged in thought in the 1940s and as physical institutions in the 1950s through subsequent National Health and

charitable organisational approaches to combatting the overwhelming number of hospital beds occupied by elderly patients (HM Government, 2019). These homes provided a safe and hygienic environment for the long-term administration of care for the elderly, and in the 1960s Standards of Care (HM Government, 2003), attending to the treatment, hygiene, and care for residents in the home, were written into law, and included references to the built environment in the form of restrictions on overcrowding, and assurances to quality ventilation, lighting and heating, as well as space for residents to move around.

The 1980s saw a rapid expansion in the number of care homes, as care for the elderly was opened up to the private sector, and since then competition for new residents has been a key driver in the research and development of better standards of residential care. The growth correlates with the growth in research into the design of supportive environments. Common additions to residential care homes in recent years include salons, coffee shops, cinemas, and restaurant-style menus for meals among other luxuries aimed at assuaging the guilt felt by the families of new residents abandoning their loved ones in a strange facility. However, the cellular, corridors, centrally-managed-with-perimeter-lockdown form inherited from its prison days has largely remained intact.

This brief genealogy of the architecture of the care home describes an effort to manage the unproductive non-modern subject through bodily representations concerned with the medical and mechanical problems associated with managing the demographic. This history has driven the apparatus and form of our contemporary care environments, where the priorities of authority and control (surveillance, bodily mechanics and restriction, and safety (Foucault, 1977)) over the body (prisoner) have primacy. This has led to the naturalisation of structures that – once the décor, technology, and furniture are removed from the picture – bear striking resemblance to those of modern prisons, showing that the spatial management of the delinquency has deviated little from its origins. In the plans of Figure 1 below (redrawn from other sources) it is difficult to differentiate the care homes

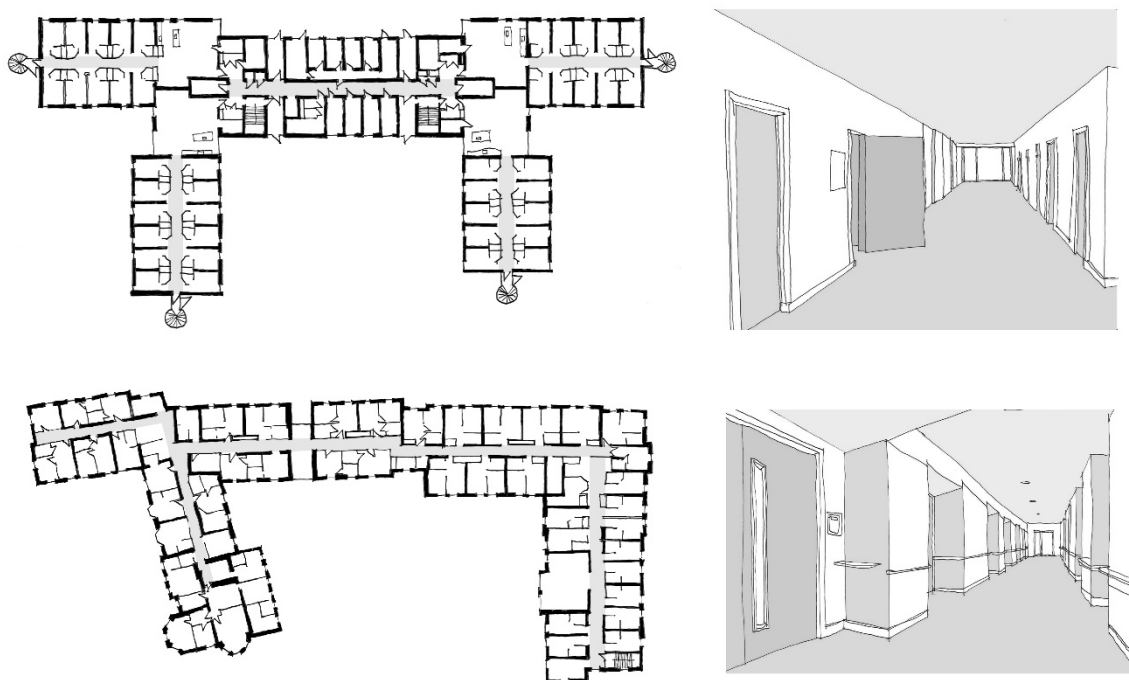


Figure 1: A comparison of structural typological similarities between residential care homes and prisons in plan and perspective (redrawn from other sources).

from the prisons, suggesting the infancy of architecture’s understanding of its contribution to quality living in residential care.

In the legacy of this historical trajectory, a discernibly dominant typology has emerged in the design of medium-sized residential care homes characterised by “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” (Burke & Veliz-Reyes, 2021; Kwon & Kim, 2005) . This typology can be considered the conceptual and physical embodiment of a genealogy of knowledge about the design and economics of residential care homes, and such is the strength of this knowledge structure that the typology has become naturalised. Variations of this format in which the dominant logics, simplistic cellular structures, and overt distinctions between the discernibly individual and common public parts of the plan persist and are prevalent in most new care residences (Figure 2 for examples). In fact Kwon and Kim (2005) and Cao and Dewancker

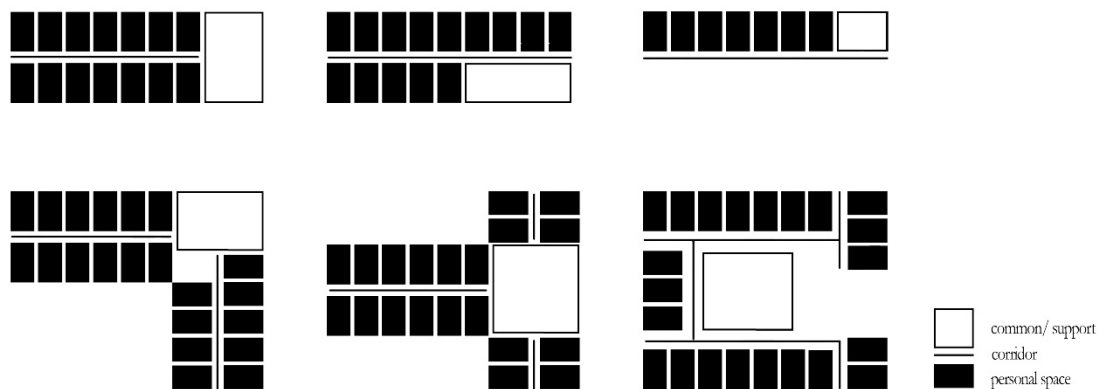


Figure 2: Typical floor plans of the naturalised residential care home typology

(2021) studied the various configurations of these typological constraints as a recognisable phenomenon.

If the structures of this naturalised typology are the embodiment of a historical knowledge trajectory, then the guidance and assessment tools stemming from that research history are its visage. And while it represents the mode for residential care homes in the UK, Davis *et al.* (2009), Brownie and Horstmanshof (2012), and Rijnaard *et al.* (2016) contend that the tradition is vague and unspecific as to how the environment can support residents’ personal and social fulfilment, and that “institutional care can deny older people of access to exercise (participation, self-fulfilment, and dignity among other principles for quality in later life)” (Brownie & Horstmanshof, 2012). Guidance is firm on behavioural-mechanical suggestions, such as colour contrast, lighting levels, access dimensions or signage requirements as examples, but mostly, as detailed by Lundgren (2000) in Burke and Veliz-Reyes (2021), “recommendations for personally and socially supportive (or restrictive) environments are generally framed in a vague dichotomy (of) institutional and homelike aesthetics (van Hoof *et al.*, 2016) or as aspirational qualities (Yeoh, 2004) without grounding in examples of (good practice) spatial-material configurations (Barrett, Sharma & Zeisel, 2019; Fay & Owen, 2012)”.

Reinforcing the naturalised typology in residential care homes, Lundgren (2000) diagnosed the superficial veiling of ‘default’ spatial fabric with motifs and aesthetics of

home-like settings as the “Materialised Ideology” of its creators in a critical evaluation of representations of ‘home’ in residential care settings. Lundgren (2000) reflects on Clifford Geertz and Ulla Centegram’s (1996) use of the “model of and model for” to examine the care home and suggests the proposed model *of* a good home is a selective representation of reality that reflects its authors’ idealised model *for* decent living more than residents’ perceptions. Décor and bric-a-brac create ‘generic’ (van Hoof *et al.*, 2010b) ‘superficial ornamentation’ (Fay & Owen, 2012) to spatial layouts that are otherwise unchallenged. This superficiality largely fails to conceal the institutional nature of the typology (Burke & Veliz-Reyes, 2021) often considered the antithesis of homelike (Lundgren, 2000; Timlin & Rysenbry, 2010).

Logics of Contemporary Building Design

“The longevity of the top-down public paradigm is in question today, we need urgently to search for alternatives and seek a more functional manifestation of public thinking and action at other scales and within community-based dynamics: a bottom-up public? Plus, we urgently need to search for alternative roles that architecture can play in supporting such new paradigms. The questions must be different questions if we want different answers... in anticipation of socio-economic inclusion” (Cruz, 2015).

This spatial history of the management of the symptoms associated with ageing runs parallel to the development of modern proclivities in architecture, whence modernisation³ and industrialisation of building organised design praxis into two dominant logics: financial and systems thinking. These are the logics of contemporary development practice; of parametric design thinking; the distillation and organisation of design problems into interrelated numeric conditions and calculations simulated to optimise output. The

³ It is recognised that Modernism and the Modern Movement embodied ideals for a prosperous and fair new world following from the atrocities of two world wars. However, “the social ideals of the Modern movement [have] been lost or betrayed” (Zucchi, B. & De Carlo, G. (1992)) in their appropriation into neoliberal culture. We are herein concerned with the dehumanising legacy of modernist scientific thinking in design that prevails in contemporary planning and economics.

emergence of this doxa can be read in the well documented progression of architectural design production from manual forms of drawing and calculation, through digital drafting and geometric modelling, to Building Information Management and the advent of parametricism. Similarly well-documented is the correlative shift from a high degree of approximation in the earlier stages of this evolution to the agendas and technologies of optimisation and efficiency associated with the automations of parametric calculation, as described in detail by Bernstein (2015) in which “better design” is frequently equated to performative optimisation. This section frames a critical perspective to this overtly parametric contemporary design logic and explores the role of human occupants in the logic. Here, parametric design thinking is contextualised as an intrinsic component of the efficiency ideology in the trajectory of mainstream building design culture of the past century, and not intrinsically associated with digital working methodologies as argued by Leach (2015). However, unlike Leach, argument is framed here for a decisively political architecture, wherein building design as praxis -and its associated agendas – can empower participation and inclusivity in design, as well as subdue participation.

The modern approach is characterised by conceptions for administrative and productive systems to facilitate, among other things, good housing and lifestyles for the expanding population. This became known later as ‘The New Objectivity’, underpinned by functionalism and the prominent modern concept of *Existenzminimum*, the search for a minimum acceptable floor area and expenditure to provide a functional form of subsistence dwelling (Migotto & Korbi, 2019). This efficiency would facilitate the delivery of the much-needed mass housing of the early 20th century (Frampton, 2007). Well documented examples of this thinking include Corbusier’s ‘machine for living’ analogy in *Towards a New Architecture* (1931), which sought more productive lifestyles through efficient conception and production of mass housing, and Bauhaus School preoccupations with the integration of the modern subject into efficient and progressive technologies of

industry and making (Banham, 1960). In essence, *Existenzminimum* is the architectural representation of Foucault's medical gaze, whereby priorities are given to address the 'symptoms', the physical mechanics, of living in a human body – sleeping, washing, abluting, eating, working – over other competing interests and priorities. The mechanics of this existence, properly understood, could be represented in efficient architecture with minimum expenditure, and the body can become a site of investment for productive economy.

The scientific stance of systems thinking cultures of the twentieth century is embedded in the way industry frameworks consider 'users' of the built environment: a mechanistic homogeneity underpins the modernist view of the human and, as Siebers (2008) describes, is reinforced by the architecture of the movement with, "a social propensity to organize cultural representations and artifacts according to the symbolism of number and averaging rather than individualism", into the "social body" (an idealised physical form that has guided the design of the inhabited world). This propensity in building design stems from the development of systems such as the Activity Data Method (Ministry of Public Building Works, 1966), Metric Handbook (Birse, 1969), and Building Act (HM Government, 1984), and is evidenced in notable works such as Corbusier's "Modulor" (1961) and Dreyfuss's "The Measure of Man" (Tilley, Alvin & Associates, 1993), the concepts from which have become the default backdrop for guidance on the design of environments for human occupants.

This *Existenzminimum* logic distils bodily activity into measurable criteria that serve as the data for parametric design thinking. Deamer (2015) suggests that parametric design thinking is prevalent in two interrelated modes that govern the development of our contemporary built environment: in formal parametrics – the manifestation of formal artefactual 'solutions' (often digitally) mediated through expert and investor prescribed concerns (parameters) – and in BIM (building information management), as systems-

thinking management of processes and information – delivery of efficiency and profit through functionally driven material and services organisation. This contemporary architecture is the unified embodiment of lingering modernist and 20th-century economic hang-ups – the *formal* expression of *efficiency* logics – that have led to a dominant hyper-capitalistic environmental homogeneity, in which humans are effectively another functional system within the greater machine of the building.

Echoing the spirit of Taylorism (Taylor, 2010), the prevalence of utilitarian and efficiency logics toward design (Siebers, 2008) in the industrialisation of the built environment have reduced residential experience to minimum (maximum) physical space requirements for basic self-care routines and common behavioural necessities of everyday life. This logic is prolific in most developer design guidance documents and reinforced by regulatory frameworks, such as Building Regulations (HM Government, 2015a) and residential warranty provider requirements (see National House Building Council (2018) Technical Standards), among others. While the safe and risk-averse physical accommodation of the body is of clear importance in the design of residential space, the prevalence of this approach can be dehumanising and impact negatively on the quality of life of inhabitants (Innes, Kelly & Dincarslan, 2011; Parker *et al.*, 2004; Torrington, 2007). The person is missing from the agenda.

Considering the role of architecture as the delivery of formal expressions of organisational concepts in response to the cultural (need) and political (means/ availability) situation, the contemporary narrative of parametricism reflects the broader societal shift in the understood purposes of our built environment, as our economies shift to the digital and managerial; from serving the occupants and uses of the building, to serving the economic systems surrounding their delivery, management, and ownership: their financialisation. The narrowing of parameter considerations has coincided with the development of tools (BIM and parametricist software) that enable their manipulation and

interpretation; formal expressions of numerically measurable interdependencies, which embody efficient and simplistic forms of division and space calculation through elements of virtual building fabric.

In this, we can consider the contemporary ‘architecture’ of parametric design thinking and BIM the disciplinary manifestation of neoliberal culture – “(subsumption) of political agency (...) into the mechanisations of economics” (Poole & Shvartzberg, 2015). The culture of bottom-line, top-down⁴ imposition of market priorities on the organisation of space – ‘expert’ thinking of design professionals (and software) for minimum investment for maximum return – is exclusionary in its selection of parameters and can be ommissive of user priorities (Cruz, 2015). Here the intent is for an apolitical project subservient to market control and evaluation – the centralisation of power and control (over space) to private economic interests – in which the client (investor), charged with delivering built environments in response to societal and individual good, defers ethical decisions to market demand; financial logic (Schumacher, 2015a). The teleology here is justification and validation of the worth of a project to end-users through market politics and statistics. Thus, the priorities represented in development projects are often foremost economic (Deamer, 2015; Schumacher, 2015a; Schumacher, 2015b; Schumacher, 2016b) (the distribution of scarce resources toward prioritised ends (Foucault, 2008)), and, the process, a trickle-down form of democratic participation, distilled through parametric evaluation of occupant priorities through market systems thinking (Cruz, 2015; Schumacher, 2016a).

This financialised parametric logic has led to the division of citizens into parametric categories (consumer profiles) – the student, young family, elderly or incapacitated. Each year, the marketing of any number of new models for living based on physical, economic

⁴ Herein ‘top-down’ refers to the undemocratic process of development by investors and ‘experts’, and market conditions (strongly mediated by the disproportionate power of experts and investors) in which communities of ‘users’ are largely absent.

or employment status can be observed, in which people are reduced to generalised parameter requirements based on perceived occupational requirements, so that investors might provide the minimum requirement for intended ‘users’, for the highest financial return. This retail logic and commodification of our built environment are arguably contributory to community de-spatialisation and societal segmentation, in which the elderly and cognitively debilitated have become a user-class for building design; their ‘requirements’ mapped in terms of their typical bodily and psychological impairment, not by their humanity, person, nor relationships with others of society’s ‘user classes. Further, the trend removes the privilege of choosing from the selection of housing quality and standards for most of the population (De Carlo, 2005; Desmond, 2016). The restriction of choice is intensified in later life by the limited availability (Fenwick, 2017) and the ever-increasing cost (Prestige, 2018) of residential care space for elderly people.

Proponents of architecture’s apoliticality, such as (Leach, 2015) and (Schumacher, 2015a), paradoxically represent a discernible neoliberal political position (Cruz, 2015), in which architecture is answerable only to the demands of the market and bounds of contractual law:

“The political meaning of the project is attributed to the client. Although a project might be controversial, the fact that it can go ahead at all implies that it is in principle consistent with the prevailing, legitimate constitution of society. In this sense, it is by default within the bounds of “mainstream politics” (Schumacher, 2015a).

“While a building through its associations might appear as deeply political, it must be understood that these politics are not an attribute of the architectural form itself. Political content does not reside in architectural form. It is merely grafted on to it by a process that is strictly allegorical” (Leach, 2015).

Rather than proof of architecture’s apoliticality, this attitude reflects more the apoliticality of the architect as a professional, who serves as agent to the client’s investment. It speaks not to the broader social implications of the practices of design and

construction of the built environment, nor the politics of inclusivity and participation. Rather, it negates antagonism toward those with control over the means of production in favour of a politics of rational consensus, intolerant of “different hegemonic political projects” (Mouffe, 2005). If we step outside the gaze of the architect (and of Leach’s architecture as mere formal objectivity) and consider the methods and agendas of the broader culture and industry, the implications of design praxis decisions have lasting consequences, as attested throughout this chapter. In rebuttal to the appeal of a naturalised apolitical architecture, Cruz (2015) appealed to the traditions of a reflexive architectural praxis with broader social and political agenda:

“the most salient avant-garde movements in architecture (over the last hundred years, which) have always engaged pressing societal issues and their formal aesthetic consequences (...) from Le Corbusier’s foundational CIAM battle-diagram that rallied its members to engage in social housing issues, to Constant’s search for an architecture organised around relational, social contingencies”.

Parametricism, as a calculation method and the height of parametric design thinking, is, of course, apolitical; it is the positivist crunching of data. However, criteria selection, data collection, constraint definition and data interpretation are heavily value-laden (either explicitly or implicitly through commercial entities or market systems, for instance). As such, parametric thinking in design is a politically charged endeavour, and part of the material culture embedded in the output. Herein parametric thinking is a conduit for the socio-political agency of the design team, an act described by Jaque (2015) of mobilisation (to give agency to the process and output) of the social, rather than of mere production (the manufacture of form).

This ‘architecture’ speaks of its underlying agenda; it tells of development (by data) intended to provide (expend) minimally to maximise investment return. This equates to catering for the processes of mechanistic human occupants (systems) while ensuring marketability (securing financialisation) through visually appealing photogenic decoration

(the business-conscious developer realises the marketing potential of the mass-information, social media world of instantaneous imagery (Deamer, 2015)). Arguably, the necessity – and hence agenda – of contemporary development is to cloak the efficiency and profit logics of development in a saleable, ‘Instagram-able’ aesthetic. To return to the architecture of residential care homes, the parametric profile of aged residents living with dementia is detailed in residential design guidance provided by research and regulation bodies mentioned earlier and serves to shortcut the inclusion of would-be residents from the design process, as their parametric automaton surrogates, spatially constituted through the neoliberal lens, stand in their place.

The Politics of Architectural Participation

“The story of participation runs parallel to that of democracy, and one does not have to be a great political theorist to detect that the soothing Hellenic etymology of democracy – the people’s rule – is disturbed by undercurrents of power, manipulation and disenfranchisement.” (Till, 2005)

Construction of the built environment is the formal expression of our social, economic, and political world; it is the manufacture of future-historic references to our way of life, in which we can read the story of our time. Above, Jeremy Till describes contemporary realities of public participation in development projects with acknowledgement of a crucial flaw; there is disparity between the laudable ideals of democratic participation in development projects, and the undemocratic reality of public placation and informing that operates in its namesake.

The modernisation of industry and work has seen the distribution of making practices (including design) into professional silos, performed by experts (Otto & Smith, 2013), and no longer a self-determined effort of the end-user of a product (Ewart, 2013) nor a democratically engaging process of user co-creation – the majority of residential properties are funded, designed and built through networks of professional silos, not by

communities of end-occupants (de Graaf, 2017; Wilson, 2017)⁵. Clients are rarely the main inhabitants of their buildings, and the provision of residential environments has not evaded this trend. End-occupants are instead generally represented through forms of design guidance that separate the applied spatial-material knowledge of architectural practice from grounded and situated knowledge of the people and cultures intended to occupy resultant environments. Design guidance documents (generalised spatial user profiles), produced by developer clients and quasi-autonomous organisations, serve as forms of occupant inclusion. However, they are fraught with reductive notions of user priorities to suit commercial predispositions of the construction industry (Graaf, 2016; Kroll, 1986) and serve to replace (remove) the occupant in the process of participatory planning with abstractions and aggregations of mechanistic requirements in light of commercial client-contractor preference, as represented in Figure 3 below.

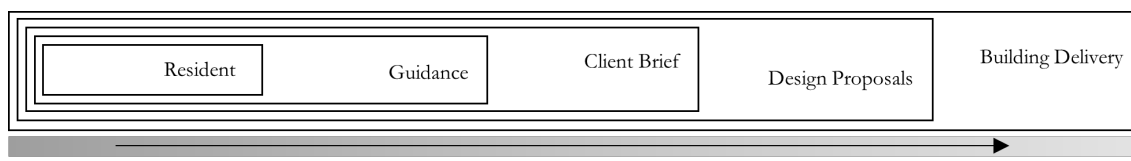


Figure 3: Resident interest is diluted through their displacement through project maturity

Predominantly, guides for the design of environments for specific user-profiles follow the modernist principle of mechanising occupant behaviour (and hence need) to dimensional occupational requirements based on the distillation of presumed occupational activities through medical-mechanical and safety-conscious consideration. This is the behaviourist logic of systems thinking and the Activity Data Method (Ministry of Public Building Works, 1966). In the context of design for people living with dementia, this often includes physical assistance for living with sensory problems (perception misinterpretation, hearing and sight, motor problems and age-related movement difficulties, for example),

⁵ 2017 estimates show 7 - 10 % new homes created were self-build projects (Wilson 2017).

and the administration of personal care associated with supporting these difficulties⁶. While essential information for the designer, this approach paints an incomplete picture of the resident priorities for the home. Focus primarily on the health and medical concerns of the resident (Sullivan, 2014b) tends to design in which a ‘default’ built fabric is veiled with idealised notions of home, as discussed above; where calls for ‘homelike’ environments result in superficial (Fay & Owen, 2012) and generic (van Hoof *et al.*, 2010b) references to designer and commissioner values, rather than reflecting resident priorities. This superficiality communicates an institutional feel, often considered the antithesis of homelike (Lundgren, 2000; Timlin & Rysenbry, 2010). Reduction of the human experience to structured truths, absent of context, creates a culture in which the design team is a largely self-regulating collaboration in respect of user suitability, where ethical decisioning is deferred to authoritarian experts – representatives of the class in power and aligned to the resources and means of the wealthy. The repetitive construction of buildings based on designerly guidance for specific occupants constitutes a typology, and as discussed represents the ongoing and historic amassing of knowledge, which often serves to shortcut structural decisions around the design of the environment.

Commonly, stakeholder representation is accommodated obliquely in construction projects through showcase events, in which publics are invited to comment on (react to) emerging (often established) solutions to their ‘needs’; legitimising decisions already made (Richardson & Connelly, 2005). This is not active participation. The focus is on demonstrating engagement, rather than content and shared understanding, yet this is consistently accepted as adequate by clients and planners, where any form of public address and feedback is deemed participatory, and in accord with consultation required in planning processes (Till, 2005). This is linked to wider cultural problems in development, where the

⁶ Such as can be seen in HAPPI principles or DSDC guidance on home design of the home for people living with dementia.

professional nature of design agreements is problematic to making large strategic changes to evolving propositions (Davis, 2013). Thus, user input is limited to particularities and minor influences around finishes. Far from an active member of the design process, the occupant becomes an obstacle to overcome in the process of development planning. To obstruct active co-creation of the environment is to act undemocratically in the construction of our present and future, in which the public are spatially governed by the interests of the ruling class; it is the construction of plutocracy.

These models for occupant inclusion in design are part of a default linear design thinking – the process of inform-design-review, documented historically as a cultural process by (Lawson, 1980), and written into the RIBA Plan of Work, which described the design process as linear; assimilation, general study, development, communication.

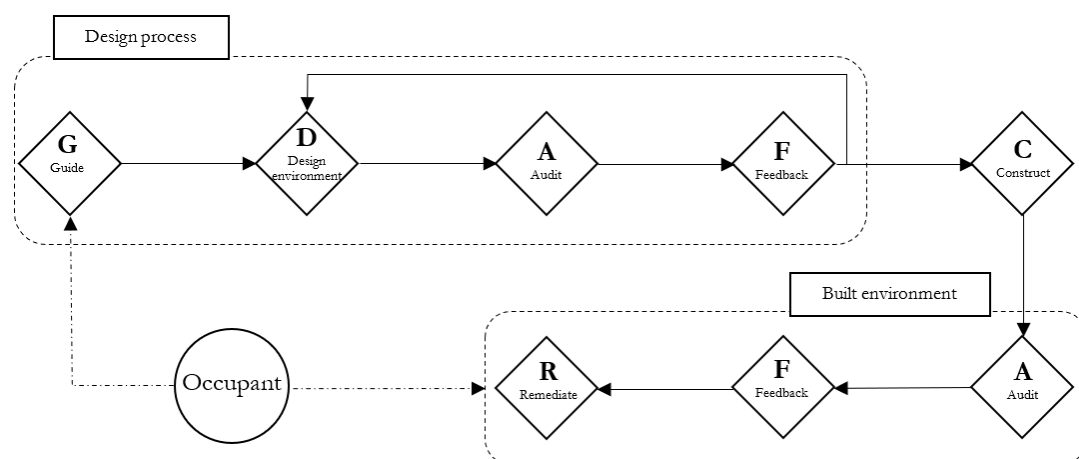


Figure 4: Author's conceptualisation of the common process of residential development and inclusion of end-occupants in the design process. Arrows note project development process; a linear and iterative workflow involving different members of the design team

These problems suggest a need to rethink roles within the design team. The disciplinary focus of the architect as a social facilitator – the only member of the design team trained in the interpretation of social and cultural influences on built form – has shifted; from alignment to public interest and experimentation in socially supportive ways of living (as in periods of house building and management dominated by central government provision) to alignment with the priorities of private financial interests, in

which delivery of unit numbers for minimum expenditure is the primary focus. While architectural ventures in past eras of housebuilding may not always have produced ‘successful’ models for support of social and personal wellbeing, there was an assumed intent, and house building carried an ethical obligation to the occupant. The change in allegiance has diminished the social and personal ethical obligation; house building is foremost an industry. A neurosis has emerged in the practice of architecture; between the disciplinary position and professional application; between what the home (architecture) claims to be and what it does.

Arguably then, contemporary design is conditioned by often distant professionals working with often distant knowledge. In place of proximity, generalisations drive design in the form of innovations; material-spatial configurations that respond to the ‘known’ conditions of an end ‘user’. (Gatt & Ingold, 2013) argue that design by innovation is “doomed to fail”, as it is forever grounded in a past projected onto the future, and thus prescribes ‘known’ conditions, which inevitably embody varying degrees of fixity and exclude nuanced and grounded forms of knowledge onto the work of designers. Instead, they call for a shift in the assumption of the role of design that is more oriented toward improvisation and situated knowledge.

Now

For many, the transition to a new home - the care home - compounds feelings of loss of identity and autonomy through increased dependency (Nakrem *et al.*, 2013; van Hoof *et al.*, 2016). These feelings often correlate with low confidence and intimidation in unfamiliar surroundings. The latter decades of the 20th century saw the growth of person-centred approaches to personal care that understand the continued personhood for people living with dementia (Cohen-Mansfield & Bester, 2006). And in recent years an increased concern for the built environment as an influencing factor in the quality of life for people living

with dementia has followed suit, with influential studies emphasising the importance of residents' experiential perspective (Davis *et al.*, 2009; Eijkelenboom *et al.*, 2017; Quirke, 2019; Rijnaard *et al.*, 2016; van Hoof *et al.*, 2016; van Hoof *et al.*, 2015). However, to date, much design research into the built environment tends to retain the medical gaze – fragmentary and generalised – with little undertaken to explore the relationship from a structural standpoint grounded in the situational perspective of care home occupants. Meanwhile, more natural science research into the physical care environment is generally descriptive rather than projective. There is arguably a gap in knowledge translation – between the creation and application of knowledge – in which differences in motivation, approach and conceptual language tend to abstract knowledge from grounded or lived conditions to criteria to guide the work of design professionals. The transitional shift from observational research to applications in designerly contexts forms a translational occlusion that abstracts from grounded knowledge through its generalisations. Hence, much-applied knowledge is inequitable and ungrounded. Some studies attempt to operationalise guidance but often lack grounded and situated knowledge and operate heavily on the designerly (application) side of the knowledge transition.

Occupants perceive tensions between residential care environments that purportedly support residents' personal wellbeing and the experiences and views of residents and those closest to them in their lived experience in the home. Behind the difficulties of symptoms, expense, and losses are people with personal and social needs beyond the basic accommodation of their physical and cognitive limits and “the need to express feeling, make choices and continue with a familiar lifestyle remains in people with dementia” (Davis *et al.*, 2009). Often people with a dementia diagnosis are viewed mechanically and without the capacity to communicate the will to a more fulfilling existence. This power relationship, which essentialises under the label ‘dementia’, is part of the identity politics struggle within disability theory characterised by “the tension between

the ‘social model’ of disability and the material details of impairment” (Siebers, 2008).

Further, Torrington (2007) found “that a focus on safety and health requirements could be creating risk-averse environments which act against quality of life”, a claim echoing (Parker *et al.*, 2004) and reinforced by subsequent research including from (Watson *et al.*, 2016).

These insights suggest that the ‘naturalised’ typology is far from natural and is rather an incomplete understanding of the role of the physical environment in residential care that highlights Davis *et al.*’s (2009) emphasis on the importance of an experiential understanding of the role of the built environment to complement the conditional. Further, there is broad recognition that residents and visitors often consider the homes uninviting (Davis *et al.*, 2009) unsupportive or temporary, and contemporary research calls for further investigation into the supportive capacity of the built environment, particularly Rijnaard *et al.* (2016) and Felix *et al.* (2015) who seek to understand the overlapping space between personal, social and built factors in the construction of the care home.

Knowledge Gap

More person-centred approaches to research into the supportive role of the built environment in residential care settings have been taken from medical, psychological, and sociological perspectives. However, while many of the outputs from these research classes are oriented toward improving good design principles, these studies tend to operate in their siloes, causing the design of supportive environments to focus largely on the design of care provision, social structures, or technological innovations for example, and leave the physical environment largely unchallenged save for the medical-mechanical implications discussed above. This is evident, for example, in the important guidance from Marshall (2001) of the University of Stirling Dementia Services Development Centre (the leading dementia environment research and accreditation establishment in the UK) summarised key recommendations for the design of residential environments for people diagnosed with

dementia, as follows; “ facilities should be designed to; compensate for disability; maximise independence; reinforce personal identity; enhance self-esteem and confidence; demonstrate care for staff; and welcome relatives into the community”. The optimism for an environment that promotes personhood is central and the recommendations set a clear agenda for a complement between the medical-mechanical and personal-social spheres of a supportive home.

Almost a decade later, Molony’s (2010) seminal metasynthesis of supportive environmental factors furthered this agenda, categorising 5 conditions of the environment that promote confidence, self-esteem and independence through making the home a *home*; empowering (do what I want); empowering (mastery); refuge; relationship; self-reconciliation. Categories derived through the metasynthesis drew on leading literature in the design of the home environment and the constituent elements of each are outlined in the paper, though very little is offered in the way of specifics for structural architectural configurations.

More recently, a limited but increasing research culture explores the relationship between residents’ quality of life and structural qualities of the built environment, and some key studies are explored here. In one such study, Rijnaard *et al.* (2016) used person-centred papers found through literature review to distil the factors influencing residents’ sense of home⁷. The paper again differentiates psychological, social and built environment factors, the latter of which were the largest category, comprising six factors; the private space; the (quasi-) public space; personal belongings; technology; look and feel; and outdoors and location. Each factor is discussed, and references are made to occupants’ views on the way in which each factor can support a sense of home. However, of the six categories, most leave the structural arrangement of the environment unchallenged in favour of approaches

⁷ Sense of home is linked to quality of life and wellbeing in the study.

to finishes and organisation of things within the space. There are some exceptions; the desire for additional rooms; tensions over the quality of bathrooms; confusing thresholds; and size and type of circulation spaces and access to the outside for example. However, the recommendations are descriptive of interpretive qualities without framing spatial-material configurations that support the agenda.

Informed by the findings of Rijnaard *et al.* (2016) and Eijkelenboom *et al.* (2017) explored the design of a supportive residential care environment intended for a resident with a dementia diagnosis in which an existing apartment in the Netherlands was remodelled to test the effectiveness of interior layout and design configurations in support of would-be residents. The study focussed on the architectural relevance of supportive factors, which formed the specification and fit-out of the interior. This study is highly valuable in evaluating the environment with *people* rather than *evaluation tools*, which ensures a dialogue with would-be occupants, and the projective nature of testing concepts to understand projective as well as reflective possibilities in a design research context is an important move forward from typical natural-and-social-science-based studies (this is discussed in depth in chapter 2). However, there are two distinct limitations to the scope of designerly explorations. Firstly, the information on which design decisions were based was drawn from a meta-analysis of pre-existing research literature (Rijnaard *et al.*, 2016) and were hence abstracted through several degrees of filtration. It is thus likely that designerly configurations were influenced by the inherent prejudices of the literature used in their conception. Secondly, the renovation of an existing apartment poses limitations to the transferability of findings to shared residential care settings, such as those at the centre of this inquiry. The design and evaluation exercise undertaken by Eijkelenboom *et al.* (2017) stops at the threshold into the apartment and has no linkage with the personal spaces of other residents, nor the shared spaces commonly found in medium-sized residential care homes, defined by the nature of their shared setting (Care Quality Commission, 2017).

In “Picture your Nursing Home”, van Hoof *et al.* (2015) qualitative interviews were combined with photographs of valued aspects of the environment taken by residents. This study is inclusive and very much focussed on residents’ perspectives and revealed several features about the environment that residents valued in their daily lives (books, the television, photographs, and pictures hung on the wall or placed on furniture, their own private room). This research is valuable to give residents a voice and suggests helpful approaches to engaging vulnerable participants which are discussed in Chapter 3. However, the study, perhaps due to its positive outlook and the lay perspective of its participants, does not go beyond the decorative and superficial qualities of the home. It is thus less architectural and more interior design in orientation and highlights the importance for co-creative approaches to knowledge and environments, where occupants are the experts on values and priorities in the home and architects and researchers bring specialist knowledge that can facilitate the delivery of those priorities in spatial-material form.

Quirke’s thesis (2019) explores the supportive and restrictive qualities of residential floor plans in an effort to understand how different configurations influence residents’ quality of life. Quirke’s research is highly architectural in nature, challenging the floorplan and structural configurations of the homes scrutinised. However, Quirke’s methods employ pre-existing environmental assessment tools, developed through large scale studies (Fleming, 2011; Fleming & Bennett, 2015) that obscure residents’ grounded knowledge and experience and, as noted by Quirke (2019), “*The majority of international best practice examples were identified using two publications (Anderzbon et al., 2012; Cohen & Day, 1993), and so they may be subject to the bias or convenience of their authors*”. Further, Quirke’s valuable interrogation is restricted to the scale and vantage of the floor plan, which further abstracts from occupants’ lived experiences and “*leads to some inherent limits in design evaluation outcomes*” (Quirke, 2019).

Further, Quirke's (2019) analysis compares the plans of pre-existing residential care homes, and thus excludes exploration of aspirational qualities for alternative supportive characteristics, beyond those found in existing residences, in favour of ranking existing situations. Also, Quirke's inquiry is concerned with pre-existing audit tools and drawn plans, and is hence not concerned with occupants' memories of supportive qualities from other residential experiences outside care homes (Granbom *et al.*, 2014), which further constrains its capacity to develop supportive characteristics beyond existing solutions. (Quirke, 2019) acknowledges this, stating, "*The scope of the present research does not, however, include examining the first-hand experiences of people with dementia who occupy the residential aged care environments included in the present study*". This critique corresponds with previously discussed arguments posed by March and Smith (1995) who claim that more impactful and progressive research is often produced through design research endeavours than the descriptive inquiries of the natural science traditions, since they are less constrained by pre-existing constructs. Herein lies the importance of accommodating projective qualities in this research; to move beyond the constraints of institutional typologies into the space of possibility provides a more critical approach and reduces the risk of tempering participants' ideals for fulfilment with the prejudices of accepted typological knowledge. Largely then, the space of transition between empirical and applied knowledge is under-researched, and Donetto *et al.* (2015) call for more cross-disciplinary interrogations of the setting to better understand the linkages between disciplinary ways of thinking. The co-creation of knowledge is important, as residents cannot easily articulate the social relevance beneath the superficialities of built surfaces, and architects and researchers do not properly understand the importance of structural configurations to the occupants personal and social fulfilment.

Research Structure

Research Problem

The research problem then is found in the fragmented understanding of the role of the built environment in support or restriction of residents' personal and social fulfilment. The division between reflective and projective studies is mirrored in the division between grounded and expert-led approaches, and present in the difference between research focussed on micro elements of the built environment or its structural arrangements. In short, despite a large amount of research into the design of the care environment as a therapeutic tool and acknowledging the problems of environments that communicate an institutional setting, little is known of the link between the design and construction of the built environment and the support or restriction of residents personal and social fulfilment. Therefore, further work must accommodate projective views; must incorporate occupants in the design and construction of research and knowledge; must avoid the prejudices of the medical gaze; and should challenge the artificial segregation of the personal, social, and built spheres of the residential care environment.

The position outlined in the context above challenges the established approach to understanding residential care homes, and in so doing, challenges the assumptions and prejudices of the histories of an established order of doing, manifest in residential care typologies and normalised forms of commercial architectural practice. This research explores this developing knowledge space where more work is needed to understand the relationship between the built environment and residents personal and social fulfilment.

Research Question

At the core of this research problem lies the question:

How does the physical environment in (medium-sized) residential care homes for people living with dementia diagnoses influence residents' personal and social fulfilment?

Central to this question, and the subsequent research design, is the grounded knowledge offered by those that comprise the social context of the study; people with a dementia diagnosis living in residential care homes and their support networks (visitors and care support workers). Participants' voices were therefore central to the design and conduct of this research, wherein participants were instrumental in defining fieldwork trajectories and methods for data collection were sensitive to the shifting social contexts studied. As such, this research sought not to construct a generalised theoretical framework applicable to all residential care situations but rather prioritised grounded theoretical knowledge reflective-of and constructed-from the studied situation.

Research Objectives

The following research objectives were defined as increments to explore the core research question, conscious of the overarching agenda to retain knowledge integrity between empirically reflective and designerly projective modes of inquiry:

1. *Situate the research in disciplinary knowledge contexts* to align the contexts of the research problem to a methodological approach appropriate to study the role of the built environment in residents' personal and social lives.
2. *Develop a Methodological approach* to facilitate the construction knowledge in a transdisciplinary space involving care home occupants in an inquiry situated between anthropological and designerly research disciplines. Methods should accommodate oscillation between empirical and exploratory forms of inquiry in a

way that protects knowledge integrity, both from the grounded perspective of participants' lived experiences, and through the transition between the disciplinary contexts of anthropology and design.

3. *Build Conceptual Categories and construct a Grounded Theory* that conceptualises the relationship between the built environment and residents' personal and social wellbeing.

Methodology

“Grounded Theory emerged in the first place as a means to bridge the gap between the development of a theory in the social sciences and the actual, real-world situations in which that theory operates” (Veliz-Reyes, 2015).

A methodology was constructed to explore the relationship between residents' fulfilment and their built environment that prioritises their grounded experience and lived aspirations. This necessarily entailed fieldwork with participants who were integral to the development of research trajectories and resultant theoretical understandings. Chapter 2 describes the logic of adopting a Grounded Theory approach to a designerly inquiry more detail before Chapter 3 describes methods and their application in context. In short, the research problem outlined above directed the inquiry at a specific context and framed the limits to the inquiry. Then rather than test hypotheses *a-priori*, the necessity to avoid preconceived notions ordained a grounded approach in which theoretical understandings were built from data stemming from the studied situation and its native research participants.

This research is trans-disciplinary. Conscious of the noted tendency for knowledge transmutation (as concepts traverse the disciplinary void from empirical to applied forms of practice) this research operates between, and draws upon methods from, the traditions of empirical forms of qualitative inquiry on the one hand and exploratory design research approaches on the other. Here, mixed methods from across this disciplinary continuum are

applied in the same contexts, as the inquiry seeks to “make use of (the designer) arsenal of knowledge and skills... made operational in relevant, innovative forms of study” (Breen, 2002a). The Constructivist Grounded Theory tradition (Charmaz, 2014) served as a framework for reflective and projective exploration with research participants, ensuring that theory and design proposals are driven from participants in the grounded context, and avoiding the “discrimen(ate) promotion of personal convictions and fascinations” (Breen, 2002b). In reference to this, Breen (2002a) emphasises the importance of looking at methods differently and avoiding the adoption of pre-existing formulae to realise the beneficial role of complementary methods. Thus is the nature of transdisciplinary research; and here, explorative research (Breen, 2002b) is facilitated through the transparent application of ethnographic and designerly methods for reflective and projective inquiry. Knowledge integrity is protected by retaining interpretive proximity to the studied context within a single study.

This approach is contextualised in Chapter 2 and can be contrasted with approaches such as used by Eijkelenboom *et al.* (2017) & (Rijnaard *et al.*, 2016) who adopted a designerly approach based on information garnered from literature rather than working directly with participants. Theirs was a design without anthropology. Here, the inquiry sought specifically to address the knowledge transition void in which disciplinary boundaries tend to be oriented either in reflection or projection and traversing knowledge is regularly generalised or decontextualised. In this, the benefits of ethnographic inquiry and design research are coordinated to bridge the transitional space and create ethnographies of the future through design research grounded in participants’ historic lived experiences. In so doing, methods from ethnographic and architectural traditions are applied sensitively to the needs of participants and context and the emergent data.

The study was grounded in the views of participants associated with two residential care homes in the United Kingdom. The sample is necessarily smaller than many other

studies into residents' lived experience of residential care environments, such as Quirke (2019), to permit deep inquiry and avoid abstraction of participant views through diffuse field locations. Data constructed through fieldwork inquiry were concurrently collected and coded following the constant comparison method native to Grounded Theory (Strauss & Corbin, 1990a). This afforded the rapid construction of theory and for deeper inquiry as emergent concepts suggested new territories and approaches to data collection (Glaser, 1978). Further, constant comparison made possible the overlap in the application of ethnographic and designerly methods that reflect an iterative design process. The methodological toolkit included mixed qualitative methods, including participant observations, interviews and field notes, sketches and memos, graphic communications, and the construction of virtual environments, which served as visual metaphors for the emergent theoretical concepts.

This inquiry addresses, then, the limitations of important studies, such as those by Quirke (2019) and Eijkelenboom *et al.* (2017), by exploring the implications of structural qualities in the home across the knowledge transition void, from the reflective to projective gaze. Situated at the intersection of reflective and projective gazes to the studied context this designerly inquiry informed through ethnographic and design studies methods. Further, this research is grounded in the views and aspirations of the occupants of residential care homes, who co-determined the priorities for supportive environments themselves through fieldwork participation. Sought here is a knowledge equity between the 'lived specialist' and 'skilled practitioner'.

Research Outputs

Framed from an interdisciplinary perspective between the fields of information technology (IT) and design, March and Smith (1995) conceptualised scientific interest in their field as two kinds; descriptive research, aimed "at understanding the nature" of the subject and

aligned with the natural sciences, and prescriptive research, which seeks to improve performance and more closely corresponding with design science. Operating between disciplines, and hence partially outside the silo of their core discipline, March and Smith (1995) critique traditions in the communication of research outputs from the natural sciences, aimed only at understanding research contexts, as siloed and seeking only to describe and not advance their field. Incorporating design research into their approach, they observe that design research outputs are often more successful in the transfer and broader application of knowledge than more descriptive endeavours, and go on to state that the traits of this dichotomy between the two sides of the research endeavour are *“common in fields that encompass both knowledge-producing and knowledge-using activities”* (March & Smith, 1995). Hence, March and Smith (1995) constructed a framework of outputs that address the limitations of the bounded knowledge traditions and acknowledge the benefits of traversing the dichotomy. Their framework comprises **concepts, models, methods,** and **instances**. This framework takes a constructivist position intended to provide clarity to the reframing of multiple perceptions of reality and refutes the illusion of an apprehended reality in positivist accounts, and states that the validity of theoretical claims derived through constructivist research is obtained in part through their use in practical applications.

Architecture is a field that comprises both knowledge-producing and knowledge-using activities, where practical trajectories are often informed through knowledge from descriptive research. Yet rarely are the two unified. While this research seeks not to be prescriptive, it is acknowledged that the gaze of the designerly component of this research differs from that of the ethnographic elements, and as such, the research design must necessarily accommodate different forms of research outputs. March and Smith’s (1995) conceptual framework is adopted to frame the outputs of this research, where validity is given to grounded and situated knowledge through the application of theoretical outputs in

designerly activities, which in turn elaborate grounded theory. The application of the framework is described below.

Theoretical Outputs

Theoretical outputs are framed incrementally; firstly, a set of interrelated **conceptual categories** (constructs) that frame understandings of the social role of the built environment in the lives of people in residential care settings are proposed. Then a **theory model** – constructed as a lens through which to view socio-spatial-material relationships in residential care situations for people living with dementia – assembles the conceptual categories to provide a theoretical construct to understand the role of the built environment in residents personal and social lives. Then, the theoretical model of socio-spatial-material relationships in residential care homes for people living with dementia diagnoses is tested and elaborated through designerly **instances** in which concepts of socio-spatial-material relations are explored with research participants in a projective space to test their applicability in design contexts and examine the limitations of the research. These theoretical outputs, framed in the Results chapter, are intended not as a set of transferable knowledge constructs generalisable regardless of context, but as a lens through which to see future residential care settings that will broaden researcher and designer sensitivities to insights overlooked in more generalisable research endeavours.

Methodological Outputs

In addition to theoretical outputs, March and Smith (1995) identify the methodological contributions of designerly research, which not only utilises methods, as in natural science research but “creates methodological tools that natural scientists use”. Here methodological outputs are intrinsically linked to theoretical concepts and models, as they are determined in response to emergent theory and guide the collection of further data; the

operational knowledge constructed through fieldwork interactions is not only applied but constructed through sensitive interaction with the field contexts.

Each residential care home differs in scale, orientation, number of occupants, resident profile, managerial systems, and institutional approach to care. However, notwithstanding these differences, most residential care homes conform to the naturalised typology that differentiates personal room: common areas: staff spaces: circulation areas. There is thus commonality in the shared typological characteristics with many other homes in the UK and further afield, to which the approaches are likely broadly applicable. Similarly, the methodology chapter outlines sensitive approaches to the collection and analysis of data from fieldwork interactions, and sensitivity to the capacities of research participants, which are useful insights to assist future research efforts with vulnerable participants. So, as described by Veliz-Reyes (2015), “operational knowledge” then, is itself “a secondary output (...) as a set of interrelated methods” to inform future interrogation and understanding of socio-spatial-material relationships in residential care settings. Methodological contributions to knowledge are framed through the Methodology Chapter.

Research Impact

The outputs of this research are intended firstly to benefit those living and working in residential care settings by strengthening the case for a more supportive environment, in which the social material and spatial realms are unified. Clearly, this research is unlikely to impact material-spatial configurations in existing residences, and hence the participants of this study are unlikely to benefit directly from the findings. However, suggestions posited here for clearer understandings of the role of the built and designed environment in support of residents’ fulfilment could improve the fulfilment of residents in future care homes, should the understandings be considered in their design. In this, participants’ input here contributes to the benefit of others who will find themselves in a similar experience,

just as the participants have benefited from previous research with others that resulted in improvements to their living environments. Hence, the benefit here is part of a cultural progression toward better living standards in which continued participation ensures the ongoing betterment of the situation of the demographic.

Engagement in the research also provided softer benefits, wherein participants voiced appreciation that their voices were being heard. This representation and collaboration contribute to an ongoing culture of collaboration, building trust and strength in partnerships between researchers, designers, and people with lived knowledge.

Then the research makes contributions to the knowledge fields to which it is relevant. Foremost the relevance of building design decisions to the lived experience of residents is given new light, questioning established knowledge silos in building typologies, spatial configurations, and modes of practice. While configurations manifested in projective interactions are intended as a lens through which to consider conceptual understandings such as liminalities in the building, and not intended as a ‘one-size-fits-all’ model for residential care home development, the conceptual understanding of material-socio-spatial relationships outlined here may provide architects and commissioners with a greater material-spatial vocabulary for future residential care settings.

Methodologically, this research is relevant to architects, designers, and commissioners in its inclusive approach, where participants are people who directly experience the consequences of design decisions. Forms of participatory architectural practice are gaining traction in planning and building development circles, yet, as described earlier in this chapter, approaches to inclusion tend toward the placatory and coercive (Till, 2009). In its sensitive design and application, this research suggests more inclusive participatory approaches, particularly when working with vulnerable people.

Further methods for co-creation of architectural concepts and configurations draw upon technological and graphic means, including those not generally associated with

architectural practice, which offer advancements on approaches to engage people in the design process and the remote communication of design intents.

Finally, the research contributes to the developing field of Design Anthropology, wherein the fragility of research approaches that challenge the canons of reflective anthropology and projective design research is strengthened through the rigorous application of methods that retains the integrity of situated knowledge built in an anthropological gaze in designerly applications.

Some Clarifications

Some clarifications are necessary to mitigate prejudices inherent in the disciplinary lexica of architectural and care research and establish the research equity sought in this grounded inquiry.

Firstly, this inquiry is concerned not with wellbeing or quality of life, but with residents' personal and social fulfilment. Wellbeing as a term is heavily loaded and, though often used without qualification, is often tied to medical-mechanical concerns in research into the relationship between the built environment and people living with a dementia diagnosis (Bower, Tucker & Enticott, 2019; Dewing, 2009), as well as more person-centred inquiries. Similarly, 'quality of life', another common reference used in the exploration of the supportive role of the built environment, is entangled in the metrics of political economy that require too much unpicking and risk obnubilating a meaningful grounded perspective (Alborz, 2017; Small, Mehmet & Kleinschafer, 2020). Here the term 'fulfilment' is chosen for its subjectivity, which allows research participants to set the agenda for what matters to them in their environment through a collaborative inquiry.

The lens of 'personal and social fulfilment' is derived here through review of the literature surrounding care priorities that complement the dominant medical and safety focused approach to residential care, as outlined above. This perspective is contextualised

in the work of Bruce Jennings, Adjunct Associate Professor in Health Policy at the Centre for Biomedical Ethics and Society at Vanderbilt University and prolific writer on ethics of care and particularly residential care for people living with dementia, theorised (2000) different models of care that prioritise values for public safety, individual safety, and individual flourishing. Jennings (2009) contends that the last of these is deprioritised in the dominant mode of care for people living with dementia, in favour of the dominant “hedonic model”⁸ that underpins the “legal standard of best interest” for residents. Jennings’ position compounds arguments already made here in respect to the prioritisation of the medical and safety focuses on residential care for people living with dementia and emphasises the imperative of residents’ semantic agency. Drawing on the work of other bioethical scholars (Kittay, 1999; Kitwood & Bredin, 1992; Sabat & Harré, 1992), Jennings (2009) asserts that;

“The tragedy of dementia is not so much that it alters brain function and changes what people can think and do; the real tragedy occurs when and if we allow those changes to objectify persons, reducing them to their impaired body and altered behavior (sic), rather than working with them to remind themselves and to be remembered among us”.

From this ethical position, Jennings argues that the common assumption in the collective mind of cognitively intact people – that the loss of functioning and normal communication skills in a person with a dementia diagnosis necessarily correlates with a loss of ability to “make meaning and erode(s) one’s membership in the human community” – causes the prioritisation of a hedonic conceptualisation of quality of life that devalues residents’ semantic agency. Jennings instead argues...

“...on hermeneutic and conceptual grounds that (semantic agency) persists in properly structured, supportive caregiving environments even when high-level cognitive, speech, executive, and short-term memory functioning have been

⁸ Jennings’s conceptualisation of hedonic is defined closely with the medical-mechanical and safety concerns outlined through literature above; “standards that give moral privilege to physical safety and to the subjective experience of comfort and pleasant sensation”, as opposed to “the conservation of agency”.

impaired”, and that, “both caregivers and social institutions (...) have an obligation to provide the environment, resources, services, and human presence necessary to sustain and conserve semantic agency...”. He then disagrees with the common assumption that “only the hedonic conception can apply to those with dementia and other severe forms of cognitive disability (that) the agency conception is inappropriate or irrelevant”, arguing instead that, “life lived with and in spite of dementia, then, even well into its later stages, can be explicated by drawing on conceptions of human agency and flourishing, and it need not be assessed only in the most directly sensate, hedonic terms”.

The beneficial importance of semantic agency and social interaction for aged people living in residential care has been reaffirmed to the point of *doxa* within gerontological and sociological literature (Andrew & Meeks, 2018; Gardiner *et al.*, 2020; Hawkey & Cacioppo, 2010; Victor, 2012), where the term ‘social fulfilment’ is often used to describe the meaningful relationships that sustain a “good life” in residential care (Brownie & Horstmannshof, 2012). The UN Principles for Older Persons, adopted by General Assembly resolution 46/91 of 16 December 1991, (United Nations, 1991) includes references to Care in which:

- Older persons should have access to social and legal services to enhance their autonomy, protection and care.
- Older persons should be able to utilize appropriate levels of institutional care providing protection, rehabilitation and social and mental stimulation in a humane and secure environment.

And to Self-Fulfilment, wherein:

- Older persons should be able to pursue opportunities for the full development of their potential.
- Older persons should have access to the educational, cultural, spiritual and recreational resources of society.

These aspirations toward a fulfilling life are also echoed in research with residents and their social circles by Bowers (2009) where residents' experiences in residential care revealed that,

“Low expectations of a fulfilling life were also evident among those speaking about or on behalf of older people with high support needs. Their thinking is equally institutionalised. They are unable to imagine a different type of support from that currently offered.” (Emphasis added by the author).

Recent years have seen these principles focussed on promoting the ongoing semantic and social capacity of people living in residential care with a dementia diagnosis (Chung, Ellis-Hill & Coleman, 2017; Diller, 2016; Motta-Ochoa *et al.*, 2022; Wright, 2019), which emphasise on prolonging agency through care and the environment. It is hence argued here that the problem of personal fulfilment is inseparable from that of social communication, even through different forms than to which most are accustomed.

Returning to Jennings...

“... it is not necessary to draw a sharp distinction between personal and social mind when dealing with dementia, just as it is not requisite to draw a sharp line between minding in the past and minding in the present (remembering and intending” and calls for “...(re)structuring of the environment of caregiving so that the meaning-making and relational human powers of the self may be sustained as long as possible. (...) Let us affirm the principle that in dementia there is a kind of agency that seems devoid of meaning and lacking in humanness, not because it really is, but only because we do not know how to interpret it” (Jennings, 2009).

It is thus, that the lens of social and personal fulfilment is defined within the research problem here, intending to focus the study on those aspect, which sustain and enhance residents' ongoing personhood through acts of self-reinforcement alone and with others.

Secondly, the term 'users' is avoided throughout the research in favour of 'residents' (denoting people living in the care home) or 'occupants' (referencing those who spend a notable amount of time in the home, which can include care support workers such

as nurses and occupational therapists and so on). Lefebvre (1991) and Till (2005) discuss the problems associated with the term ‘user’, which suggests a passive recipient of the products and thought of others and overlooks their agency. Here the specificity of the terms ‘resident’ and ‘occupant’ pay due respect to the integral role of participants in the study; they are more than mere users of an otherwise autonomous design research and design process.

Next, participants’ dementia diagnoses are not mentioned in fieldwork interactions unless raised by the participants. This is a study into the residents’ environment and confinement “in the context of the generic kind of impairment that dementia represents” (Jennings, 2009). And as discussed above, the diagnosis often tends to objectify and generalise the resident as ‘another’ according to the symptoms of their physical and medical constraints. This can conceal their lived experience, which is the focus of this study; if participants mention difficulties associated with dementia, they are treated as part of that person’s experience, not as a generalising principle.

Finally, this research is interested in structural relationships that underpin the residential care home typology. It is not concerned primarily with the superficialities of colour, furnishing, signage, levels of illumination, technological innovations, or decoration for instance, which, as described above, are so often lauded as ‘architectural’ in research, but in practice refer more to the disciplines of interior or product design or building services and do not challenge the structural relevance of the building fabric as a socially relevant actor. In this, references to superficialities were recorded and the matters pressed for deeper relevance. However, if a structural relationship between the environmental factor and residents’ fulfilment could not be deduced, it was not pursued further.

Ethical Position

The ethical position of this research is framed on three levels. Firstly, the research is concerned with the ethical treatment, representation, and inclusion of people living with a dementia diagnosis in the design of their environments, as outlined above. This provides the research with a collaborative foundation centred on the views of residents and mindful of a hierarchical imposition when constructing aims and outputs. This grounding is the focus of Chapter 2, which locates this inquiry in traditions of inclusive research practices. Then, the research is concerned with the ethical engagement of research participants throughout fieldwork. And thirdly, the research is concerned with the ethical handling and storage of data arising from fieldwork interactions. This includes the anonymous and secure storage of data, and its responsible use in the construction of outputs. Details of applied methods and the management of data are described in chapter three, and formalised in the ethical approval process shown in Appendix B.

Dissertation Structure

The dissertation is arranged into 5 chapters. Following this introduction, which outlines the research situation and knowledge gap and charts the route through the thesis, the subsequent chapters are structured according to the research objectives outlined above. Chapter 2 constructs the transdisciplinary research position drawing on anthropological and design research traditions through a discursive⁹ literature review of knowledge disciplines and previous research related to this inquiry. Drawing on Constructivist Grounded Theory traditions championed by Kathy Charmaz (2006) and the work of Design Anthropologists, such as Joachim Halse (2013), the chapter contextualises this inquiry operating in the transitory space between reflective and projective gazes, and

⁹ Proceeding through reasoning, rather than digression or intuition.

scaffolds the construction of the methods in the subsequent chapter in a constructivist and active research structure. My position as researcher and architect are discussed throughout chapter 2 to clarify the influence of an architectural way of seeing the field.

Chapter 3 is a detailed discussion of the methods used within the disciplinary framework outlined in chapter 2. The chapter serves to describe and reflect on the use of specific methods used in fieldwork, referencing the role of researcher positionality and situational sensitivity in their application. The chapter firstly outlines the management of and important role of data in the research, as the granular constituents of conceptual categories and grounded theory, and as ongoing the roadmap through the field situation as the inquiry unfolded, guiding the application of methods and sites for new data. The chapter then discusses pilot studies and the approach to defining fieldwork locations before, drawing on the Grounded Theory tradition pioneered by Glaser and Strauss (1968), discussing the sensitive approach to sampling participants, intrinsically linked to the constant comparison of emergent data throughout the inquiry. Once these core methodological principles are defined, the chapter moves on to discuss the application of specific methods for the construction, record, and analysis of data. These include participant observations and semi-structured interviews as the primary methods of reflective data construction, then designerly methods including drawing, digital modelling, and the use of interactive virtual interfaces in projective data construction. Then, field sketches and notes, and written interview records as methods to record data, and memos and open, axial, and focussed coding to analyse the data are discussed.

Chapter 4 outlines a grounded theory model of the influence of the built environment on residents' personal and social fulfilment in medium-sized residential care homes for people living with dementia diagnoses. The theory model is constructed from conceptual categories built directly from the data through the coding. Conceptual categories are divided into two sections. Firstly, embodied spatial characteristics discuss the

concepts of liminalities, affordances, and enablement in daily life in the home. Then processual discrepancies focus on differences in ideologies of spatial conception and the presence of veridictions in the realisation of the home.

The dissertation concludes in Chapter 5, which discusses the applicability and validity of the findings in the theoretical and methodological outputs. This discussion is contextualised in a broader literature review, which anchors relevant insights on existing fields of knowledge to demonstrate the contribution. The chapter goes on to explore the limitations of the work and suggest opportunities for further inquiry to develop knowledge constructed in this study. Through this discussion, knowledge contributions to the disciplines of Architecture and Design Anthropology are made explicit and the potential impact of the research is suggested.

Chapter 2

Situating the Research in Disciplinary Knowledge Contexts

Introduction

The research problem outlined in the introduction chapter largely concerns the types of knowledge prioritised by different actors in the design and production of the care environment. For the purpose of framing their variance in perspective – and not intended to impose structural limits to the potential of this research – these knowledge priorities can be broadly conceptualised according to the disciplines of Aristotelian knowledge, wherein; empirical sciences and care commissioners are concerned mainly with *theoria* (thinking) and *praxis* (doing); design professionals engaging with *praxis* and *poesis* (making); and care home occupants engage heavily in *praxis* and *poesis* in the reproduction of their daily lives. This conceptualisation is helpful to understand how perceptions and knowledge of the care home differ depending on the actor. And through a review of existing research literature, the introduction chapter suggests a power structure in which these forms of knowledge are applied unequally in the production and realisation of the residential care home, as the influences of different actors are framed according to the knowledge proclivities of each. As Sullivan (2014a) attests, “knowledge systems are certainly shaped by hierarchies of authority, and these come with conventions that carry their own inbuilt inertia”. In this regard, the previous chapter outlined a tension in which life in residential care environments causes many residents to feel alienated and personally or socially unfulfilled. The chapter also describes the tendencies through which residents are marginalised in the design of their environments, and how they are often disempowered through the complexities of disciplinary relations and professional processes that bring their confines into being. Here occupants’ ‘insider’ knowledge is mostly translated to generalisations through the lenses of ‘expert’ disciplinarians involved in residential design, construction, and commission from external perspectives. These tendencies suggest the need both to better understand the relationship between residents and their environment, and the possibility that change or improvement is required somewhere in the processes of

knowledge creation, interpretation, and utility in the design and delivery of residential care environments.

Hence, the aim of this chapter is to contextualise this research in a knowledge framework to guide the design of an approach in which the methods outlined in the next chapter are theoretically aligned with the aims and objectives set out in the research problem. This chapter explores the way other research paradigms have sought knowledge equity through incorporating a more rhizomatic research approach that often necessarily operates between and across disciplinary boundaries. In this, it serves as the theoretical grounding for this research as a transdisciplinary practice-informed inquiry situated between the broad knowledge fields of Grounded Theory (as empirical inquiry) and Critical Action Research and Design Anthropology (as exploratory work).

The chapter begins by discussing influences from the relevant qualitative inquiry traditions of Critical Action Research and Design Anthropology, as critical, iterative, and active research paradigms that acknowledge the role of the researcher and designer in a disciplinary knowledge shift from a reflective to projective gaze. While Critical Action Research and Design Anthropology are recognised research fields, neither is a sufficiently massive paradigm to be methodologically distinct and hence the chapter then goes on to explore the relevance of Grounded Theory traditions to scaffold an active research design around the aims of this new context formed between design-research traditions. Here, different approaches to Grounded Theory are discussed and the use of a Constructivist Grounded Theory approach with relational and critical sensitivities is explained and justified. Then the role of conventions of architectural communication is explored to frame the constructivist position of this research and myself as the researcher. Finally, the chapter concludes by synthesising the relevance of each of these research paradigms in an Architectural Anthropology that facilitates the design of the methodological approach outlined in the next chapter. Each section in this chapter critically outlines the relevance

and limitations of the established approaches to constructively align the approach and methods used in this research within the knowledge fields and academic disciplines from which it has grown and to which contributions are made.

The phenomenon of life in residential care is experienced in a context broader than can be confined to a single disciplinary field or questions of architecture, social sciences, or health care alone. Knowledge on the relationship between occupants and their environment is therefore represented in a broad mix of traditional disciplines, such as gerontology, design studies, built environment and architectural discourses, ethnographic studies, sciences of health and wellbeing. As highlighted in the Introduction chapter, disciplinary boundaries can be problematic when the gaze is from an external position laden with the prejudices of the field. Literature published in recent years, such as Rodgers (2017) and Donetto *et al.* (2015) calls for inter-or-trans-disciplinary and co-design approaches to research to avoid constrained ways of reading and knowing that can occlude other perspectives, and hence representations and recommendations arising from research. Inter-and-trans disciplinary research approaches offer a check against the potential bias that can stem from hypothetico-deductive reasoning by broadening the scope of what is of concern in a situation. These approaches often necessarily facilitate inductive approaches, where patterns are formed from the “setting sensitive to the people and places under study” (Creswell, 2012). An inductive trans-disciplinary approach is essential to this research, where testing hypotheses based on previous work in the field or narrowly focussing on fragments of residents’ experience without meaningful account for the complex flows of information between recognisable fields is counter to the agenda to explore occupants’ perspectives and agency. While the knowledge produced by bounded disciplines has no doubt improved many aspects of residents’ quality of life, the previous chapter highlights difficulties created by the fragmented approach, and therefore this research is positioned to seek to understand the role of the environment for the resident

from their perspectives and without pre-ordained disciplinary or parameter boundaries. As Zamfir and Zamfir Grigorescu (2020) suggest, a grander understanding of the role of the environment in the reproduction of daily life in residential care homes is not well understood.

While conflicting, concurrent, or opposing findings and views can be found in almost every field of knowledge, the field is broadly defined by the collective will of its participants to further the knowledge and explanations of its concerns. Hence, to constrain the perspective of inquiry to the confines of pre-established disciplinary contexts would likely privilege existing perspectives and methods, such as much recent research into life in residential care environments. Breen (2002a) and later Krogh and Koskinen (2020) discusses the value of trans-disciplinary design research to realise potential knowledge otherwise invisible from the vectors of interested disciplines from which there is often little overlap in thinking. Here, design research seeks pragmatic and actionable categorisations of space against which future designs can respond or existing ones can be evaluated; while the focus of the social sciences has been to describe the conditions of collective reflected experience and often offer theories to explain them. We might also add here that gerontological and nursing studies tend to focus on the practicalities of personal care delivery and the address of symptoms with a view to treatment, while not necessarily considering the architectural connotations of personal care and care management structures. Framed as such, social science studies are typically oriented toward the past, whereas design research is largely concerned with future action and performance evaluation, and the fields of nursing studies, design, and social research into residential care spaces have traditionally operated in conceptual and methodological isolation.

However, it is the resident that most directly feels the weight of the systematic and material manifestations of these knowledge disciplines in the reproduction of their everyday life, and Breen (2002a) emphasises the importance of incorporating designerly

methods into situational and inductive research to confront the limits to disciplinary knowledge creation. Hence, here home occupants are the drivers of appropriate research agendas and methods. Therefore, while the literature review framed in the introduction was useful to identify a tension and context in which to work, no hypothesis is proposed. Instead, here an approach is designed that centralises occupants' knowledge and perspectives and allows theoretical and methodological rigour in the exploration of their reflective *and* projective gazes. The design of this research, therefore, draws on research traditions that prioritise closeness to situated knowledge and inclusion of people to whom the lived implications of the research are greatest, and which emphasise a forward trajectory toward development and change. That is, the research approach constructed here seeks not just to describe or explain the situational context, but to understand it and accommodate participants' projections toward better alternatives.

Critical Action Research

Critical Action Research is a research paradigm characterised by critical approaches to research in which knowledge is created through intervention and in collaboration with participants that have lived and intimate knowledge of the studied situation. The key characteristics and agendas of the Critical Action Research paradigm are closely aligned to the aim and objectives of this research and their influence on its approach are discussed here. Firstly, Somekh (2008) describes Critical Action Research (CAR) as integrating “social research with exploratory action to promote development”, and Critical Action Research is traditionally applied in “social and health services, and community development, where there is a long history of difficulties in successfully transferring research knowledge into changes in practice”. As such, CAR is used in research situations aimed at both understanding social contexts where people are influenced by systems and constructs led or imposed by others (particularly where power is exerted over the resident population) and

where the research intends to support future change (Davis, 2008; Davis & Ramírez-Andreotta, 2021; McCusker, 2020).

Then, Critical Action Research is characterised by reference to Critical Theory traditions that expose and question power-relationships (particularly including marginalised or muted groups), and an Action Research agenda to generate grounded and practical knowledge through the application of design and research methods aimed at facilitating change. Davis (2008) outlines the key aims of the approach; firstly, to recognise and articulate social problems in the context of the study (DePoy, Hartman & Haslett, 1999; Lietz & Zayas, 2010). This is particularly relevant in organisations with inherent power structures, such as residential care environments where residents are reliant on care systems and the organisational logic of their confinement. Secondly, CAR seeks an emergent nature, where the research process and agendas evolve throughout an inquiry. This is particularly relevant when working with vulnerable adults who find fitting into constrained research structures challenging and, as described in the methodology chapter in more detail, a sensitive approach is required to avoid constraining the fieldwork lens and hence the scope of inquiry. Finally and importantly, CAR aims to establish equal power relationships between researchers and subjects by privileging participants' roles in the design of the research agenda and facilitating an approach that empowers participants with the "tools to effect change themselves"(Davis, 2008). Put another way, CAR seeks to visibilise participants' priorities and concerns for change in contexts from which their voice to such matters may be excluded through established knowledge silos or power structures. Here the 'research subject' becomes 'co-researcher'.

So, Critical Action Research, thus requires that research is grounded in fieldwork with real people in an ongoing exchange with organisational power (Casey & Coghlan, 2021). It requires that researchers are supportive of the occupants or participants of the study, while open to questioning the power structures and values of the systems that

comprise the organisational relationship. Cooklin (2018) sighting Coghlan and Holian (2007) describe the Critical Action Researcher as an ‘insider change agent’ and “‘irreverent inmate’, one who is a supporter of the people in the organization, is a saboteur of the organization’s rituals and is a questioner of some of its beliefs”. Crucially, by the contingent nature of co-developing research aims, CAR is constructivist in nature, and rejects positivistic conceptions of reality or the real-world, as “futile” and “potentially fraudulent” (Somekh, 2008), wherein positivistic characterisations of knowledge tend to generalise and obscure situational knowledge, and distance applied knowledge from that of occupants and participants. In a constructivist approach, the disciplinary role of the researcher is emphasised to understand their influence on the construction and interpretation of knowledge, and the joint position of researcher and practitioner helps bridge the gap between theoretical and practically applied forms of knowledge (Clifford & Marcus, 1986; Flick, 2019). Further, in CAR the active researcher brings the skills and communicative languages of their discipline (as a policymaker, designer, or another externality) to the context. While prioritising the sensitivities outlined above, this researcher-practitioner can understand the relevance of emergent insights and concepts to their disciplinary practice (Breen, 2002b; Flick, 2019). This helps to bridge the knowledge gap between insider and external actor in effort to redress the power dominion between parties and facilitate change by increasing the representation of inclusive design approaches and grounded knowledge in the ongoing work of practitioners.

The agenda of Critical Action Research – to visibilise the will of disempowered groups – is appropriate to the context of this inquiry, where the generalised nature of design guidance and naturalised residential care typologies impose constraints on the resident population through design. Here, aligned with the first principle of CAR, a critical approach will assist with the recognition and articulation of the problems experienced in the care home. Similarly, the research aims to understand socio-spatial relationships in the

care home to inform design, which is grounded in the experience and will of occupants. So, the research necessarily adopts an emergent constructivist approach that prioritises knowledge constructed *with* research participants and context over that of outside experts. Then the ethical position of this research is aligned with the CAR agenda to co-research with participants. An equal power relationship is sought that privileges participants' unique perspective on the situation and in which the researcher brings techniques and tools to articulate their collective will and knowledge to disciplinary audiences.

While an active research approach, CAR is not necessarily grounded in design action, and less specifically in the design and making of material things. CAR is a closely aligned precursor to the emergent field of Design Anthropology, which, like CAR, seeks to understand the social context of people with a shared condition or experience that is notably shaped by interaction with the work of designers so that future design efforts can be more inclusive and respectful of local knowledge (Ewart, 2013), future and change-oriented (Halse, 2013), and question potentially exploitative power structures in the inherent ideologies of established research and design approaches (Tunstall, 2013). These values are aligned with those of this research. So, it is valuable to understand how others working in Design Anthropology, frame critical and inclusive future-oriented research approaches.

Design Anthropology

The growing field of Design Anthropology is concerned with “how people perceive, create, and transform their environments through everyday activities” and “is a move to shift the focus from anthropological description to action” (Gunn, Otto & Smith, 2013). Through ethnography, Design Anthropology is “endowed with a unique sensitivity to the value orientations of the various groups affected by design projects – including disempowered groups” (Otto & Smith, 2013). In this, the agenda of Design Anthropology is relevant to

the aims of this research project, and this section unpacks that relevance and the ways that Design Anthropology has informed the design of the methods described in the next chapter.

Design Anthropology is distinguished from Critical Action Research in that it is specifically concerned with design and making as critical actions for revealing theoretical insights into a situation, including participants desires, aspirations and potentials embedded in contextual knowledge (Kilbourn, 2013). Otto & Smith (2013) discuss the convergences in the aims of the disciplines of design and anthropology, highlighting the iterative way process and product are interconnected in language and practice; wherein anthropology, ethnography is both the study and description of cultures; in design, ‘design’ is both the action and product of designers. Herein, both designers and anthropologists claim to immerse themselves in real-life contexts to understand meaning and inspiration (Nelson & Stolterman, 2012) that inform their practice and outputs. However, in practice, as described in the introduction chapter, architectural design often operates within less inclusive traditions, and Design Anthropologists suggest more inclusive and participatory approaches to practice that might be applied to the design of the environment. Further, Murphy and Marcus (2013) describe commonalities in the reflexive role of designers and anthropologists engaging critical self-evaluation throughout their work. Crucially, the acts of design and anthropology have a shared agenda to reflect on a social context and produce a product that “transforms reality” (Otto & Smith, 2013).

Design Anthropology argues that design and anthropological practice overlap through ethnographic understanding (Otto & Smith, 2013), but differ in gaze; where anthropology is oriented to the past and design toward the future (Gatt & Ingold, 2013; Stender, 2017)¹⁰. Considered another way, anthropology establishes a knowledge base on

¹⁰ It is of course noted that the practice of architecture is rooted in understandings of the past and that of anthropology is projected to the future in utility so neither discipline operates without consideration across

which design often operates. However, a transitional moment in the relationship, where anthropology stops and design begins, forms a practical and disciplinary void in which knowledge and context are commonly transformed in the disciplinary shift in the language, tools, and skills of the two disciplines. Tunstall (2013) argues that this transition can impose colonial pressures on indigenous knowledge from vulnerable groups, where the utility of anthropology rarely benefits the quality of life of its ‘subjects’, and thus design innovations removed from context tend to promote modernist values over “old ways of knowing”.

The relevance of ethnographic work in design is not a concept new to Design Anthropology. Indeed since the 1970s, and particularly in the realm of computer systems (Blomberg & Karasti, 2012), designers have used ethnographic knowledge to inform their work and increasingly designers embed themselves in ‘user cultures’¹¹ to better inform design outputs. However, Otto & Smith (2013) argue that “in post-industrial and digital societies, design has become a separate domain of activity because economic and organisational developments have engendered a specialist workforce of designers”. This expert domain is reified in the UK for example, through Design Economy reports (Kimbell *et al.*, 2021; Todd, 2021) that frame the productive value of design as both a means to realise the value in investments and, - through the production of value – as an end itself. This can be contrasted with other cultures in which design is carried out according to different logics, often by those who live and use the outputs of the endeavour (Ewart, 2013; Jones, 2016) and whose knowledge of design and making is ingrained in local knowledge and culture. Otto & Smith (2013) go on to argue that this siloed work of post-industrial design professionals is supported by the work of academic disciplines through

the temporal panorama. However, each discipline is primarily focussed with different orientations from the present; in anthropology’s agenda to first describe before intervention and in that of architecture to prioritise intervention Stender, M. (2017) 'Towards an Architectural Anthropology—What Architects can Learn from Anthropology and vice versa'. *Architectural Theory Review*, 21 (1), pp. 27-43..

¹¹ While Otto and Smith’s sentiments about working with native populations are important to this research, the word ‘user’ is not appropriate in this research context, as outlined in the introduction chapter.

training and research, which has led design to become “one of the major sites of cultural production”. Here the relationship between design and anthropology is framed in a process of knowledge production and realisation, in the form of commodity exchange, involving researchers and designers. Fry (2011), however, describes the effect of cultural commodification through these industries of design based on distance, generalisations, and essentialisations, with the capacity to nullify futures by framing change as innovation. Gatt and Ingold (2013) argue that this design-by-innovation is a value that is doomed to fail because it seeks to define the future for the next generation. Yet, the “design, it seems, must fail, if every generation is to be afforded the opportunity to look forward to a future that it can call its own” (Gatt & Ingold, 2013). Here the authors call for a design that corresponds with, rather than describes, its public, lest they become “mere users confined to the implementation of designs already made for them”. The implication here is that removal of the occupant from the process of design is doomed to failure, either through restriction of the occupants’ autonomy and self-determination or through the prescription of imperatives that are out of date for the succeeding generation. We can infer here that innovation seems to be only acknowledged as such when it belongs to the structures and “ways of knowing” in the professions in academia, and not so when practised through cultural evolution. Returning to (Sullivan, 2014a), this perspective reflects an imperial attitude to knowledge-power, where “authority is the stabilizing force in confirming truth”.

Like action research, Design Anthropology is concerned with intervention in and transformation of social reality. Works of Design Anthropology involve the interweaving of research and artefact production in fieldwork where researchers and participants explore culturally shared possibilities (Gatt & Ingold, 2013) deeply rooted in reflective understandings of the past and imaginations of the future. Here the territory for the field of Design Anthropology is established between the traditions of design as a future-oriented practice (geared around solutions and products) and the role of anthropology in

constructing theories about societies rooted in knowledge of the past (Halse, 2013). Here again, the traditional structures of anthropology are broadened; where anthropology has – notwithstanding its imperialist origins of understanding natives – historically been cautious to minimise intervention in the social context. For instance, participant observation is an interventional activity, and central to ethnography, but is concerned only with description not effecting change. However, as argued by Gatt and Ingold (2013), ethnography claims to not be transformational or forward pointed, only documentary. However, this denies “that the practice of ethnography may have transformative effects” (Gatt & Ingold, 2013), such as in this study where engaging care staff evidently caused them to consider their relationship to the built environment differently than they had previously. And similarly, returning to Žižek (1989), ethnography relies on the future reconstruction of fragments of the past and is hence a constructive practice. Here it is argued that more interventional inquiry is a logical and appropriate extension of the remit of the researcher. This position is rooted in the traditions of constructivist forms of qualitative inquiry, such as Constructivist Grounded Theory (championed by Kathy Charmaz (2006) and discussed in more detail below) where the disciplinary grounding of the researcher, such as their skills and ontological position, is seen as integral to the construction and representation of theory (Charmaz, 2006). In fact, as Drazin (2013) suggests, traditions of qualitative inquiry prioritise the transparent formation of concepts to understand the studied situation. Drazin (2013) goes on to argue that design and theory concepts are often indistinguishable except as culturally specific constructs through their temporality and materiality; the field note and memo as a means of interpreting data, later guiding further questioning about the emergent theoretical concept, is analogous to the field sketch, which carries with it the same, albeit often more accessible, spatial material weight as the field note or memo. Drazin (2013) asks “how and why the concept is an appropriate way of packaging knowledge within design arenas, rather than alternatives such as facts or ideas”. Here it is argued that the careful

construction of material concepts is a mere extension of the traditional work of ethnography, where records, memos, codes and fieldnotes are co-constructed material interpretations of a social context, and therefore to frame them diagrammatically or spatially (as per the tools of an architect) is a logical progression of the design-research discipline.

Shifting the critical lens to traditions of design, Otto & Smith (2013) suggest that, while design tends to maximise intervention in both the process and the adoption of a product, rarely does it theorise this usage or the cultural meaning of things; it stops at design, which may be reviewed at a later date but usually only in an effort to further develop the output. The work of design is rarely theorised. Otto & Smith (2013) go on to suggest that design as a discipline generally overlooks “the generative role of theory in developing concepts and critically examining existing, often implicit conceptual frameworks”. Here the benefits of extending the remit of design back to the theoretical realm of anthropology become clear.

This position on the transformative nature of the relationship between anthropology and design resonates with arguments made in the previous chapter around the limited capacity of architectural consultation and engagement to realise occupant priorities in the context of professional, economic, and disciplinary pressures. The transitional space between the two disciplines exposes a ‘crack’ in the traditional arrangement of knowledge exchange between experts for user classes. This represents a territory to reimagine the boundaries of design and ethnography, where the conventional gaze of ethnography is extended beyond reflections of the past represented in the present, and toward the possible and aspirational (Halse, 2013), and in which design practice is more embedded in the situated knowledge of those affected by design decisions (Otto & Smith, 2013). Operating in this trans-disciplinary space offers potential to transcend some of the interpretive prejudices presented by the handover of knowledge between disciplines

and it addresses the power imbalances and competitive pressures inherent in disciplinary silos (Wasson, 2002), where design propositions can be deeply rooted in contextualised knowledge (Giaccardi *et al.*, 2020). Figure 5 below conceptualises reflective the reflective relationship between design and anthropology, in which ethnography as reconstruction of the past in the future, and design as reforming the future in the context of past knowledge, are each framed as constructive acts. This research operates across this temporal reflection within the current conjuncture.

Notwithstanding the progressive capacity for design anthropology to make a meaningful impact on the translational void between reflective and projective gazes, Drazin (2013) warns of the “very real risk of tautology” in the construction of concepts from the field and suggests taking a descriptive approach to the construction of concepts. Here it is necessary to construct a theoretical and methodological scaffold, that critically engages with the apparatus of each side of the translational ‘crack’ to reframe the disciplinary perspective in a ‘temporal panorama’ across the void. Grounded Theory, as an established methodological approach, offers such a scaffold.

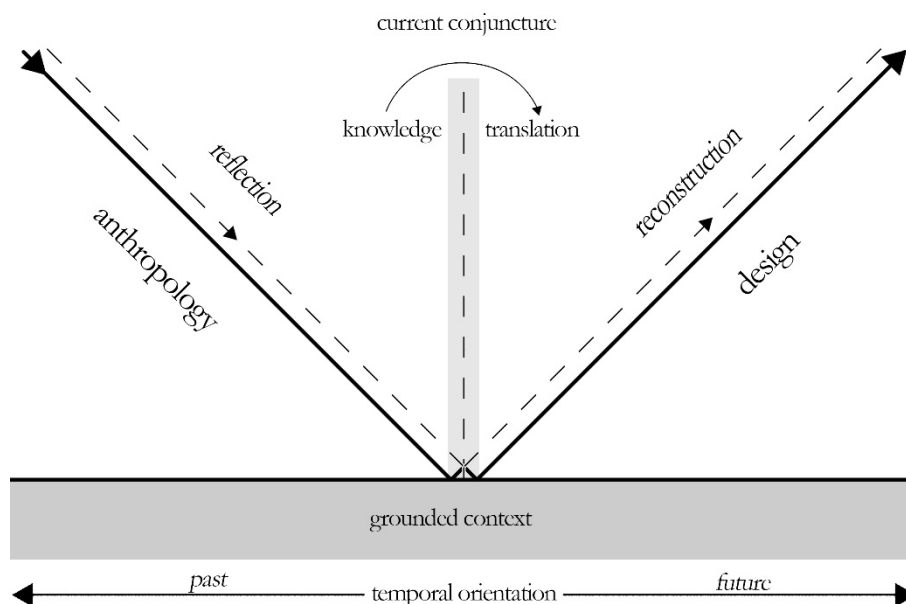


Figure 5: The temporal context of Design Anthropology operates across the traditions of anthropology and design as discrete disciplines.

Grounded Theory

Grounded theory is recognised as one of the major approaches to qualitative inquiry (Creswell & Poth, 2018) and is a systematic approach to the recording and coding of data to generate theory about a studied situation (Strauss & Corbin, 1990b; Strauss & Corbin, 1998). The output of a study following a Grounded Theory methodology is a Grounded Theory (Glaser, 1978). Hence, analogous to ethnography and design, which are recognised in practice as both action and product, the outputs of Grounded Theory are inextricably entwined with the processes of their study; Grounded Theory is a methodological scaffold, the output of which is a Grounded Theory.

The origins of Grounded Theory lie in healthcare studies, where its pioneers Glaser and Strauss (1965) sought to reaffirm the importance of qualitative research and situated knowledge that closed the gap between empirical data and espoused theory through inductive reasoning. Grounded Theory was developed specifically in response to theories that were so decontextualised and abstract that they were unusable and unrelatable to the fields from which they were expected to operate (Glaser & Strauss, 1968). Grounded Theory is often used to understand situational socio-psychological contexts in the field and is thus open to the complexities of the non-laboratory setting, which allows researchers to see how situations unfold in the ‘real world’. Through this agenda, Grounded Theory is well-suited to the study of issues related to professional practices – where knowledge is more situated in nature – over scientific (“that is a dogmatic belief in the value of scientific knowledge” (Foucault, 1982)) areas of inquiry. Thus, Grounded Theory counters the hypothetico-deductive approach and emphasises an open approach to data in which pre-conceived theories are set aside. There are however different schools of thought within the Grounded Theory approach, and Timonen, Foley and Conlon (2018) made an in-depth analysis of the relationship between different Grounded Theory strands and varying epistemological and ontological research perspectives, which are considered below.

Classic Grounded Theory, as pioneered by Glaser and Strauss (1968) takes a pragmatic objectivist perspective, close to a positivistic worldview (Timonen, Foley & Conlon, 2018), in which grounded theories exist in an objective and measurable world, and it is the work of the researcher to discover them; to make them clear among the complexities of data (Glaser & Strauss, 1965; Glaser & Strauss, 1968). According to Glaser and Strauss (1968), theory outputs from Classical Grounded Theory ought to be able to predict future phenomena, which outlines their positivist ontology. Strauss and Corbin (1998) later added elements of researcher reflexivity to their formulaic approach to theory generation yet retained their objective position that there is an observable and measurable external reality from which theory can be deduced.

The problematic tendencies of positivist research stances to obscure the prejudices of their agents, and thus subdue the voice of participants, are already discussed. Hence, this study stems from a more contemporary constructivist position and aligns with the Constructivist Grounded Theory (CGT) approach championed by (Charmaz, 2006). Here “the role of the participant and researcher in the process of generating knowledge, and interrogating the nature of the knowledge generated, is a key departure” from Classical Grounded Theory (Timonen, Foley & Conlon, 2018). CGT states that knowledge is neither found nor awaiting discovery, but instead is built by active researchers to “construct an interpretive rendering” of the situation (Charmaz, 2006). CGT retains a pragmatic and critical position (Charmaz, 2017), paying close attention to process and context in systems and interactions in the field context, and thus affords a scaffold for the sensitive application of methods and interpretation of data through coding. The constructivist position is necessary considering the critical and designerly agendas set out thus far in this theoretical framework, and the CGT approach underpins the design of the research methods, discussed at length in the Methodology chapter.

This research also acknowledges advancements from the central CGT position, such as the situational and critical perspectives framed by Clarke (2003) and Oliver (2012) respectively. Clarke's situational approach (Chun Tie, Birks & Francis, 2019; Clarke, 2003; Clarke, 2013) emphasises the importance of human and non-human elements, systems, and discursive elements present in the situation. This situational take on the social environment aligns with the concept of hybrids outlined by Latour (1993), in which the human and physical worlds are indistinguishable except on conceptual grounds and are, jointly, the social world. The importance of this position toward anthropology is restated by Stender (2017) in addressing the question of what ethnographic inquiry can learn from design disciplines, specifically architecture;

“What anthropologists can learn from architects is thus first and foremost how to pay closer attention to the spatial and material surroundings of our social lives. Or, rather, to regard them not as mere surroundings, but as part and parcel of what constitutes the social” (Stender, 2017).

Importantly here, the study of the ways in which residents interact with the physical and systematic environments of care homes and each other as social activities is permitted, as opposed to restricting the lens of inquiry to purely person-to-person interactions. This influence encourages thick description and analysis (Clarke, 2013) and is particularly important considering the architectural agenda of this research for more supportive residential care environments.

Similarly, Oliver's (2012) Critical Grounded Theory perspective is important to this study, as its Critical Realist adjunct to the CGT tradition acknowledges that there is a shared reality but that it is only accessible through subjective interpretation (Kempster, 2015; Oliver, 2012). This critical-constructivist approach is important, as the acknowledgement of a shared reality overcomes the possible tension between the established constructivist position and the notion that a designed and built environment can facilitate restrictive or supportive lifestyles, which appears to suggest a positivist

leaning. However, the notion that the environment can influence the quality of residents’ life is drawn from constructivist interpretations of the shared environment, and the acknowledgement of the objective here is in the extent to which it exists in relation to participants’ interpretive realities; shaping and shaped, informed and informing them.

Notwithstanding the importance of the contributions to the Constructivist Grounded Theory approach from Clarke (2003) and Oliver (2012), who have elaborated on what CGT includes and have opened additional ways to view the situation, these advancements do not constitute a fundamental change in approach. Hence, a simplified reference is used here where CGT includes these advancements. Thus, CGT as a methodological framework adopted here can be considered ‘Constructivist Grounded Theory with Relational and Critical Sensitivities’.

| Characteristics of Constructivist Grounded Theory with Critical and Relational Sensitivities | |
|---|--|
| Ontological position | Social constructivist |
| Aim | Construct an interpretive rendering of the studied situation |
| Origin of Theory | Theory is constructed, not found |
| Role of Researcher | Active in data and theory construction |
| Role of Non-humans | Situational approach acknowledges the social role of non-human entities |
| View to Reality | There is a shared reality, but it is only accessible through individual interpretation |
| Theoretical outputs | Informative but not universally generalisable |

Figure 6: Table of the characteristics of Constructivist Grounded Theory with critical and relational sensitivities

Grounded Theory in Critical Action Research and Design Anthropology

Research in both the traditions of Design Anthropology and Critical Action Research each begin with a phase of ‘getting to know’ the situation and research context. This opening phase draws on mixed ethnographic methods including participation and observation to investigate the lived situation in partnership with resident participants to build

understandings about the conditions of the studied context (Somekh, 2008). This opening phase is crucial to developing the research agendas, methods, and theoretical understanding with participants, and requires an adaptable but considered approach. In this way, the early stage processes of action researchers, such as Marshall (2008) and Coghlan (2019) are aligned with the methods used in Grounded Theory. Similarly, Design Anthropologists, such as Tunstall (2013) and Kilbourn (2013) discuss the sensitive application of ethnographic methods and follow emergent lines of inquiry led by observations and interactions with native participants to avoid the imprint of prejudice or a colonial research approach. These sensitivities to emergent lines of inquiry and the application of methods are cornerstones of the Grounded Theory approach (Charmaz, 2006). Similarly, as suggestions for new practices and alternate futures are introduced to uncover greater insights into a situation (the next phases of CAR and Design Anthropology projects), each of the active research methodologies calls for the collection and interpretation of a broad range of data types and sources (Bradbury, 2015; Reason & Bradbury, 2013) in a transparent and structured manner. These characteristics further align with the Grounded Theory approach to qualitative analysis.

However, Grounded Theory is ethnographic in tradition, and looks to knowledge about the past embedded in the present (Charmaz, 2006). Thus, projective representations, such as those emphasised by Design Anthropologists are precluded by researcher distance in the construction of data. And, while Grounded Theory offers a methodological framework for concurrent interrogation of a situation and the construction and analysis of data, it is yet to accommodate collective projections of an aspirational future, such as suggested by Halse (2013) and Gatt and Ingold (2013). However, Charmaz (2006) alluded to this endeavour in the call for a Grounded Theory that builds upon its “pragmatist heritage” with “twenty-first-century constructivist sensibilities” to make clear the roles participants (researchers and natives) play in the construction of theory to assist “other

researchers and policy makers to establish the boundaries of the usefulness of ... grounded theory". Here Charmaz points to a Grounded Theory of the future, as well as of the past and present, and Charmaz's Grounded Theory provokes action in which; "knowledge should transform practice and social processes" and where "Grounded Theory studies contribute to a better world" and "influence what we study and how we study it" (Charmaz, 2006). This also aligns more broadly with definitions of design research, such as from Verbeke (2013) where design research seeks to "increase the stock of knowledge - including knowledge about humanity, culture and society - and to use this knowledge to devise new applications".

Under CGT, participants' input, such as in interviews and field-based participant observations, are prioritised over pre-determined theories and evaluative frameworks. CGT additionally responds to calls, such as from Zeisel *et al.* (2003) and more recently Chaudhury *et al.* (2018), to consider the cumulative and cross-sectional 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, and from Chaudhury, Hung and Badger (2013) and Chaudhury *et al.* (2018) "to adopt mixed methods to take into account the subjective perspectives of the residents with dementia". Data collected through insights – whether constructed in reflection on participants' past or lived experience or generated through active means – require an analytical framework that visibilises the link between conceptual understandings (embodied in theoretical outputs) and material knowledge (embedded in projected futures), and data constructed¹² through applied fieldwork methods. Grounded Theory offers such a framework that emphasises the sensitive application of methods in fieldwork contexts to construct a broad range of data from different sources, which is interrogated through

¹² This research takes the constructivist position that neither data nor theories exist *a priori* waiting to be found and framed. Rather they are constructed with participants and cognisant of the researcher's positionality.

systematic coding. In this Roth and Bradbury (2008) consider the (constructivist) Grounded Theory method of data recording and theory development central to their Action Research, particularly through memo-writing and systematic recording of data.

Constructivist Grounded Theory is here adapted as a methodological framework that transitions from traditional ethnographic inquiry to designerly approaches that operate at the space of knowledge transfer between ethnography and design; across the temporal horizon (Otto & Smith, 2013) between the past-present and the future. CGT “builds 'a fresh slant on existing knowledge about a particular phenomenon” (Goulding, 1999) and supports acknowledgement of residents' perspectives by building research outputs directly from the observed context (Charmaz, 2006; Corbin & Strauss, 2014). CGT is hence an appropriate framework to address the agenda central to this research of empowering residents in the design of their environment by prioritising their experiences and interpretations (Burke & Veliz-Reyes, 2021).

The framework is applied acknowledging that the tools of the designer and anthropologist are both open-ended and heuristic – they are not prescriptive but applied with sensitivity to the situation under the judgement and experience of the practitioner – and as such, the constructive work of a design anthropologist can be recorded and coded under the same CGT descriptive framework, as concepts transition from the ephemeral to the material, as outlined in the next chapter. Additionally, the CGT approach addresses Chaudhury *et al.*'s (2018) and Zeisel's (2003) calls for research that considers the cumulative influence of spatial-material configurations in the built environment on the experience of people in residential care environments over studies that focus on isolated fragments of the environment or specific behaviours determined *a priori* from external theoretical and methodological positions (Burke & Veliz-Reyes, 2021). The co-construction of knowledge between participants and the researcher through grounded engagement in the field is hence

prioritised and hypotheses and evaluative frameworks are established in co-creation with research participants.

The Relevance of an Architectural Way of Seeing

If, as argued, a key critique of ethnography is that its capacity to benefit the people under its lens is postponed and offset to the work of designers and policymakers, it is constrained by a reflective gaze and toolkit characterised by inaction that prevents it from looking at the possible. By comparison, a key critique of the architectural profession is that it hurries to design through shortcuts and generalisations based on transferred, over situated, knowledge (De Carlo, 2005; Farias, 2019; Till, 2009), and the ethnographic toolkit of participation, observation and interview are often overlooked¹³. Here, design sits on the other side of the transitional void and Otto & Smith (2013) suggest that designers need to set aside prejudices about utility and instead try to see the contexts, processes and relationships in a situation not as designers but as those resident see it.

Architecture's decontextualization and reliance on generalised concepts and ways of working are critiqued by many, including Gänshirt (2020) who argues for a more applied science to design research in architecture, where knowledge outputs differ from those of philosophy in architecture's "ability to direct the summing up of research work toward concrete realisation". Citing Bateson and Bateson (2000), Gänshirt (2020) goes on to argue that the benefits of research-based design lie in the skills-knowledge of the practitioner who can remain loose and open to the appropriate application of established skill practices, stating that "... advances in scientific thought come from a combination of loose and strict thinking, and this combination is the most precious tool of science". In this, Bateson and

¹³ There are of course exceptions, such as the work of William H. Whyte, W. H. (1980) *The Social Life of Small Urban Spaces*. London: Conservation Foundation Project for Public Spaces. , Kroll, L. (1986) *The architecture of complexity*. London: Batsford. , Blundell-Jones, P., Petrescu, D. & Till, J. (2005) *Architecture and Participation*. London: Spon Press. , and Awan, N., Schneider, T. & Till, J. (2013) *Spatial Agency: Other Ways of Doing Architecture*. London: Taylor & Francis. whose participatory and ethnographic methods are central to their practice.

Bateson (2000) caution of the need to beware of the strictures of scientifically derived knowledge, the application of which, in its formality, constrains against possibility and, conversely, through the rejection of formal knowledge application, credibility is likewise lost. Referencing the specialist insights of a design practitioner to see research contexts in ways others may not, Gänshirt (2020) contends that “it is only when the researcher is aware of what is required that it becomes possible to question it”. In this, the architect-researcher can follow Pessoa’s (1991) “sacred instinct (of the researcher) to have no theories”, and instead equip themselves with practised and informed designerly knowledge and language that informs new ways of seeing. Thus is the constructivist grounding of architectural disciplinary thinking in the Design-Anthropology: Grounded Theory framework applied in the design of this research.

Architectural Language

Architectural practice is, by nature of its space of operation, sensitive to the influences and movements of its contexts. It hence shares the underpinning sensitivity of Constructivist Grounded Theory that follows emergent lines of inquiry in the studied situation. The constructivist nature of this research inquiry is characterised by the contingent co-design of research methods and agendas. The research is also grounded in an architectural context (the design of residential care homes) and imbued with the languages and ways of seeing of an architectural disciplinarian. Here, the works of Harvey (2006) building on Lefebvre (1991) are intrinsic to contemporary readings of architecture, wherein social and organisational concepts are spatialised, and space is defined not only by its topographic and geometric conditions, but also topologically – relatively – by the flows of material and social interaction and organisational networks that move through it, and relationally through meaning and the senses. Architectural practice and research are also accustomed to the practices of decomposition and re-composition, in which a situation is

iteratively viewed as specific parts, combinations, and the whole (Breen, 2002a). This practice is analogous to the constant comparisons of theory generation under CGT, through the common thread of inductive reasoning. This architectural perspective means that spatial-material patterns and organisations are actively sought in reading the social. Should this context be viewed from a systems management perspective, for example, the spatial component may be given less primacy. Or if the researcher were primarily from a health care background, the attitude to participant observations, recording, and resultant lines of questioning may again have produced different concepts and theory. Far from problematic, this constructivist approach reveals the connectedness, depth, and complexity of situational contexts that may be invisible to research under more positivistic ontological constraints.

Having established architecture as a valuable disciplinary perspective from which to find new insights in the field, it is worth considering the specific tools and ways of seeing that comprise the architectural language and the benefits of an architectural approach to constructivist field inquiry.

Visual Media in Representation and Recording

“There is a long tradition of visual anthropology related to ethnographic films and exhibitions, and this sub-field has also recently been developed in interesting ways, where images are not just a means of representation, but methodological tools in themselves” (Stender, 2017).

Above Stender (2017) notes the history of visual ethnographies, in which drawings, diagrams and films, have long been used in anthropology to record and communicate. However, in their descriptive observational position, they often differ in purpose and use from those used in architectural practice, which tend to speculate on alternate futures. This common language is, as described above, of benefit to this research, where graphic

descriptions are recognisably used both to record data and articulate theoretical concepts within the construction of grounded theory (Marling, 2012).

Drawing is foundational to architectural communication, to record information, to interpret and construct concepts, and as a mode of representation. In *Redrawing Anthropology* Ingold (2013) describes drawing as an exploratory exercise, in which “movement, observation and description become one”. Ingold goes on to argue that drawing is central to “restoring anthropology to life”, by which he contends that anthropology’s tradition to first observe and then describe the world imparts a falsely “objective account”. Rather, through drawing, “we join with things in the very process of their formation and dissolution” (2013). A textual description alone is linear and unfolds in a progressive reading across the page. Drawings are read differently and recursively. A drawing can be seen as a whole image, capturing objectivity, or can communicate movement, conceptualisation, or intention, such as through a diagram. Drawing can be comprised of smaller details viewed as fragments of the whole or at once in unison. Drawings have no beginning or end, and thus are a non-linear form of communication. Echoing Klee’s (1961) famous ‘taking a line for a walk’, Ingold (2013) argues that drawing is “not just a means to illustrate an otherwise written text, but as an inscriptive practice in its own right”, an act of interpretation and projection, through recording. In their apparent objectivity, textual descriptions necessarily filter and restructure information to make it legible, and this filtration is not always apparent, particularly in the shift from observation to description, which creates the illusion of objectivity. Through drawing, Ingold (2013) argues “for a truly graphic anthropology” in which the “hiatus at the heart of ethnography ... between observation and description” can be closed if we “think of description ... as a process of line-making rather than verbal composition”. For, drawing on Miyazaki’s (2004) contention that “descriptive ethnography is inherently retrospective” and creates the illusion of a ‘complete’ “world of ethnographic objects”, the transitional void between

observation and description creates the illusion of an objective and measurable singular reality with positivistic leanings. The interpretive filter is also applied in the act of drawing, however, when viewed, the interpretive qualities of a drawing are perhaps the first acknowledged, foregrounding their situationist-constructivist nature. For Ingold (2013), drawing holds the key for a “non-retrospective ethnography”.

But drawing as a language has the capacity to extend the observational gaze of interpretation to a projective designerly practice with little translation. Neufert and Neufert (1991) describe the emergence of ideas through repeatedly drawing, “in the deep immersion” in the project context through which spatial-material propositions emerge. When an architect draws a context, space or situation, the product is not a facsimile of the observation but an ‘interpretive rendering’ of its relevant and key parts (borrowing the language of Charmaz (2006) in her description of the conceptualisation of fieldwork data in Grounded Theory inquiries). Relevance of course differs depending on the agenda or question guiding the architect’s hand¹⁴, and hence drawings made from an interpretive gaze – whether in project site analyses or research fieldwork – are summative abstractions of observed life. Simplification by abstraction through drawing is substandard to writing as a form of communication only from the prejudices of a lay perspective of a non-spatial or visual practitioner. In fact, drawing makes explicit the subjective and interpretive qualities of its authorship that the illusory objectivity of textual description attempts to conceal. This is to say that drawing is integral to the communication of not just architectural concepts but most-all material-spatial configurations and human interactions with them; evidence for which is ubiquitous in public service information, book illustrations, instruction manuals, designerly and assembly plans, and so on.

¹⁴‘Hand’ here refers to all modes of visual representation including digital and physical modelling, not simply manual drawing alone.

Of course, textual descriptions are important, particularly where explanation and narrative are required; the argument here is that the language of drawing carries the ability to communicate spatial, material, and social qualities that text cannot easily match. Instead, a complementary approach accommodating each is necessary, where drawings communicate movement, construction, life, reinforced by textual annotations and descriptions.

Advancing Media

“Anything that you can draw that does not relate to the three-dimensional reality must be drawn on a computer [...] plans. Sections and elevations return one to the space of vision, to projective space”. Eisenman (1992)

In this somewhat provocative excerpt from an interview with architect Peter Eisenman (cited by Gänshirt (2020)) the limits of drawing are under scrutiny. Following similar arguments posed earlier as to the limitations of the illusory objective of textual descriptions, Eisenman’s critique of manual drawing is in its static product, which foremost prioritises the visual and, particularly, imposed geometry frameable within Cartesian space. Only with great difficulty can temporal, adaptive, or social qualities be communicated through drawings alone, and thus many architects use a complement of media to communicate concepts more advanced than drawing and text alone can accommodate, such as film, interactive physical and virtual models, and virtual and augmented media.

Of course, the benefits of drawing, as the concurrent recording and communication of a constructivist ethnography, do not reasonably transfer to the logic of computer modelling or computational architecture; the process is too slow and becomes a retroaction, akin to reflective textual descriptions in traditional fieldnotes. This means that while other media have a place in the design-anthropology workflow, there is a necessary transitional progression as the gaze shifts from reflections-of-the-past-in-the-present to a

projective endeavour. The emphasis on more dialogic information exchange between different research participants (here including core researcher(s) in the constructivist paradigm) increases, and the need to communicate more complex concepts from developing socio-spatial constructs demands more sophisticated tools (Gänshirt, 2020) that can better communicate aspirational concepts of the shared world. Interactive models – overlay-able with mixed media, including sound – are well suited to facilitate this aim. Here architecture’s disciplinary language acknowledges the situational context outlined by Oliver (2012), and the argument posed by Gänshirt (2020) that the outputs of architecture must differ from those of philosophy; they must be concretised in real-world spatial intervention; there must be relatable and recognisable spatial-material construct.

So the position for this research stops short of agreement with Eisenman’s (1992) concluding remark, where he goes on to state, “that’s why I no longer draw”. Instead, here the appropriateness of different tools for different stages of the process and communicative purposes is considered within a broad architectural vocabulary. In fact, many architects and theorists, such as Till (2009) and McGrath, Hsueh and Shan (2016) have criticised digital forms of representation for their apparent objectivity, rendering a virtual world in high resolution such as to ‘trick’ the viewer into thinking that ‘what you see is what you get’ (Till, 2009), when much of the act of designing, building, and living the environment is missing and the image is usually framed in its best light to convince the viewer of the worthiness of the proposal. However, Colonnese (2019) argues that the media, when used deliberately and with know-how, afford the ability to “visually connect a design to a specific place and time, working as a cultural, situationist and sensorial agent”. And given that lay audiences are not always able to read architectural representations, and particularly people with cognitive impairments, such as many of the participants in this research, are unable to make the intuitive leaps required to connect the abstractions of more limited forms of representation to spatial propositions (Flynn *et al.*, 2003; Morrissey,

McCarthy & Pantidi, 2017). Here interactive media, such as virtual environments in which viewers can ‘dwell’ and explore enables the development of a clearer spatial sensibility and embodiment of developing spatial proposals (Hodge *et al.*, 2018).

Clearly, however, the use of interactive media such as virtual environments are more appropriately positioned at the future-oriented designerly frontier of the temporal panorama and are useful as per the material artefacts produced through design anthropology to open lines of conversation about the possibilities of co-constructed ideas that otherwise exist only in high levels of abstraction; in words, symbols, and sketches (Tunstall, 2013). As such these media are introduced only as theoretic concepts mature and ‘ethnographies of the possible’ (Halse, 2013) begin to emerge. The design and application of these media are unpacked in greater detail in the methodology chapter.

Architectural Anthropology

The knowledge framework outlined above bridges from the socio-architectural context outlined in the introduction to the application of methods described in the next chapter. In so doing, the foundations for an architectural anthropology are laid, in which methods from each discipline, are applied with clarity and rigour to bridge the temporal void between reflection and projection. No longer is architecture considered a wholly projective act, nor anthropology a reflective one. Instead, an architectural anthropology operates at the threshold between the two traditionally distinct disciplines. The concept of an architectural anthropology has already been addressed. Stender (2017) outlined the key benefits to both the disciplines of architecture and anthropology in addressing the differences and similarities between the disciplines and many of those benefits are outlined above in relation to the argument set out in the introduction chapter; that the built environment is, in itself, social. Stender (2017), foremost an anthropologist by training, also outlined three principal concerns for operating in the space between the disciplines:

operating in different temporal frames; with different approaches to normativity; and with different forms of (particularly graphic) communication. Addressing Stender's (2017) concerns, care is taken to respect the temporal relevance of the traditions of both architectural and anthropological traditions; that is the reflective gaze of ethnographic methods is respected up until the point of apparent saturation, whereupon it can begin a shift toward projection. In so doing, designerly methods can reveal a greater depth and enable the reinforcement and elaboration of earlier concepts. Here projective elaborations are built on reified empirical understandings. Further, this chapter showed that these difficulties are in fact opportunities for deeper and richer examinations of both anthropology and design in reflection and projection and contextualised the concerns within wider research.

The methods outlined in the next chapter are imbued with the critical and constructivist imperatives described throughout this chapter. Therein a communicative toolkit is described drawing on architectural and anthropological traditions, and aligned to Roesler's (2014) framework for architectural-anthropological communications; comprised of visualisations, embodiment, and translations. Here, visualisation is read as building a picture of participants' images of life inside residential care; embodiment is found in recording life through participant observations and architectural fieldnotes; and translation is found in representations of theoretical concepts in spatial and visual metaphors for ethnographies of the possible (Halse, 2013). Herein concepts are more than written accounts that prioritise the social as separate to the built environments (as do many traditional anthropological works), they are framed in spatial-material realisations. Then, this theoretical position disagrees with the universality of Stender's (2017) concerns about architecture's predisposition to normativity by the way of a research design that is constructed specifically to address this concern. Here a research position is outlined that foregrounds participants' views, and which, aligned to the Grounded Theory emphasis on

remaining open to the data and field, consciously avoids the projection of predisposed quality judgements on emergent insights.

Chapter 3

Methodology

Introduction

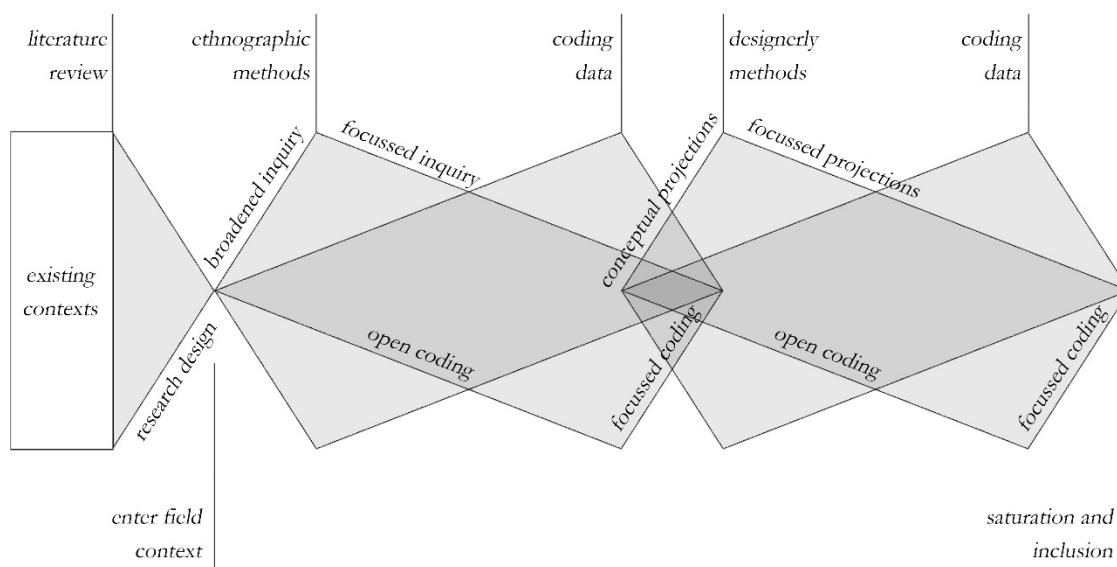


Figure 7: Conceptualising the methodological workflow

This chapter is concerned with the design and conduct of fieldwork interactions with participants. Picking up from the previous chapter, this chapter begins by justifying the decision to frame a qualitative inquiry in the Grounded Theory tradition to scaffold the methodological design. Then the core concepts of Grounded Theory are interpreted in relation to the research context to give a knowledge base from which to understand the subsequent detail of applied ethnographic and designerly methods used throughout fieldwork. Ethical considerations that informed the design and conduct of interactions are woven into each section before the chapter concludes with discussions about the implications and limitations of the methods.

Here, the field is defined more by the social context of life in residential care than the locational context of residential care homes. This means that while the study was largely based in residential care homes, moments in the construction and comparison of data suggested the need to shift to other locational contexts to address conceptual gaps. These

shifts are detailed in the discussion of the different methodological applications where necessary.

Justifying Grounded Theory Among the Five Main Approaches to Qualitative Inquiry

The introduction chapter defined the research problem, and the subsequent chapter outlined the ethical and epistemological position for the inquiry. This perspective on the research context calls for a qualitatively led approach that centralises the views of participants. And to understand the rationale for the research design outlined here it is important to consider the relevance of different qualitative research traditions in respect of the research aim. Here an overview of the consideration given to other dominant canons of qualitative research, as described by Creswell (2012), is outlined as a starting point to further contextualise the methodological approach. It is noted that there is considerable overlap between qualitative research approaches so, while the approach outlined here draws on elements of many of the common qualitative research approaches, Grounded Theory emerges as the most relevant approach in which to frame research methods in the parameters of this study.

Case Study Research

This method is generally used to test (validate or explore) a pre-existing theory (Yin, 1994). This is against the research aims and objectives and may result in, at worst teleological theory, and at best a study derivative of theory garnered through literature review alone. Case Study Research was hence not considered for this inquiry.

Narrative Inquiry

While the use of stories and accounts is valuable in the explication of meaning and priorities, the narrative inquiry approach relies on the recurrent development of accounts with subjects through mixed media and data sources (Clandinin & Connelly, 2004). Though

possible with less impaired participants (Pratt, 2002; Robinson, 2002), this is problematic working with people with cognitive impairments and memory deficits who may struggle to recall previous trains of thought. Narrative inquiry was thus also rejected as a framework in favour of a more accessible approach.

Phenomenography

Phenomenography is suited to understanding the essence of a shared phenomenon (in this case life in a residential care home) (Creswell, 2012), which is a relevant starting point for this inquiry. Further, interview and interpretation methods form part of a mixed-methods data construction approach that can accommodate a broad range of sources. However, the interpretive traditions of phenomenography have limited scope to explore change, which is central to this inquiry. Further, this study seeks to also generate theory applicable to a design context, to which the data handling methods of phenomenography alone are inconducive.

Ethnography

Like a phenomenological approach, methods applied in a typical ethnographic study— participant observation, and lightly structured interviews for example – are appropriate in concept. However, this study seeks not only to describe but to theorise on the phenomenon. Ethnography focuses on detailed description through prolonged emersion within the native group to reveal a thick description of life in the home (Creswell, 2012). Here the approach is conceptually aligned with the goals of understanding but limited in its capacity to accommodate projective concerns since its primary focus is on description. The orthodox ethnographic tradition is therefore too broad in scope and would limit the capacity of this inquiry to pursue specifics emergent from participant interactions.

Core Grounded Theory Principles

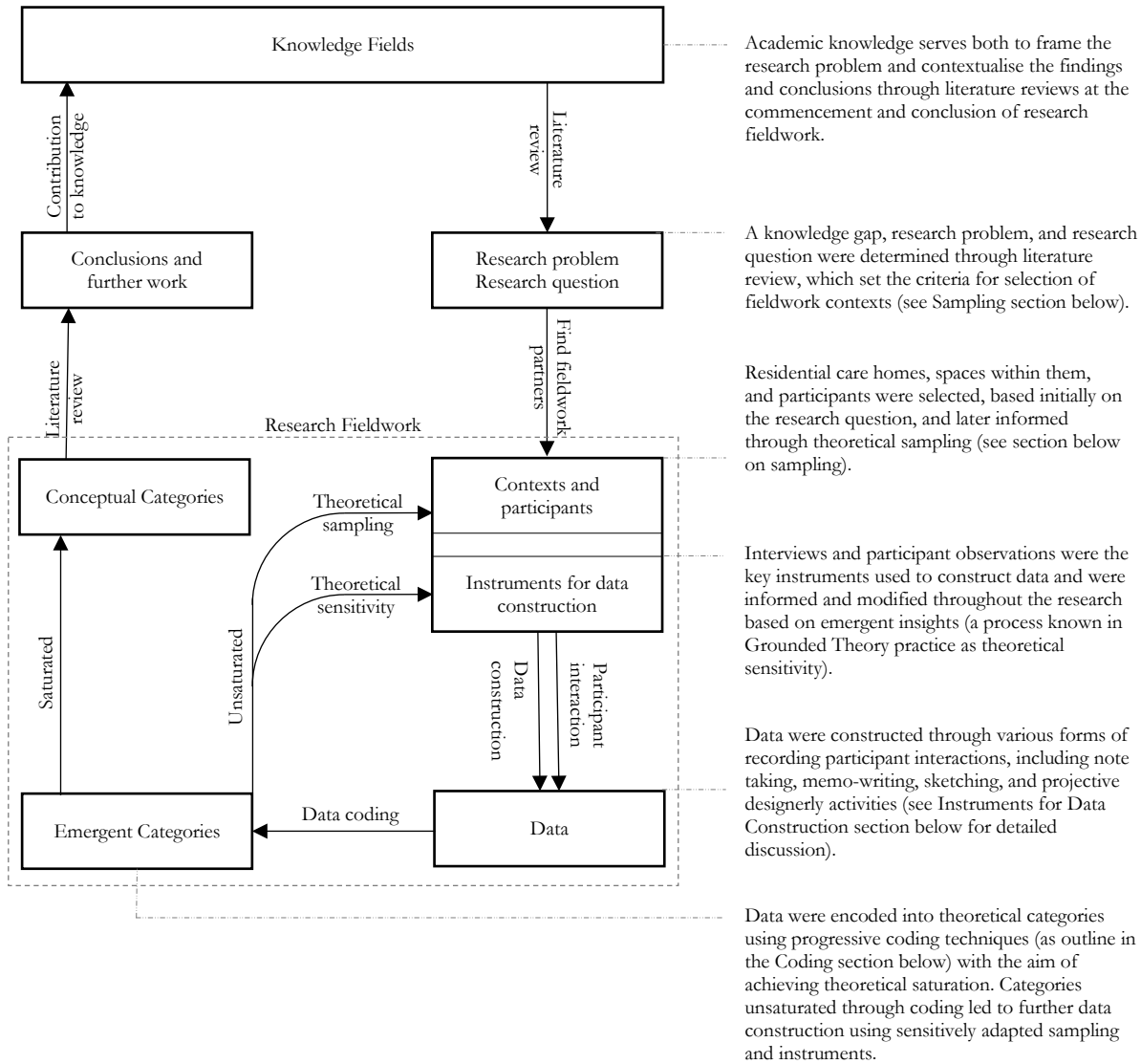


Figure 8: The ‘Golden Thread’: the Grounded Theory method embedded in the design of this research.

Grounded Theory, by contrast, seeks rapid theory generation by sensitively following emergent data relevant to the research question (Glaser, 1978). Operating within the Constructivist Grounded Theory framework outlined in the previous chapter, this section discusses the methods applied throughout fieldwork, which comprised; data construction¹⁵, recording, coding (analysis), and theorising. In Grounded Theory, these methods are applied sensitively and concurrently, respectively known as Theoretical Sensitivity and Constant Comparison (Charmaz, 2006; Strauss & Corbin, 1990b). Theoretical Sensitivity, according to Orland-Barak (2002),

“...refers to the personal qualities of the researcher. It indicates an awareness of the subtleties of meaning of data. One can come to a research situation with varying degrees of sensitivity depending upon previous reading and experience with or relevant to that area ... from a number of sources: (and) literature ... including reading, research and documents ... professional experience”.

These social-constructivist imperatives align with the ethical and epistemological position emphasised in the previous chapter and are intrinsic to the methods outlined below. The constant comparison method is the backbone of the Grounded Theory approach. It dictates that,

“every part of data, i.e. emerging codes, categories, properties, and dimensions as well as different parts of the data, are constantly compared with all other parts of the data to explore variations, similarities and differences in data” (Hallberg, 2006).

The aims of constant comparison are three-fold. Firstly, the constant comparison of data guides where to look next, enabling rapid and pointed inquiry focussed on sources relevant to emerging insights. Secondly, it determines how to seek data from new locations, where gaps in emergent insights might require a shift in methods to build a more thorough

¹⁵ More positivistic attitudes toward Grounded Theory consider that data exist *a priori*, and hence refer to the amassing of data as a process of collecting. However, the previous chapter discussed the alignment of this research to the Constructivist Grounded Theory approach of Charmaz, K. (2006) *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*. London: SAGE Publications. , in which data are co-constructed through fieldwork exercises. Thus, reference here is made to data construction, rather than its collection.

understanding. Finally, constant comparison is used to determine the ultimate aim of a Grounded Theory study, Theoretical Saturation (Charmaz, 2006; Glaser & Strauss, 1968; Goulding, 1999; Strauss & Corbin, 1990b).

In its most simplified form, a Grounded Theory study is the search for Theoretical Saturation, the point at which the construction and comparison of further data fails to augment, challenge, or illuminate new concepts constructed within the data (Morse, 2004). Since data construction and analysis are concurrent, as opposed to sequential, the point of saturation defines the conclusion of fieldwork, and hence the Grounded Theory study and no more data are constructed. These three core principles of the Grounded Theory tradition – theoretical sensitivity, constant comparison, and theoretical saturation – are intertwined; the point of theoretical saturation relies on the theoretical sensitivity of the researcher to determine that all avenues relevant to the inquiry have been exhausted with no new insights emerging through constant comparison (Law, 2008). However, reliable recognition of the point of saturation has been the subject of some disagreement and ambiguity among Grounded Theory scholars (Charmaz, 2006). Knowing that data are theoretically saturated requires not theoretical definition but substantive demonstration; where new data can demonstrably fit into existing categories with conformity (Aldiabat & Le Navenec, 2018; Francis *et al.*, 2010). Crucially, as outlined in the previous chapter, the point of saturation in Grounded Theory has traditionally been limited by the restrictions of the ethnographic approach to preclude a shift to the projective ethnographic gaze through a prejudice for certain tools and therefore ways of seeing over others. Aldiabat and Le Navenec (2018) suggest, researchers seeking theoretical saturation must “be able to effectively use their subjectivity, wisdom, and intuition” as they balance the recognition of data saturation with the sensitive self-awareness that possible new lines of inquiry in the data are exhaustive. Here it is suggested that an awareness of prejudices should be added to the sensitivities of subjectivity, wisdom, and intuition (Aldiabat & Le Navenec), and this

study addresses the prejudice inherent in the limits of ethnography by extending the Grounded Theory methodology beyond the reflective gaze to construct theory from projective exercises in a designerly context.

If *Theoretical Sensitivity*, *Constant Comparison*, and *Theoretical Saturation* are the conceptual framework through which Grounded Theory is enacted; data construction, coding, and theorising represent its application. The detail of each of these concepts is discussed in depth in the text below, which also describes the locational contexts for fieldwork and processes for sampling participants involved in the study. Then the text discusses the concurrent application of methods used in data construction and analysis to complete the fieldwork and construct theory. The methods are situated in relevant theoretical and disciplinary contexts.

On Data

Before we can understand the application of methods for data construction, coding, and theorising, it is first necessary to outline the dual role of data in the study. As stated, the aim of this research is to understand socio-spatial relationships between residents and their built environment from the experience of daily life in the home. Fieldwork was thus designed to gather data from person-centred perspectives that could be used to construct theoretical understandings of the relationships between the home and occupants. So, the search for data is the driver behind the design of fieldwork, and here data serves two purposes. First, data are the raw insights from which theoretical outputs are generated (codes, concepts, categories, and grounded theory). And secondly, following the Grounded Theory tradition, data form the 'road map' to further data, and suggest where and how to observe the field context (see Figure 8 above). This section discusses these connected data roles and pendulates from discussing data extraction using fieldwork instruments to the

coding and framing of data to, in turn, reframe and direct research instruments to expedite data construction.

In this, it is key to acknowledge the methodological gaze adopted through the Grounded Theory approach, which sets out sensitive to diverse forms of data but specifically seeks reference to the phenomenon at the core of the research question; how does space planning and sequencing support residents' ongoing social and personal fulfilment? So, unlike ethnography, for instance, this research methodology was designed specifically to look for data relevant to this question. Whereas traditional ethnography would entail the collection of all data from the field for later analysis (*Creswell, 2012*), this Grounded Theory approach was designed to hone in on emergent insights and rapidly generate 'thick data' and grounded theory. In practice, this meant recording and acknowledging references to elements of the environment that seem separate to the concerns of space planning and sequencing – such as decoration and technological aides, for instance – but coding them only when their relevance to space planning and sequencing proved relevant. This aligns with the Constructivist Grounded Theory approach in which the researcher is reflexive and involved, deductively seeking relevant social interactions (*Berthelsen, Lindhardt & Frederiksen, 2017; Charmaz, 2014*).

Data are highly sensitive in this context. Data management procedures were put in place to ensure the privacy of vulnerable participants, their personal information and fieldwork partner anonymity. These included the encrypted storage and anonymisation of participants' personal data and data constructed through fieldwork. Pseudonyms were used throughout coding and recording to further protect participants' identities. The ethical construction, storage, and handling of data was agreed and approved through project ethical approval from the University of Plymouth, as outlined in Appendix B.

Finding People to Work with and Defining a Point of Entry for Participant Interactions

Importantly, given the agenda for knowledge equity outlined in the previous chapter, research fieldwork began outside the siloed knowledge establishments of university or architectural practice, with participant interactions grounded in residential care homes. Grounded Theory requires the engagement of research participants through interactions in a fieldwork context with a distinct concentration of people experiencing the phenomenon of interest (Charmaz, 2006). Following this logic, the criteria through which participants were found and engaged in this study are outlined below.

Participant interactions necessarily began not through prescribing a target sample size (Strauss & Corbin, 1990a), but in search of a concentration of people with whom the key characteristics of the research context were visible. And, while the study necessarily involves others (carers, relatives, residents' social circles, care management organisations, designers and building commissioners), central to this study are people with the shared experience of a common phenomenon, living in a shared residential care home for people with dementia diagnoses. Residents are accessible through gatekeeper organisations, responsible for their safety and security, so, the first step toward engaging participants was to identify residential care homes for people living with dementia diagnoses open to participation in the study. The fieldwork entry point for participant interactions was thus found by targeting residences rather than individuals.

Residential care in the UK is organised in many different structures. These include shared residential care homes, extra care facilities comprised of self-contained dwellings, hospital wards and intensive care units, residential homes converted into houses of shared occupancy, private dwellings with visiting care, and others. Further, many care spaces will accommodate residents with a dementia diagnosis, while not presenting as a specialist residential home for people living with dementia. While these other forms of care space no

doubt share many characteristics with specialist shared residential care settings, spatial and managerial attitudes to the administration of care, particularly around access, safety, and inclusion tend to differ among the typologies, and may be the subject of a separate study. This study is concerned with the dominant form of residential care for people with dementia, in which multiple adults live together in shared residences with private bedrooms and share other facilities. This is the form of care space in which the naturalised typology described in the introduction chapter has taken hold.

Since Grounded Theory inquiry is, in effect, a search for theoretical saturation, it is essentially open-ended and a researcher cannot know when the point of saturation will be reached, nor how much data is required to do so at the onset of the study (Glaser, 1992). The extent of sampling and duration of inquiry are hence unknown until interactions are complete and saturation is achieved. It is therefore important not to predefine the number of participants or interactions and risk curtailing inquiry and missing insights. Instead, it must be assumed that access to participants may be required on a semi-regular basis or over a sustained period to avoid the danger of leaving theories unresolved or categories unsaturated. This logic underpins the sampling rationale outlined below:

- 1 The home must advertise or present itself as specialised to accommodate people living with dementia diagnoses.
- 2 In order to classify as 'shared living', residents must have access to both a personal space and share common areas with other residents with dementia diagnoses. This rules out the study of ward or bunk conditions, which are less considered homes and more medical institutions foremost. Also excluded are complexes of shared flats or other forms of extra care in which residents have a self-contained living space within a structure offering some communal amenities.

- 3 Residential care homes must accommodate a minimum of 20 residents. This falls within the middle-range of what the Care Quality Commission (CQC) deems ‘medium-sized’ care homes. This minimum threshold avoids an inadequate sample size, where too few residents in a home may have the capacity to participate, but does not exclude other medium-sized homes by setting a threshold so high as to exclude potential fieldwork sites from the study. Further, the dynamics of residential homes for small numbers of people often differ from those of larger institutions. Small resident populations can often be accommodated in more traditional home-like settings; adapted from large family homes and now house multiple residents in a dwelling size not uncommon to most UK residents. Larger care homes provide a different model, where sufficient residents cohabit that the traditional home-like setting is no longer analogous and nor can a typical familial residence be converted to accommodate them.
- 4 Finally, residential care homes must be reasonably proximal to the research base. The practicalities of Grounded Theory research and limits to funding precluded starting at homes further afield to mitigate against limited contact that might skew or limit findings due to insufficient access.

This selection logic for fieldwork locations follows a purposive-convenience sampling rationale in which participants were chosen based on observation and reflection of insights through the research process (Schutt, 2018). This is ontologically aligned with Grounded Theory logic, in that it forms the basis of theoretical sampling (Charmaz, 2014). A nuance that differs from traditional purposive sampling is that, at the point of entry into the field, (theoretically) conceptual categories were not yet under construction. Sampling was instead based on logical and intuitive reasoning; ‘where can people with the shared experience of this phenomenon be found?’. This purposive element of sampling was

tempered by convenience criteria, which acknowledged the constraints of access and duration outlined in criterion 3 above and limited the inclusion of care homes to those readily accessible by the researcher. Convenience sampling was necessary to undertake a thorough inquiry and it aligns with traditions in the production of Grounded Theory, in that Grounded Theories as research outputs are produced by researchers with limited capacity and funding. Thus grounded theories are representative of the contexts from which they originate (Glaser & Strauss, 1968) and are intended for elaboration to formal theory – where applicability transcends locational contexts – through testing elsewhere in other studies. The influence of researcher intuition and convenience constraints in the selection of fieldwork sites foregrounds the constructivist nature of the inquiry.

22 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 were invited to participate in the study. Of these, two homes agreed to partake in the research; one location comprises a 21st-century purpose-built specialist care home accommodating 20 residents a purpose-built residential care home; the other is a single building converted and extended from a pair of semi-detached dwellings to provide accommodation for 36 residents. These two homes are representative of the two-dominant forms of medium-sized residential care setting in the United Kingdom, and the study was constructed as such to provide insight into the most common models for shared residential care homes in operation today – the purpose-built and the adapted – and thus provide insight into the breadth of design interventions; adapted and conceived anew. And further, to exclude neither the contingent qualities of diverse spaces (Fisher *et al.*, 2018) nor the material knowledge materialised in a purpose-built facility.

Oscillating

In practice, the Grounded Theory researcher oscillates between coding and sampling, and the instrumentation of methods. Grounded Theory studies rely on researcher sensitivity to developing insights through theoretical sampling (where to look next) and theoretical sensitivity (how to look there). Each of these sensitivities is guided by the ‘constant comparison’ (coding) of new data with extant codes derived through previous fieldwork. A conceptual causal network is created with interdependencies in decision making related to each. Constant data comparison is used to guide the sensitive sampling of participants based on emerging concepts of interest to the studied phenomenon (Charmaz, 2014). Targeted data sources inform the sensitive adaption of methods to illicit further insight into emergent concepts. The construction of data through instrumentation drives constant comparison.

Here, the coding, sampling, and instruments of the inquiry are intrinsically linked as research practice oscillates between the three; sampling and approach are guided by the coding of data and the construction of data is influenced by the approach and sample. Examples of this intrinsic relationship are; when participants are chosen to expand on the ambiguous qualities of an emergent code; or when insights into coded data prompt the frequent adjustment of interview questions and the framing of new ones; or when the observational grid is adapted to seek and record new behaviours through observation (Charmaz, 2014). In (re)framing questions and methods based on the ongoing analysis of fieldwork insights, the researcher returns the insight to the participants, asking for further information, each time digging further to strengthen conceptual understanding. Charmaz (2014) describes this ability to generate theory through rapid inquiry as one of the key benefits of the Grounded Theory approach.

This oscillation is discussed below from the perspective of each of the three theoretical components; firstly, from the perspective of sampling; then the further

constructive process of data coding, effected through the constant comparison of new data with extant codes from previous interactions; and finally, moving on to discuss the instrumental methods used in data construction.

Coding

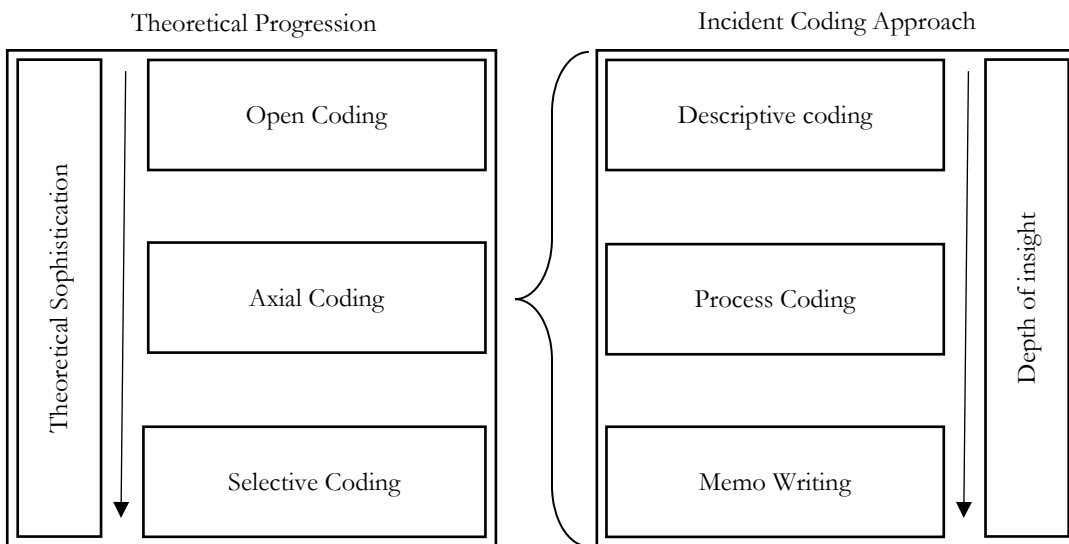


Figure 9: Coding sophistication and approaches

Coding is the process in which data are analysed and compared with one another to build conceptualisations that later construct theoretical propositions for the observed situation. This section outlines and contextualises the relevant traditions of coding qualitative research used in this inquiry, beginning by explaining the increasing levels of sophistication through which theory is constructed as the inquiry deepens (conceptualised in Figure 9 above), and then describing the practicalities of applied coding. Figure 10 below maps the development of the conceptual categories of the Grounded Theory from initial coding throughout the inquiry. The detailed coding of research data is summarised in Appendix C at the end of the thesis.

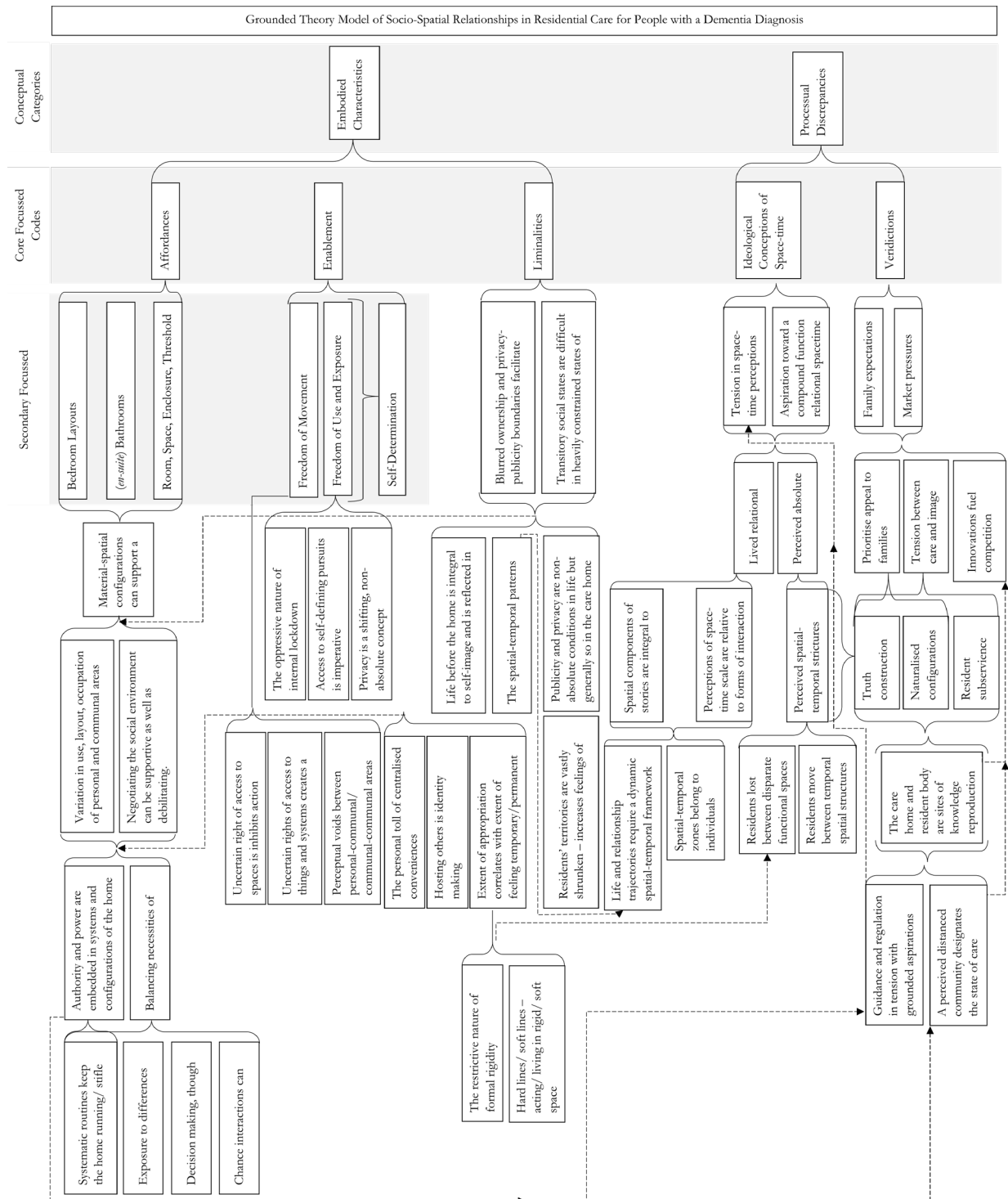


Figure 10: Mapping the coding process from initial codes to the conceptual categories of the Grounded Theory.

Sophistication

The coding approach used in this research was heavily guided by the writings of Charmaz (2006) and Charmaz and Mitchell (2001), which give extensive breakdowns of the processes for coding data, and the reciprocal relationship between coding and the sensitive adaption and application of methods for data collection. The approach builds upon the tradition of the Constant Comparison method (Glaser & Strauss, 1968) that underpins the Grounded Theory methodology, “to establish analytical distinctions – and thus make comparisons at each level of analytical work” (Charmaz, 2006), where the ‘level of analytical work’ refers to increasing degrees of coding sophistication. While consistent coding approaches may be applied throughout a study, the sophistication of inquiry, and hence theory, evolves from the interpretation of an initial data pool in ‘open coding’, through the focussed construction of categories in the process of ‘axial coding’, and finally to the identification of a unifying conceptual category through ‘selective coding’.

The role of open coding is to begin to make sense of the data through comparisons between data within a data set, such as interview records or observational fieldnotes. The aim is to determine commonalities, patterns, contradictions, and inconsistencies, throughout which the researcher must keep an open and interpretive eye on the data and seek to break down data records into manageable components. Open coding tends to incorporate more descriptive understandings of the data at a granular level than more sophisticated degrees of coding, and manifests as clusters of recurrent actions and actors within the observed fieldwork setting.

Initial open coding, then, forms the data grounding from which conceptual categories are framed through more focussed axial coding. Axial codes are more conceptual and selective in their construction than open codes (Glaser, 1978) and are used to “synthesise and explain larger segments of data” (Charmaz, 2006). Axial codes unify the clusters of granular data in open codes under interpretive conceptual categories that reveal

conceptual commonalities in the data. At this level, data from multiple open codes are coded together, rather than individually within discrete data sets and compared with other emergent axial codes. The aims of focussed coding are to, firstly, build axial codes, and then to test the relevance and integrity of axial codes, as more data are constructed; to see where contradictions lie and where more data are required. As new data are added and coded, axial codes augment, are rejected, or merge and theoretical concepts become more sophisticated.

Selective coding structures axial codes into a Grounded Theory through a structural reading that seeks to align the concepts of axial codes under a clear common thread. This is the process of writing the draft theoretical framework intended to communicate the Grounded Theory. Here, a pyramid is constructed in which the theoretical foundations are granular data derived from the field, and above which refinements through open coding and then axial coding form theoretical concepts. These concepts in turn form the Grounded Theory of Reflective and Projective socio-spatial-material relationships in residential care homes for people with a dementia diagnosis. This theory is described below and unfolds from the top of the pyramid, beginning with theoretical concepts explained through the various levels of coding, down to the level of discrete data.

The evolution of conceptual categories through the levels of sophistication generates a theoretical framework in which the resultant Grounded Theory is constituent of the data from which it is derived, and emphasis shifts to forms of coding with a greater level of refinement as the inquiry progresses. Though described here as a layered and seemingly linear construction, the constant comparison method entails that, as new data are constructed, they are compared with extant data and codes to identify conformities, contradictions, and elaborations (Charmaz, 2006; Glaser & Strauss, 1968; Strauss & Corbin, 1990b). This entails the iteration between levels of sophistication since new data and insights are gathered concurrently to their interpretation. The practical construction of

Grounded Theory is therefore highly iterative and non-linear, and differences in the level of sophistication drive the shape in which codes are arranged.

Coding Approaches

There are different recognised approaches to data coding in qualitative studies and often multiple coding approaches are used at different stages in a single study, or the same forms of coding may be applied throughout an increasingly sophisticated inquiry. Common coding approaches in the Grounded Theory tradition include incident coding, *in vivo* coding, and memo-writing.

The *in vivo* approaches of word-by-word and line-by-line coding (often referred to as verbatim coding) derive insights more from labouring on each individual word as opposed to a focus on the contexts of the incident. The limitations of verbatim interview records for the demographic of this study are outlined in the instrumentation of methods below, which contextualise why *in vivo* approaches were discounted in this study.

This inquiry was instead dominated by incident coding (also known as incident-by-incident coding), which entails the comparison of incident records (data sets) to establish codes, and then the comparison of codes (as the conceptualisation of incidents) against new data sets. This method is effective for use in interviews and fieldwork observations where notes are taken in lieu of verbatim recording. According to Charmaz (2006), “*whether or not you conduct line-by-line coding depends on the type of data you have collected, their level of abstraction, the stage of the research process, and your purpose for collecting these data*”. Data in this study are collected with a certain degree of abstraction, as data sets are recorded through the researcher in the form of field notes and interview records. As Charmaz (2006) explains, “making comparisons between incidents likely works better than word-by-word or line-by-line coding, in part because the fieldnotes already consist of your own words”. Thus, incident coding is aligned to the recording methods used throughout the study and

contrasts with verbatim-based approaches of word-by-word or line-by-line coding, which determine patterns through the scrutiny of words and sentences from interview transcripts.

An initial descriptive pass was used when incident coding, as it helped to compare information across a wide range of data forms and to identify key themes within data sets, consolidating complex information into key strands that are easily comparable. In this, descriptive coding was the first step toward creating axial codes; codes that serve as a key axis around which more focussed coding can take place (Strauss & Corbin, 1990a; Strauss & Corbin, 1998). Then, process coding was used to explore underlying processes in the routines, rituals, and habits of people within the care home, and explore relationships between descriptive codes to form process-oriented categories. These process codes sought gerund-form verbs to explain the parts of the process captured (Saldaña, 2021), and was useful to explore the unfolding of a resident's sequence in setting up their day, or how certain spaces became routinely adopted and what they meant to residents, for example. In this, process coding is helpful to convert 'static' descriptive codes into more active 'processes' that permit the extraction of implicit meanings crucial to conceptualisation (Carmichael & Cunningham, 2017) and were useful to compare processes between incidents to find commonalities and contrasts. Process coding was extended here to gerund-form codes that sought participants' expressions of affect and feeling as parts of a process.

This coding scaffold elevated coded outputs from granular descriptions to more theoretical concepts that were comparable to further emergent granular data to refine and augment their construction (Charmaz, 2006; Saldaña, 2021), and also informed theoretical sampling by updating methods and questions and suggesting which participants to pursue, or whether it was necessary to return to previous participants. "Hence, data collection becomes more focused, as does coding" (Charmaz, 2006).

Regardless of the level of sophistication of the emergent theory, coding should seek to understand the contexts and consequences of the observed situation (Strauss & Corbin, 1990b), and Charmaz (2006) warns of the danger of a superficial inquiry if coding remains at a descriptive level. Grounded Theorists encourage deeper insight and researcher reflections on the data and hence memos are commonly used to facilitate the construction of deeper insights. Memos were created by reading the data and reflecting on their meaning to both prompt contextual understanding in coding, and to inform lines of questioning in further interactions. Under the Constructivist Grounded Theory tradition, Charmaz (2006) describes the importance of memo writing as, *“the pivotal intermediate step between data collection and writing drafts... When you write a memo, you stop and analyse your ideas about the codes in any-and every- way that occurs to you during the moment”*. Here coding is imbued with a constructivist tone, wherein the positionality and agency of the researcher, who carries a unique skill set and perspective on the world as outlined in Chapter 2, drives the construction of connections in the data and frames the subsequent questions to be pursued in further fieldwork. Below is a transcribed example of an early memo, where early observations and interview insights are reframed to pose further lines of questioning and intrigue:

Memo: On Residents Feelings of Impermanence and Perceptions of the Fixity of Spatial Functions

Families were impressed by the dining rooms, permanently set for meals with menus and three-course places laid, where there were ready made coffee machines yet no means to procure personal meals. They admired the central living spaces with multiple rows of comfortable armchairs and commercial graphics on the wall, where films are shown collectively outside the bedroom (for each resident is afforded only that as a private space, and all activities not associated with the bedroom must be negotiated in common areas or in the restricted and unadaptable space of the bedroom); daily room service, in which bed linen and laundry are collected and changed on behalf of the resident in an invisible and inaccessible location, were also praised.

The scene described is more that of a hotel than a residence (and many make this comparison) and seems to pacify the occupant and relieve them of their autonomy. Personal mastery of the environment is apparently side-lined in favour of conveniences and luxuries that remove the need for self-determination. This is

reflected in bedroom layouts, prescribed and restrictive. There is a perceived requirement for *en-suite* rooms for every resident; a feature admired by most families, yet difficult to maintain, space-hungry, expensive to residents, and socially exclusive for those who, due to many of the tendencies outlined above, struggle to find a reason to leave their rooms. The residents of this environment have little purpose. There is little evidence of the continuation of their personality or hobbies, let alone personal development in areas of their lives diminishing under the cruelties of living with dementia. The bedrooms, hallways and common spaces are furnished like brochures from interior living magazines, with generic furniture and characterless over-considered colour schemes that speak not of a nested living space that belongs to successive groups of residents developing a culture or community, but to an institution dressed as a non-institution. Yet the friends and families of the residents 'like it'.

Note: Explore the perceptions of self-determination and the fixity of personal and communal spaces.

Among the many crib sheets to prompt ways of examining data when coding, Charmaz (2006) outlines questions that researchers should keep in mind throughout coding to ensure codes move beyond description and into data interpretation; to look critically and avoid superficiality and capture the many possible underlying themes. These analytical prompts were applied to guide coding throughout the research:

- What processes(es) are at issue here? How can I define it?
- How does this process develop?
- How does the research participant(s) act while involved in this process?
- What does the research Participant(s) profess to think and feel while involved in the process? What might [their] observed behaviour indicate?
- When, why, and how does the process change?
- What are the consequences of the process?

Here, as discussed below in the section 'Instruments for Data Construction', coding utilised drawing and notation to retain the structural-spatial relevance of emergent concepts, such as in Figure 9 as well as the more granular clustering of raw data concepts, such as in Figure 10 respectively.

RELATING PERSONAL & COMMON PARTS OF THE HOME

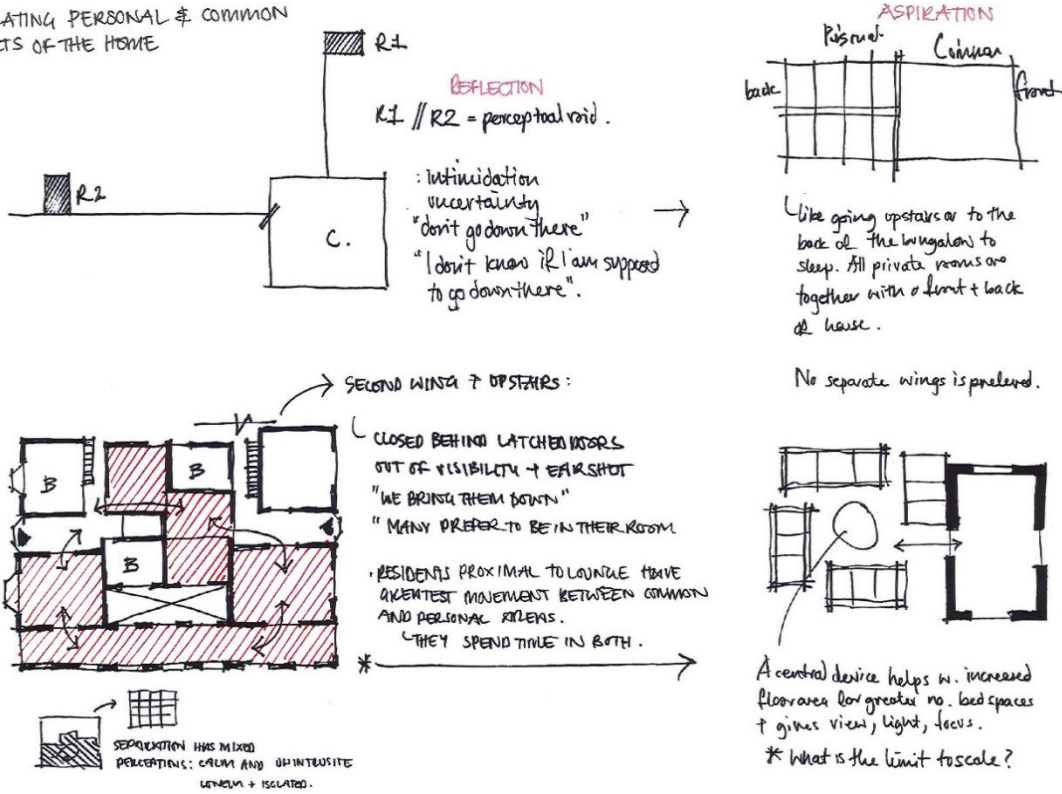


Figure 12: Example of graphic and annotative open coding.

Figure 11: An example of initial data coding from interviews and observations.

Theoretical Sampling

Parallel to the increased sophistication of conceptual categories through coding, methods were increasingly pointed at specific emergent codes. Whereas initial observations were a broad dragnet intended to catch data from the residential care homes indiscriminately, as axial codes emerged, participants were sampled for their perceived ability to elaborate on the structure of the codes. This is theoretical sampling (Charmaz, 2014) and the instruments used to construct data from fieldwork interactions embodied reference to the constituent and structural elements of the code with increasing specificity, which represents increases in theoretical sensitivity.

Different sampling approaches are relevant at different stages of a Grounded Theory inquiry as data and coding progress through different levels of sophistication; from purposive to homogeneous sampling upon initial entry to the field, and then from homogeneous to theoretical sampling as the inquiry progresses and conceptual understandings evolve. The intrinsic relationship between sampling, coding and instrumentation necessarily requires extant theoretical categories from which to guide the inquiry. However, at the start of a fieldwork inquiry, there are no data to inform theoretical sampling since Grounded Theory begins free of *a priori* assumptions or hypotheses. Thus, in the opening stages of fieldwork, Glaser and Strauss (1968) recommend following homogeneous sampling to initiate participant interactions, in which a small number of participants who seem to have the experience of the phenomenon in common are engaged for interview. Grounded Theory perspectives are divided on the appropriateness of homogenous sampling in fieldwork interactions into positivist and constructivist positions. Traditional positivist Grounded Theorists consider that the researcher should have no preconceptions about where to start, so as to avoid forcing the data with researcher conjecture (Glaser, 1992) and thus agree with homogenous sampling as an appropriate starting point. The Constructivist Grounded Theory tradition, however, suggests the

researcher will already have an idea of where to begin to construct theory more directly (Strauss & Corbin, 1990a), and thus sampling is less homogenous and more purposive. This poses an apparent contradiction in the position of this methodology, which through the homogenous sampling approach, appears to side with the positivist perspective. This potential epistemological conflict is rationalised through the locational context for early fieldwork (residential care homes for people living with a dementia diagnosis), in which all residents share the experience of the phenomenon. This renders the contradiction moot, and homogenous sampling appropriate.

Upon entry to the field, a broad initial data pool was constructed through homogeneously sampled observations. Coding began from this initial data pool, which once sufficiently substantive to recognise patterns, permitted the implementation of theoretical sampling, in which initial categories were framed around clusters of data pertaining to socio-spatial relationships. From these initial codes, new data sources were targeted based on their perceived ability to contribute to emergent codes. These open codes were used to guide the transition from homogenous to theoretical sampling, through which participants were more directly chosen for interview based on their perceived ability to contribute to developing lines of inquiry and to sharpen the research instruments by adding specificity to observations and interview questions. For example:

- Residents commonly suggested they were unsure if they were permitted to pass certain thresholds within their home.
- These insights provided codes; feelings of uncertainty, subservience in a power dynamic with care staff, and hesitancy to act.
- These open codes were further investigated by adapting interview questions to inquire about residents' sense of freedom, self-assurance, and relationship to care staff.
- The codes also guided the inclusion of care staff in interviews; to see how the codes are viewed from the other side of the suggested power dynamic, and to increase diversity within the emerging concept.

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. Hence, theoretical sampling led the inquiry to varied sources including, in addition to residents, those with a stake in residents' wellbeing and care (such as carers and their familiars in and outside the home), those involved in the design, construction, and administration of the physical environment (such as care home commissioners) and the regulating research body DSDC, at a design training workshop to understand thinking behind design guidance (Dementia Services Development Centre, 2019).

In this, the inquiry was non-linear; theoretical sampling led to revisiting participants, seeking and adding new ones, and moving between care homes in different geographic locations grounded in the same conceptual context. This constructive openness, inclusive of other sources of information, is supported by Charmaz (2006) as necessary within the Grounded Theory tradition and is aligned to the theoretical position outlined earlier, in which the fieldwork context is socially networked across space and time, rather than constrained by geographic boundaries. Following this theoretically sensitive approach to data construction, the Grounded Theory approach drove the rapid construction of theory from the grounded context (Charmaz, 2007) by digging deep, and with focus, into participants' experiences and insights to seek new and diverse insights around extant codes.

Instruments for Data Construction

This section details the methods used to construct data, which comprise participant interactions, interviews, and designerly interactions. The section details the approach used under each method and the extent of their application, which is summarised below in Figure 12.

| Quantifying Participant Interactions | |
|--|-----------|
| Form of Interaction | Duration* |
| Reflective interactions in residences | 65 hours |
| Resident interviews | 27 hours |
| Staff interviews | 11 hours |
| Visitor interviews | 9 hours |
| Participant Observations | 28 hours |
| Projective interactions | 19 hours |
| Design Interactions | 13hours |
| Of which 3D model based | 6 hours |
| *times are approximated due to the shifting nature of observations as discussed elsewhere throughout the methods chapter | |

Figure 13: Quantifying participant interactions throughout fieldwork.

Broadly methods can be conceptualised as reflective and projective in gaze, however, there is considerable overlap between the two sides of this horizon and the constructivist nature of the inquiry blurs their temporal aspect. For instance, the more traditional empirical ethnographic methods used – such as interviews and observations – might be considered reflective in nature, while the designerly construction of virtual environments appears to sit on the projective side of the knowledge transition void. However, as described in the second chapter, the recording and coding of information themselves straddle the temporal horizon. Particularly the practices of memo writing and fieldnote sketching are not merely reflective records of an interaction in an objective reality, but are, in their constructivist nature, projective in their interpretive embodiment of researcher agency; conceptually reframing data and suggesting new lines of questioning (Glaser, 1998). Similarly, the

seemingly projective exercises of designerly interactions, where earlier concepts for collective aspiration are spatialised, are also at once reflective. As visual metaphors for collectively imagined and aspired environments, virtual spaces are a space for further reflection and clarification of theoretical concepts. Much like interview questions these designerly manifestations seek clarification of participants' intended will, as interpreted by the researcher. It is however acknowledged that different methods occupy different positions on the continuum of reflection and projection. Hence, a gradual temporal shift can be observed in the progression of fieldwork; from a beginning more heavily focussed on traditional ethnographic methods, in which interview and observation were the primary methods for data construction; to a conclusion in which designerly methods involving the design of residential care space plaid a larger role. Parallel to this progression was the use of fieldnotes and sketches to construct data, which increasingly shifted from reflective to projective in content as the construction of concepts from the data became more spatially concrete. This methodological progression is conceptualised in Figure 7 at the start of this chapter.

This section details the techniques used to gather data from field work contexts. Specifically, participant observations and semi-structured interviews, which are described in detail below. While instrumental methods here are similar to those used in ethnographic research, theoretical sampling is the most prominent characteristic distinguishing this as a Grounded Theory inquiry, in that it allows deliberately pointed research that rapidly seeks and interprets data specifically relevant to the research interest (Creswell, 2012). Instrumental methods were thus semi-structured and flexible to accommodate refinements in the context of emergent insights (Timonen, Foley & Conlon, 2018).

Pilot Study and Discounted Methods

Prior to engaging fieldwork proper, preliminary visits were made to participating care homes and some methods were tested to inform the main study. These visits informed the protocols used in applied fieldwork methods and imposed limitations on access to the field. Further, some approaches were tested and discounted through refinement of the methodological approach.

The key implications from pilot visits were:

- The anonymity of the institutions and participants must be respected. This included prohibiting photography and filming, and restricted use of any information that could identify either participants or the institutions on the basis that the findings would inevitably contain critique, which could cast a negative light on some aspects of the homes.
- Visits would be restricted to times when daytime staff were present in the homes. Night-time visits would not be permitted due to some residents' changes in behaviour and the potential for unfamiliar persons in the home to cause distress.

The approaches tested and discontinued through preliminary visits were:

- Participatory mapping. A plan of the institution was presented in an accessible common part of the home and participants were encouraged to annotate over it with insights into their relationship with the home. This method was deemed inappropriate for two main reasons. Firstly, and practically, the exercise was skewed in favour of those who could remember or understand the briefing of the exercise, and against those encumbered by mobility and sensory impairment issues that restricted their taking part. And secondly, because the exercise constrained the lens of inquiry to, 1 – the plan, which is, by definition, of an unrelatable scale and vantage to a lay person untrained in architectural languages; and 2 – only the

objective-material world of the home, which provoked reflections only on organisational and proportional spatial references while overlooking experiential and social dimensions.

- Explicative interview is an emergent approach used in phenomenological research (Popa & Kordeš, 2014) and was trialled as a means to uncover detail about the contexts of residents' memories and understandings of the home and their physical environments. The approach entails mentally returning to the 'scene' discussed in an interview context (say a participant's bedroom) repeatedly through interviewing and probing for more detail about the environment and context of the occasion. This approach was expected to deepen insights but had the inverse effect. Firstly because many participants could not maintain focus and either attention would drift, causing a blurring of information, or the interviewee would risk becoming noticeably confused by the repeated and persistent questioning, which Wilkinson (2002) advises against on compassionate and ethical grounds. Secondly, the Constructivist Grounded Theory approach differs from ethnography and phenomenology approaches in its search, not for a description of a place or context, but an understanding of processes and systems, as outlined by Charmaz (2006) in discussion of Grounded Theory in ethnography. The explicative interview tends to return thick descriptive detail but with little benefit to the scope of this aims of Grounded Theory inquiry.
- Co-design approaches: Initial intentions for co-design interactions with greater variety and intensity were curbed by the onset of restrictions to in-person interaction imposed by the UK Government in response to the Coronavirus (COVID-19) pandemic (Insititute for Government, 2021). Restrictions on face-to-face interactions (known colloquially as social distancing) were introduced in the Spring of 2020, during the later stages of fieldwork. These restrictions were pre-

empted by a voluntary restriction of access to care homes by care providers in the winter period of 2019 – 2020, and together precluded access to residential care homes entirely for an indefinite period. Hence, fieldwork methods were adapted from intentions for more interactive and immersive forms of co-design (including aspirations for virtual immersive interactions and workshops with care home occupants) to remote forms of communication. These adaptations, detailed below, provided opportunities to explore new forms of remote collaboration and hence informed a novel approach to participation in research and design, which is considered one of the methodological outputs of this research.

Participant Observations

“Grounded theory dispels the positivist notion of passive observers who merely absorb their surrounding scenes. Grounded theorists select the scenes they observe and direct their gaze within them”. (Charmaz, 2006)

Observation Summary

Observation sessions were conducted in residential care homes during intermittent visits over an 11-month period. Observations occurred at different times in the day, ranging from early morning and breakfast to evening mealtime and winding down before bedtime. The number of participants observed fluctuated as people came and went throughout the day, but at no point was any person excluded from observation through research design. Observations usually began in common rooms and moved to other parts of the home, including outside spaces and (upon notification of responsible persons) residents’ bedrooms. Fieldwork visits were dominated by observations, ranging from 1.5 to 4 hours in duration, punctuated with participant interviews, as outlined in a later section in this chapter.

Observations, as the dominant mode of fieldwork, were foundational to data construction and sought to understand the common and personal routines and processes of life in the home in relation to social, spatial, and material configurations. Insights from these observations would then frame lines of questioning in interviews to deepen and challenge interpretations and make connections between processes and configurations in the life of the home.

While traditional ethnography tends to utilise an observational grid to guide fieldwork observations, a strict grid can constrain the gaze of the researcher to its predetermined categories. Hence this study opted to use a looser guide; a set of protocols to manage data targeting and filtration. Combined with a firm grounding in the research question, an observational guide can help limit observational drift and overload without forcing inquiry into pre-determined concepts or categories (Mitchell & Burton, 2006). In this study, Mitchell's observational trigger questions (Mitchell in (Charmaz, 2006)) provided effective scaffolding to observations, as outlined in Figure 11 below.

This observational grid was applied with the sensitivity filter for data relevant to the studied phenomenon and research question, as previously stated. Hence, as theoretical concepts emerged, the constraint of data relevant to the study was tightened and more concentrated data capture ensued.

Observations included residents, carers and other staff, and visitors to the home (including residents' family and friends and people making deliveries), and the level of researcher participation in the life of the home varied according to the situation. For instance, at the start of fieldwork, observations were almost wholly non-participatory as familiarity was low and social bonds were not well-established. As rapport grew, and social processes were identified, observations became more participatory, particularly when

- What is the setting of action? When and how does action take place?
- What is going on? What is the overall activity being studied, the relatively long-term behavior (*sic*) about which participants organize themselves? What specific acts comprise this activity?
- What is the distribution of participants over space and time in these locales?
- How are actors [research participants] organized? What organizations effect, oversee, regulate or promote this activity?
- How are members stratified? Who is ostensibly in charge? Does being in charge vary by activity? How is membership achieved and maintained?
- What do actors pay attention to? What is important, preoccupying, critical?
- What do they pointedly ignore that other persons might pay attention to?
- What symbols do actors invoke to understand their worlds, the participants and processes within them, and the objects and events they encounter? What names do they attach to objects, events, persons, roles, settings, equipment?
- What practices, skills, stratagems, methods of operation do actors employ?
- Which theories, motives, excuses, justifications or other explanations do actors use in accounting for their participation? How do they explain to each other, not to outside investigators, what they do and why they do it?
- What goals do actors seek? When, from their perspective, is an act well or poorly done? How do they judge action-by what standards, developed and applied by whom?
- What rewards do various actors gain from their participation?⁴

Figure 14: Observational guide from (Charmaz & Mitchell, 2001, p. 163)

invited to engage in work or recreation with residents and staff in the home. Sensitively adjusting the level of participation based on the appropriateness of the situation is supported by Charmaz (2006), who emphasises the need for agility in fieldwork as a skill for Grounded Theory researchers. Charmaz (2006) maintains that participation can enable researchers to "*probe beneath the surface*" of a situation, while carefully respecting the research aims and keeping an eye on participants actions (Berthelsen, Lindhardt & Frederiksen, 2017) if clear observational goals are established, and guidelines followed. One example of how participation benefited in this study was an instance in which carers and residents were throwing a soft ball to one another in a common living area. As an observer in this situation, it was necessary to decide whether to engage and join in with the playful tone of the room or cast a stern and distanced demeanour on an otherwise relaxed situation. Participating in the game caused no disruption to the quality of analysis and, by contrast, built rapport with those involved and gave a more visceral insight into the bodily-spatial

relationship of the situation. One effect was to open into a discussion about the different kinds of play in common and private parts of the home that informed subsequent observations and interviews.

Sketching as the foundation to fieldnotes

Observations were recorded through sketching and notation and were generally undertaken in common parts of the home and grounds, and in residents' private spaces upon invitation. As a condition of the agreement to participate in this research, fieldwork partners requested anonymity, since the inquiry is critical in nature and findings may cast aspects of the institutions in a mixed light. This included the use of images that could identify the care homes and precluded the use of photography or video capture in observations. Notwithstanding this restriction, sketch-based fieldnotes – illustrating abstractions and fragments of the institution as a whole – formed the foundation of participant observation records. Annotations referencing socio-spatial relationships and the interactions of observed participants were layered on to these sketches to elaborate on points of interest. An example of fieldnotes can be seen in Figure 12 below.

The interdisciplinary nature of this research frames an architectural gaze that acknowledges the spatial priorities and graphic communication languages relevant to the field: architects and architectural researchers see and think in spatial relationships and communicate through spatial, visual, and drawn means, as well as through descriptive written language (Gänshirt, 2020). These proclivities establish an informed theoretical and methodological position toward data construction, as recommended by Charmaz (2006), who also supports the use of *“Illustrations of where participants are placed in the setting”* (Berthelsen, Lindhardt & Frederiksen, 2017).

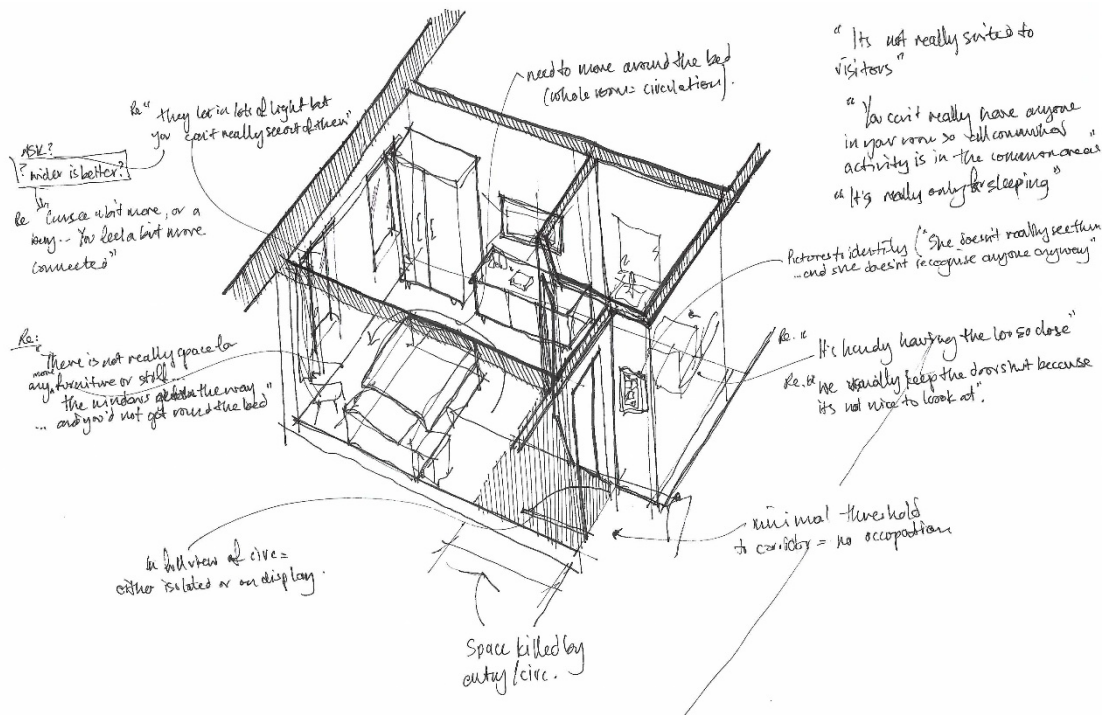


Figure 15: Example fieldnote sketches and annotations

Here the Constructivist Grounded Theory position is taken further in suggesting a logical extension of Charmaz’s (2006) emphasis on the importance of including gesture and active processes in data construction to understand social interaction (in addition to transcribed verbal interactions), by asserting that spatial occupation and relationships are also crucial to understanding social interaction in the fieldwork setting. And thus, drawing is a means to more than illustrate the locations of observations but is instead the very record of social interaction itself. Specifically, 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, and prompt lines of questioning in interviews based on observed interactions. Thus, an iterative relationship between interviews and observations was established, allowing the constructivist position to drive the search for data relevant to “*construct an interpretive rendering of the worlds we study rather than an external reporting of events and statements*” (Charmaz, 2006).

Participant Interviews

The study included a total of 21 interview participants, chosen as described above.

Interviewees comprised of 10 residents of mixed gender, 5 visitors, and 6 care support workers (including hands-on care management staff).

Interview Design

The number and cross-section of interview participants were driven by following leads emergent from the data; interviews began with a sample of the people with whom the experience of life in a care home was clearly strong (residents) and shifted to other informants (carers and visitors) as outline codes suggested their relevance. This ‘following the data’ is central to the Grounded Theory tradition, which similarly guided the number of interviewees, was concluded by reaching theoretical saturation, rather than by an external remit (Bryant & Charmaz, 2007).

Timonen, Foley and Conlon (2018) suggest that researchers should “*take the word “Grounded” seriously*” by “*employing unstructured or lightly structured interview guides (consisting of “open” questions)*”. Here the authors prioritise a flexible approach to data construction to avoid straying into hypothetico-deductive reasoning, which undermines the nature of a Grounded Theory study. Here, interviews followed a lightly structured format guided by an interview crib sheet (see Figure 13) intended as an *aide memoir*. The crib sheet outlines opening questions to set an exchange underway and establish rapport, and then intermediate questions that prompted further digging on responses to earlier answers. Importantly, the interview guide avoids questions based on researcher prejudice about the home or living environments to mitigate the imposition of *a priori* categories on emerging data and remain open to new and recurrent participant-driven references to social interactions (Berthelsen, Lindhardt & Frederiksen, 2017). 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 extant concepts (see interview guide in Figure 13).

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).

Figure 16: Interview question prompts. Questions adapted to respond to emerging concepts throughout fieldwork

Sensitivity to Residents' Capacity and Wellbeing (Interviewing residents in practice)

Interview duration and format varied according to participants' capacity to engage. Visitors and staff were all able to engage in sustained conversive interviews. Residents, however, sometimes required lengthy breaks and re-assertion of questions to return to lines of inquiry. A methodological adaption was then, required, shifting across open and semi-structured interviewing modalities.

People living with the symptoms of a dementia diagnosis find communication difficult. This commonly manifests (among other symptoms) in troubles with memory, fatigue, unclear speech, a tendency to distraction and low attention and heightened anxiety, more acutely than a typical interview participant (Quirke, 2019). Hence, a sensitive approach to traditional semi-structured interview methods was adopted with special consideration for interview design, conduct and analysis in response to participants' capacity to engage. Participant wellbeing is paramount in all aspects of research, and interviews must not unduly contribute their difficulties and people struggling against the symptoms of dementia are more prone to anxiety and mood fluctuations, the cause of which is not always apparent, but which can be provoked by frustrations with memory and perception difficulties. Interviews were carefully adapted based on residents' capacity to continue.

Determining a participant's comfort requires attention to their mood and level of attention and accommodation of their needs when conducting an interview. This section outlines dispensations and adjustments from more traditional qualitative interview techniques to accommodate the comparative difficulties faced by residents and frames the relevance and impact of these deviations in the context of the greater inquiry. Memory difficulties are perhaps the most widely recognised difficulties experienced by people with a

dementia diagnosis. During fieldwork interviews, participants struggling with memory generally manifested one or more of three symptoms in which they:

- **struggled to remember the question** before they had time to respond or think of a response, and thus could not answer the question.
- **struggled to sustain a train of thought** throughout an answer, which restricted their ability to answer questions in-depth as the thread of a sentence escaped them.
- were **prone to distraction** and low levels of attention during fieldwork interviews, and conversations easily drifted to unrelated topics wherein the distraction and confusion seemed to cause them to forget they were in an interview.

To assist people **struggling to remember a question**, who might stray from the line of inquiry, Marquis and Jackson (2000) suggest returning to questions to aide responses when interviewing people with dementia. However, as Samsi and Manthorpe (2020) concur, simply repeating questions can be problematic to the participant, causing feelings of bombardment, and to the researcher, as participants often give similar answers without deepening the insight. Instead, here – as supported by Marquis and Jackson (2000), Knox, Mok and Parmenter (2000), and Clarke and Keady (2002), interviews adopted a more recursive approach, in which previous questions and participants’ answers were reframed in phrasing follow up questions. Or unanswered questions were re-phrased to avoid pressuring the participant for an answer. This recursive style aligns with the FOCUSSED approach devised by (Ripich, Wykle & Niles, 1995) and recommended by (Beuscher & Grando, 2009) and (Samsi & Manthorpe, 2020), which suggests repeating keywords and *“continuing the same topic but highlight(ing) and prepar(ing) the person when switching to another topic”*. Recursion as such assisted with deepening insights from interviews without overwhelming vulnerable participants.

A person **struggling to sustain a train of thought** needs longer to answer questions and may often need help to find the words to do so. This requires more than simple patience from the interviewer. While repeating questions and answers and allowing more time for residents to answer is necessary and valuable (Samsi & Manthorpe, 2020), people with a dementia diagnosis are prone to fatigue and anxiety, as well as shifting highs and lows in energy and mood. This makes sustained interviews impractical and distressing for many, and interview protocols were circumstantially adapted considering the differing capacities of participants. Thus, as supported by (Wilkinson, 2002) each interview duration was governed by the participant's comfort and ability to express themselves and was slowed, suspended or curtailed accordingly.

It is well acknowledged that people with dementia often drift in conversation, into unrelated topics, times, and territories. In consideration of **participants prone to distraction**, Brackey (2016) argues for a courtesy, broadly accepted by people interacting with a person whose mind is wandering or appears to be living another time or place; that that person's reality *is in that place*, and others should not correct or deter them from that train of thought, as they will likely become confused and distressed. It was thus often necessary to join participants who had wandered off-topic, to some degree, in their 'wander'. This strategy is supported by Hellström *et al.* (2007) in a CGT study involving people living with a dementia diagnosis, as well as Knox, Mok and Parmenter (2000), and Marquis and Jackson (2000), who collectively advise to give the participant time and to avoid contradicting them to help develop trust and rapport. Instead, time was given in the interview to attempt reintroduction of a question once settled on a conversational exchange. Rather than trying to get through a list of questions, both researchers offering advice for interviewing people with dementia Samsi and Manthorpe (2020) and writers on Grounded Theory (Charmaz, 2006) advocate allowing ample time for participants to engage in interviews to contribute good quality over large quantities of data. These

attempts were often successful in resuming a meaningful line of inquiry. Often, they were not. And multiple failed attempts to return to a line of inquiry signified time to conclude an interview. This adaptive sensitivity is conceptualised in Figure 14 below.

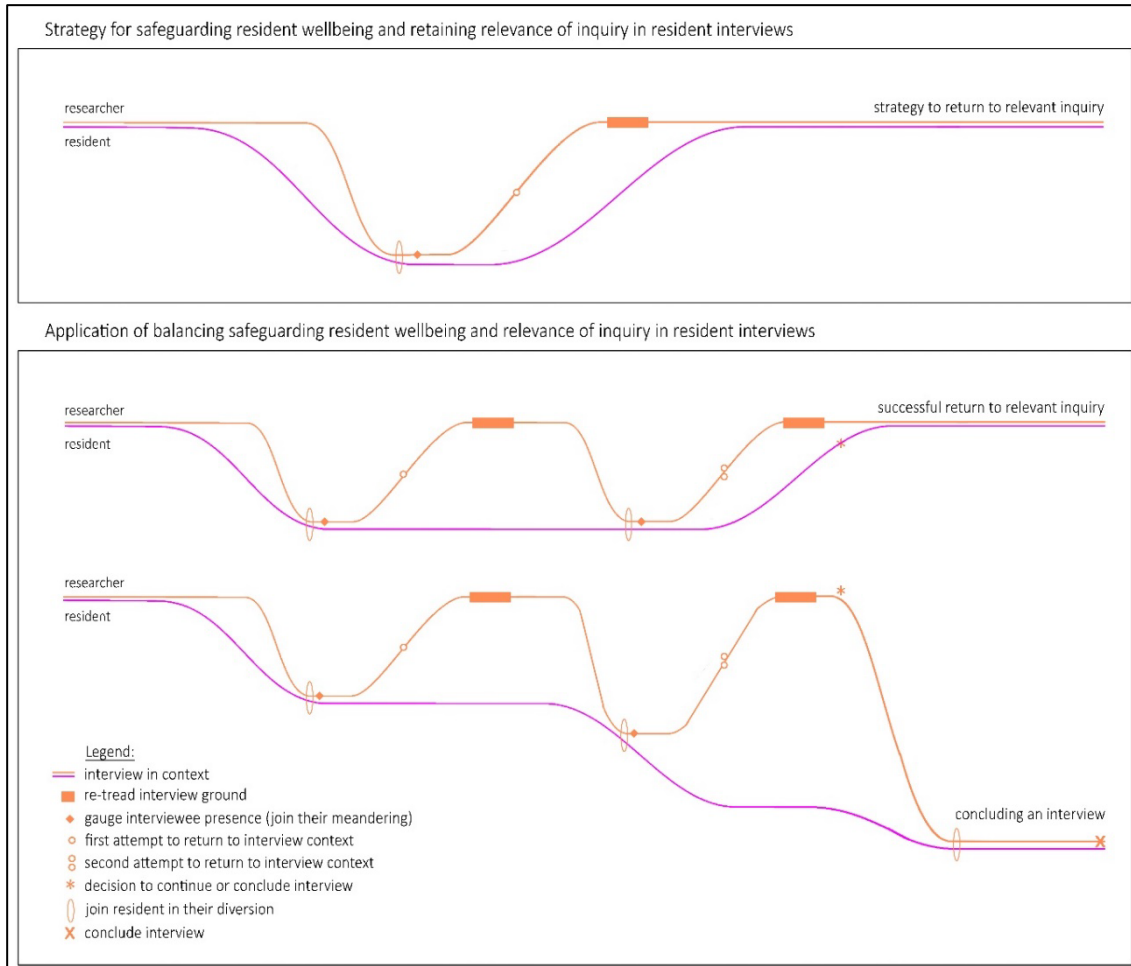


Figure 17: Conceptualising interview progress

Under these conditions, interviews took different shapes and were individually less interrogative than the deep-digging qualitative interviews promoted by Charmaz (2014). They were instead more gradual and iterative, based on multiple fragments and re-treading ground to 'thicken' understanding. Interviews varied in duration and were often short if residents appeared unable or uncomfortable with the encounter; or they were punctuated by long pauses, requiring that I gauge the need for more time or repetition. Thus, residents were approached on multiple occasions, re-treading ground to re-establish the line of inquiry and interview protocols and pick up a line of questioning that enabled deeper

insight, as Killick (1999) stated, “(people living with dementia) need time and space to decide what to say and how to articulate it”.

Recording Interviews

“When doing grounded theory there is no need for complete recording of the interview as one would want in descriptive completeness. Theoretical completeness only requires those notes written down after an interview to be later used for constant comparisons. What is not noted will, if relevant be remembered later through associations occurring during constant comparisons. The researcher can trust this approach... DO NOT TAPE INTERVIEWS” Glaser (1998).

In ‘*Taping*’ from *Doing Grounded Theory*, Glaser (1998) advises researchers doing Grounded Theory studies, outlining the myriad reasons not to ‘tape’ (audio record) interviews. Crucially, it is argued that doing so delimit the Grounded Theory methodology by “flattening the data” and “forcing the collection of indicators over and over that indicate the same category and its properties”. The many arguments caution of the constraining force imposed by taped interviews, which compromises the depth of inquiry in favour of a time consuming and weighty record. Despite this, many researchers are attracted to ‘taping’ interviews and interactions. This research began similarly, with the intention to record interviews, but Glaser’s and other restrictions soon became evident.

Interviews were predominantly recorded through notetaking. While audio recording was possible with visitors and carers, the pilot study revealed several problems associated with audio recording participants exhibiting the symptoms of dementia and a reluctance from some others to be recorded. In this section, the decision to use notetaking as the primary method to record participant interviews is explained in the context of the problems associated with its use in the field and justified with supportive literature that guided good practice note-taking to capture interview content.

The pilot study revealed that many interviews would be difficult to capture on an audio recording device. The speech of many residents was very quiet and at times barely audible in person and did not represent fully on audio recordings, leading to lost

information and the need to take notes by precaution. Similarly, the speech of many residents was often unintelligible in recordings and visual cues, such as gestures (nodding for example) and expressions (understanding the tone of response helps deduce what words may have been used), were often assistive in reconstructing speech into intended meaning and words. Glaser (1998) echoes these considerations in reference to the “worrisome accuracy attributed to taping interviews, in his discussion of the use of interviews in grounded theory” (Rutakumwa *et al.*, 2020), wherein the focus of interviews become an objective record of the data rather than the complete experience of interactions. Further, since a condition of participation was that neither care home would permit video recording or photography, it was not possible to capture these bodily forms of communication other than in the instant. Thus, rather than rely on recording devices, quality note taking was opted as the primary means of interview capture, where bodily gesture or expression were notable alongside interview notes.

In practice this afforded variation in options for data capture. For instance, an interview while walking with residents in the garden was an effective means to build trust and rapport but accompanied by wind and other sounds from outside that would have disrupted audio recording. Notetaking proved effective in situations based on movement, which would otherwise have remained uncaptured. Similarly, as documented by Nordstrom (2015) recording devices presented an interview formality and positional hierarchy, and were met with resistance in several interviews, where participants appeared guarded and even stated their preference not to be recorded by a device. Visitors, for instance, were cautious not to say something ‘clumsy’ that could be construed as a direct criticism of their loved one's, residence, or carers, and the device was seen as a barrier to free- speech. This phenomenon is recognised by researchers such as Rapley (2004) who recognise that participants may want to say some things off the record, precluded by the recording device. The establishment of trust and rapport is compromised when the participant approaches

the interview from a guarded position, and thus again, note-taking was more effective here in maintaining a non-hierarchical exchange and likely enabled richer data to come to the fore.

Two further observations from practically implementing notetaking in the field are, firstly, that it is a slower way to record interviews. A slower pace is suited to interviews in this context, where residents particularly found articulating ideas and feelings difficult. Similarly, the slow pace aligns with the recursive approach, where the interpretation of notes could be reframed in follow up questions. This affirmation of interviewee responses was effective in shifting the traditional power dynamic of the interview, from a privileged researcher to the appreciated and heard interviewee. Secondly, as mentioned earlier, interviews were often characterised by fragmented speech, repetitions, loss of direction and noises and unintelligible words (the difference between which was not always clear). The practicalities of transcribing such complex recordings are fraught with difficulty, whereas researcher interpretation was succinct and effective in filtering important and intended messages from exchanges. Of course, when something was unclear, the researcher addressed the misunderstanding, which again reinforced the mutual tone of respect in the exchange.

Further, and relating to Charmaz's (2007) emphasis on the researcher's role in the process of knowledge construction, many of the insights suggested by participants were spatial and even gestured as such through hand movements describing planes, thresholds or relationships. Note-taking therefore also incorporated graphic representations of participant responses, as per the architectural lens of the researcher. These interpretive notes helped construct codes and theory and the graphics an alternate form of data, as supported in Grounded Theory research.

In line with recommendations from Rutakumwa *et al.* (2020) who showed that the level of detail captured in interview notes and transcriptions is comparable, interview notes

were revisited soon after the conclusion of the interview and clarifications were made and detail added while information was still fresh with the researcher. The often paused and revisited interview, as outlined above, gave further scope to make detailed and carefully reflective interview notes, sometimes in short pauses, or in longer breaks prior to the resumption of the interview.

Designerly Methods

Since the research question is concerned with participants' experiences of their environment, and the constant comparison method entails that data are coded concurrent with their ongoing construction, emergent codes often necessarily conceptualised spatial-material configurations. These spatial-material conceptualisations were recorded initially in graphic and textual formats, including diagrams, annotations, written notes, and drawings. And these records referenced participants' suggestions for hypothetical and aspirational environments, as well as reflections on lived experiences.

The spatial-material constitution of data concepts is crucial to their construction and communication, and to disguise them by forcing them into written language alone is to pretend that it is not. To do so would be misleading and reinforce the limits of conservative disciplinary knowledge boundaries against which this research pushes. Thus is the importance of imagery, and particularly drawing, in anthropology, as affirmed by Stender (2017), Ingold (2013), and Gatt and Ingold (2013), and demonstrated at length in Blundell-Jones (2016) architectural readings of historic and social contexts. The act of drawing anthropology is interpretive and manifests the researcher's interpretive rendering of the situation (Charmaz, 2006) that frames their understanding in a socio-spatial-material record. As discussed in the previous chapter, the act of drawing is at once reflective and projective; "nothing less than life itself" Ingold (2013).

Drawings re-annotated following consultation
w. co-researchers on key ideas, concerns & potentials.

Bed becomes out of sight,
but within a personal realm.

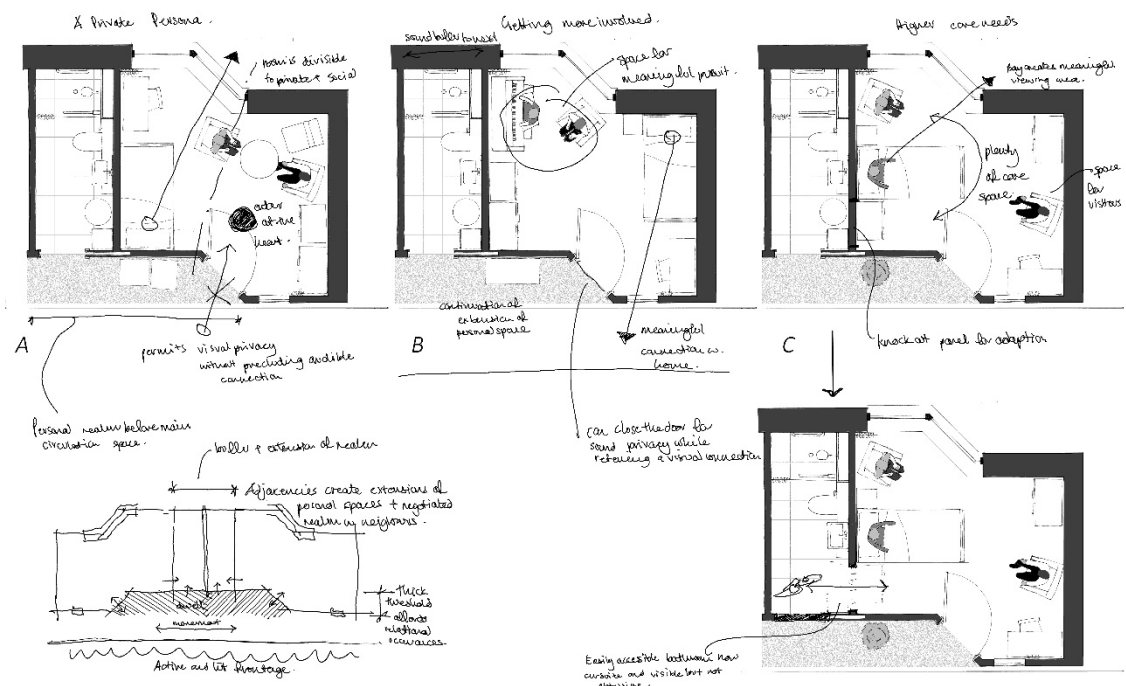


Figure 18: Adaptive bedroom configurations. The emergence of patterns and configurations through participant interactions developed into spatial propositions used for further interrogation in designerly interactions.

In practice, the cumulative amassing of socio-spatial-material field sketches and notes began to show patterns, suggesting the reinforcement of conceptual configurations until seemingly concretised configurations were recognisable in the coded information, such as in Figure 15 above. These moments at which concepts appear to concretise is often interpreted in Grounded Theory as evidence of theoretical saturation – when new data fails to elaborate or challenge the concept – and would hence signify the conclusion of the search for data relevant to a particular conceptual category. However, herein the limits to anthropology are considered to lie in the tradition of anthropology itself; that material constructs produced through fieldwork exercises are traditionally considered the product of an external agent (the researcher) and are therefore excluded from analysis in further fieldwork. On the contrary, the constructivist position of this inquiry suggests that, just as data and subsequent theoretical categories are co-constructed by participants as co-

researchers in the study, socio-spatial-material configurations manifest in material artefacts, such as drawings, constructed from the data are similarly co-constructed and constitute collectively materialised thought. This thought is part of the studied situational context, which may contain further insights to expand and challenge conceptual readings. Hence, the gradual pivot of the ethnographic gaze from reflective to projective is welcomed into the continuation of the Grounded Theory study through the acts of drawing and graphic representation. This stance is supported by Drazin (2013), who highlights the character of “paper, post-its, slides, whiteboards” as “manifest thought” in the recent material turn in anthropology. Drazin (2013) challenges the traditional prejudice against facts and ideas, claiming that concepts are manifest in thought and in artefacts or things through engagement; “this situation suggests that anthropologists and ethnographers working in this area need to think through notions of material things in their own work and understanding”.

Material interpretive renderings (drawings and interactive virtual environments) were used to frame further interview questions, wherein questions were both verbal and visual. This is congruous with the traditional trajectories of Constructivist Grounded Theory, wherein the application of designerly methods is, in essence, an increase in researcher interpretation (the refinement of conceptual categories), which traditionally expands as theoretical concepts concretise and the study approaches theoretical saturation. Traditionally, interview questions are refined to point more specifically at relevant situational territories as theoretical concepts emerge (Charmaz, 2006), however here the refinement of questions includes other forms of language, architectural language to hone lines of questioning. Just as the inclusion of participants that speak an alternate language might necessarily require an interpreter to mediate a discussion between members of an exchange in a Grounded Theory study (Mouratidou, Crowder & Scott, 2020), here visual

metaphor, in the form of graphic representations, served to articulate spatial-material concepts that might otherwise be lost in verbal translation.

In some instances, drawings and diagrams were sufficient to communicate the spatial material configuration of an emergent concept, in reference to types of windows for instance, the interpretation of which is simpler than more complex architectural concepts. However, architectural drawings are nuanced and built on drawing conventions, such as scale or the section, that require an interpretive leap from abstraction to recognisable spatial renderings. Drawings of this sort are often inaccessible to lay audiences and can pose particular difficulties for those with cognition difficulties such as many of the participants in this study. So, to communicate more complex spatial-material concepts, such as when discussing the social implications of threshold areas between spaces in the building or in the discussion of aural proximity, more accessible forms of communication were necessary. Ordinarily, several plausible options could be explored here, such as the construction of mock-residential spaces, however bodily restrictions imposed by the COVID-19 pandemic precluded access to construction, materials, spaces, and residential care homes for the foreseeable future. This necessitated the use of digital communications media to facilitate distanced interaction online. Here the construction of interactive 3-dimensional environments was employed to give a stronger sense of embodiment and orientation in space than is offered by verbal or written communications or static 2-dimensional drawings. The development and participant engagement with these virtual environments is discussed below.

Interactive Environments

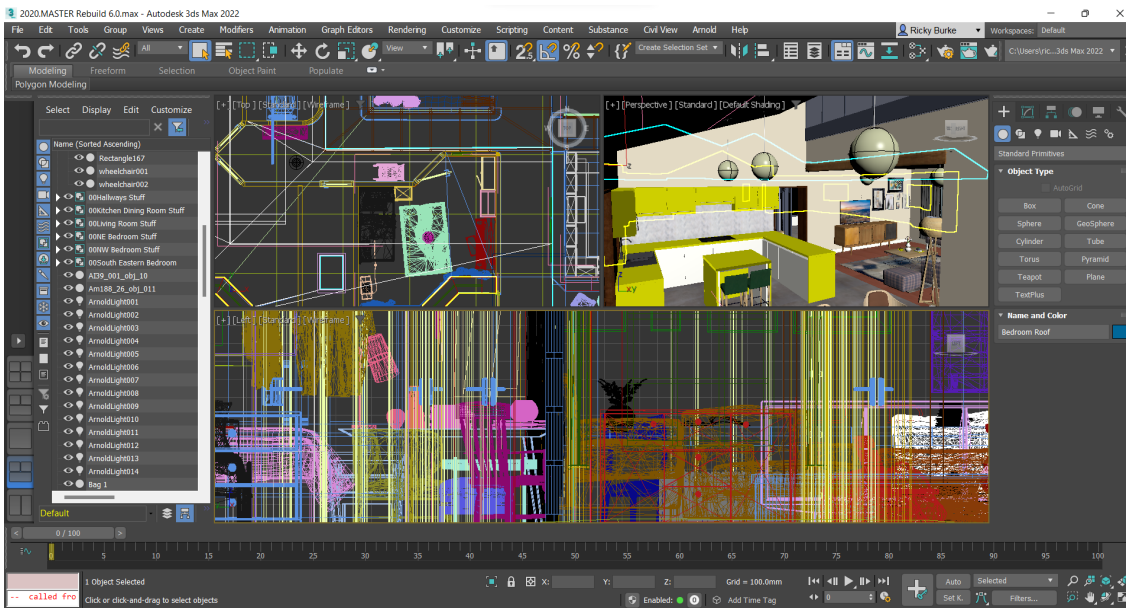


Figure 19: Developing virtual environments in 3ds Max before their transfer to interactive interfaces.

Virtual environments were derived from conceptual insights in the data, as discussed above. Digital models were constructed in real-world scales and incorporating materials, lighting, and furniture, to communicate the spatial-material configurations in a relatable way. Importantly, these environments were not intended as ‘the answer’ to residential care space design, models for design transferable to all scenarios, but as visual metaphors for emergent theoretical understandings. An embodied model is appropriate in this regard since it precludes an overview of the full environment and forces a perspective that receives each place in the environment in an embodied manner. Participants were not familiar with the environment beforehand so were not concerned with the scale of the institution but the qualities of inhabitation and spatial sequence that unfolded before them through the interaction.

The geometry of interactive environments was originally constructed using Autodesk 3D Studio Max (3DSMax) (Autodesk, 2018) (Figure 16). The software is commonly used in architectural practice to construct geometric representations of emergent designs that can be artistically or photo-realistically rendered. 3DS Max can also

incorporate temporal changes, such as object movements and environmental changes in lighting, sound, and atmospheric conditions. In these faculties, 3DS Max is useful to create environments that enable the viewer to experience a greater sense of immersion than more simplistic or nuanced software modelling packages. Such was the aim of incorporating interactive environments; to enable closer articulation of the intended spatial-material configuration than afforded by more abstracted 2-dimensional drawings. Additionally, the software accommodates other factors that increase a sense of realism and immersion in the environment, such as sounds, easily applicable and realistic materials, and pre-formed artefacts made by others, which reduces the workload for the inclusion of furniture, objects and equipment that increase the viewer's sense of spatial awareness. And perhaps most importantly, 3DS Max can recognise and export all commonly used digital model formats, making it well placed for a workflow to other software for interactions with participants.

Initially, basic models were constructed that contained very little detail but were intended to test the efficacy of environmental interpretation through an immersive interface. Several interactive interfaces were tested for the exploration of virtual environments. Once a viable workflow was established, models became more detailed with intent for use in participant interactions. The development of a software workflow and the increasing resolution of models are discussed in the following section.

Workflows and Tools to Communicate Virtual Environments

Firstly, models were exported to the gaming engine Unity (Unity Technologies, 2019), where they might be controlled through many forms of interactive interface, such as headsets, or domes and screens controlled by computer games pads, or by external navigation from the researcher. This workflow was discounted for several reasons. Most crucially, the transfer of information between 3DS Max and Unity is slow and materials did not transfer reliably, which required remapping. This would not be problematic in a project that required the transfer of a single model for interpretation but would be time-consuming

for the transfer of multiple models. Further, Unity is very suited to the use of immersive headsets and gaming construction, but these proved too complicated for people with limited experience to operate and ethical concerns for confusion and motion sickness caused by immersive headsets precluded their use in the study.

The second workflow intended was to export environments through 3DS Max Interactive (Autodesk, 2019), a plugin for the parent software. The major advantage of this workflow is that updates to the modelled environment transfer near-instantaneously, which greatly accelerates their edition and hence project productivity. Environments in 3DS Max interactive would be communicable between the researcher and participants through a screen or dome, where co-navigation through the space would enable a suitable level of immersion without the risks associated with confining vision to a headset. This workflow was highly suited to participant interactions with person-to-person contact, as most people do not have a personal computer with substantial running power to host the resource-hungry models remotely. However, this phase of the research was impeded by restrictions in person-to-person contact caused by the COVID-19 pandemic and physical access to residential care homes was restricted indefinitely (Joint Committee on Human Rights, 2021). So, an alternate form of remote immersive interaction was required.

The third and accepted interactive workflow utilised SketchFab (Epic Games, 2021), a subscription-based online virtual model hosting platform. SketchFab is generally used as a gallery and shopfront for digital 3-dimensional artists to showcase and sell their creations. Crucially, SketchFab as a low-demand interface enables interaction with the virtual environment remotely, as is explained below. Most models hosted on SketchFab are object artefacts rather than virtual environments, however, some computer games designers use the site to showcase scenes and spaces for would-be computer games. Examples include 'Nomad Camp' by Devos (2021) and 'Bath Day' by StanSt (2021). Others have hosted digital scans of real-world places that can be explored by proxy, such as

‘Uprooted fallen hornbeam tree’ by Matousekfoto (2021) and ‘St Mary Abbots Entrance’ by Artfletch (2021). The interactive virtual environment constructed for this project followed suit from precedents hosted by SketchFab such as these, which were easily navigable due to a handful of key characteristics: Firstly, SketchFab allows the high performance of models with a relatively high polygon count without lag or strain on the host computer. The export workflow from 3DS MAX to SketchFab is intended through a software plugin from the SketchFab development team, however, this proved unreliable and temperamental, regularly resulting in material losses and geometric failures. However, export to *.obj* files through the export engine inbuilt to 3DS Max proved an efficient and reliable exporter that retained material and geometric integrity without bugs. Then, models can be navigated either freely at the will of the viewer by using a standard mouse or trackpad gestures or through the placement of annotation nodes (Figure 17).

Annotation nodes are intended to showcase interesting things in the model that might interest a viewer. Modelmakers can position an annotation mode with an associated camera view that directs attention to the point of interest. From that specific camera view, the viewer can again move freely about the focal point, which assists readers with virtual proprioception and orientation. Further, annotation nodes can be overlaid with greater levels of information, such as textual descriptors and graphic imagery to reinforce the ideas underpinning the node of interest. This annotative component was expected to be highly useful in participant interactions but through preliminary testing, annotations proved to occlude the information onscreen and confuse the viewer with ‘too much to take in’ (quote from a trial participant). This meant the viewer was never fully focused on the exchange as they struggled to keep up and attend to all information. Hence, annotative layers were not incorporated into formal interactions. Annotations can be set in sequence to one another, where scrolling from one annotation to the next creates a path of movement through the model. Through considered positioning of annotation nodes and hence camera positions in

the model, a more human perspective was facilitated by scrolling through nodes than is generally achieved when freely roaming the model, which often leads to moving through bits of the model, such as tables and walls, that would not be possible in a real-world scenario. This facilitated a simpler user interface that made the models highly accessible.



Figure 20: Example screenshot from SketchFab immersive environment.

A further benefit to using SketchFab is its sounds interface, which enables sounds to be associated to parts of the model with proximity triggers and proximity occlusion. This enhancement enabled the addition of background sounds to parts of the model, which would intensify or diminish with changes in the viewer's virtual proximity to their source. The sounds are directionally mapped, meaning that as the camera turns the sound shifts according to the virtual position of the viewer. The inclusion of sound facilitated discussion around spatial sequencing, such as the positioning of a piano in one of the rooms, which was separated from other parts of the home through considerate planning that embodied configurations supportive of privacy and recreation concerns raised collectively by participants. Additionally, kitchen and living room effects were added to the common areas of the home, and birds' song and light wind noises to the courtyard area to enhance the sensorial experience associated to different parts of the virtual environment (see Figure 18).



Figure 21: Sounds were added to the SketchFab environment to enhance the sense of occupation. Sounds were attributed with locational sources and diminished or increased in volume relative to proximity in the home, acting as cues to movement.

Constructing Data from Interpretive Renderings

Interactions with virtual environments were conducted via Zoom Cloud Meetings (Zoom Video Communications, 2021), a proprietary video teleconferencing software program that became ubiquitous over the course of socially restrictive measures throughout the height of the COVID-19 pandemic, which deadened possibilities for person-to-person contact. The nature of Zoom is that multiple people can attend an online meeting and share the content of a single screen. This enabled either the participants or researcher to navigate the virtual environment while discussing concepts embedded in the spatial-material configurations encountered.

Interactions began with an ethical briefing outlining the rights of the participant, the aims of the interaction, and the intended uses of the data collected. Upon agreement of the terms of the interaction, the virtual environment was shared with the participant via a Zoom screen-share (Figure 19) and the conceptual relevance of spatial-material configurations was discussed by questioning the participant, while guiding them around the



Figure 22: Screenshot from online interaction in the virtual environment using Zoom, in which the environment was explored using free roam and controlled nodes.

model. Upon arrival at key nodes in the environment, participants were asked for initial reflections. From this, discussions about socio-spatial-material concepts would emerge. In the event that participants neglected to comment on anything relevant to the underlying concept, prompts were used to briefly explain the conceptual underpinnings of each configuration and draw attention to its relevance. Then questions were framed around the familiarity of the associated concept. An example of one such exchange is outlined below:

Researcher: tell me your thoughts about this courtyard space.

Participant: it would be great for the residents to be able to get out like that because it is very visible. I imagine it will be quite cold with those doors open, though. I wonder how often they would be open. The other good thing is that it makes the corridors so much lighter, and it gives (the residents) something to look at and talk about.

Researcher: how do the changes in view and light in circulation spaces compare your experiences in care homes generally?

Participant: Yes, of course. The hallways are mostly dark. There is not a window from their bedrooms either... where (I have been to) places where there is a window from the room to the hallway, it feels a bit imposing because there is not really anything to look at, but you can be seen by anyone walking past. Here there is a view and a reason to come out of the room and sit and watch the birds or whatever, or just look from the bedroom. It is less like we are used to, where there are bedrooms and corridors like cells, and more connected (excerpt from notes from an interaction with a care support worker).

These interactions were recorded similarly to observations in lived care homes, only printed screenshots for the relevant node were used as a base on which to record participants' answers and insights (Figure 20.). This again retains the material-spatial grounding for data and enabled sketching and notation proximal to the point of discussion. Higher resolution samples from these interactions are included in Appendix C.



Figure 23: Sample record from a virtual interaction with participants in projective environments.

Upon the apparent saturation of lines of inquiry through guided interactions, control of the environment was handed over for the participant to feely roam the environment. This served as a form of participant observation, wherein the efficacy of user-interaction in the environment could be observed to support methodological discussions, and further observational insights were constructed. For instance, participants, now in control of movement through the environment, were often attracted to certain parts of the model or noticed something overlooked in the initial guided tour. Interactions were recorded in note and sketch form, as per the other interviews from earlier interactions, and the data constructed were incorporated into the coding process by way of its extension.

Chapter 4

Constructing Grounded Theory

Introduction

The Grounded Theory and constituent theoretical concepts described in this chapter were summarised in brief in a published paper stemming from this research and published in the Architectural Science Review Special Edition on Architectural Design for Dementia (Burke & Veliz-Reyes, 2021). There are structural similarities between the published work and the findings detailed below, and some fieldwork data is re-presented verbatim, as is the contextual grounding of the work. All previously published categories are elaborated in this work.

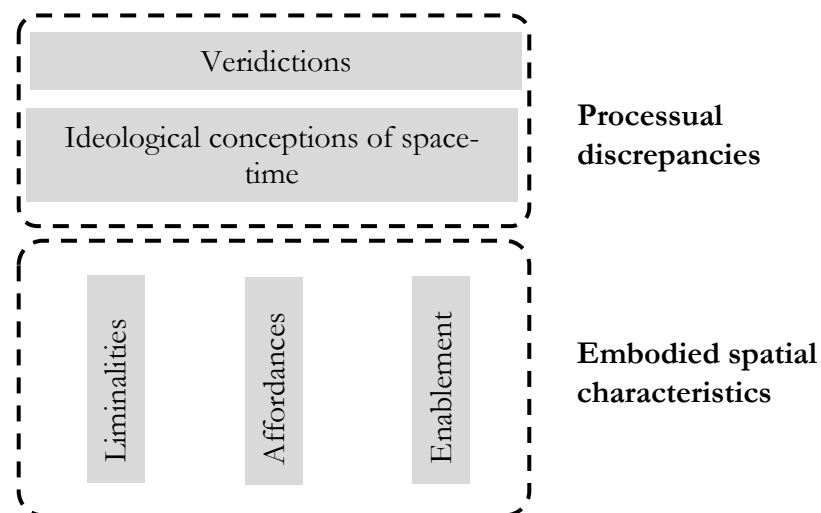


Figure 24: Conceptual categories in the grounded theory model

This chapter serves two parallel purposes; firstly, to present detailed examples of data collection and coding from key participant interactions. And secondly, to present the theoretical concepts and framework that constitute the Grounded Theory. Here findings are presented *through* coded data, to illustrate the application of analytical methods described in the previous chapter through the grounded contexts of fieldwork. In so doing, the chapter shows examples of the application of methods for data construction – such as interview questions, observational contexts, fieldnotes and sketches – and instances of theoretical sampling directed from earlier data and emergent codes.

The meat of the chapter is divided into two sections detailing the construction of the core theoretical categories that constitute the Grounded Theory as an output from the study (see Figure 21 above). The two levels of theoretical categories are distinguished by their degree of abstraction from daily life in the home as embodied and ideological. Each category is then comprised of sub-categories in which axial codes describe its key concepts. These theoretical constructs constitute theory that is intended not to propose positivist generalisations universal across different social contexts but instead, the role of theory here is aligned with Alasuutari's (1996) understanding as "deconstruction of the way in which we construct social realities and social conditions and ourselves as subjects in those realities". In this, theory is intended, within a constructivist epistemology, as an interpretive framework (Charmaz, 2006) through which to view the influence of the built environment in support of the personal and social lives of people living in residential care settings with dementia diagnoses.

The first section, *Embodied Material-Socio-Spatial Relationships*, is an understanding of the environment as immediately experienced by occupants in the reproduction of their daily lives, both in reflection and projection. This section, abstracted little from residents' daily life, comprises codes that speak to the material-socio-spatial relationships that residents, staff, and visitors have with their tangible environment – the building fabric, systems, organisational layouts, and services – and the role they play in the personal and social lives of residents. *Embodied Spatial Characteristics* are framed in three categories: *Liminalities*, *Affordances*, and *Enablement*.

The second section is comprised of theoretical concepts expressed by participants beyond the embodied day-to-day experience of the home and speaks to participants perceived *Processual Discrepancies* in the way the home is conceived and realised against residents' priorities for supportive living environments. Here the home is understood in greater abstraction, as the product of the work of unspecified actors through systems of

thinking and knowledge about life in residential care external to the situated knowledge of daily life. Discrepancies are framed as differences in *Ideological Conceptions of Space-time* and *Veridictions*. These concepts present a grounded theory model for socio-spatial relationships in reflection and collective aspiration in residential care homes for people living with a dementia diagnosis, and thus the stage set for discussion in the following chapter.

Embodied Characteristics

The theoretical concept of Embodied Characteristics frames complex relationships in the material, spatial and social world and as such could be framed variously to prioritise different dimensions of the totality of material-socio-spatial relationships. For instance, codes here could be framed foremost around the logics of spatial planning, and hence organise personal and social experiences and material configurations around identified space sequencing, typologies, or tropes. Or codes might have been organised to prioritise a material perspective; where surfaces, components, divisions, and material changes set the foundations for a discussion of the social and spatial parts of the relationship. However, this is a person-centred inquiry and seeks to foreground occupants' priorities in the pursuit of understanding supportive environments. Hence, codes are framed from the social perspective toward material and space. This does not deprioritise the spatial or material role in the relationship – far from it. Instead, it displays the significance of spatial-material configurations in the personal and social lives of residents from a position of empathy.

Framed as such, there are inevitable overlaps between categories when viewed from a traditional architectural perspective that prioritise fabric and space. Certain spatial-material configurations are relevant to multiple codes. This highlights the complexity of the role the designed and built environment plays in the experience of the reproduction of daily life. Far from problematic, this repetition compounds the relevance of spatial-material configurations and illuminates the critical depth of interrogation undertaken. Conceptual

configurations framed from another perspective, such as the spatial, would no doubt have revealed repetitions in the social or material experiences since (as illustrated below) participants' perceptions and experiences in the home are omnipresent and operate on different scales and in different locations and systems in the home. In recommendations for good coding practice, Charmaz (2006) supports this repetition, stating that "even a short statement or excerpt may address several points, it may illustrate several categories". These categories, by the nature of their construction – through reflective and aspirational inquiry – offer both critiques of relevant spatial configurations and suggestions for supportive configurations.

Liminalities

This section discusses the transitory nature of social life and its material-spatial relevance within the home. Relations between residents and with staff develop and shift with time, and there is a recognisable shift in social bonds from unknowing to familiar that moves through a liminal phase of 'getting-to-know each other', or 'settling in'. The necessary negotiation and uncertainty of these liminal states distinguish them from the conditions of strangers or kin, which embody greater clarity and normality. Descriptions of the growth in relationships, both embodied in the care home and in reflection of life before, have clear spatial and material as well as temporal qualities. However, unlike references to social connections in life before and outside of residential care settings, the space-time constraints of life in residential care offer restricted contexts for these socio-spatial developments to unfold. The concept of *Liminalities*' foregrounds the influence of spatial-material configurations in the development of relationships through liminal phases, such that the configurations are integral to the trajectory of their development. The socio-temporal shape of relationships is enmeshed in the spatial-material contexts through which they

unfold, and the spatial-material influence in these relationships is acute in residents' shrunken world of the residential care home.

A prominent concern in the transitional growth of a relationship through a liminal state is the relative level of publicity and intimacy appropriate to interactions. Participants spoke of the gradual unveiling of the self to the other in the development of closeness in a relationship as familiarity between parties builds:

“Normally you meet people in different circumstances like work and then decide if you want to get to know each other. You arrange to go to the pub or something before they come over to your house”

and of the need for spaces that accommodate graduation through degrees of unfolding:

(...) 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 (...) (excerpts from interviews with visitors to homes).

In the above excerpts, participants refer to different levels of exposure to others that are accommodated by different spatial and social settings. Variations in scale and context ranged from ordained, such as the workplace, to self-determined, and further in their degree of publicity; a public meet in a pub, café or park, then more intimately at a social gathering, before invitation into the home. And eventually, levels of intimacy unfold within the home itself; the bedroom is rarely the destination for early or liminal stage relationships, rather the dining room, living room, garden or other more public parts of the home and surrounding spaces are a precursor to the “privacy of the bedroom, where everything is on display” (excerpt from a comment from a participant).

The tension between the need for variations in types and scales of social spaces is evident in the context of residential care homes, where the stark distinction between

personal and communal spaces offers little in the way of alternative configurations that support relational graduation through space and time. Instead, the publicity-intimacy gradient is condensed to sharper contrast between socio-spatial conditions in which spatial privacy broadly manifests as designations within a clear duality; in/out; personal/ common; permissible/ off-limits. “Participants repeatedly acknowledged the ‘all or nothing’ conditions of being in a busy and exposed common environment or isolated in personally allocated quarters; the space between the two uninhabitable (except for moving between both conditions i.e., hallways)” (Burke & Veliz-Reyes, 2021). The personal and social importance of liminal spaces that blur the duality is seemingly unrepresented in these worlds dominated by hard distinctions. Herein, the public world is reduced to the communal parts of the home and the private realm is largely confined within residents’ individual bedrooms. While common areas varied between the adapted and purpose-built homes, they were distinct in their separation from more private areas by the social voids of circulation spaces, which, narrow, unfurnished and regularly patrolled, afford almost no support to the development of relationships. This distinction emphasises the apparent contrast, as residents generally do not feel the same degree of privilege to common spaces as to their bedrooms. However, there is an acknowledgement that the space outside a resident’s room is somehow linked to their bedroom space, wherein people were discouraged from loitering outside a resident’s bedroom as a form of personal space invasion on multiple occasions during observations.

Further, the purpose-built and adapted residences exhibited important differences in the qualities of common spaces in which differing degrees of intimacy were observed. Common spaces in the purpose-built home were generally busy and homogenous in spatial form without recesses, bays, or niches. Relational occupations in these spaces are repetitively framed around dining furniture or armchairs, for instance, but the spaces offer little retreat from the eyes and ears of all in the space. Quieter residents and visitors “feel

watched”, and many speak in lowered tones to retain privacy. Visitors repeatedly cited their self-consciousness in common spaces and many spent visits in residents’ bedrooms where the vocal tone of conversations was more normal and interactions more expressive in gesticulation and posture.

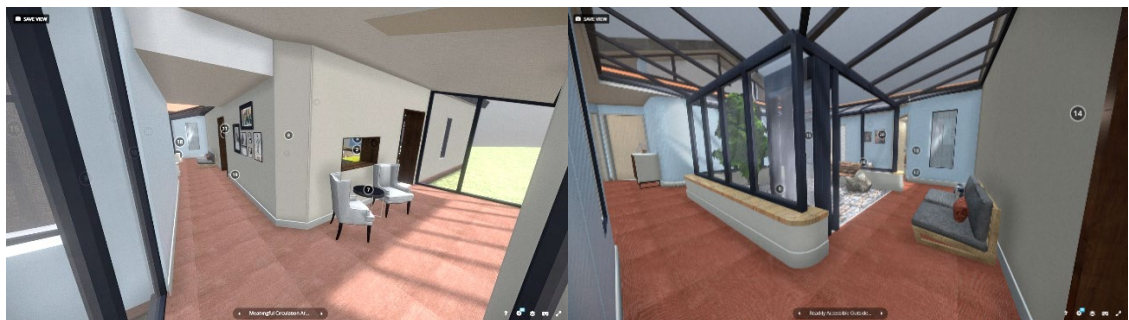
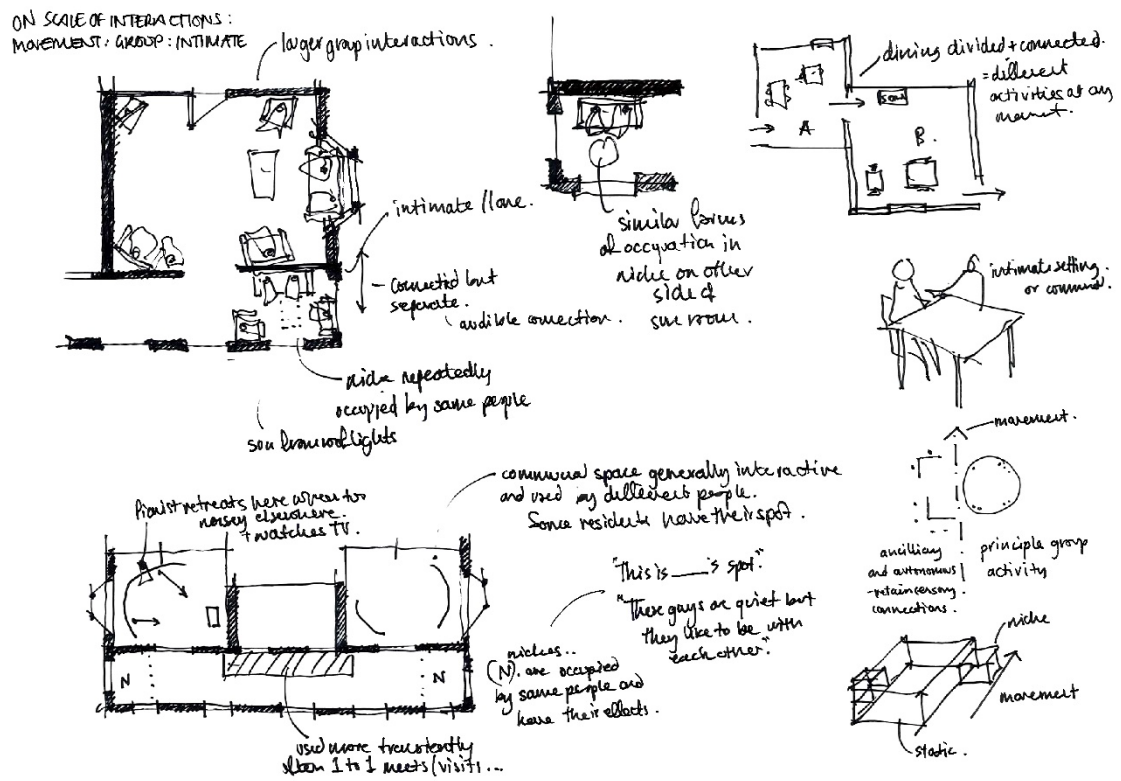


Figure 25: Developing aspirational environments for social appropriation in movement and communal areas of the home. Here the sunroom and garden room adjacent to permeable thresholds to the outside act as punctuation in spaces of movement within the home.

The adapted residence, however, contains variations in the scale of common spaces and their proximity to one another varies with niches, long spaces, and more traditionally scaled living room environments. Occupants used these spaces in varying relational configurations, ranging from quiet individual occupation, through pairings and small groups, to larger congregations. These scales of relational occupation regularly accommodated differing degrees of vocal and kinetic expression than were observed in the regular and homogenous plan forms of the purpose-built environment; occupants played games, watched television together, held conversations, shouted, and slept and contemplated within different group scales, made possible, largely by the gradient of visual and acoustic discretion accommodated in the communal heart of the home through different rooms, breakout spaces and changes in volume and proportion that promote intimacy or congregation. As a researcher, the liminal qualities of these spaces were explicitly clear, when in larger congregational parts of the common areas, I was included in conversation and games with the general population. This is contrasted by experiences in more intimately proportioned areas, where interactions were more one-on-one-or-two and the quiet and proximity afforded more direct questioning and getting-to-know than in larger groups with more disparate furniture and greater numbers of occupants. These qualities were echoed by participants who remarked on the different social qualities of spaces used for quiet contemplation and intimate interaction, compared with those used for dining, television watching and sensory play.

The perceived distance between personal and communal spaces is amplified through their division by corridor circulation in both the adapted and self-built residences. Some residents perceive the hard thresholds between their personal bedrooms and the corridor, and again between the corridor and communal parts of the home, as moments of intimidation and difficult to traverse. The physical characteristics tied to this perception are multiple. Firstly, “the atmosphere”, as more than one participant termed it,

of the corridor is different. Almost all designated circulation areas throughout both residences were predominantly artificially lit, with constant non-directional light levels, and there is almost no connection to outside spaces, their sounds, smells, changes in air temperature and interest. Crucially, corridors are among the most environmentally homogenous and static spaces in the home. The staticity contrasts strongly with the communal and personal spaces between which it resides, which by nature of their intended dwelling (living rooms, dining rooms and bedrooms) are designated areas for greater sensory stimulation and include the relative extravagancies of windows and their associated atmospheric changes. The effect of this contrast is that during the day, circulation areas often appear darker than their adjacent rooms for dwelling, illuminated by daylight, while at night time they are relatively far brighter than bedrooms and common spaces, where light levels are typically dimmed in coordination with the time of day. Residents remarked on the intimidating qualities of these contrasts, wanting to shut out the brightness of the evening light necessary for wanderers and those with different rhythms, and in the daytime feeling observed in their relative illumination in bedrooms, or perceiving an unsettling strangeness in the motions in the relative dark outside their rooms in corridored spaces. More than a question of lighting alone, sensory contrasts between spaces of movement and spaces of dwelling within the homes reinforce the corridor as a space of transit more than a space of transition; that is a space of objective movement rather than a space of adaption and change. The lack of sensory and social support in spaces of transit reinforces the perceived distance between dwelling parts of the home and, as such, residents' willingness and confidence to traverse the void from a relational space of comfort and certainty (where they are at a given moment) to a space of unknown business and activity (who will be in the common room? Will it be noisy or crowded?).

Several participants noted the relatively alien nature of the corridor to other familiar dwelling settings. The flats and houses of life before residential care contain no corridored

spaces. They are a product of institutional building typologies, and participants speak of them in reference to schools, and hospitals rather than homes. The initial inference is that corridors are objectively the problem since they create a physical and perceptual barrier to greater involvement and appropriation of spaces in the home. However, further interrogation of the data revealed the complexity of the role of the corridor in the publicity gradient and residents' associated personal and social fulfilment.

Residents cited experiences with corridor-less dwellings as an alternate device for spatially sequencing personal and common parts of the home. In this scenario, participants reflected on the immediacy of the relationship between one room and another – a bedroom adjacent to a living space for example – without the division afforded by the corridor setting. Like concerns over corridor settings, the abrupt adjacencies between spaces are amplified in this scenario, where the absence of liminal spaces for the transition between scales of interaction and comfort are missing, though this time through the immediacy of contrast rather than the imposition of the corridor void space. On this, participants noted the undesirability of having others – often strangers – outside a personal room and the intimidation associated with that relationship, and the sensory overload of often-busy common spaces encroaching on the quiet personal spaces. Participants remarked on the desirability of a degree of separation between private more intimate spaces and those for congregation through the analogy of the house, wherein “going upstairs”, and having “separate living, kitchen and dining rooms” to the more private parts of the home was desirable, especially “when you live with others... it (the upstairs) is a place you can be while the kids are in the living room or whatever”. This analogy presented a valued spatial normalcy to privacy that, though many did not live in townhouses, was generally collectively recognised; that there are gradients to the level of intimacy invited to visitors and others within the home that scaffold feelings of comfort and belonging.

The apparent dichotomy of corridors as bad or good is dissolved through this engagement. Instead, participants alluded to aspirations for “in-betweens” – distinctions between the quieter and more intimate parts of the home from noisier common areas – that also afford social and sensory stimulation, dwelling, and appropriation. These spaces, intended as extensions of residents’ private domains, would occur outside residents’ individual rooms, and hence serve as liminalities between different modes scales of interaction and modes of occupation. These spaces are analogous to the circulation-cum-living spaces in common parts of the adapted residence mentioned above, where the functional prescription is ambiguous; spaces of circulation are no longer static and rigid but enriching and supportive of variations in socially and personally fulfilling interactions. Crucially these liminal zones are no longer corridors since functional designation to spaces of transit alone is not possible. Instead, they are spaces of inhabitation, and as such are necessarily afforded the necessities of non-mechanical space (not just for moving between rooms and past others) for dwelling and for personal things. The spaces must also necessarily be afforded the environmental qualities of other spaces of dwelling, notably windows that provide sensory variations and greater awareness of a connection to the wider environment. Figure 23 below is an excerpt from coding the tension between the alienating corridors of reflection and liminal aspirational spaces.

Elaborating on these liminal thresholds through designerly interactions, participants remarked on the softer benefits of “no-more no-man's (sic) land” where the intimidations of “prying eyes” and “foreign shadows” from circulation spaces are reduced through the distance afforded by the threshold space. Further, problems associated with recognition and transition across the threshold to private and common areas are reduced through the social layering of spaces that contain residents’ things and where they spend more of their time. Participants challenged the simplified model of regularised functional spaces with the need for spaces that accommodate more relational scales of dwelling and interaction as well

as “everyone all at once”, where people can “have their own space” within the common environment. Here participants made analogies to familiar architectural configurations such as conservatories, porches, bays, and booths. The implication is that liminal environments offer opportunities for gradual engagement with and partial regression from the group, which suit differences in mood and personality.

OPEN CODING THE DIFFERENT SCALES OF SPACES FOR INTERACTION + THEIR RELATIONSHIP TO EACH OTHER.

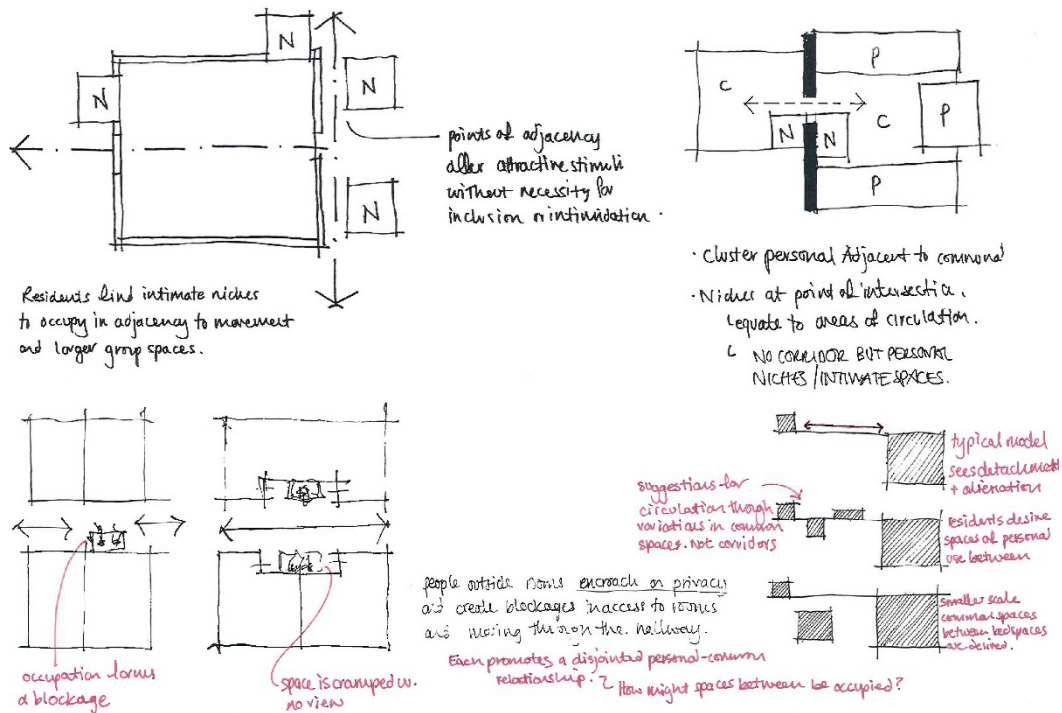


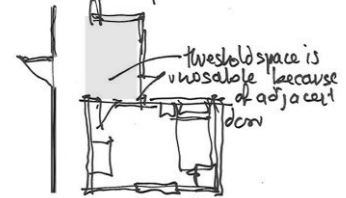
Figure 26: Coding tension between alienating disjunctions from residents personal to communal spaces, and aspirations for more liminal graduation.

• On privacy in bedrooms: Shared Residence

adapted residence



Privacy conditions are limited with the door + planform relationship



threshold space is usable because of adjacent door

"likes to see people moving past"

"really only spend time in bedroom to sleep - mostly in common room"

* Things (equipment) are taken to the common room for recreation / entertainment.

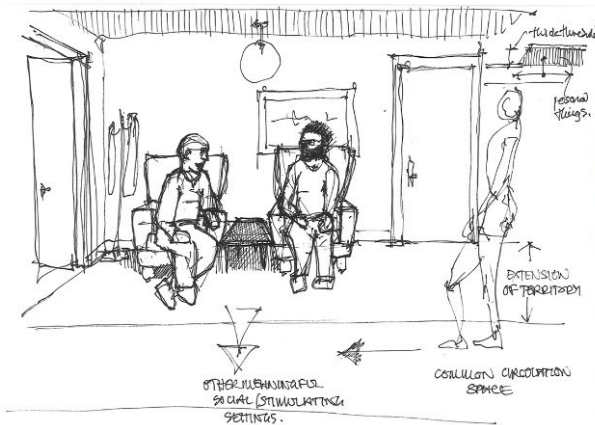


Figure 27: From field notes, to conceptualisation, and to projective representation of a gradual personal threshold before communal areas.

Affordances

Participants often reference life outside residential care when discussing aspirational living conditions. Life outside of residential care is described as occurring across varied large environments – the street, workplace, coast, park and so on – in which daily life is characterised by negotiation and chance interaction with its people, systems, and material configurations. Life outside residential care offers variations in mood, recreation, and sociability throughout the day, seasons, and life, and crucially this life involves choice and decision-making that reflect and strengthen a person’s self-image. The qualities of this other outside lifeworld are, however, contrasted with life in residential care. The care home affords a monotonous, ordained, controlled, and measured life in a vastly shrunken world. The self-determining factors of life outside residential care described by participants are lamented as part of the losses associated with living with the symptoms of dementia, and many participants portrayed their acquiescence to a more subservient life, understanding the compromise of personal autonomy that comes with the debilitated decision making and associated increased risk of harm. The new controlled environment is a necessary intervention in residents’ safety and hence a loss of autonomy is a reasoned, inevitable, and necessary part of ageing and living with the symptoms of dementia.

Visitor: “moving into the home was necessary because it gets to the point when you can’t cope at home”.

Researcher: “can you tell me more about that?”

Visitor: “(the resident’s) physical difficulties alone make being at home dangerous, and then their confusion... it’s hard to deal with. A home like this is designed, geared up to meet (the resident’s) needs... We did not want to put (them) in a residential home but it gets to the point when you have no choice”.

Researcher: “why did you not want them to move to a care home?”

Visitor: “it feels like you are abandoning (them) – (they) are around strangers”.

Researcher: I assume they did not live with you before the symptoms progressed. Can you explain how this is different to life before they symptoms were so strong?

Visitor: A care home is different to your own home. They are specialist in looking after (residents’) needs ... there is always someone there to help. But

they are not nice places to be – all lumped in together, it is not very fulfilling, but I think that is less important now”.

Researcher: “Is it the social mix that most concerns you?”

Visitor: “it is also the place. The handrails, the smell, the same bedrooms, and corridors – it is not like home” (notes from an interaction with a visitor about the reconciliation of losses against the need for support experienced when moving a family member into a care home).

However, the resignation of autonomy to facilitate residents’ safety has seemingly justified the resignation of many other important and fulfilling environmental qualities, and the imposition of some restrictive configurations. This resignation is reflected in the static architecture of the care home and the social life it facilitates. In a care home, residents have fewer locational and occupational choices in the environment than in other residential circumstances. Broadly speaking, individuals have privacy in bedrooms or access to shared communal life in common areas shared by all. Comparison with life outside residential care seemingly amplifies the constraints of the care environment, where the restrictions imposed by inflexible planning that might once have been mitigated by a person’s freedom to change location – “going out for a walk (when feeling coupé up)”, “moving to a different private room... for a change of scenery”, or “getting away from the same faces” for some social stimulation – restrict residents’ sociability in the home. The perimeter is secured, personal spaces are small and confined to a room, and the gradient between personal and communal is sharp. The category of affordances centres around these contrasts; in aspiration for spaces that afford expressive and creative forms of living against a tendency for simplistic and static structural configurations; and in the abrupt privacy gradient between personal and communal spaces in the home. Much of the focus in this chapter is therefore on residents’ relationship with their bedrooms. This section discusses key material socio-spatial configurations referenced on the continuum of support or restriction and highlights residents’ aspirations to spaces that afford variation and

negotiation in a fabric that respects residents' differences and personal changes in the trajectory of their remaining years.

Bedroom layouts

Bedrooms in residential care reflect the priority to optimise the much needed physical and personal care of increasingly dependent residents. Notwithstanding the importance of this need (it is in fact perceived by most as the *raison d'être* of the residential care home), participants perceived the optimisation of the bedroom for an expected end-state of full dependency designed to support high levels of cognitive deficiency, physical disability, and incontinence, a level of care greater than many require. This manifests in spatial material configurations for which the key determinants are to provide interiors with high colour contrast to aid cognition; space around the bed and through the room for wheelchair and hoist access and the administration of personal care; and a clear view and relationship with the bathroom. These conditions were perceptible without exception in the purpose-built residence, whereas the adapted residence had to “make the existing building work” and rooms conformed more or less to these criteria. The contrast between adapted and purpose-built spaces enabled the interrogation of varied bedroom layouts, from which implications for residents' personal and social fulfilment are discernible. And evidently, while the prioritisation of spaces to facilitate personal care do not necessarily restrict residents' fulfilment, they are an incomplete picture that misses some aspirational affordances possible in the design of residents' personal spaces.

Figure 22 is taken from a memo drawing on and reviewing fieldnotes exploring the socio-spatial relevance of different bedroom planforms both reflective and aspirational. On the left, initially observed bedroom layouts were recorded. These were conceptualised in diagrams on the right used in further exploration of perceptions of residents' privacy in the structural organisation of the bedroom. Participants suggest that control over personal

privacy is closely associated with residents' dignity and confidence. Crucially, privacy is framed on a continuum with publicity and is a multi-sensory concern. Given that the retention of cognitive and physical abilities varies among residents and can change for any given resident over time, and the prioritisation of the eventual high-dependency end-state reflects only part of the condition of life in residential care, many privacy-publicity concerns are marginalised in occupationally rigid planforms.

The need to accommodate varied forms of occupation mindful of resident differences was expressed in; different aspirations for privacy and inclusion; spaces for different forms of social and recreational occupation; and varied sensory connections with other spaces in the home, beyond the walled enclosure of the room. These concerns are conceptualised in three discernible personas that emerged through fieldwork and are manifest in the right-hand side of Figure 25. These personas are discussed below.

The first persona conceptualises residents that prefer more private connections to the home. Many participants referenced self-consciousness in rooms where the common or circulation parts of the home overlooked the heart of their bedroom, a common condition throughout both homes. Residents suggested that people passing by their rooms often look inside, increasing feelings of vulnerability, particularly since many were strangers visiting other members of the home. One strategy to cope with these feelings is to shut the door to block out the invasive glances, however, this manifests a tension between privacy and isolation. Residents that regularly close their doors and retreat from life outside the room can become isolated or lonely. The conditions for privacy in most bedrooms observed were largely binary – open or shut-off from the home – while aspirations were for something more affording of variations and in-betweens. Suggestions included independent control over audible, visual, and other sensory connections with the home and a gradient of privacy-publicity within and beyond personal space.

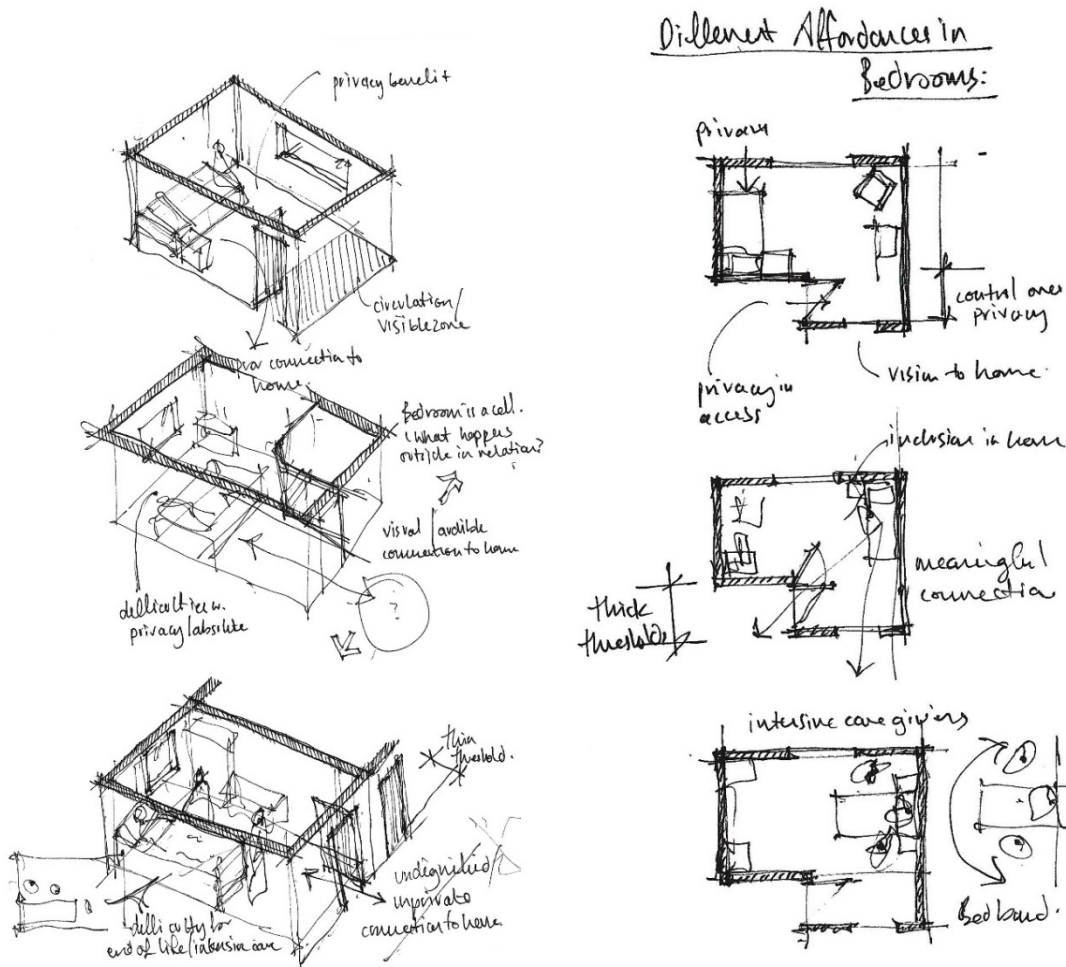


Figure 28: Developing resident personae from observational sketches

Another persona conceptualises a resident feeling isolated and in need of stimulation or a stronger connection with the rest of the home. This common condition can be acute with bed-bound and frail residents whose connection to the rest of the home is limited from their personal space. Here, a stronger connection with the rest of the home is often preferred and can be facilitated through reorientation of the bed within the room toward the common parts of the home. However, in many instances, this is only possible with an open doorway through which the resident is highly exposed, and over which they have little-to-no control. In such instances, alternative arrangements, such as internal windows permitting a view out from the bedroom are often impossible in the arrangement of rooms aligned side-by-side and accessed through their narrow edge.

The third persona reflects the more highly dependent state of care experienced by many residents, particularly in the later stages of dementia. Residents in this condition require a flexible configuration that affords complete access all around the bed area and a direct connection to the bathroom for ease of access and to support wayfinding. Residents in such states of high dependency often struggle to verbalise opinions, however, there was a discernible preference for a stimulating view out of the bedroom and sensory connections with things outside their personal space¹⁶. Further, these residents' carers and families often spoke of the delicacy of these residents' dignity, particularly the need to protect it from view to the rest of the home. Again, here a balance is suggested between the needs for privacy, personal care, stimulation, and connection with the rest of the home.

Within each of the above personas, is the prevalent desire to have different areas of the room usable for different activities and forms of occupation (such as hosting others or spending time doing a task away from the bed) is prevalent. The aspiration is a need for rooms that accommodate variations in the layout that support residents' differing and changing needs for occupation, privacy, and publicity. However, the ability to do so is often constrained in both the adapted and purpose-built residences by the presence of internal *en-suite* bathrooms and rooms planned about their long axis. "Rather than flexibility to accommodate varied patterns of occupation, most resident bedrooms in new and existing residences conformed to a narrow and deep plan form that permits a greater number of rooms along a corridor and external elevation" (Burke & Veliz-Reyes, 2021). Rooms of this type accommodate limited variations in layout and hence restrict residents' mastery of privacy, publicity, and occupation in their personal space.

Instead, aspirations for rooms that are considerate of the changing material-spatial qualities of these personas abound in the data. One participant claimed, "you cannot

¹⁶ Care staff and visitors were helpful in communicating their knowledge of residents' preferences in this regard, since they have known them for far longer duration than the scope of this inquiry.

provide a room that is suited to everyone's needs"; the suggestion was that a room designed to support the interests and will of one resident would necessarily entail specific configurations that differ from that for another person. This is true in the context of a purely functionalist perspective; however, it was later conceded that rooms designed to afford different modes of inhabitation could offer greater potential for residents' fulfilment than a prescriptive approach. Similarly, it was often suggested that "residents could move between different types of rooms" according to their temporal state. However, this clearly conflicts with strong concerns about confusion and "residents needing to feel some permanence", or like "it is their home". So, the aspirational flexible bedroom necessarily came into realisation.

Particularly the deep plan tends to afford less control for privacy, while rooms entered on the long edge afford greater control, as things, people, and activities can be positioned outside the field of view from the doorway and rest of the home. Additional benefits of the wide plan form are the penetration light into the room, which is far less effective in a narrow and deep bedroom. The importance of light and contrast are discussed shortly in terms of the relationship between the bedroom and the rest of the home. But first, one of the most restrictive factors in the flexibility of a bedroom, and thus its affordances to residents' differences, is the highly contested *en-suite* bathroom, to which attention must now be tuned.

(*En-suite*) Bathrooms

En-suite bathrooms were spaces of contestation. Most visitors insisted on the importance of a private bathroom, which was tied to concerns around dignity, privacy and territory. After all, residents "spend a lot of time in the bathroom at [that] age"; "personal care includes many private things that it would be undignified to share with others"; and "it is important that [residents] have their own space". However, residents and care workers reported

mixed views on the *en-suite* bathrooms, suggesting that bathrooms opening directly into the bedroom are always visible, have a noticeable unpleasant smell, and take up a lot of space.

The constant sight and smell of the bathroom can be problematic. Private bathrooms in residential care homes differ in appearance from most residential bathrooms. High contrast fittings and omnipresent assistive technologies, such as handrails, pull cords, and personally assistive equipment, are, as one resident put it, “a constant reminder of what is lost”, and “a bit undignified”. “You don’t really want to show it off” claimed another, in discussion about hosting others in their room. Given their size and service needs *en-suite* bathrooms are almost always positioned just off the corridor, on the dark side of the bathroom where they do not block window light and are hence highly visible from the bedroom and bed space. This constant visibility is, as discussed, necessary for many with advanced symptoms, however, can be an unwelcome reminder of an eventual end-state for more abled residents.

As for their encroachment on personal space, *en-suite* bathrooms that are inbound – that is within the footprint of resident bedrooms – are extremely space hungry. Participants often referenced the lack of space to use the bedroom for more social or recreational activities, gesturing or directly referencing the bathroom and its door swing. Further, the position of the bathroom invariably adjacent to the bedroom entrance causes the “killing” of the space next to the bathroom partition. In effect, an inbound *en-suite* bathroom is not only a large encroachment on residents’ personal space but also restricts the use of more space through the outward swinging door (required for inclusive access) and its narrowing effect on the space between it and the bedroom entry, creating a narrow space unusable but as a thoroughfare. These encroachments render much of residents’ already limited personal space unusable for many socially and personally fulfilling activities, as illustrated in Figure 26 below.

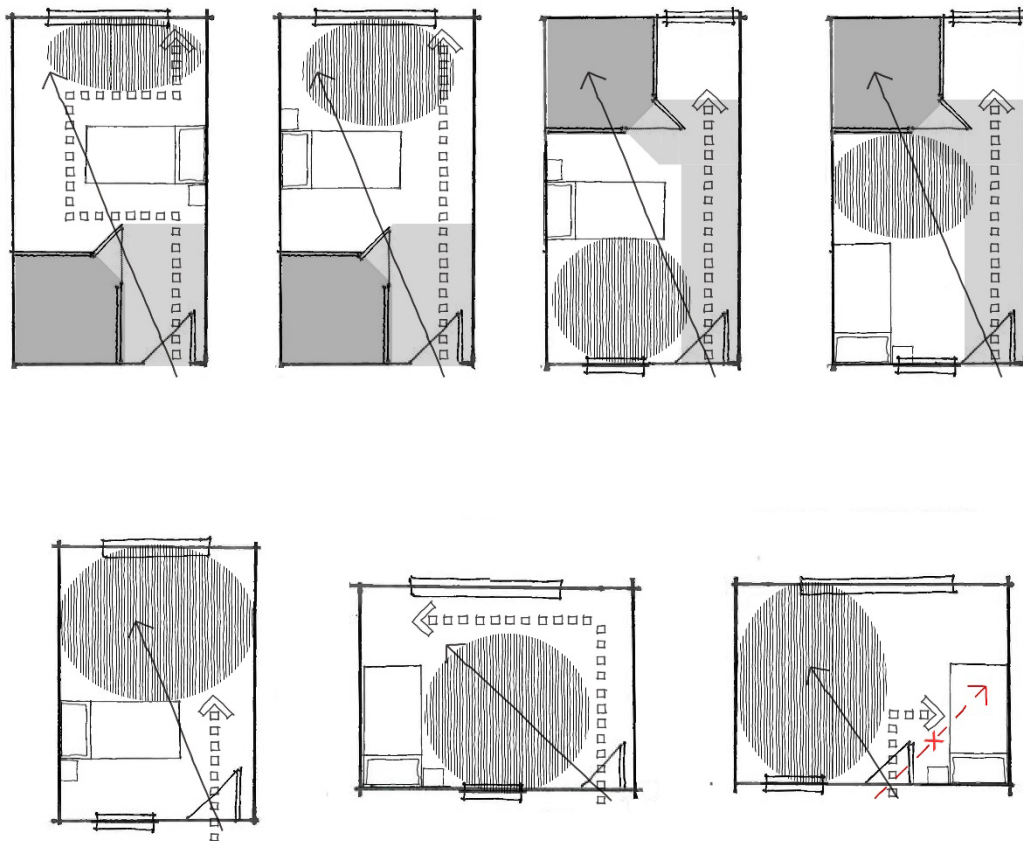


Figure 29: Diagram series showing privacy and usage constraints associated to bathroom location and plan orientation derived from participant interactions, moving from reflective insights to projective supportive configurations.

However, upon further inquiry, it is clear that participants do not believe that private bathrooms should be in bound due to their restrictive qualities. And further that they ought perhaps not to be *en-suite* to the bedroom. Firstly, by removing the bathroom from inside the bedroom footprint, a great amount of space is released for varied uses, such as those described earlier in discussions of this category. Floor areas can be more readily divided into different zones of privacy and activity in a room unencumbered by the loss of space to the bathroom. Further, the door to inbound bathrooms is invariably on the corner, which compromises between its encroachment and the need to spare space in the bedroom proper. However, this precludes the use of space-saving pocket doors, common in bathrooms and which are more easily navigated by wheelchairs and people assisting

others with limited mobility. An adjacent relationship releases the footprint of the bathroom, the space of the outward swinging door, and the ‘dead’ space between the bathroom and bedroom entrance. Secondly, while *en-suite* bathrooms were associated with some compensatory luxury – “they are nice and a bit special” and “I always wanted an *en-suite* bathroom” remarked visitors – there are possible benefits to the separation of bathrooms and bedrooms.

The potential affordances of a separate-but-close bathroom are the removal of unpleasant smells and sights that remind residents of their current and possible incapacities, increased wall and floor space including for furniture, and an increase in the territory of each resident. Removal of the unpleasantness of bathroom sights and smells supports residents’ will to host others in their personal spaces and allows them to “forget for a while” some of their bodily struggles. Participants suggested these aspirations, and many commented on the “coldness” and “utilitarian” appearance of the bathrooms, which were further considered to be unpleasant.

The omission of a door in the external envelope of the bedroom allows more room that residents can use for desired activities or the placement of furniture, for instance. An *en-suite* bathroom requires a doorway and access threshold that takes up valuable space in the residents’ already shrunken worlds. And further, the benefit of extending residents’ territory, where they might leave the bedroom to go to the bathroom stems from discussions about the comparison between bedrooms in the purpose-built and converted residences. Residents in the converted home have greater engagement with the space outside their rooms, and perhaps better orientation of their location in the home, from regular ventures to the bathroom. Then, by extending residents’ personal spaces to two rooms instead of a single bedroom, further scope for the appropriation of the space beyond the bedroom is afforded; residents have a larger threshold moment between their

private space and the rest of the home, which was perceived to be beneficial to their mastery of the environment as *their* home.

However, the counter position to the separation of personal bathrooms was presented two-fold. Firstly, that residents could easily lose their way and end up in one another's bathrooms or not find one at all. This concern is, however, mooted by the overwhelming acknowledgement that residents often stray into one another's rooms in moments of confusion and curiosity and that logically, the aspirational condition is no different to the existing scenario. Secondly, that, as discussed, many residents *need an en-suite* bathroom to support their more chronic conditions of incontinence and personal care needs. These concerns are again contextualised in participants' acceptance of the inevitability of a rigid structural environment, and the associated neglect of aspirations for more flexible forms of accommodation and planning. Figure 27 describes the colocation of adjacent but separate bathrooms and bedrooms in which the wall between the two is adaptable to provide either separate or *en-suite* bathrooms dependent on residents' needs. Here, the partition can be removed to create open access to the bathroom that protects dignity for those with more advanced personal care needs while allowing separate and extended personal realms for those with less dependency.

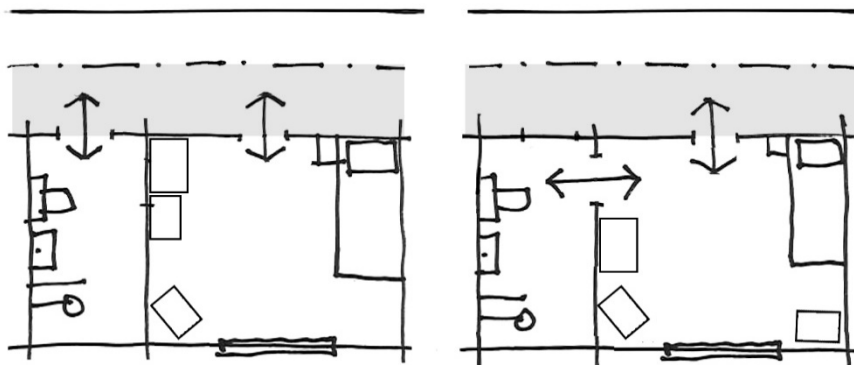


Figure 30: Spatialising adaptable bedroom bathroom configurations that afford separate or *en-suite* formats and retain a territorial threshold and afford greater space in personal rooms for a greater variety of occupations.

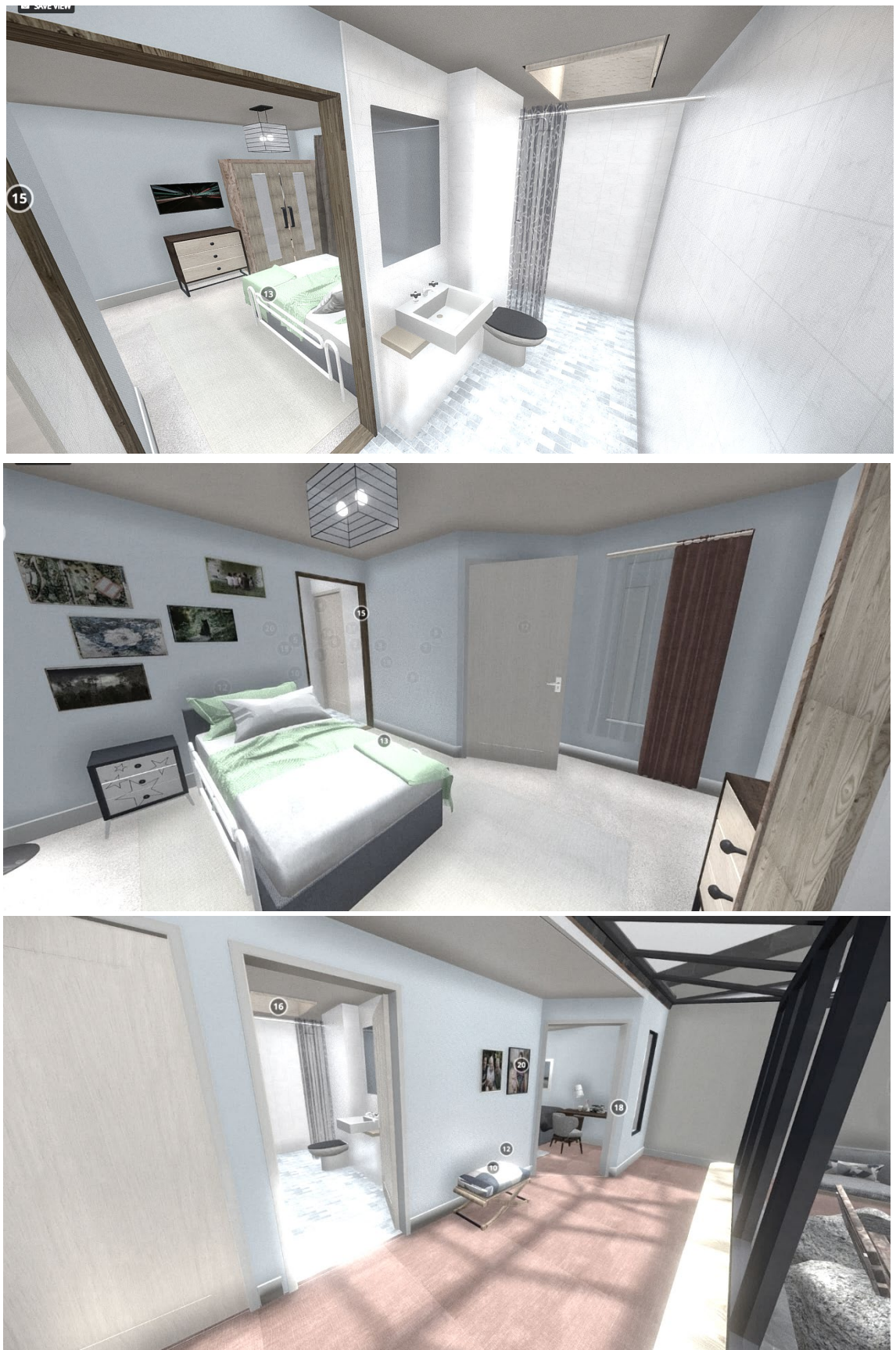


Figure 31: The extension of personal territory from personal room to liminal zone and adjacent bathroom from outside, and a bedroom with direct access opening to the adjacent personal bathroom formed through adjustment to the flexible fabric of the projective environment.

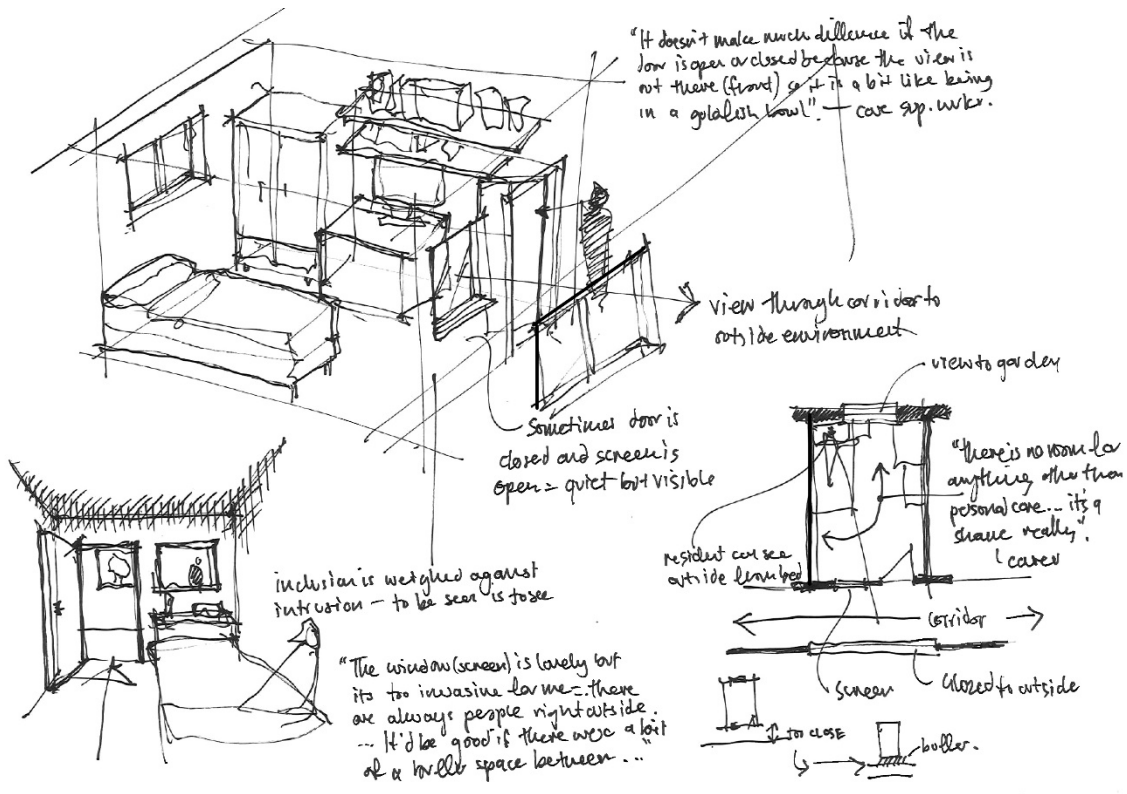


Figure 32: The form of enclosure at the threshold to personal spaces, from reflective to aspirational

Room, Space, Enclosure, Threshold

Participants tended toward four social-sensory variables when discussing the personal publicity gradient of their personal rooms. Firstly, the ability to control visual connections with the rest of the home is crucial; undesirable passing figures, prying eyes and distraction from people outside the room are in tension with the beneficial and often stimulating need for visibility and observation. Closely related is the already touched-upon need for social inclusion in the home, which is again in tension with frequent unwanted intrusions. Open doors suggest the welcome of visitors, while closure implies the desire to abstain from interaction, for instance. Thirdly, variations in acoustic awareness across the threshold were also commonly cited, wherein the ability to make noise, shield from noise, or hear without being seen are discernible variations. Finally, olfactory connections are also important. The smells of the home can be a welcome and pleasant, as much as they can offend. However, as mentioned, almost all personal rooms observed have a single opening and point of connection between the personal room and the rest of the home, which limits the control any resident has over these variables. For instance, a resident seeking to shut away from noise must typically close their door and hence all forms of connection to the rest of the home. The closed door implies a desire for withdrawal from personal interaction with others and can lead to feeling isolated. Residents hence have the choice either to persist with the discomfort of unwanted noise or to shut away from the home with few permutations in connection. Conversely, the simple inclusion of a transparent screen in a few of the personal rooms observed permitted a far greater level of control over these important social and sensory variables. The multi-sensory conditions of personal publicity expressed through fieldwork interactions manifest in manifold conditions of enclosure. Figure 29 above shows fieldnotes from observations and interview about residents' bedrooms and a projective configuration embodying the aspirational qualities of variations in occupation and publicity afforded through the form of enclosure. The key expressions

of these configurations of enclosure and their sensory and social affordances are summarised in Figure 30 below.

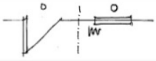
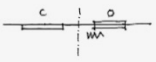
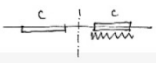


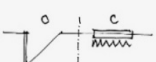
| Component Configuration | Sensory and social affordances |
|--|---|
|  (DO) (SO) | Open to all sensory interaction. Implicit invitation to personal interaction. |
|  (DC) (SO) | Makes visual connections with the home. Retains acoustic privacy. Implicit desire for abstinence from personal interaction. |
|  (DC) (SC) | Insulates to sensory interaction. Implicit desire for abstinence from personal interaction. |
|  (DA) (SO) | Suited to visual privacy in part of the room. Retains olfactory and acoustic connections to the home. Implicit desire for abstinence from personal interaction. |
|  (DA) (SC) | Retains visual privacy. Retains olfactory and acoustic connection to the home. Implicit desire for abstinence from personal interaction. |
|  (DO) (SC) | Suited to visual privacy in part of the room. Retains olfactory and acoustic connections to the home. Implicit invitation to personal interaction. |

Figure 33: Exploring threshold component configurations.

This complexity implies the need both for multiple points of connection at the personal space threshold, and the need to consider the orientation of room planning to facilitate their expression in the use of personal space. The personal rooms observed were consistently oriented with the threshold at the short edge of the plan. This orientation generally precludes the use of different zones of space for different activities and hence restricts the effectiveness of variations in personal publicity, since the different forms of enclosure (*foe*) operate on an axis perpendicular to that of the divisions in spatial occupation (*dso*). Conversely, the orientation of the threshold on the longer edge of the plan form orients the conditions of enclosure with the division in occupations, affording maximum articulation of the spatial-formal representations of the publicity gradient. This constraint is illustrated in Figure 32 below, which emphasises the relationship between the form of enclosure and different spatial occupations.

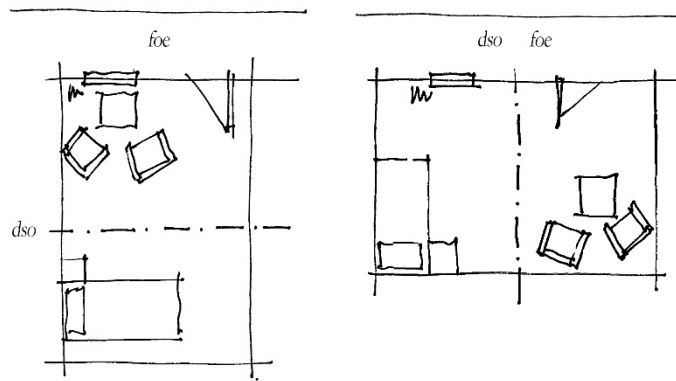


Figure 34: Demonstrating the enhancement of forms of occupation in personal spaces and across the threshold to the rest of the home afforded by irregular plan forms

These spatial-formal qualities extend also the form of enclosure, wherein the common abrupt threshold between the personal and communal parts of the home is also problematic to residents comfort and capacity to vary their social and sensory connections with the rest of the home. The the sights and sounds of the presence of others immediately outside the door can feel like “an invasion of your personal space”. This compounds the relevance of the manifestatin of a liminal threshold (*thr*) between the personal and communal parts of the home and thickens that edge in the projected environment. These compounding formal expressions are summarised in Figure 31 below. Figure 33 shows the development of these compounding aspirational concepts through participant interactions. Figure 34 shows their eventual embodied representation in the virtual environment.

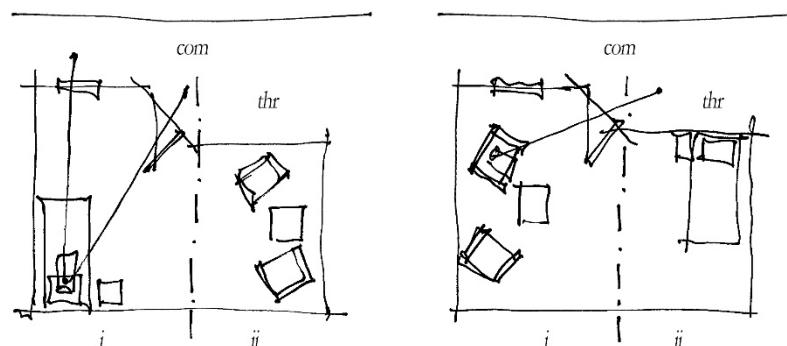


Figure 35: The relationship between personal publicity, form of enclosure, plan form orientation, and the potential for divisions in spatial occupation

Drawings re-annotated following consultation w. covers on key ideas, concerns & potentials.

Both rooms out of sight, but within a personal realm.

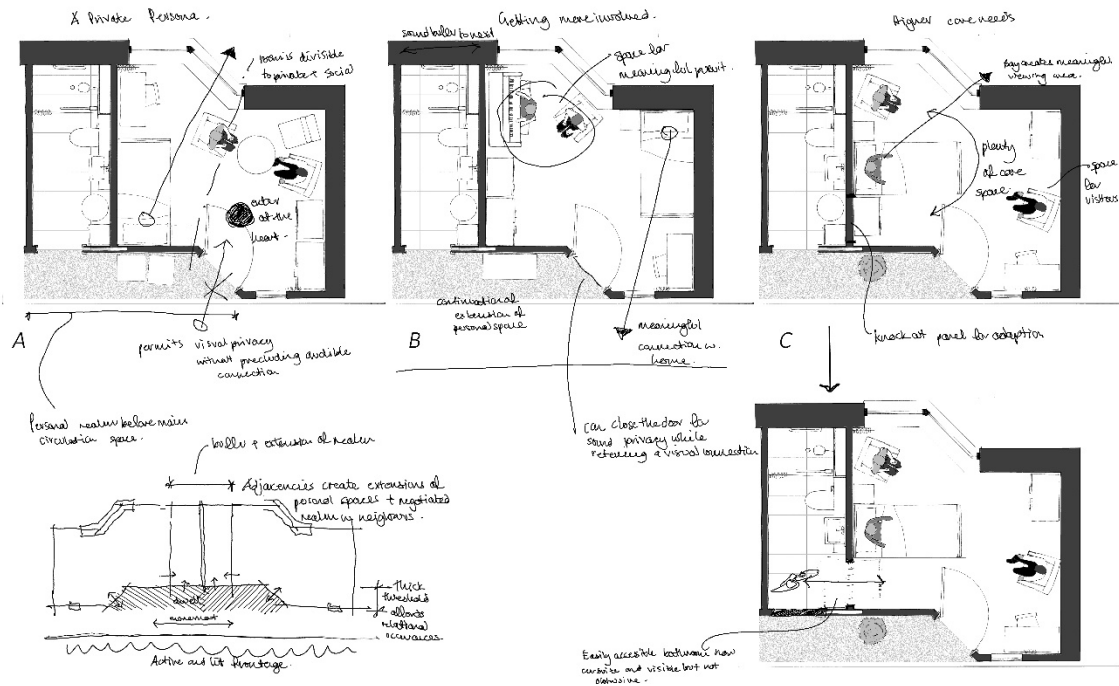


Figure 36: Notes from interactions exploring the advanced development of personal space configurations, including the relationship between adjacent personal spaces as a shared personal territory.

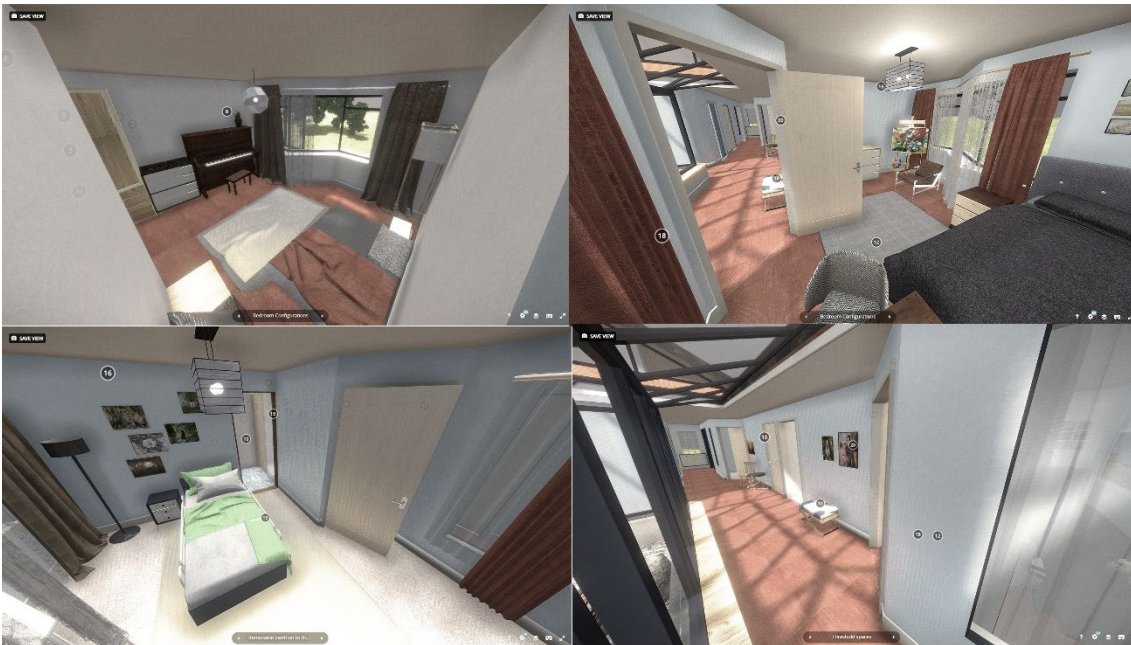


Figure 37: Projective personal space configurations and relationships used in participant interactions.

Enablement

'Enablement' is concerned with the spatial-material connotations of residents' perceived freedoms and unfreedoms to act self-determinedly in the home. Much of the data constructed through fieldwork interactions are built on participants' references to relationships between the social, spatial, and material dimensions of the home in commentaries on freedom or unfreedom to act. Resident perceptions of freedom and unfreedom facilitate or impede acts meaningful to their wants, needs, and desires. The codes of Freedom of Movement; Freedom of Use and Exposure; and Self-Determination are used to frame the spatial-material conditions of perceptions of enablement "on a continuum of support and constraint" (Burke & Veliz-Reyes, 2021). Each code discusses the spatial-material manifestations of aspirational conditions on the one hand, and perceived tensions with initiatives framed as support for residents' wellbeing on the other. Participant "insights into how space planning can facilitate feeling shut-in or liberated; empowered to engage or demotivated; an unsettled temporary visitor or settled" (Burke & Veliz-Reyes, 2021) are used throughout discussion of the category to construct a representative image of enablement through the built environment.

Perceived freedoms and unfreedoms range from power dynamics with staff in the home to perceived inevitabilities in the scarcity of resources to accommodate access to certain freedoms. The former were generally referenced by residents and visitors, while the latter were generally raised by staff in the care home, suggesting a range of perceived power relations among participants. Meanwhile, aspirational qualities derived through designerly interactions suggest supportive spatial-material configurations that challenge inevitabilities.

Freedom of Movement

Participants frequently referenced their uncertainty concerning residents' freedom of movement within the home, specifically in crossing thresholds and accessing spaces.

Commonly residents and visitors alike felt that certain areas were “off-limits”, “private”, or “for staff only”. These uncertainties were often referenced in conjunction with feelings of impermanence, hesitancy, and subservience to an authority in the home, while greater freedom of movement was linked to increased confidence. Herein the environment communicates power structures that can facilitate or impede desired and independent acts of fulfilment.

Residents’ confidence to cross thresholds was repeatedly correlated with feelings of self-determination. In both the adapted and purpose-built residences, building perimeters are hard and clearly defined by walls, locked doors and multiple thresholds to police people moving in and out of the home. The impervious boundaries clearly communicate the condition of confinement, which all participants considered necessary; staff and visitors particularly built arguments around resident safety, such as, “we need to keep them secure”, “they will wander off”, “you can’t have just anyone coming in, so you need a secure entrance” to explain the importance of a secure perimeter. However, the necessity for security appears conflated with the wholesale inevitability of restricted freedom of access to outside space, where participants’ desires for free access to outside spaces, are tempered by resignation to the restrictive nature of security needs; “it would be great if they could go outside at will but it is not safe (due to lack of supervision around temperate and potentially hazardous conditions)”, or “there are not enough staff to watch them/ accompany them”. The implication here is that freedom to access outside space is determined by the extent of hazards of the external environment, which is generally conceded to be manageable through design (avoiding sharp, hard, and slippery surfaces) and the availability of supervisory support. Tensions in perceived freedoms of movement are most clearly present in references to accessing outside space, where many residents were unsure of their permission to access outside space and were usually hesitant to ask care staff to let or 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 (out) (...) 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) (Burke & Veliz-Reyes, 2021).

In this extract, the resident expressed the desire to be outside suppressed by the hesitancy to ask the “busy” staff in the home to take them outside. The desire to be outside was recurrent and common throughout fieldwork interactions, with residents, staff and visitors alike suggesting benefits in mood and enjoyment experienced in the “change of scenery” or “something different”.

Upon further inquiry, participants suggested that benefits from the will to be outside arise in part from having options to vary their environment beyond private personal spaces and limited communal areas; residents’ worlds are often reduced to these relatively small confines, with “limited variation”. Further, many participants suggested that connection with the outside provokes intrigue and offers sensory experiences not otherwise found in the home, and they appreciate access to the temperate stimuli of the outside world, including different views, sounds, smells, and heightened changes in light, air temperature and humidity (many rarely experience the feel of rain), and contingent encounters with animal and plant life that vary with the time of day and seasons. In discussing these qualities, participants referred to their fondness for places that offered similar connections with external stimuli, citing bay windows, in particular, but also balconies and porches as spaces with meaningful and varied connections with the serendipitous and contingent qualities of the outside world. Participants referenced the interstitiality of bay windows, and porches as spaces that are neither wholly inside nor out, and which reside at the intersection of the two spatial conditions. These aspirational spaces contrast with most of the enveloping conditions of each of the residences studied, where windows are largely in the plane of the external all and the planar envelopes afford no

interstitiality. Some exceptions were observed in the adapted residence where a small number of bay windows in bedrooms were popular and regularly occupied by residents. Similarly, a sunroom in the adapted residence provides a great deal of light and “air” (a term used often used to describe the sounds, smells and sensorial qualities of the outside) through large openable French windows, which restrict physical transgression but permit sensorial contact with external stimuli. This sunroom is regularly the most populated part of the communal area in the home. Furthering this concept, participants referred to the possibility of internal-external spaces “like a room but outside” connected to the main home as an extension of the communal area. Some visitors cited other homes with freely accessible outside spaces that serve as extensions to the communal parts of the home, readily overlooked and easily accessible by residents. Connections with the outside represent further disruption to the tendency for a flat and linear envelope, which is generally present within participants’ aspirations for supportive environments with caveats around safeguarding (balconies are a concern for falling objects at upper levels, and intrusion from strangers at lower levels). Notwithstanding these concerns, the undulating threshold – represented with a bay window in Figure 35 – is a common reference that thickens the line between inside and out.



Figure 38: The inclusion of bay windows in projected aspirations informed insights into the role of the external edge of the enclosure of personal spaces

The will to the outside is here framed as both a will to movement and a will to connect, and aspirational environmental qualities suggest supportive devices that range from surface architecture, such as bay windows, to spatial sequencing, wherein the free flow of movement between inside and out is made possible through considerate planning of easily overlooked and safe environments adjacent to more internal common areas. These devices were met with overarching support when explored through immersive designerly interactions, wherein it was suggested that the opportunity to be outside would increase residents' exposure to the benefits of doing so over a system where permission and a chaperone are required.

The concept of freedom of movement extends from crossing thresholds with the outside to other movements within the home. Medium-sized homes are generally divided into wings or floors with central common spaces and separate bedrooms for residents in one or another zone of the home and so residents' day-to-day lives occur in a relatively small part of a much larger space. Many residents were cautious to move between wings of the home unfamiliar to them (typically areas of the home that contained neither their personal room nor the main communal areas). This centralization of personal and common space instils an alienation from spaces residents do not access. Those sufficiently cognizant 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 contextualize their location relative to what happens nearby. This is particularly prevalent in the purpose-built residence, where different wings stem from a central common area, and residents whose personal room is in one wing felt both the lack of necessity and unwelcome to access another wing. The format of the adapted residence poses different challenges with similar connotations. In its multiple levels and zones, the home has locked thresholds between levels and a "warren of circulation", which invariably places residents in repetitive and separate parts of the home; there is no reason for

someone with a ground floor bedroom to venture upstairs through the closed staircases when communal facilities are also on the ground floor, for instance. Participants from both homes suggest an alienation from unknown parts of the home, wherein the unfamiliarity of ‘other’ spaces heightens uncertainties around where they are welcome to venture and where they are not:

“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 notes 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 recognize from their own homes. The uncertainty is linked to a hesitancy wherein participants’ actions are subdued by the perceived power relationship, and the care staff are the policers and givers of permission to act. This perceived relationship is largely unsupported in principle by participants who suggest that the home should belong to the residents. However, many participants (residents and visitors alike) suggested uncertainty about where they are allowed to be:

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).

The 'self-policing' of personal bedrooms is generally considered beneficial, while alienation from unfamiliar parts of the home is considered a contributor to residents' subservience. Participants suggest that the distinction between areas of more intimate interaction from more public parts of the home is a concept familiar to them from other dwelling experiences and that it is appropriate in the care home to maintain the different scales of occupation associated with the personal and communal parts of the home. However, multiple separate clusters of private rooms (or wings) are a key contributor to unfamiliarity in this context. Hence a preference is expressed for distinct areas within the plan but in which there is a single point of transition. This concept was generally supported through projective designerly interactions, though there is a likely limit to the scale of each zone that may suggest some constraints on the medium-sized home model, where participants suggest that smaller homes within the medium-sized accommodation are more appropriate to meet these freedoms.

Residents' freedom of movement extends to the tendency and will to wander common in people living with dementia and with cognitive difficulties. Residents observed wandering tended to pause at points of distraction or variation provoking interest, whether through intervention from others in the home or through a happenstance encounter. Residents pausing through distraction rather than intervention or meeting a dead-end scenario showed fewer signs of distress than those confronted with abrupt interruptions. Many care staff raised the importance of a floor plan that accommodates wandering residents which comprises variations in activity, occupation, and stimulation, and which is largely continuous rather than directional. The adapted residence afforded such circulation within the ground floor common areas, which form a circuit through the living, dining, and sunroom areas, and residents freely move through the variations in the environment (Figure 36). However, upstairs and in the purpose-built residence, circulation systems are more directional and linear, confronting dead-ends and locked doors. Further, these

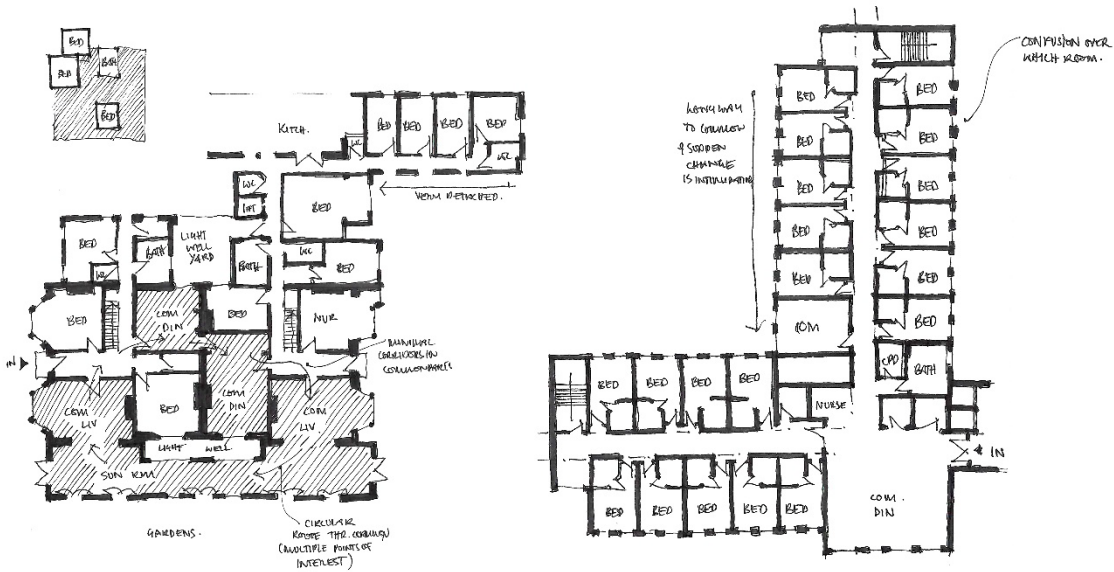


Figure 39: Plans demonstrating typical movements through communal parts of the home in the adapted residence (left) and purpose built (right) and highlighting residents' association to areas of the plan.

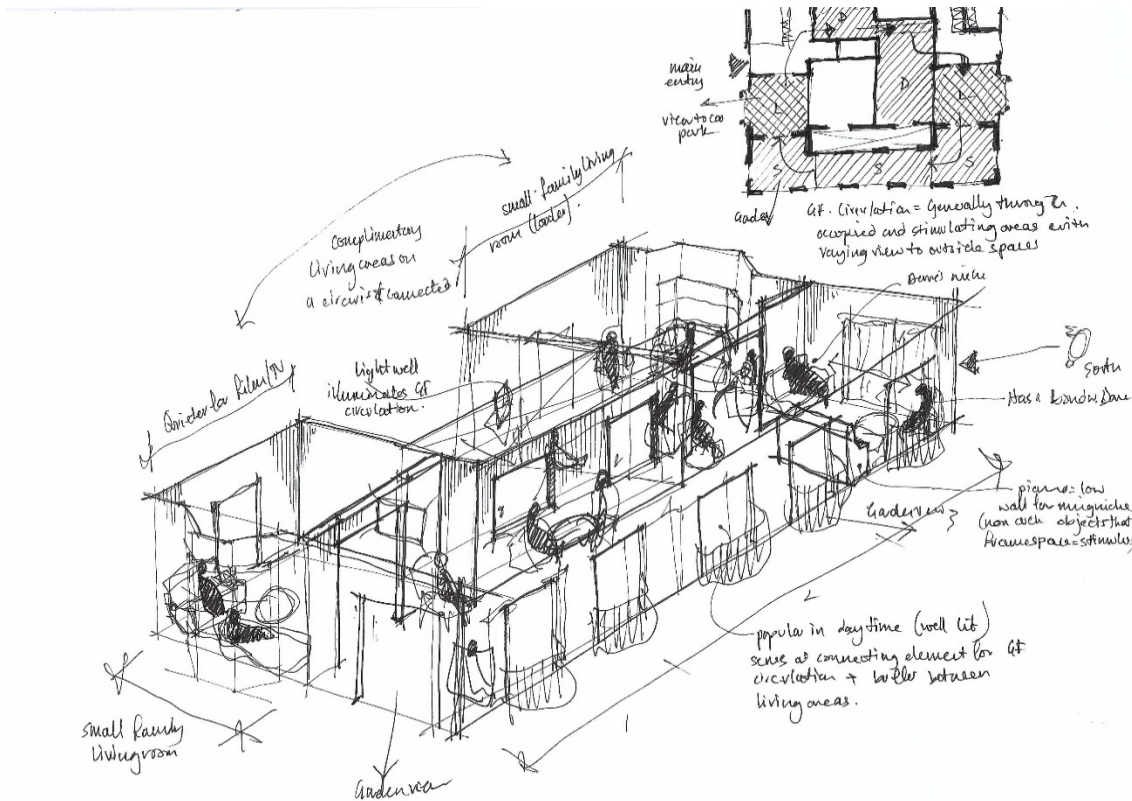


Figure 40: Capturing niches as spaces of appropriation in the adapted residence valued by participants.

circulations offer little variation in stimulus since they serve almost entirely as a conduit to bedrooms. Hence, wandering residents tend to happen on fewer serendipitous distractions and stimuli, which is suggested to increase distress to them and to others, including through intrusion into others' rooms. Hence aspirational configurations evolved that afford continuous movement through different zones in the home, and wherein thresholds to personal rooms are set back from the principal space of movement to reduce disruption to other residents. Figure 37 captures the configuration of niches and spaces of appropriation in the communal part of the adapted residence, where different scales of inhabitation were afforded and valued, in contrast to the homogenous and regular plan form of communal areas in the purpose-built residence. Extracts from fieldnotes and virtual environments framing spaces that restrict and support variations in scale and type of interactions are framed in Figure 38.

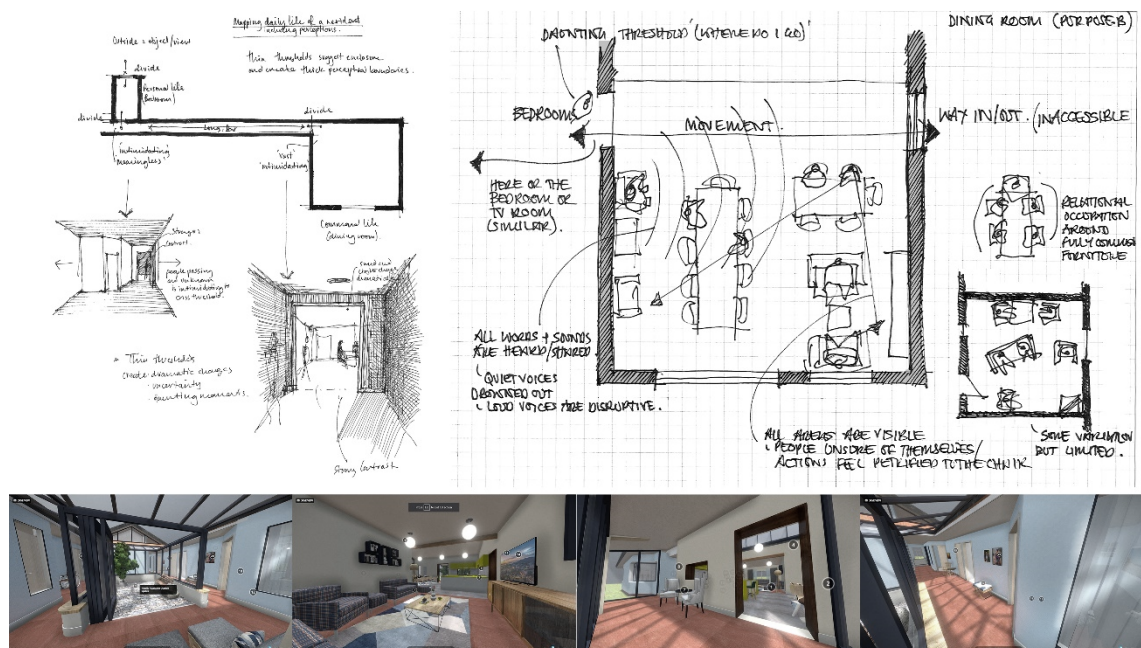


Figure 41: Contrasting homogenous with heterogenous communal spaces that restrict and support variations in the scale and type of interaction.

Freedom of use and exposure

In a shift of scale, a similar will to freedom of movement within and through the home is discernible within moments of inhabitation in the home. Discussions of freedoms of use and exposure are underpinned by the desire to the persistence of residents' identities through meaningful pursuits and interactions with others. Progressing discussions on liminal environments that accommodate changes in personal relationships, and bedroom layouts that afford residents meaningful modes of occupation, the socio-spatial configuration of the home can enable and restrict residents' abilities to persist with expressive and relational activities that are enmeshed with their identities.

Participants, both residents and others, refer to residents through their connections with others and their recreational and occupational pursuits. Participant identities became synonymous with their relationships with others, or their mechanic, pianist, football, or other interests, for example. Many of these characteristics were reinforced by care staff who would, for instance, engage residents in related activities, such as when a former mechanic was regularly given physical puzzles with which to play while in communal areas, or in ritualistic painting exercises at determined times. Similarly, carers regularly interact with residents in less targeted ways to provoke socialisation, such as by throwing a foam ball between people in the living room, watching a film together, or handling tactile objects, or singing, dancing, and talking together. The range of possible occupations is innumerable and the stimulation and variation these activities provide residents is valued across all participants.

Observed recreational interactions were mostly driven by care staff between the other duties of running the home and are generally enacted in communal parts of the home. While carers' personable kindness is laudable and apparent, these conditions impose temporal and spatial constraints to residents' freedom of exposure to activities of positive stimulation. Crucially, common parts of the home are intended both for use by everyone

and serve as the ‘shopfront’, on display to visitors and prospective new residents. These spaces must thus remain generally clear and free from excessive clutter to both maintain an expected standard of appearance and ensure accessibility for all members of the household. Minor and communally owned effects were accommodated in both residences (a piano and games in the adapted residence, and films and magazines in the purpose-built home, for example) and support staff were encouraging and ready to accommodate the temporary movement of things from residents’ bedrooms to communal areas. However, neither residents’ personal rooms nor the communal parts of either home are well suited to accommodate the sustained presence of expressive effects. The impact of this limitation is that often access to self-constructing expressions is restricted by the social and spatial strictures of the home:

Memo Excerpt: Painter:

A resident has an enthusiastic history of painting and artistic pursuits. Art classes, painting and drawing were significant parts of this resident’s life before moving into residential care. The resident has significant physical and cognitive limitations that impede their ability to produce in a way similar to the advancement of their symptoms. However, they regularly referred to their love of painting and considered themselves as an artist. The resident’s family and carers regularly provide them with paper, pencils, and pens, and colouring exercises. However, their family referenced the resident’s enthusiasm for painting and crafts, which occupied a large part of their time, and referred to recent occasions when they had worked with paint and felt a strong connection and noticed positive changes in the resident’s mood. It is not, however, possible to accommodate craft and paint-based activities in the resident’s room since its configuration restricts the placement of necessary equipment and supervised or unsupervised painting is impractical due to the spatial limitations of the space “where would they put (the easel and paints)?” (comment from a visiting family member); there is no distinction in private areas between the bed space and a space for meaningful interaction or pursuit. Nor is it possible to leave painting or making equipment out in communal areas among other residents and visitors; “it would get too messy (if many residents left their things in the dining room)”, “they can bring (their crafts) in (to the common lounge) but it has to be put away when they are not using it in case someone else interferes with it”.

These comments highlight a lack of affordance to self-pursue creative activities in personal and communal areas of the home. This resident relies on invitations to create during visits or when carers have the time, space, and foresight to set up and assist with activities more complex than simple drawing or colouring. This differs

significantly from the self-driven creative expression that once formed a major part of the resident's life, and which is noted to benefit their mood and self-image.

Visitors and carers mentioned that more space or alternate configuration in the bedroom would better accommodate creative activities but were also hesitant about the potential for mess; "the bathroom is in the way (of having a surface or space to create)"; "they would have paint all over the room and bedding (if given free access to paint). These concerns suggest a preference for alternative bedroom configurations that accommodate separate zones for different activities that enable the resident to pursue meaningful and self-driven activities.

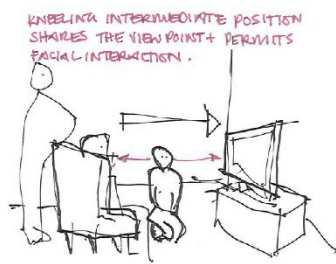
This scenario was echoed to varying degrees in the stories of other residents. Care support staff, occupational therapists, and personal visitors made notable efforts to engage residents in activities both related and unrelated to residents' identities, however, it is usually someone other than the resident that initiates the interaction. Care support workers empathise with the restriction acknowledging that the care support needs of many residents mean there is little room to leave stimulating things out, or in extreme cases, little room to store personal objects, without restricting the delivery of personal care.

Self-constructive behaviours also include meeting and hosting others. Similar to emergent concerns about creative pursuits and touched on earlier in the discussion of liminal spaces, personal relationships occur at different scales. Many visitors express a social discomfort in the two dominant forms of interaction during visits: among the general group in communal spaces or around the bed in residents' bedrooms. The limited range of spaces for interaction is not only restrictive to the form of exchange but also imposes limitations on residents' capacity to host or accommodate, which forms part of the ritual of greeting visitors into the home. Aligned with the previous discussions about the role of fulfilling activities in the home, multiple residents were described as highly social people in life before the advancement of their symptoms. In one instance, a resident is described as regularly accommodating family and friends as guests in the home, which involved arranging food, drinks, and activities within their space. This matriarchal role formed part of the resident's identity, which is not possible in the residential care setting. Participants

acknowledged the safety and practical restrictions imposed on the ability to offer refreshments by the symptoms of living with dementia “(the resident) can’t exactly make us a cup of tea anymore”, however, a clear desire and preference for a space to invite and host guests in the personal area of the home was expressed by many participants. Some participants suggested that a small seating area in personal bedrooms would lead to closer relationships with others in the home, as residents could form more intimate exchanges with one another more readily. 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 socializing.

The emergent desire among participants was for spaces that better accommodate different activities and host resident and non-resident guests. The underlying need for living spaces that enable unforeseen and self-determined actions to unfold is articulated in projections of larger or better planned personal rooms or in greater variation in spaces between the scales of communal and bedroom spaces that residents and visitors can appropriate for unspecified durations. Collective aspirations tend toward irregular, overlapping, and complex plan geometries, over the simpler geometric forms of functional space, found in abundance in the purpose-built residence. Instances of appropriation and informal occupation were noted in recesses, niches, and bays, for example, in the adapted residence. And further, designerly realisations of personal spaces that accommodate variations in layout and use, and common spaces with off-shoots of different scales, were met with overarching positivity in designerly interactions.

VIGNETTES OF OBSERVED INTERACTIONS:
(REORDERED IN OPEN CODING)



KNIBLING IN INTERMEDIATE POSITION SHARES THE VIEW POINT + PERMITS FACIAL INTERACTION.

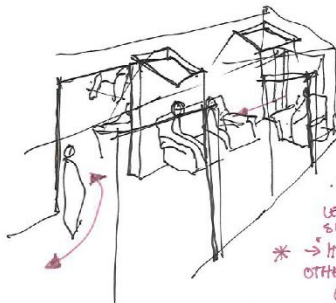
• SHARING A FOCAL POINT. INTIMATE POSTURE + CLUSTERING.

→ THESE INTERACTIONS WERE VISIBLE IN COMMON AREAS IN QUIET TIMES BUT LESS POSSIBLE IN BUSY PERIODS OF THE DAY.

• PARTICIPANTS MOODS OFFER INSUFFICIENT SPACE FOR THIS KIND OF CLUSTERING. "IT IS NICER TO GET OUT OF THE BEDROOM EVEN TO WATCH TV..." "YOU SPEND SO MUCH TIME IN (THE BEDROOM)".



GROUP ACTIVITY (SPONGE BALL): SPACE TO MOVE + INTERACT ATTUNE WITH ADJACENT NICHES FOR PEOPLE TO WATCH + HEAR LAUGHTER AND CONVERSATION WITHOUT DIRECT INVOLVEMENT.

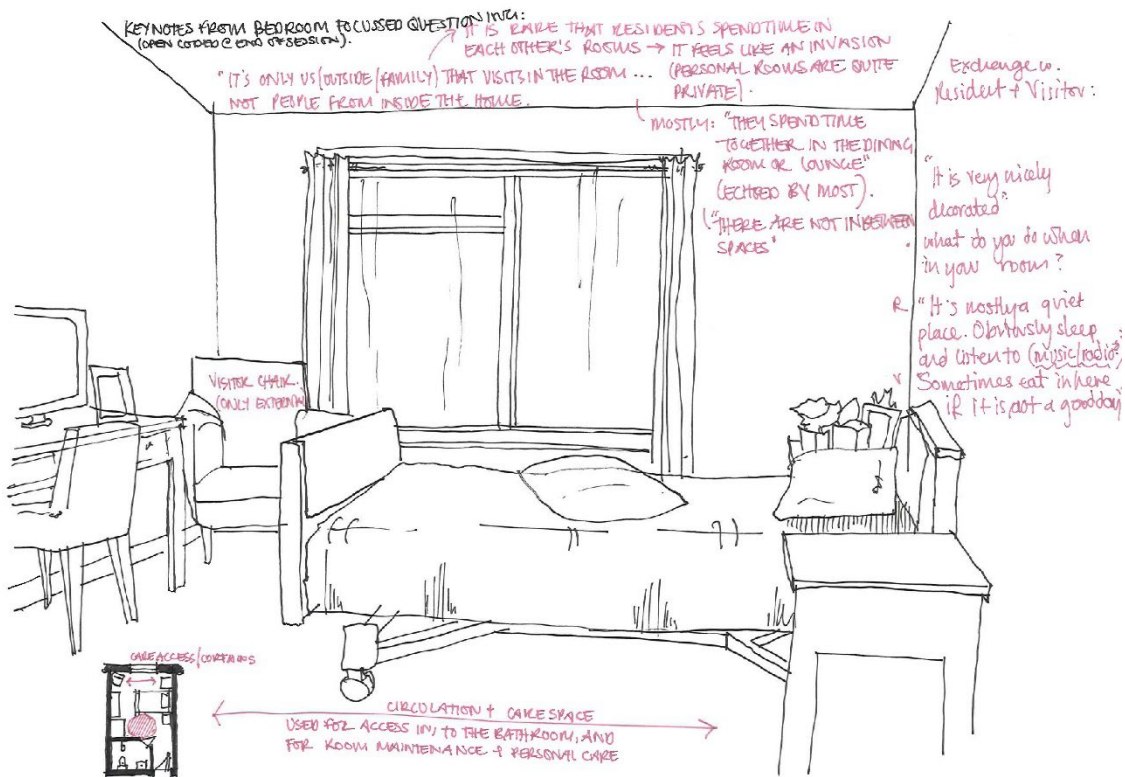


IN THE NARROW + QUIET SUNROOM RESIDENTS HEAR THE GOINGS ON FROM THE BUSY COMMON AREAS. AND SEE OTHERS MOVING THROUGH THE HOME (→)

• THESE RESIDENTS ARE QUIETER + LESS ACTIVE BUT LOOK UP + REACT TO SIGHTS + SOUNDS.

* → IT IS IMPORTANT TO BE NEAR THE OTHERS BUT TO HAVE THEIR OWN QUIET CORNER (CARE STAFF)

Figure 42: Open coding through memo writing reflecting on observation and questions about the appropriation and use of common areas.



KEYNOTES FROM BEDROOM FOCUSED QUESTIONS IN: (OPEN CODING AND OBSERVATION)

IT IS RARE THAT RESIDENTS SPEND TIME IN EACH OTHER'S ROOMS → IT FEELS LIKE AN INVASION (PERSONAL ROOMS ARE QUITE PRIVATE).

"IT'S ONLY US (OUTSIDE FAMILY) THAT VISITS IN THE ROOM ... (PERSONAL ROOMS ARE QUITE PRIVATE) - NOT PEOPLE FROM INSIDE THE HOME."

Exchange w. Resident + Visitor:

"It is very nicely decorated"

Q: what do you do when in your room?

R: "It's mostly a quiet place. Obviously sleep and listen to (music/radio). Sometimes eat in here if it's not a good day"

MOSTLY: "THEY SPEND TIME TOGETHER IN THE DINING ROOM OR LOUNGE" (LECTURED BY MOST).

"THERE ARE NOT INTERESTING SPACES"

CARE ACCESS (CORRIDORS)

CIRCULATION + CARE SPACE USED FOR ACCESS IN/ TO THE BATHROOM, AND FOR ROOM MAINTENANCE + PERSONAL CARE

Figure 43: Open coding key reflections on bedrooms from participant interactions.

Self-determination

The freedoms of movement and use and exposure discuss the importance of socio-spatial configurations that support self-determined acts and hence reinforce residents' identity and autonomy. The concerns underpinning these forms of enablement align with others centred on the general reproduction of daily life in the home, wherein residents generally respond positively when invited to engage in the work of daily life, such as cleaning, laundry, preparing the table or helping in the garden. This concept is explored here through reflections and projections for environmental configurations supportive or restrictive of self-determined acts in the reproduction of daily life in the home.

In each home, much of the housework is managed through central service provisions remote and alien to residents' living spaces. For example, in each case, laundry and food preparation are managed in spaces inaccessible to the residents and where resident participation is highly impractical and restricted. Most residents are unsure where their food is made or laundry is processed and the positive analogy to the luxuries of living in a hotel, considered of benefit to residents, was made on multiple occasions. However, participants, including care staff, suggest a preference for residents to be involved in the work of the home. It gets residents moving, creates talking points and embeds the resident in the creation of the home; acts that many consider a key part of making a residence a home. The convenience of being waited on is at first appealing but for some stifles their ongoing resilience. For instance, residents tend to wait to be asked if they would like something to eat or drink rather than access it themselves. Other residents find their days largely empty of purpose and activity. Most participants recognise the impracticalities of residents having free and unsupervised access to full kitchen facilities, however, free access to basic provisions, or supervised access to safely designed kitchen areas is desired. Similarly, participants converge on the will to residents' involvement in household tasks, such as their laundry and cleaning up that engender a sense of independence and reaffirm

that the home is in fact their home, and they are not a guest in another's space. Further, involvement in the daily routines and work of the household can provide meaning and purpose to the day, as one resident, accustomed to heading a household attested:

“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)” (excerpts from interaction with resident).

Central provisions imply the need to ask permission rather than act autonomously. And while no care support staff demonstrated inconvenience at resident request, many residents are hesitant to ask for inaccessible things through fear of inconveniencing busy care support workers. The privilege afforded to care support workers as the guardians of much of the work and access privileges in the home establishes a social hierarchy in which care support workers are the authority to which residents are subservient. This is evidenced in the many instances of uncertainty around rights to access to things and spaces in the home, as discussed throughout this section on enablement, and is countered by instances wherein residents with good access to personal effects acted with a greater sense of determination. Subservience causes inhibition among residents, while greater levels of accessibility can empower them to feel more permanent and freer to move and act in the home. Participants suggested that greater accessibility to everyday acts would increase their involvement in the home and entice them to act more readily.

A strong counterargument to the support of residents' self-determination was offered by a participant, who expressed concern that residents that have experienced loss can find reminders of that loss, such as exposure to their past interests and pastimes or invitations to engage in the work of the home, detrimental to their self-image. The participant initially claimed that homes could not and should not be designed to reinforce a lost or diminishing identity. However, this participant acknowledged that an environment built entirely on the health, safety and efficiency concerns associated with housing residents

with dementia diagnoses is largely unfulfilling. The participant continued to highlight an observation key to the sentiment expressed by all participants; that it is important that residential care homes afford opportunities to enable the retention of diminishing freedoms for those who find it beneficial. It is difficult for residents to access the freedoms discussed here within restrictive environments but possible, through supervision and personal care, to restrict exposure for those residents that find exposure distressing in more affording environments. The implication of this collective reasoning is for an environment that foregrounds residents' participation in the home, when possible, over an environment in which residents' access to self-determined reproduction of the home must fit around structures that foremost prioritise the efficiencies of the running of the home. The latter tend to restrict engagement, while the former communicate residents' collective sovereignty, and hence, freedom to act over the home domain.

Spatial-material configurations arising from these discussions include the incorporation of spaces and facilities for the management of the home within residents' accessible areas. These include kitchens for food preparation and utility spaces for laundry and cleaning involvement. The necessity to manage safe access to these areas foregrounds the use of the kitchen as a home management hub, wherein care support staff can complete tasks and observe much of the activity in the home from a central point in the presence of residents.

Processual Discrepancies

Processual discrepancies are derived through further selective coding, in which processual qualities present in the axial codes of embodied characteristics are addressed. These processual codes are hence constructed from the insights discussed in the categories of embodied characteristics and align many of the same data instances to build understandings of the social processes underlying those embodied experiences. These processual

discrepancies form a higher level of the grounded theory of residents' personally and socially supportive relationships with the residential care environment.

Ideological Conceptions of Space-time

Participants perceive that daily life in residential care is governed by conformity to systems and constructs conceived of absolute attitudes to social-spacetime. However, this contrasts with the relational underpinnings of life prior to and outside of residential care, which stands as the metaphor for aspirational living environments. While absolute constructs purport to support residents' ongoing social and personal fulfilment, they are at once the limits to its potential, through the suppression of relational accommodations and appropriations that are tied to aspirational ideals. The contradiction, in which social-spacetime allocations at once support residents' social and personal fulfilment and serve as constructs of its suppression, highlights a structural flaw in the orthodox triptych of residential care environments. The 'social reality' of the triptych, in which the care environment is comprised of personal, social, and physical spheres, is undermined as a simplistic misrepresentation in which each sphere is actually a different perspective toward a relational whole.

When participants speak of life inside the home, narratives, whether reflective or aspirational, are framed in social-spacetime. We must first disassemble the 'social-spacetime' construct to frame its relevance within the context of the inquiry and data derived through fieldwork interactions so that it can be understood in the discussion of ideological discrepancies. The concept of social-spacetime refers to the spacetime grounding of actions and events and is comprised of three constituents: social, space, and time. Beginning with 'social': here 'social' refers to all actions and events, regardless of the immediately apparent number of actors involved in their enactment. This is an important distinction, as participants' references, even to quiet moments of personal privacy are, by

definition, references to relationships to others. For example, the absence of others in the moment or space of an act implies a specific social condition; others are important in their exclusion, and hence privacy is framed as a social condition. Actions further have a material nature, whether in engagement with objects or in the material constructions that frame space (to achieve privacy or inclusion, for example). Herein the material world is intrinsically linked to the enactment of the social and is hence constituent to it.

Importantly, 'the social' does not exist outside of spacetime in the reproduction of life in the home. Spacetime is the temporal-spatial grounding of acts; they happen in space and over time. Acts unfold or are recounted or imagined in a spacetime construct, and no action can occur without a grounding in both space and time, even in the absence of specific reference to spatial qualities, such as when discussing interaction with another, bodily proximity or interaction with a device or object frame spacetime conditions. In this, space alone cannot be social in the absence of time; it is incomplete. Similarly, time cannot be social without spatial grounding since all acts occur within space. Hence, four-dimensional spacetime is necessarily imbued with a fifth dimension; the social. The five-dimensional construct of social-spacetime is the very unfolding of life, and hence is the construct through which the discussion of ideological discrepancies must be communicated.

When discussing life in residential care, participants describe rooms or areas determined through absolute social-spacetime conception. Under this conception, activities are associated with specific times and spaces within the home; meals in the dining area at mealtimes, or corridors for moving between the private acts of personal care and common spaces of interaction, for example. Under this logic, rooms are at once spatially defined by proximity and number of occupants; they are framed by material divisions to create boundaries and planes of enclosure; and they are temporally constrained through their designated uses. Social life, as the interaction of humans, systems, and technologies of daily

life, is enacted by moving through this functional arrangement as the routines of the day progress. Under the logic of absolute social-spacetime, spaces become social once people interact with them through occupation and use. Put another way space is provided for the social to unfold at temporally appropriate designations. The architecture of this functional absolute space-time conception is characterised by cellular rooms, clean divisions and secure lines, and clear distinctions of functions represented in the presence (or lack) of specific task-oriented furniture and equipment and a building fabric that directly reflects the allocated use. Figure 41 shows the open coding of this functionally driven basis for spatial organisation in a field memo. Under this social-spacetime conception, life in residential care consists of pre-ordained activities, each of which has its appropriate space and time within the structural framework of the care home.

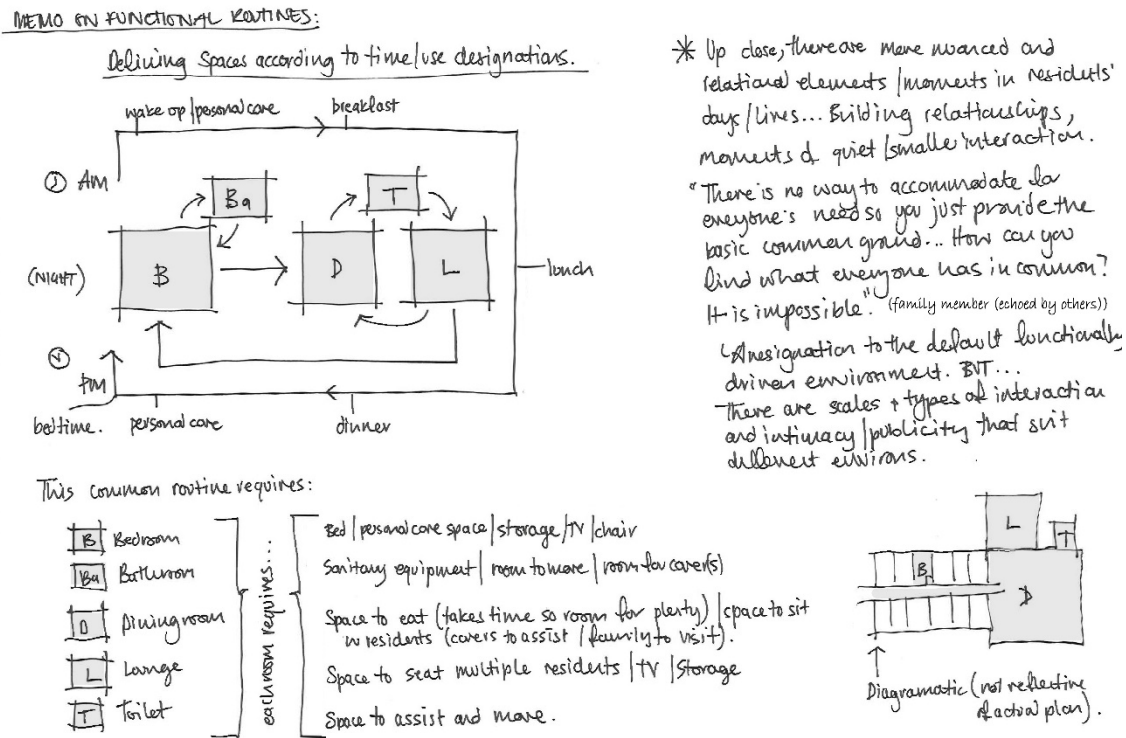


Figure 44: Memo summarising observations and responses defining functionally driven space-time allocations.

As set out in earlier chapters, the participants were foundational to the derivation of aspirational goals for what constitutes a socially and personally supportive environment for people living in residential care, or what it is that we are supposed to support. Life outside of residential care is a commonly referenced metaphor for the aspiration for and loss of the environmental freedoms that were unpacked above in discussion of embodied relationships. The perceived absolute social-spacetime attitude contrasts with participants' collective aspirations to the more contingent experiences of daily life outside care environments. Here, participants collectively identified with relational understandings of social spacetime, in which the spacetime of an act is understood through sensory memory and stimulation, proximity to and quantity of people present, and variations in interaction with things and others. This social-spacetime is a shifting experiential interpretation, not an absolute construct. It is characterised by serendipity, negotiation, and familiar inconsistency in which personal perceptions of space are under continuous transformation and renewal.

“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 are structural to the relationship between the two, and their interpretation of the relationship is enmeshed in the spaces of meet and interaction” (excerpt from findings previously published in Burke and Veliz-Reyes (2021))¹⁷.

The embodied characteristic categories highlight tensions between the perceived absolute conception of the environment and participants' relational understandings grounded in memory and aspiration. The embodied discussion of 'Affordances' tensions between the static configurations of absolute social-spacetime and the adaptations and appropriations of relational lived experience. 'Liminalities' highlights the misalignment of social life with functional spatial allocations. And through the category of 'Enablement'

¹⁷ This example is verbatim lifted from the referenced paper discussing some of the findings of this study: Burke, R. L. & Veliz-Reyes, A. (2021) 'Socio-spatial relationships in design of residential care homes for people living with dementia diagnoses: a grounded theory approach'. *Architectural Science Review*, pp. 1-15..

participants' self-determination wrestles with the rigidity of distinct centralised facilities. Each of these embodied discussions speaks to the importance of fluctuation and change in the rhythm of life in the care home. For instance, participants showed frustrations with difficulties accessing beneficial social interactions in personal spaces, which are distanced and separate from spaces of prescribed interaction in common areas such as living and dining rooms. The clear distinction of spatial allocations (rooms) based on ordained functions in the context of personal and group routines is endemic throughout the data. Participants suggest that experiences of fulfilment, connection, and creativity, are marginally represented through organisational structures that allocate measurable space-time constraints based on pre-defined activities; 'film room', the 'common room', the 'bedroom' or 'dining area', for example. The implication is that 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. An example of this is in residents' personal spaces, which facilitate the necessities of physical care and security but are limited in their capacity to accommodate other relationally-fluctuating and socially vital (but less absolute) experiences. There is some degree of variation in the space and time of prescribed actions, for instance, some residents cannot or will not leave their rooms to eat and require adaptations in personal care routines or their bedroom environment to facilitate feeding from the bed, while others take longer to eat a meal and hence occupy the dining space for longer than others. However, in the case of the first example, deviation from conformity is through medical-mechanical necessity, not a personal choice or social mediation. Similarly, in the second example, deviations in time are largely unproblematic since the activity remains in conformity to the central function of the dining area. Highlighted here is the tendency for largely homogenous functional environments and systems of central provision to impose a coercive power to conformity; where else can a resident go to have an intimate meal or

procure a dinner of their choosing, or on the spur of the moment within a developing friendship? Similar questions are raised in respect of residents' capacity to undertake chores and works of self-determination, such as laundry and cleaning, or in their choice of recreation, interaction or simply spending time in an unusual part of the home:

'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).

Participants perceived that the corridorred, cellular spaces with clean-cut divisions in spacetime and use are unsupportive of self-determined efforts to social action. More, that they intend to promote constants – in light levels, in use, in appearance, in occupation, and in schedule – that subdue such efforts. This tension manifests in the reproduction of daily life in the lack of support for, or restriction of, exposure to social experiences that evoke memories of previous life moments and aspiration for continued creative and expressive social lives.

These tensions are of course not entirely architectural in nature but are also matters of care administration. However, there are practical restrictions to the sustained inhabitation of a domestic hallway or the straight-edged corridors with abrupt thresholds between individual bedrooms, for example. When questioned about the use of corridors other than for transition or wandering, no care support worker could imagine a scenario wherein residents would “have to” or “want to” spend time in circulation spaces. Further, the idea was fraught with concerns, including imposition on other residents, blocking circulation paths, and residents' safety in the case of a trip hazard that suggest its preclusion in the management of the home. This example of functional stricture manifests both in the spacetime of the home *and* in the social imprint of care management systems, and its tension manifests in residents' common references to the alienating disconnection between

their personal spaces (bedrooms) and the other parts of the home (common rooms, outside spaces, care administration spaces, and staff-only spaces).

Spaces communicating an absolute spatial conception largely neglect to support an expressed desire for varied scales of interaction in and out of personal spaces through their absolute conception of residents' social reproduction. Instances when care support staff observed residents in unorthodox spatial appropriation, such as Theresa and Julia spending time waiting in the corridor for each other before entering the common dining area were usually remarked as unusual, and in many instances, people hanging around are often ushered into a room, told to sit down, or given something to do, as though they must have lost their way. When shortcomings in support for liminal spaces, affordances, and spaces of personal enablement were queried, many remarked on a tension between the niceties of the idea for more space, or support for more complex accommodations, and the inevitability of scarcity in the realisation of the home:

"It's a nice idea, but there's no space (to accommodate aspirational concepts)".

"Who will pay for (the extra space)?"

"All the money (seems to) goes on bedrooms and there isn't much for anything else".

"If there were paint in (the resident's room) all the time, who would clean it up?"
– (when asked about residents' capacity to use their room in pursuit of personal creative interests), (excerpts from interviews with resident families and carer support workers).

These remarks to the provision of aspirational socially supportive configurations suggest an acceptance for the priorities of medical and mechanical concerns for health and safety in the minds of visitors and care support workers. That the home should prioritise safety and security is not questioned, but prioritisation over more person-centred ideals for fulfilment seems to be a naturalised inevitability that highlights the tension in different conceptions of social-spacetime, particularly where evidence suggests that the emphasis on safety and medical considerations conveys an essentialising effect to some residents, who

feel defined by their symptoms and eventual incapacity (see discussions above on embodied characteristics).

Returning to the inseparable constituents of the social-spacetime construct, to act in any of the dimensions of social, space, and time shapes the others. Hence, an absolute conception of social-spacetime that disregards the contingent nature of social action cannot escape the effects of the omission through denial. Spatial allocations may be absolute in conception but once experienced by people through action they are subsumed into the contingent hybridity of social-spacetime, and the absolute construct is undermined. Instead, its proclivities (for example, emphases on safety, functionalism, and efficiency) manifest in the facilitation of a social-spacetime of a more restrictive kind, as illustrated through the discussion of embodied characteristics. This argument implies that the social, personal, and built spheres of the environment are in fact also inseparable by their definition *as* the environment. Each participant spoke of *their* interpretation of life *in* the home, *with* others. To act on one alone simply influences the shape of the others. Understood more clearly, the reproduction of social-spacetime – actions through space and time – is the creation of the shared ‘material world’ (the environment), comprised of individuals, their actions, space, and material. The only means through which individuals access the shared material world of the environment is through a further act of recreation in the form of social interaction:

- An individual acts in the shared material world.
- This interaction is perceived by individuals as a constituent of the environment.

Social action is hence conceptualised below as a transformative membrane through which the environment is both perceived and created. When conceptualised on an ideological continuum of absolute/ relational social-spacetime, different attitudes toward the reproduction of the environment are perceived. The environment appears differently

from different ideological positions. It is perceived that different actors occupy different spaces along the continuum, which shapes their actions and perceptions accordingly, and offers potential for radically different perspectives toward the environment. Similarly, the instruments for the reproduction of the shared real-world vary dependent on a given actor's perspective to it.

This knowledge is useful because if acknowledged, designers can no longer consider their actions in the material world as separate to residents' personal and social experience, rather intervention to it from a limited perspective. Moreover, if environments are considered benign surfaces and enclosures on which to enact a social performance, designers risk restricting affordances in favour of mechanical and restrictive structural prejudices; to resign residents to the role of users of the environment rather than agents of its reproduction. Conceptualised as such, the scope for empathy in the realisation and production of the environment is greater than when viewed as a set of artificially fragmented perspectives.

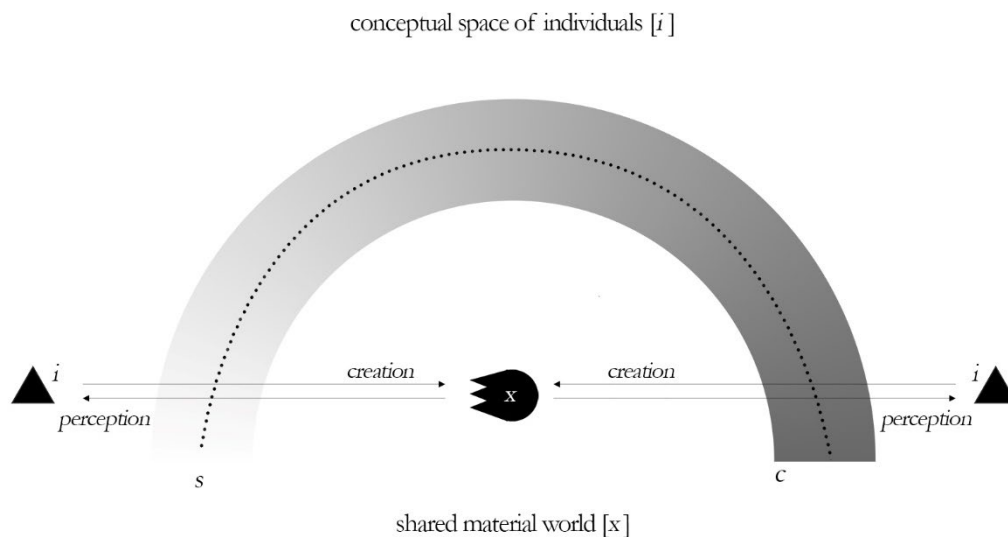


Figure 45: Conceptualising different ideological perspectives to the ongoing creation and interpretation of the care home environment on a continuum

Figure 42 above is a graphic conceptualisation of the ideological discrepancy discussed in this section. Here individuals engage with the material world of spacetime in a simultaneous act of perception and creation through the membrane of social interaction. Their position relative to the shared material world along an ideological continuum produces different perceptions of and hence interactions with the environment. Each individual's ideological perspective toward the environment drives their contribution to its production. Discrepancies arise when parties cannot see from each other's perspective and hence each has a different understanding of the truth of the environment. The counterpart to ideological discrepancies in the production of the environment is the realisation of ideologically grounded truths as meaningful and appropriate constructs within the collective mindset of would-be occupants, their care support networks, and other interested parties. This is conceptualised in the next category, Veridictions.

Veridictions

The care home is at once home to residents, the facilitator of their care, and it is the ongoing advertisement of its services and living environments to prospective families looking to move their loved ones into the supervision of residential care. This advertisement of the ability to best care for residents takes various forms, including through care reviews through the Care quality Commission (CQC), and other accredited bodies, such as the Dementia Services Development Centre (DSDC), and importantly, through the presentation of the live home environment itself. *Veridictions* is a category that describes the process of truth formation about life in residential care that facilitates the realisation of innovations in the lived environment, and the resultant truths themselves. Veridiction occurs through an exchange that largely excludes the agency of residents and would-be residents, and in which market logic is a powerful determinant in the realisation of the home. However, while true within the purview of the exchange, truths about supportive living formed through veridiction are not necessarily perceived as such in residents' daily lives. Veridictions often manifest discrepancies in which truths about supportive living can be read outside the bounds of the exchange as limits to the supportive capacity of the environment. The nature of these discrepancies arose in discussions about different ideological conceptions of space-time in the previous section. The veridiction of apparent truths between the parties is the process through which the dominant ideological conception of the environment is realised within the mindset of prospective residents and their families. Veridictions allow the production of otherwise contestable environmental characteristics to persist by seeming to offer supportive qualities that are experienced otherwise. This section describes the process of veridiction understood by participants in this research through a series of three evolving diagrams. In addition, examples are drawn from the categories of embodied characteristics to contextualise this conceptual category in contexts of residents and care homes.

In Figure 43 below, Residents interact with the care home environment [X] in the ongoing reproduction of daily life. While home to residents, the care home environment is also the site of research and innovation interest for the specialist agents of design and construction. These agents intervene in the production of the environment through innovations in care administration and policy, in technological as well as structural spheres. The agents, largely invisible to residents, are engaged in an innovation loop in which the environment is under constant reinvention with powerful influence over residents' capacity to perceive fulfilment and alienation in their home environment. These innovations exert a large influence on the shape of physical and social structures in the care home.

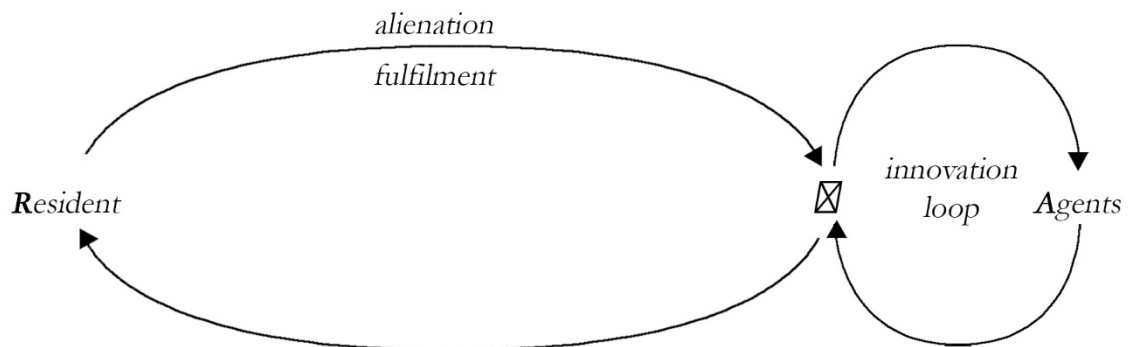


Figure 46: Conceptualising the perceptual relationship between residents, agents of innovation, and the care home environment

In addition, residential care homes are often the final residence for their occupants. This means the rate of reoccupation is higher than most residential circumstances, given the age and vulnerable state of most residents. Residential care homes are thus in a near-constant cycle of advertisement to seek new residents within the market. Many residents have appointed lasting powers of attorney in which another person is responsible for making decisions on their behalf, and many of those who have not appointed a lasting power of attorney are still the concern of friends, family, or others with their interests in mind. These proxies are often caught in the difficult decision of moving their loved ones to an unfamiliar residence, about which many know very little. In many cases, it is the proxies

who have the primary decision on which home a resident eventually lives in, either by shortlisting homes for the resident to visit or through the more direct decision making that sees the resident placed directly into a home. Hence, residential care homes must maintain an outward appeal to the families of residents and would-be residents, lest their appeal in the marketplace slip. This outward appeal must be sustained, as visitors often scrutinise the appearance of the home as an expression of their ongoing duty of care to their loved ones in the alien setting. Thus, bedrooms must be kept tidily, and common areas are generally 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).

However, the tidy and aesthetically neutral appearance of common areas is in tension with their use as spaces of ongoing creativity and self-determination and, as shown in the embodied characteristics above, instead has a neutralising effect, increasing residents’ feelings of subservience. This establishes a peculiar relationship in the market for residential care homes, wherein it is the proxy that is the decision-maker, and to whom the home must appeal. This relationship is conceptualised in Figure 44, expanded from the previous diagram.

Veridictions occur within this proxy exchange, as innovations and trends around the design of the environment are incorporated in a race to appeal to proxies; to demonstrate that one home is better placed to care for residents than another. This competitive race often involves innovations in technology. For instance, one participant referenced homes with pressure sensor mats that can alert carers to residents’ late-night movements or trigger a recorded voice to check with the resident whether they mean to be

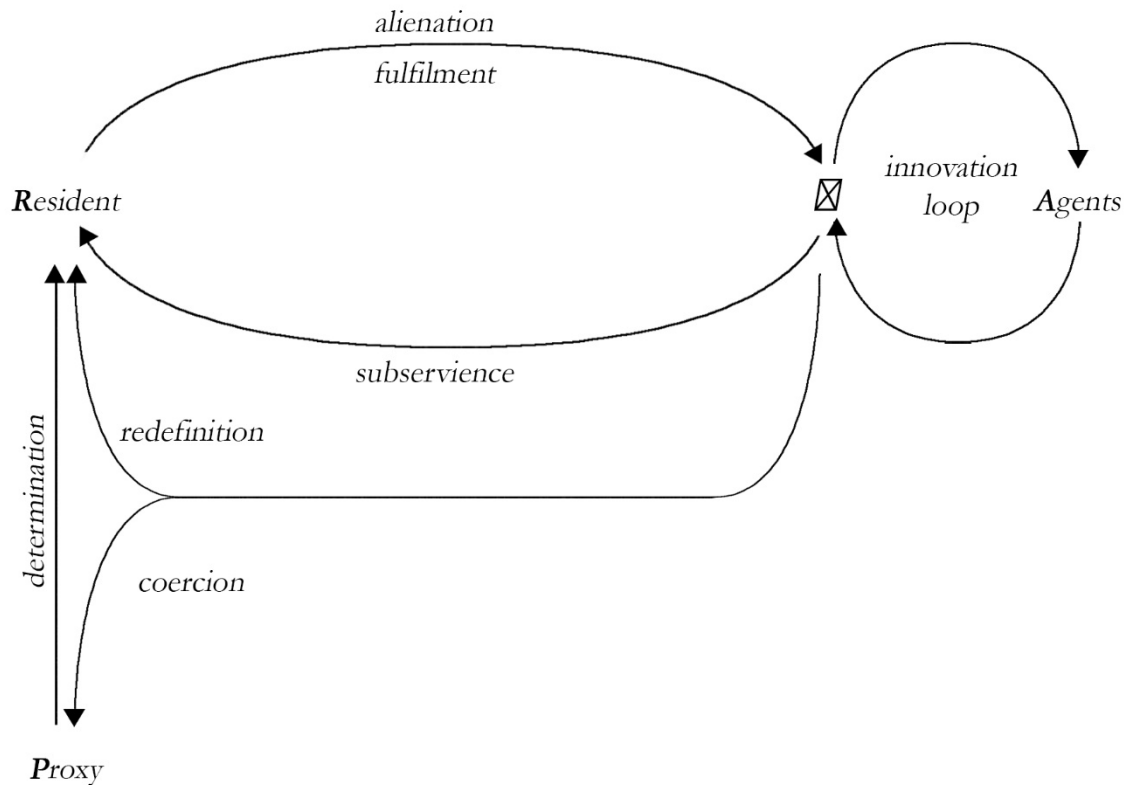


Figure 47: Introducing the perspective of residents' proxies to the interaction

out of bed. Other innovations are low-key and built around aesthetic appearance in a ‘front of house’ that appeals to proxies’ aesthetic sensitivities. Some innovations are structural. For instance, commonly referenced was the need for all new residences to include *en-suite* bathrooms, as they have become expected and are viewed as a standard of good living in a residential care setting. Here, the exchange that underpins the veridiction 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 fulfilment. 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 further cases where truths of quality living are constructed in tension with aspirations for personal and social fulfilment. The veridiction here frames a truth of fulfilling ageing that only partially considers the conditions of life as a resident in specialist care environments. Further, this example exerts pressure on converted residences, where it was noted that the family members often ask and state preference for bedrooms with *en-suite* bathrooms, which can be very difficult or impossible to incorporate in a converted residence. Through the construction of the truth that *en-suite* bathrooms are more supportive of residents' fulfilment, purpose-built residential care homes can assert their strength in the competitive marketplace. Meanwhile, through this veridiction, residents are transformed conceptually through a selective reduction 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.

This market race has several perceived effects. Firstly, appeals to ideals of good living have a coercive power over proxies who see the innovations in living as benefits that go to some degree to compensate for the loss of other freedoms. Participants reference the attractive power of innovations when talking about moving to the home:

“they have their own bathroom and their laundry is all done for them. It’s better than they had at home. We were not sure until we saw all the extras this place has over others – the Tv room, a private bathroom for everyone” (comments from a resident’s daughter referencing their thoughts on the move to the purpose-built residence).

“Some of the homes now have TV screens that show the time of day and weather... so they always know what time of day and year it is. That is good. It’d be nice to have that in here, really” (comment from family member about choosing the home).

“There is that coffee shop where we can sit and it’s like a day out without having to leave (the grounds)” – do you think it is good to get out of the main part of the home? – “yes. There is only really the living room of the bedroom most of the time, so a bit of a change is good” (exchange with visitor about the limited variations in territory).

In tandem with this coercive power, innovations redefine the needs of the resident within a structural, technological, and aesthetic marketplace. Then, this coercive cycle of innovation imposed on the environment and the resident produces truths about life in residential care (what is required, what is preferred and what should be avoided) affirmed through ongoing tenure and positive review from proxies and the specialist agents of the environment. This teleological affirmation concretises the truths about good living in residential care and powers their realisation in the collective mindset and marketplace. Here, veridiction of the relationship between residents and their environment is constructed through the coercive exchange between external agents and proxies that circumvents negotiation with the resident or would-be resident. Residents' own truths are produced through exchange with the care home environment in the reproduction of daily life, as shown in (Figure 45).

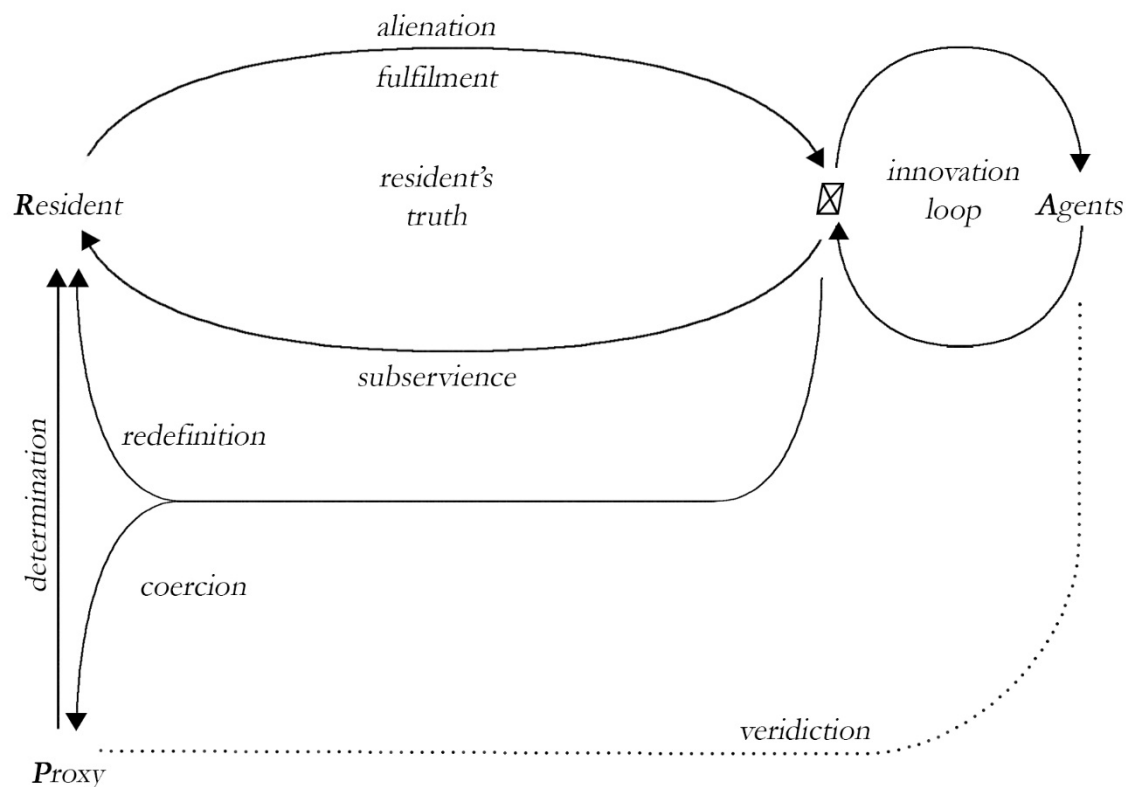


Figure 48: Conceptualises the relationships through which truth is constructed, and its effects in the veridiction exchange enacted in the realisation of the care home.

Veridiction is the formation of truth built on limited perspectives. Discrepancies arise when the seeming truth does not coordinate with lived experience. Some innovations both seem to support residents' personal and social fulfilment and were perceived by residents to do so; assisted bathrooms and their associated technical equipment, for example. However, the truth of others was constrained within the limits of their formation and the purview of the agents of their creation, and often certain omissions are necessary for their truth to persist. The processual limits to these formations are framed in three principal concerns. These are discussed below and illustrated with some examples of the shortcomings of veridictions uncovered in this research that highlight their partiality and their dominion over residents.

Firstly, a limit in knowledge is foundational. Veridiction here relies on proxies' partial knowledge of the relationship between the environment and residents' personal and social fulfilment. Deeper knowledge about the long durée of the relationship requires long-considered understandings of social-spacetime that transcend the apparent logic of the veridiction. These insights are difficult to decipher from an external perspective and require study of both residents' experiences and insight into the social role of built fabric. This is an unrealistic expectation, and thus the apparent truth of innovations endorsed by the authority of specialist agents of the environment (intellectual experts and quality assurance commissions, for example) remain generally unchallenged except through further research and innovation. Further, it is difficult for proxies to reason against innovations that stand to popular or scientific reasoning but have more tacit implications for life in residential care, because of their limited knowledge. Examples where popular representation prevails over critical understanding are in references to the convenience of *en-suite* bathrooms, or the safety and security of a locked perimeter "preventing escape", or in innovations to colour and light in the home, where the aesthetic representation of home *décor* is both used to appeal to aesthetic notions of good living, and has become the site of medical truth,

conflicting with more cultural notions of home and personalisation. Similarly, the centralisation of food preparation and housework facilities is seemingly convenient and welcome at first, but restricts residents' self-determined efforts. In the long-term. Further, spaces aestheticized as coffee shops and cafes provide novelty and the appearance of variation in the environment but leave the shortage of spaces for social appropriation in the main home unchallenged.

Then, there is the apparent necessity of proxy exchange, wherein residents' very real struggles against the symptoms of living with dementia are prioritised to the neglect of other socially and personally fulfilling conditions. Proxies refer foremost to safety, and security and then to cleanliness and aesthetics as key in their approval or disapproval of the home. Some noted the provision of private rooms (in contrast to shared rooms) as a benefit, while many referred to the provision of *en-suite* bathrooms as attractive components. However, discussions about liminalities, affordances and enablement in the home were absent from non-resident participants' comments on the importance of attractive characteristics in the home. The mechanism through which these characteristics are addressed in the production of the environment is through market logic alone – do people want their loved ones to be here, and do they generally approve of the environment? The aspirational qualities revealed here through fieldwork are invisible to this teleological approval. This facet of the concept is perhaps most evident in the neutral and generic décor and presentation of common areas, where personal appropriation is largely discouraged to keep the areas free from clutter and presentable to prospecting and visiting families; a tendency that restricts residents' access to self-fulfilling activities but retains its outward appeal and visual aesthetic as, as one visitor described it, a “show home”.

Thirdly, and importantly, the reciprocating nature of the innovation loop reinforces the naturalised typology and neglects to challenge it structurally. Tensions that arise in the built environment are reasoned away through further innovations in technological or

aesthetic refinement, due to the omission of collective aspiration from the cycle. Thus, the cycle of innovation continues in reaction to problems and symptoms but rarely acknowledges aspiration as a territory for improvement. The coffee shop, en-suite bathroom, and interior design tropes become the norm, recognised as such by reference to the need to include them to “compete in the care home market”, or “attract” future residents, because “everyone expects it”.

Grounded Theory Model of Socio-Spatial Relationships

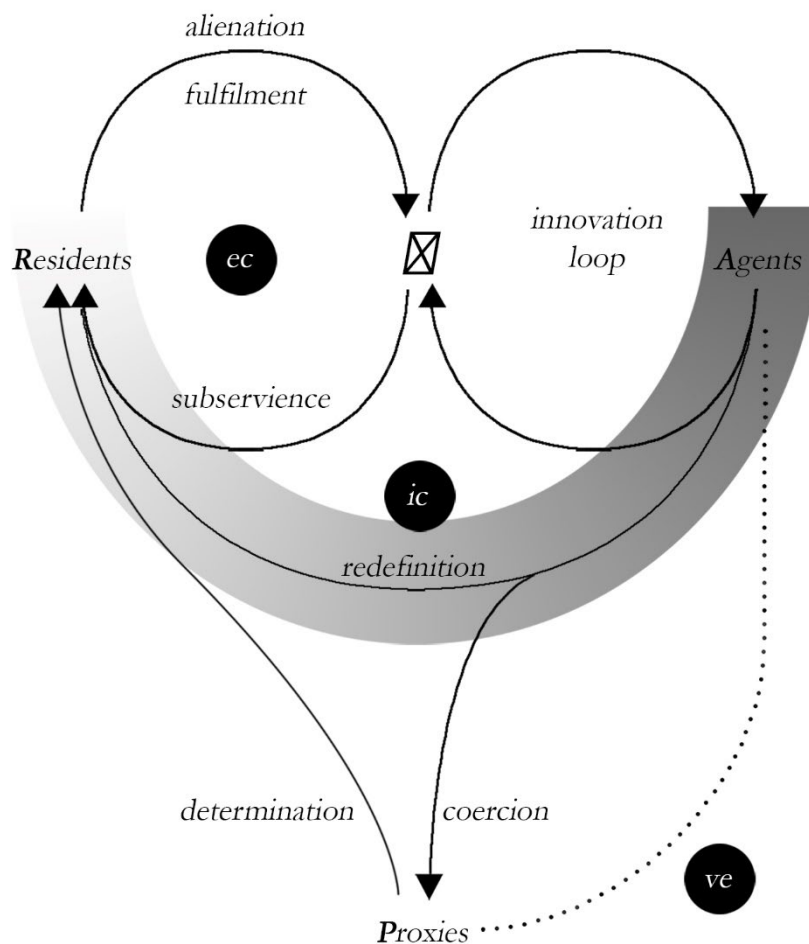


Figure 49: A graphic conceptualisation of the relationship between elements of the Grounded Theory model, in which embodied characteristics (ec), ideological conceptions of space-time (ic), and veridictions (ve) are framed in processes of re-creation relative to the resident and environment

Here, a grounded theory of material socio-spatial relationships in residential care is constructed that contextualises residents’ embodied experiences of the home relative to

perceived processual discrepancies in the ongoing cycles of production, realisation, and reproduction of daily life in the care home environment.

This model is not a claim to a complete general theory of the nature of material socio-spatial configurations within residential care settings for people with a dementia diagnosis; it is not the beginning of such a theory or an essential typological model for the application of best-fit spatial-material configurations; it is rather a model to communicate theory constructed from the material socio-spatial contexts of this study. It is thus dense, complex, and person-centred and reveals potential areas of concern for similar contexts with similar occupants through which the applicability of theoretical concepts can be tested.

In this construct, the configuration of residents' relationships with the environment varies according to the ideological perspectives of different actors. The processes of innovation (construction) and veridiction (realisation) of the resident-home relationship are external to the reproduction of residents' daily life in which embodied interactions frame a situated form of knowledge in the forms of alienation and fulfilment. The situated knowledge of embodied relations is constructed through forms of interaction with the home that differ from those of other actors.

Figure 46 describes the relationships between the conceptual categories detailed above. Here, the embodied characteristics [*ec*] of socio-spatial relationships are experienced by Residents, but the power to drive structural decisions within the resident-home relationship is largely external to residents, whose autonomy is devolved to exchange between expert agents of innovation and proxy powers of attorney who are engaged in veridical transactions about their interest in the resident [*ve*]. But whose ideological conception [*ic*] of the resident-environment relationship varies according to the limits to their knowledge.

This construction frames residents' support as a floating signifier, irreconcilable without grounding from an ideological perspective. Agitations in residents' embodied experiences will likely persist in an architecture that prioritises external conceptions of the resident-home relationship over more situated forms of knowledge.

Chapter 05

Discussions on Knowledge Contributions

Introduction

This dissertation has addressed the burgeoning need to better understand the influence that configurations of the built environment have on the personal and social fulfilment of people with a dementia diagnosis living in residential care settings. The research was motivated by the need to relate the professional work of designers more closely with residents' experiences, and it centres residents' situated knowledge in the emergence of theories of supportive structural configurations in the built environment. These needs are addressed both in content and in practice, operating within the lived experience of residential care homes and modes of design communication simultaneously. The core objective to achieve this understanding was the construction and organisation of insights into the social relationships between residents and their environment into a theoretical framework, and this dissertation describes the design and application of an occupant-centred inquiry used to construct such insights. The research, hence, has knowledge-based theoretical outputs *and* practical methodological outputs that make contributions to the fields of architecture and design research in residential care settings, and to the professional design cultures involved in bringing residential care environments into being. So, two lines of reflection run through this chapter, in which discussions on the theoretical relevance of the findings are contextualised in reflections on modes of designerly practice related to the methods.

In keeping with the Grounded Theory tradition for a delayed literature review (Charmaz, 2006), this chapter first contextualises the findings from the research in the broader literature, and makes recommendations based on those findings. It then goes on to reflect on the successes and limitations of the methods used, and their practical and theoretical relevance to building design cultures, before suggesting opportunities for further work to build on the knowledge developed herein.

As outlined in the introduction chapter, this research makes impactful knowledge contributions to the design of residential care space that are relevant to architects, designers, and care commissioners, in the form of three nested theoretical outputs¹⁸: firstly, **conceptual categories** are proposed, which are comprised of **instances** of material-socio-spatial relationships. The conceptual categories then combine within a **theory model**. The thesis also offers **methodological outputs** as a fourth type that contributes to knowledge about grounded, remote, and collaborative design research as well as working with vulnerable participants in designer research contexts. These outputs, discussed in detail below, outline knowledge and methods for design participation, including with vulnerable people, and research-driven design that can assist designers and commissioners in the creation of more socially and personally supportive living environments. They also offer contributions off of which to build further academic studies into residential care settings for people with dementia diagnoses.

Conceptual Categories

5 conceptual categories are proposed, which together comprise a conceptual vocabulary of terms through which to consider the influence of the environment on residents' social and personal fulfilment. These categories, constructed from instances of material socio-spatial relationships, are arranged in two tiers: Firstly, categories of embodied material-socio-spatial characteristics conceptualise residents' social relationships with the physical environment and are framed as, *liminalities*, *affordances*, and *enablement*. Secondly, discrepancies between supportive and restrictive characteristics perceived by participants are framed in the categories; *ideological conceptions of space-time* and *veridictions*. Conceptual categories are more theoretical than instances and, as Brooks Jr (1987) emphasised, are

¹⁸ The structure of conceptual categories, instances, theory model and methods is derived from March, S. T. & Smith, G. F. (1995) 'Design and natural science research on information technology'. *Decision Support Systems*, 15 (4), pp. 251-266..

helpful to shape the thinking of designers and researchers, causing them to consider their work from different perspectives. For example, to consider the structural configurations of a residential care environment according to functional parameters establishes a context in which the success of that environment is determined by its ability to facilitate limited functional ends. However, conceived from the perspectives of liminalities, affordances, or enablement, designers and researchers necessarily seek configurations that facilitate more expansive occupations and occupant appropriations; or considering differing spatial ideologies and potential veridiction, the necessity to keep research and knowledge close to their grounded and applied contexts is emphasised.

Here proposed conceptual categories respond to the concern raised by Zeisel *et al.* (2003) that, while the individuation of environmentally significant configurations provides operationalisable criteria on which designers and commissioners can act, “an examination in future research of the cumulative effects of environmental features might also yield useful information”. The complexity of those cumulative effects is reflected in the conceptual categories proposed here, which prioritise the social dimension of the relationship between residents and their environment over that of the architecture, since, in the words of Davis *et al.* (2009), “the person experiences living with dementia: they do not experience themselves and the physical and social environments as separate”. Hence (as described at the start of Chapter 4) instances of spatial-material configuration are enmeshed in multiple socio-experiential contexts and are represented across conceptual categories, rather than neatly aligned as discrete relationships between environmental components with behavioural responses.

The recurrence of instances of spatial-material configurations across multiple categories reveals both the complexity and vulnerability of the role of a social built environment in design research. Complexity is found in the recurrence across multiple categories; here the influence of the environment is shown to be greater than that of

configurative tropes in response to mechanical or functional design criteria and is instead integral to the varied and important exchanges of the reproduction of daily life.

Vulnerability is found in the tendency to reduce and simplify through fragmented inquiries and the application of design criteria (Quirke *et al.*, 2021) that can preclude the accommodation of contingency by design.

Liminalities

The category of Liminalities discusses the relevance of the lived environment to sustaining and developing personal and social fulfilment within the home. The need for spaces that accommodate different scales of hosting and interaction is foregrounded, along with the need for graded personal and communal territories. Framed from the perspective of occupants' experiences (instead of from that of the architecture), this category demonstrates the importance of relational social movements through the residential environment that yearn to break the strictures of functional typological confines. Corridors, for example, do not necessarily exist in the projections of supportive environments, nor are discernible spaces of circulation redundant. Rather circulation occurs through a liminal zone comprised of extensions to residents' personal spaces and outside stimuli. Similarly, the bedroom, while discernible as a space personal to each resident, is characterised by its connectivity rather than insular cellularity, and variations in privacy and configuration to suit changes in personhood are prioritised. The findings do not negate cellularity – the desire for individual personal and private space is present throughout participant interactions – however, cell walls are thin, thresholds are thick, and the connections between them multiple and variable. Participants suggest the desire for a graduated, thick threshold in which the cell is the nucleus of a widening and gradual personal sphere within the home. This echoes recommendations from Van Steenwinkel, Baumers and Heylighen

(2012) who emphasise the need to think of spaces in the home through connections and graduations in privacy and appropriation:

“The spatial articulation of one’s home environment defines the different layers in a person’s lifeworld. Spatial articulation describes the configuration of private layers, less private layers to public layers, as depicted in the onion-like structure. A gradual transition from private to public places allows a person to appropriate the environment step by step, always returning to the security of the home. Therefore, well-articulated spaces contribute to the process of appropriation... As layers are incorporated into a person’s lifeworld, they reflect his or her identity to a certain degree, especially the most private places and those that are part of daily life form a person’s identity. Here, a person can establish a little territory for oneself, for example, by means of furnishings and personal belongings, creating a feeling of privacy, distinctiveness, and sense of personal identity” (Van Steenwinkel, Baumers & Heylighen, 2012).

Van Steenwinkel, Baumers, and Heylighen’s suggestion mirrors expressions from participants in this study, both in reflection of their lived environments and in the projection of aspirations for supportive spaces. The importance of graduation through states of privacy, and in relation to others in the home, manifests in progressive thresholds that extend the personal territory beyond the wall and entrance door to an occupiable transitional zone, and further to the bathroom and rest of the home. Importantly here, from social distinctions – such as the clear lines between personal, communal, and private areas or centralised services – to spatial ones – like bedrooms and corridors – instances of supportive configurations in this category challenge the hard spheres of functional distinction discernible in the legacy of the naturalised typology of residential care homes. These hard spheres are also reinforced in recommendations in beneficial and leading dementia design guidance that leaves typological structures unchallenged (Fleming, 2011).

Citing Cohen-Mansfield, Werner and Marx (1990), Bowes and Dawson (2019) found the rate of agitation to be far higher just outside residents’ bedrooms and in corridors than other spaces in the care home. And participants in this study frequently referenced the abruptness of the transition from personal space to communal areas of the

home through the ‘no-one’s land’ of corridors as a source of confusion and barrier to privacy and inclusion in the home. On the other hand, the control of unhelpful sensory stimulation underpins dementia design principles (Marshall, 2001; van Hoof *et al.*, 2010a), and the inclusion of a transitional space between the privacy of the personal bedroom and communal parts of the home supports this strategy. Herein lies a tension between residents’ feelings of alienation toward the corridor and a preference for the separation of quieter and more personal parts of the home from communal and busier areas.

This tension is addressed typologically in two common solutions (Cao & Dewancker, 2021; Kwon & Kim, 2005; Quirke, 2018); the dominant corridor plan and less-common corridor-free solution. The former configuration sustains the alienating difficulties associated with the corridor, and efforts to address these concerns include decorating the corridor with home-like aesthetics (Lundgren, 2000) and disguising the corridor as a street, often accompanied by the disguise of residents’ bedroom doors as residential front doors (Timlin & Rysenbry, 2010), in analogy with the notion of a street as a space between residences, and between the private and public spheres of life. Supporters of veiling the fabric with disguises or home-like aesthetics claim that disguise affords helpful stimulation – helping with wayfinding and spatial recognition for instance – while occluding sources of negative stimulation, such as spaces that are off-limits (Fleming & Bennett, 2017; Timlin & Rysenbry, 2010).

However, not only misleading, this disguise overlooks concern raised in this study, where the strong contrast between the personal sphere of the bedroom and the corridor heightens residents’ self-consciousness while in their bedroom and can cause them to shut away from the discomfort. Further, the corridor is not a street. It is void of many of the qualities that define a street, such as temperate variations, serendipitous encounters, wildlife, and variations in activity and inhabitation, and hence cannot substitute for its social qualities. Opponents to the veiling of this naturalised typological language

(Lundgren, 2000) argue that the trickery fails to address the problems caused by an inappropriate architecture.

Supporters of a corridor-less configuration (McMorran, 2014), where the personal and private realms are directly adjacent to one another cite the benefits of ease of legibility and wayfinding. However, these tend to score poorly in assessment criteria related to stimulus reduction and encouraging movement and engagement (Quirke, 2018; Quirke *et al.*, 2021) and increase unwanted noise and gaze from common areas.

Resounding in each solution is a reluctance to address the limits of the typological legacy by re-addressing the relationships between the personal and communal parts of the home through transitional spaces of appropriation. The growing inclusion of memory boxes (clear fronted storage cases to house personal effects that remind residents which room is theirs) (Quirke, 2018; Timlin & Rysenbry, 2010) is further evidence of the preference to veil the naturalised typology rather than challenge its structural suitability. Memory boxes are another alien veil to an otherwise unchallenged typological configuration and were – along with signage – viewed with notable criticism for their reliance on visual and memory cognition among participants in this study. This research suggests that rather than the need for a street-like aesthetic or emphasis on visual cues, it is the qualities of stimulation, encounter, and a third space between the personal and communal that are desired. Hence, rather than veiling a fabric with the illusion of a street or populating the corridor with furniture in an unaccommodating way that leaves the uninviting configuration of an anti-social corridor unchallenged, there is a need to consider circulation spaces as the extension of their adjacent realms. Introducing niches and spaces to spend time, access to views, daylight and the sounds, smells, and tactile qualities of the outdoors to circulation spaces make them meaningful spaces to spend time and increase connections between the personal and shared areas of the home.

Recommendations stemming from this conceptual category call for designers and commissioners to reconsider the naturalised corridor typology according to the spatial and formal relevance of the complexities of personal privacy and publicity in the way that the home is configured to better support residents' continued self-image and development of new and stronger inter-personal bonds within the home.

Affordances

Closely related to 'liminalities', this category highlights the importance for the home to afford flexible modes of occupation that appreciate the changing and varied needs of residents. However, this category is concerned less with the transitions through spaces but the need for flexible forms of inhabitation in moments within the home and thus makes a related but different contribution. Crucially, the needs to afford different forms of inhabitation outlined in this category refute the notion of a generalised resident whose behaviour conforms to the functions of a fixed plan. Instead, three personae were constructed from different common reflections on personal spaces, and further research with new participants may find more. These personae reflect not only the needs of different residents but the changing needs of residents throughout their time in residential care.

In a thorough consideration of environmental assessment tools and design guidance for residential care homes for people living with dementia, Quirke *et al.* (2021) evaluated the usefulness of the "three main sources of published information used by architects to gain knowledge about designing for people with a dementia diagnosis: Dementia Design Principles (DDPs), environmental assessment instruments, and published case studies". The field-leading Environmental Assessment Tool (EAT) (Fleming, 2011) is built on dementia design principles, as outlined by, van Hoof *et al.* (2010a) and Fleming, Forbes and Bennett (2003), in which the only reference to the need

for flexible forms of accommodation is in the unelaborated reference to Pynoos, Cohen and Lucas (1989) that environments should “be flexible and adaptable in supporting the person’s behavioral (sic) and physical needs”. Other important DDPs, including the pioneering Marshall (2001) similarly overlook this seemingly important factor, while the EAT (Fleming, 2011) and updated Plan-EAT (Quirke *et al.*, 2021) provide means to assess building layouts based on static floor plans without reference to this necessity. Further, there is a great deal of case study literature analysing dementia oriented residential care homes, perhaps the most thorough of these are Quirke (2018) and Fleming and Bennett (2017), which consistently evaluate a static built environment. These tendencies speak to perceived designer preoccupations with a fixed architecture and absolute conceptions of social space-time, which are discussed in detail under the category of ideological conceptions of space-time below.

The needs to afford flexible modes of occupation were strongest in relation to residents’ personal spaces, and the category also deals explicitly with personal bathrooms. There is some contention among participants of this study in mixed opinions about whether bathrooms should be connected (*en-suite*), separate, or not provided at all. However, much UK design guidance insists that *en-suite* bathrooms are a requirement (HM Government, 2015b). This instance can be framed as a microcosm of a collective attitude toward an absolute and fixed architecture that cannot adapt to meet residents’ changing requirements. Rather than accepting the relationship between personal space and private bathrooms as a fixed condition, this research found a desire for an adaptable solution, where the bathroom can be *en-suite* or separate, depending on any resident’s requirements using a sacrificial partition. This concept was addressed in an impactful design-research project by Eijkelenboom *et al.* (2017), where sliding partitions can open between spaces to change their configuration. However, the containment within a pre-existing footprint limited the potential and transferability of the concept. As van Hoof *et al.* (2010a) suggest, it

is the environment that must be adaptable to the needs and capabilities of residents, not the other way around. Implicit in this claim is the need for an architecture that can accommodate change. The findings here concur with this approach, where the notion of a static architecture is challenged with the need for a building fabric that can change to suit residents' privacy, publicity, comfort, mobility, and other needs.

Other aspirations for flexible forms of occupation were less intrusive than the need for an adaptive building fabric and relate to the coordination of personal space layouts with doors and the rest of the home. In this, the orientation of the bedroom – entered on the long edge – is key, as is the location of the entry door within that edge and the position of the bathroom in relation to the main personal space. This level of detail is derived from close interaction with residents at the scale of inhabitation, which is overlooked in other leading studies into supportive space planning and sequencing referenced here. The instances outlined in this category have implications for DDPs related to the control and promotion of negative and positive stimuli (Fleming & Bennett, 2017), as well as experiential claims for environmental mastery (Molony, 2010) that have until now lacked instructive spatial-material grounding.

The desire for an environment that affords more flexible modes of occupation is built on participants' varied preferences and frustrations with their personal space, often noting the restrictive nature of a floor plate to achieve this. This suggests the need for further work in this area to understand how environmental configurations can better support the changing and varied needs of residents. Chalfont and Rodiek (2005) suggest it is “time to move beyond designing in order to control, affect, or diminish "problem" behavior (sic), and toward attempting to understand how environments can actively encourage pleasurable and satisfying behavior (sic)”. And this is a call for design approaches and guidance that shift away from generalising human experience and

behaviour to minimum standards, and towards affording generosities that more closely reflect the way that people live.

Enablement

This category is laden with insights into residents' perceived freedoms and unfreedoms in their environment, and insights are concerned with the extent of residents' capacity to act confidently and self-determinedly in the home. There is a generally accepted understanding among participants that residents with greater confidence and freedom to act independently become more active in the home and hence experience greater fulfilment. This suggestion is echoed by Golant (2014), who describes residents' mechanisms for coping with 'incongruent environments' as either *accommodative* or *assimilative*. The former implies a change of mindset to accept unfulfilling circumstances by,

“lowering their environmental expectations or aspirations, de-emphasizing their salience, or variously rationalizing that their incongruent residential arrangements are not that important for their self-esteem, self-identity, or happiness” (Golant, 2014).

While the latter, assimilative strategies, are active, in which residents alter their environment to improve congruence with their wants and needs. Assimilative strategies are more positive actions that speak more to possibilities and alternatives than their accommodating counterparts, which are characterised by resignation and conciliation. Golant (2014) notes that residents with more enriched coping strategies have “access to more resource-rich environments”, suggesting the importance of an environment that can accommodate varied forms of engagement and appropriation, as echoed in the findings of this study. Similarly, in an extensive review of research in the field of nursing studies, Molony's (2010) meta-synthesis of factors influencing a sense of home for people in residential care echoes many of the conceptual notions about residents' freedom of movement, freedom of use and access, and self-determination. Molony speaks of residents'

will to empowerment in the forms of “Mastery” and “Doing what I Want”. Citing Swenson (1998) and Zingmark, Norberg and Sandman (1995), Molony (2010) goes on to describe the importance of residents’ involvement and familiarity in the home environment:

“Environmental competence is facilitated by an embodied knowledge of the environment and its contents. The places, spaces, rhythms, and rituals of home are so well known to its inhabitants that they become “virtuosos of the environment” (Swenson, 1998). Familiarity not only fosters mastery but also comfort. The sounds, smells, sensations, and routines of home are known and reassuring (Zingmark, Norberg & Sandman, 1995)”.

The congruence across this and other key research that residents’ interpersonal involvement in the home environment can improve their sense of fulfilment, emphasises the gravity of insights into the role of structural configurations of the physical environment to this end. Residents’ will to meaningful connections with the outside world, in both movement and connection, call for more porous edges that enable self-determined access, both in terms of sensorial stimulation and occupation. Bay windows, balconies, and porches are among the architectural devices that soften the built perimeter and permit residents’ connections beyond the otherwise hard exteriors of the home. Within architectural research, the need for free access to outside space has come to be recognised as a key constituent of a successfully supportive residential care home (Bowes & Dawson, 2019; Duggan *et al.*, 2008; Fleming, 2011; Quirke *et al.*, 2021). However, while the recommendations require an accessible garden space visible and accessible from the lounge area, mentions of other forms of connection with life outside the home are limited. The design guidance emphasises the need for windows to afford different views, but the external fabric remains unchallenged so that more engaging configurations, such as bay windows and balconies that enable a far stronger connection with the outside world from residents’ personal spaces, are overlooked. Further, *Enablement* highlights the fragility of access to the outside in the face of day-to-day care resourcing, where outside access is often

locked due to shortages in available staff to supervise. This suggests the need to rethink the restrictive typological constraints of a care home perimeter with a clear distinction between inside and outside. Aspirational environments constructed in this category challenge this absolute notion with more porous boundaries that view areas of external space as extensions of the enclosed floorplan.

The need for greater porosity is further emphasised within the building, where hard divisions between personal and communal territories can confuse and intimidate, and the need for softer thresholds between areas of the home is underscored. Fleming's (2011) Environmental Assessment Tool concretises the need for "small areas (nooks) that provide opportunities for casual interaction and quiet chats" that "have views of pleasant or interesting scenes" when evaluating the supportive nature of a residential care environment. While conceptually aligned with the findings of this research, the recommendation neglects to address the matters of territory and proximity to residents' personal spaces, where criteria for the inclusion of nooks are separated from those related to personal territories. Hence, the abrupt distinctions between personal and communal spaces can persist without the necessary softening afforded by more interstitial spaces, as suggested within this category.

Residents' uncertainty and unfamiliarity toward parts of the home with which they have little-or-no connection raise concerns around buildings divided into 'wings' in which 'other' residents reside. The alien nature of these spaces has been shown to deter residents from wandering and accessing these areas at will and hence limits their familiarity with the extent of the home environment. The need for a floor plan to accommodate wandering residents is also accommodated in Design Guidance (Fleming, 2011), which emphasises the need to pass stimulating environments and avoid dead-end scenarios. This reflects findings from this research, which adds the need for all personal spaces to be part of a single cluster,

as opposed to the creation of wings, so that all parts of the home are accessible and familiar to all residents.

So far, discussions about enablement in the home configuration seek to enhance residents' familiarity and appropriation of the home environment. While many are enhancements of concepts recurrent in design guidance literature, particularly Fleming's (Fleming, 2011) Environmental Assessment Tool, which has underpinned much subsequent design guidance, a distinct contribution is made here, in the recommendation that the inclusion of these supportive configurations can improve residents' sense of familiarity. This contribution addresses Quirke et al's (2021) suggestion that "*familiarity* is excluded (from the scrutiny of floor plans), as none of the assessment criteria under this DDP are directly observable or measurable from architectural plan drawings". Instead, here, as discussed, it is suggested that tangible links between spatial sequencing and residents' familiarity with the home *can* be drawn.

Enablement also suggests that the provision of spaces for residents to maintain meaningful pursuits and pass times must necessarily be proximal to their other personal space. This recommendation emerges in response to the limitations of communal areas, which must both advertise to prospective residents with desirability and accommodate all residents at different times, to accommodate long term individual pursuits (Fay & Owen, 2012). This restricts residents' ability to use communal areas freely for sustained periods and hence emphasises the need for personal spaces that can accommodate their enthusiasms, including hosting visitors from within and outside the home. Fay and Owen (2012) emphasise the need for residents to have control over communal spaces, lest they become mere "waiting rooms" between more private moments in the day, as a crucial factor in residents' autonomy and their realisation of the institution as a home. Heath (2004) found similar concerns about access and proximity when evaluating residents' use of a hobby garden in a post-occupancy evaluation of outside spaces. Heath's (2004) findings,

which suggest that the provision of a space for personal pursuit alone is insufficient without consideration to free self-motivated access, highlight the role of structural configurations in residents' freedom to access self-constructive occupations, which are echoed in the findings here.

It is hence recommended that residents' personal spaces could better accommodate the pursuit of personal interests and hosting others by ensuring personal spaces can operate with distinct and flexible 'zones'. This requires that designers and design guidance change their conception of personal spaces as bedrooms and acknowledge the need to accommodate the breadth of personally supportive needs that are greatly reduced in the residents' shrunken world (Duggan *et al.*, 2008; Gawande, 2015). It is suggested here that it is possible for residents' personal spaces to sustain the long-term presence of a meaningful pursuit without impeding residents' personal care or circulation through the space.

Finally, the category touches on perceived tensions between centralised services – laundry, food preparation, cleaning, etc. – and restrictions to residents' self-determination. There is support among the literature for residents' greater involvement in the re-production of daily life, including housework, in the home (Bowes & Dawson, 2019; Fay & Owen, 2012; Gramegna & Biamonti, 2017; Quirke, 2018), which reinforces the relevance of recommendations for de-centralised facilities, in which housework becomes part of residents' daily routines and rituals in the home, rather than a remote ancillary activity, and through which residents can choose to partake in a wider range of self-determined pastimes, such as baking (Marsden, Meehan & Calkins, 2001), laundry (Eijkelenboom *et al.*, 2017), familiar pastimes (Fleming, Kelly & Stillfried, 2015), or any of the multitude of person-related activities witnessed and expressed by participants throughout this research. This of course will not suit all residents but enables those with the will to greater self-determination to take greater control of their care.

Ideological Conceptions of Space-time

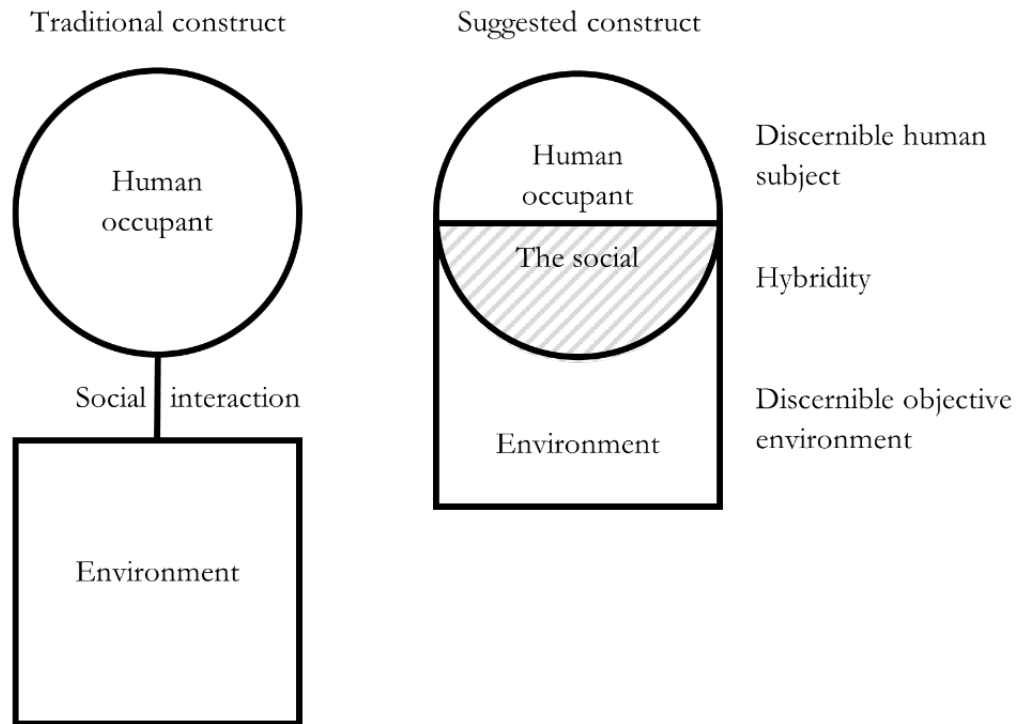


Figure 50: Re-presenting the traditional environmental triptych as artifice.

The first category of processual discrepancies outlines perceived tensions in the way in which space-time is conceived. Care home occupants emphasise a relational form of social space-time that is their experience of daily life within the home. This relational experience is improvised and contingent, and desires appropriation. However, there is a strong perception that the environment is designed in response to more functional and absolute criteria; that its conception is driven by allocations of mechanically deducible criteria to measurable spaces in plan (care routines; dining; watching television as examples).

The processual discrepancy categories sit at a higher degree of abstraction than those of Embodied Spatial Characteristics. The latter are concerned explicitly with the social experience of the built environment in occupants' daily lives, while the former reflect on the processes through which the environment is conceptually constructed and realised.

Crucially, in categories of Embodied Spatial Characteristics, social priorities are concretised in formal-spatial manifestations. In complement, these manifestations also reveal the social influence of those same built configurations. This duality highlights the relational role of the built environment and arguably represents a shift from a traditional view of the human-environment relationship in residential care settings within mainstream architectural research and design practice in this field. Traditionally, the two spheres of the human occupant and the environment are discrete and distinct and a third sphere – the social – occurs when the two collide. This tripartite expression of influential factors is explicitly referenced in the influential research of Rijnaard *et al.* (2016), Molony (2010), van Hoof *et al.* (2016), and Eijkelenboom *et al.* (2017) to name but a few. Instead, here, in the conceptual category of *Ideological Conceptions of Space-time*, these factors are expressed as a co-dependency (not separate), where the human-environment relationship is characterised by a hybrid subjectivity in which the social is at once human and environmental, and space-time is relational. Resonating with Molony's (2010) claim that the home is "both a place (physical or existential) and a process", the human and the environment cannot be entirely separated, as conceptualised in Figure 47. Framed like this, the environment is under constant renewal, not only comprised of the products of previous interactions by others (such as in design and construction) but through the ongoing daily interactions of occupants. Viewed as such, the common triptych is reframed as an epistemological artifice that 'others'¹⁹ the significance of contingent and improvisatory interactions. Rather the environment is unfinished, and its recreation shaped by designer and occupant decisions in perpetuity. Occupants do not simply act on a neutral environment; the environment shapes their actions, and they shape their environment. We cannot therefore reasonably consider components of that environment without consideration of their influence on this social

¹⁹ 'Other' here refers to othering, wherein the other is defined and labelled as that which does not fit in within the norms of a social group; in this case within the bounds of the fields that comprise the triptych; of architecture, social sciences, or psychology.

realm. Similarly, through this recreation, we must acknowledge occupants' will to redefine and challenge the functional strictures imposed by design.

This distinction is relevant because it challenges the reigning functionalist perspective in which the environment is comprised of distinct components on which humans enact their daily life, and rather emphasises the constructive role of the environment in the production of daily life (the social). In calling for environments that “preclude” life rather than fulfil predefined functional targets, Gatt and Ingold (2013) emphasise the need to shift practices away from “setting parameters for our inhabitation”, and towards the “creation of the kinds of environments in which dwelling can occur” (Ingold, 2011).

The shift in thinking toward the relational addresses the artificial separation of the human, environment, and social spheres of life in residential care. And the importance of this contribution can be contextualised in the prominent research into the environment as a therapeutic factor in the lives of residents, wherein the connection between relational social aspirations and environmental configurations is often missing – such as in sociological research – or where environmental configurations are confined to parametric goals and simplify the complexities of relational inhabitation – as in most architectural research. For instance, Fleming, Kelly and Stillfried (2015) highlight the imperative of 11 concerns in the design of residential care settings – supporting the continued use of the senses; opportunities for social engagement; opportunities for spiritual engagement; familiarity and homeliness; calmness; control over levels of stimulation; accommodating the family; privacy; maintaining dignity and providing facilities for personal care; care staff monitoring; and (communication) technology – but offer no concretised examples to achieve them in a connected manner. Similarly, Barrett, Sharma and Zeisel (2019) reveal occupant priorities for different parts of the home – internal spaces; external spaces; way-finding/ circulation

spaces; and sensory enhancement – in which supportive and restrictive²⁰ characteristics are identified. However, again the characteristics offer no suggestions for relevant configurations in the structural fabric, and each category is isolated from the others. These studies emphasise the importance of social experiential aspirations but are abstracted away from spatial-formal configurations and hence remain within the distinctions of the traditional model, giving rise to concerns about the authenticity of claims for architecture that can support home-like and other unqualified experiential qualities (Fay & Owen, 2012; Lundgren, 2000).

Conversely, more architectural research tends to prioritise the role of built fabric to attain parametric thresholds aligned to supportive criteria in which, “the experiences of people with dementia are commonly neglected” (Davis *et al.*, 2009). This is echoed in the findings from focus group interactions including people living in residential care and care support workers, where Fleming, Kelly and Stillfried (2015) assert that care practitioners often struggle to think “beyond the day to day practicalities of carrying out care. This might explain the difficulty they had thinking about design in relation to the experiences of people with dementia”. And also in Fleming and Purandare (2010) where the authors state that,

“designers and architects may be confident about using unobtrusive safety measures; varying the ambience, size and shape of spaces; providing single rooms; maximizing visual access to important features and providing for stimulus control with the periodic availability of high levels of illumination.” However, “The response to the identification of other areas where there is limited empirical support – e.g. homelikeness, provision for engagement in ordinary activities of daily living, small size, provision of outside space... are areas where there is a great deal of anecdotal and experiential evidence to suggest that they are highly desirable. They are worthy of more research before concluding that they are unimportant.”.

²⁰ Supportive and restrictive are respectively worded positive and negative in Bennet, Sharma, and Zeisel’s article.

This conceptual category, hence, calls for professional design approaches with a more connected understanding of the role of the built environment to the social and experiential aspirations of leading Dementia Design Principles than current leading design guidance requires. It suggests that the dominant contemporary logic of a design process based on the fulfilment of discrete criteria seeking positive outcomes in response to symptoms, as alluded to in the passage above, is an important first step in designing supportive care environments but is an incomplete approach that requires greater attention from design researchers and professionals. In this regard, the methods unpacked through this thesis and discussed in detail below offer potential routes for alternate approaches.

Veridiction

The *veridictions* category conceptualises the relationship between the care home and prospective residents and their families as the communication of truths about the home's ability to best care for and support the people that live there. Foucault (2008) discerns sites of veridiction as contexts where it is "possible to hold a discourse on (dementia) that can be true or false according to the rules of medicine... psychology, or (architecture)". Here Foucault draws attention to the plurality of truth and the constraints imposed through the limits of its authorship. This is to say that the veridictions identified in this research are neither objectively true nor false, rather they hold true according to the motivations and authority of their authors.

The previous chapter demonstrates the powerful role that these truths play in the realisation of the care environment. From the aesthetic representation of the home to the provision of centralised services, the maintaining a level of tidiness, and including certain technological innovations, the construction of truth about appropriate support for residents has a normalising tendency, wherein residents' families expect to find certain qualities (*en-suite* bathrooms and a level of tidiness, for example) that create an expectation

in the market. Meanwhile, knowledge created through disciplinary knowledge fields can have an even stronger coercive effect. For instance, Fay and Owen (2012) reiterate the tension between the need for residents to feel empowered and settled in the environment (Molony, 2010) – a key contributor to which is its aesthetic representation and the ability to personalise – and the now commonplace requirement for residential care homes to incorporate high-contrast colour schemes in everything from walls and furniture to crockery. Similarly, the need for wayfinding and assistive signage and symbols in the home are found by most to communicate an institutional setting (Fay & Owen, 2012; Lundgren, 2000) that communicates a sense of impermanence. However, criteria such as these are written into design guidance and home evaluation tools that grade and certify the quality of a care home (DSDC, 2011; DSDC, 2018) and hence bolster its attraction in the marketplace. This transformation of the necessary conditions associated with the resident through the construction of truth, as described in Figure 45, is discussed by Lundgren (2000) who notes the coercive tendency for a “model of” good living to become a “model for” good living. Here the veridiction of certain characteristics, as described above, can be read as a “model of” supportive environmental characteristics; *one* representation of *a* truth about a supportive environment in residential care. However, through the coercive and competitive pressures of demand discussed, a self-reinforcing effect is perceived in which they become a “model for” supportive living conditions; *the* model for supportive environments in residential care. The “model for”, then, represents the normalising tendency to which all homes must aspire in the marketplace.

Veridiction, as process and outcome, has the power to translate truth as a multiple concept into a flat and fixed set of conditions and is hence useful in argument and marketing. Such as in the case of *en-suite* bathrooms – a particularly contentious moment of veridiction realised in this study – wherein the pressures of market demand are realised by care home representatives, but strong evidence is presented of their undesirable effects. Far

from negating the truth of the supportive nature of a nearby and personal bathroom (Fleming, 2011), the acknowledgement of this typological truth as incomplete suggests the need for fresh perspectives toward the problem. However, Lundgren (2000) and Fairhurst (2000) note the tendency for care home designers to emphasise the spatial, formal and aesthetic notions of home with little challenge to the naturalised typological legacy. Innovations are introduced to an established structural order; they do not challenge the structure of the order itself. Indeed, participants in this study were conversant in developments in research and technology for supportive environments, such as surface colour contrast and inclusion of TV screens that relay the time of day to residents, but the nature of deep planned rooms, hardlines and other constraints outlined within the embodied characteristics were not immediately apparent and required explication through deeper questioning. Hence, as supported by Van der Horst (2004) and Fay and Owen (2012), persists a seeming inevitability to the naturalised model for the dementia care home and the irreconcilable tensions between the needs for environments that support the residents in their struggles against the symptoms of living with dementia and their ongoing personal fulfilment. Suggesting the need to challenge the naturalised typology, as opposed to simply operating within its pre-existing constraints, Van der Horst (2004) proclaimed that,

“material alterations create a shield for the fact that not much has actually changed. The outward appearance is that the right to home of the residents is incorporated. However, the most important things are not altered. It thereby in fact normalizes the idea that autonomy and privacy are irreconcilable with the institutional environment”.

This view reinforces the notion of the naturalised care home typology as a site of veridiction, where a body of “truth” about residents’ relationship with the environment commands authority over its ongoing creation but which does not necessarily resound with residents’ aspirations for fulfilling residences. The categories of embodied spatial

characteristics described the limitations and disciplinary influence that restrictive qualities in the environment can have on the reproduction of life in the home. Arguably, then, the perpetuation of the “normal”, naturalised typology through veridiction also exerts a normalising effect on residents.

Further, the partial nature of veridictions underscores the need to avoid the wholesale deference of research and design to expert professionals, shortcutting involvement by would-be residents. It is a call for collaborative, transdisciplinary, and participatory approaches to design that can both challenge the limits of siloed disciplinary thinking with the knowledge and methods of other disciplines concerned with the studied context, and which include those who live the phenomena and are most affected by the applications of knowledge in its construction.

Instances

Through thick description, the previous chapter framed many *instances* – structural configurations – of material-socio-spatial relationships on a continuum of support and restriction within the conceptual categories discussed above. These *instances* concretise supportive and restrictive phenomena in the residential care environment and offer grounded insights into the perceived influence of the work of designers on residents’ daily lives. Instances at once lived representations of the theory model and are the meat to the skeletal conceptual categories that form the body of the theory model. Instances are hence more granular and numerous than the other outputs. Hence, rather than restate configurative instances here, this section focuses on the novel characteristics of instances.

The very recently published research from Quirke *et al.* (2021), *determining a design assessment tool for layout planning in residential care for dementia*, is perhaps the most rigorous literature for the evaluation of the supportive characteristics of structural configurations in the residential care home. There, Quirke *et al.* (2021) prototype the coordination of

environmental assessment criteria set out in the post-occupancy evaluation tools established by Fleming (2011) into a design-phase evaluation kit to be used in the design of emerging care homes. Quirke *et al.* (2021) use case-study floorplans to generate hypothetical design-phase scores that could be ratcheted upward through design iterations. At a descriptive level, the granular detail of the instances and their constituent data constructed in this study is largely congruent with the findings from Quirke *et al.* (2021). Examples include freely accessible outside spaces, spaces for smaller groups to socialise, toilets visible from common areas, and high levels of daylighting throughout. This congruence affirms the relevance of the findings in the categories of embodied spatial characteristics, wherein recurrent configurations suggest the likely transferability of many of the findings from this research.

However, both the audit tool and the background DDPs from which it is constructed refer to pre-established typological constructs – such as the corridor; the bedroom; the bathroom – which remain spatially and materially unchallenged. It is hence possible for designers to allocate functionally discrete spatial allocations in relation to one another and expect success. So, on the one hand, Dementia Design Principles (DDPs), such as from Fleming and Bennett (2015) or van Hoof *et al.* (2010a), generally do not propose actionable structural design configurations in support of residents' social fulfilment, and on the other, guidance and audit tools generally isolate recommended configurations in disjointed functional design criteria. However, spatial sequencing within the assessment criteria is addressed exclusively through visual connections, such as “can the kitchen be seen from the lounge room?” (Quirke *et al.*, 2021). No doubt important to residents' legibility of the residence, this visual primacy operates again at the level of spatial optimisation and suppressing the negative consequences caused by living with the symptoms of dementia.

In complement, attention is drawn to the contribution made in this research, in which many of the instances detailed in the previous chapter focus on relational connections between moments in the architecture that have, as Zeisel *et al.* (2003) suggest, historically been treated as discrete. These connections – such as the transitional threshold between personal spaces; the variations in privacy afforded by flexible personal space layouts; the termination of otherwise useable space caused by poorly sequenced access routes and doorways; or the adaptive connection between personal habitable spaces and bathrooms – suggest a more assimilative approach to the design of a personally and socially fulfilling environment. This approach prompts a rethink of the naturalised typological structures – many of which were found to have room for improvement and against which other environmental assessment tools can be applied to varying levels of success – but which do not necessarily constitute a joined-up approach. Here, this research echoes Quirke *et al.* (2021) in the need for caution against the “tendency to take a simplistic view of the design process” that occurs when space planning is led by the fulfilment of criteria from audit tools without the countermeasure of a “principled” approach (Fleming *et al.*, 2021; Quirke *et al.*, 2021).

Further, Quirke *et al.* (2021), citing Smith *et al.* (2012), Nordin *et al.* (2017), and Hadjri, Faith and McManus (2012), suggest that there is a sub-optimal implementation of Dementia Design Principles (DDP) in completed residential care facilities. Importantly, the DDPs that underpin the key literature (Marshall, 2001; van Hoof *et al.*, 2010a) make recommendations for localised interventions and desirable outcomes but do not critically address the structural organisation of spaces in the home or sequences between them. Instead, these extensive and valuable recommendations also focus on task optimisation and symptom reduction within a largely unchallenged structural fabric.

In addition, instances include new contributions that challenge DDPs and shed new light on areas largely overlooked in design guidance. For instance, the self-fulfilling

realisation of veridictions, like show-home aesthetics or hotel-like conveniences, that have clear importance in residents' daily lives are unaddressed in these key design drivers. Similarly, insights into the influence of room orientation on the affordances of residents' personal and appropriated spaces, or the restrictive nature of flat lines and thresholds recurrent in many embodied characteristics, challenge the applicability of existing forms of guidance to the functional primacy of the naturalised typology. Such instances, rather, suggest a more critical and person-centred approach to research and design in this area that challenges the naturalised order of design for residential care homes.

Theory Model

The Grounded Theory (or theory model) proposed here is comprised of the 5 conceptual categories and is at once a descriptive rendering of the material-socio-spatial relationships in the residential care home environment and it offers a model for the communication and interpretation of further insights from other residential care settings in which the proposed outputs and conceptual categories are aligned, emphasising their connectivity and dependencies. Here, again drawing on March and Smith (1995), the model “captures the structure” of the situation, and its conception is concerned more with utility than detailed truth. Ergo, the rendering is an interpretive and plastic structure comprised of conceptual principles and intended to be used as a lens through which to view similar social contexts. There the model may adapt and grow, as new insights are incorporated. Such is the intention and nature of Grounded Theory, for a transferable model to be expanded and tested in new settings with theoretically relevant information: the transfer to formal theory. The theory model proposed in this research describes the potentials for residents' fulfilment and alienation through the mechanics of the construction, realisation, and reproduction of daily life within the residential care home. It is hence expected to primarily benefit other residents in residential care homes for people with a dementia diagnosis by

improving designers' empathy and understanding of the implications for their work, and by emphasising the value and importance of participatory design in residential care settings.

“The experience of the person with dementia should frame the perspective brought to built design and the philosophy of care – in essence, ‘looking out from the inside’. Shifting the emphasis from condition to experience encourages the culture change needed to create environments that allow the person with dementia to be an active participant in everyday life” (Davis et al., 2009).

Discussions on Methods

This study is impactful for both researchers and designers working in similar contexts. It offers several methodological contributions that both challenge the dominant modes of contemporary building design and offer alternative ways of seeing and appreciating life in residential care. These include; the form of inquiry for transdisciplinary, Grounded Theory, and Design Anthropology approaches; for working with vulnerable participants in fieldwork; and for remote design research. Methodological contributions are less theoretical and more applied than the other contributions discussed in this chapter. The successes and limitations of each of these are discussed here.

Form of Inquiry

The common thread of transdisciplinarity runs throughout the dissertation and Davis' words above go to the core of both the theoretical outputs of this research and are the impetus to the methods where care home occupants are centred as the active agents in the construction of knowledge. Emerging in the introduction chapter as a necessary position to address the gaps in knowledge equity established by more siloed traditions in designerly and ethnographic perspectives; it is then framed in the design of an inquiry sensitive to the traditions and potentials of working with non-academic fieldwork participants in the primary canons of each discipline; then fieldwork was conducted using an adaptable toolkit framed in the structure of the Constructivist Grounded Theory tradition to construct

theory directly from participants' insights, both reflective and projective, and the inductive approach was contextualised in other action-based and critical disciplines that foreground the knowledge of those living the studied context; finally, the approach culminated in the construction of the theoretical framework built on participants' situated knowledge and my specialist architectural lens as the researcher.

Foregrounding participants' voices in the construction of fieldwork agendas, methods, and data enabled the construction of a connected and complex view of the built environment that enabled insights into the contingent and multivalent social-inhabitational phenomena that may have been invisible within the restricted gaze of the hypothetico-deductive model, concerned with *a priori* notions of the relationship. As Zeisel *et al.* (2003) pointed out, connections between socio-spatial fragments are yet to be fully explored, and it is argued here that understanding those cumulative effects requires researchers to revisit field contexts and spend time with care home occupants to re-evaluate the relationship between the environment and its occupants. In this light, the conceptual categories outlined in the theory model underscore the importance of an inductive, grounded, and transdisciplinary research approach in complement to the common meta, fragmentarily focussed, and hypothetico-deductive forms of inquiry that dominate the field of research into residential care design for people with a dementia diagnosis. The theoretical outputs from this inquiry should be considered precursors to further intensively focused inquiries that explore the concepts and instances constructed here, as is one of the core intentions of the paradigm (Glaser & Strauss, 1968). Here the inquiry also answers to Davis *et al.*'s (2009) concerns of the neglect for residents' experiences in a design paradigm in which,

“the medical model imposes a situation in which all functional difficulties and emotional states are attributed to brain damage and the impact of the social world in which the person with dementia lives is often discounted or overlooked completely”.

The Constructivist Grounded Theory approach afforded a scaffold to avoid this sort of theoretical abstraction (Goulding, 1998) and hence provided a fresh look at the grounded experience of life within the embodied knowledge of the naturalised typology of residential care design.

The research process followed the Grounded Theory tradition of searching for data saturation by building on emergent insights with a rapid and deep-penetrating inquiry, but also expanded on the tradition by delimiting the point of saturation from the restrictive temporal gaze of traditional ethnography. Here, the Constructivist Grounded Theory tradition served as a scaffold for the extension of theoretical categories to include participants' projective views for supportive living environments. This break with qualitative inquiry tradition contributes to the field of Design Anthropology, where the artefacts constructed in the production of field notes and drawings, and the framing of collective aspirational qualities in spatial and graphic representations, are recognised as forms of embodied knowledge. This extension gives theoretical rigour to design propositions and material significance to theoretical ones and addresses the artifice of the limiting triptych in which the human, social, and physical forms of the environment are discrete and distinct.

Here, operating between the strictures of disciplinary traditions – and with the methodological scaffold of the Constructivist Grounded Theory paradigm – the integrity of participants' situated knowledge persists, populating the disciplinary void and connecting historically distinct research roles:

“Rather than being driven by research topic, the natural-design science distinction is based on different research objectives. Natural science aims at understanding and explaining phenomena; design sciences aims (sic) at developing ways to achieve human goals” (March & Smith, 1995).

The dual perspective, in which configurations in the environment are at once driven by social interaction and at the same time influence social affordances, is emblematic

of Design Anthropology research and is a product of a research methodology that transitions the temporal void between reflection and projection. More than *fait accompli* solutions applicable in all new residential contexts – which Gatt and Ingold (2013) warn are doomed to failure - these spatial metaphors are richer than the well-informed products of design-informed-by-ethnography; they project possible alternatives in complement to the critical insights offered by traditional ethnography.

“A key element in what architects can learn from anthropologists is thus to understand local social contexts through exploratory and self-reflective approaches combining methods for collecting data with theoretically informed ways of critically analysing the data” (Stender, 2017).

Working with Vulnerable Participants

Quirke *et al.* (2021) through Hendriks (2019) suggests that one of the reasons that the design of the built environment is “limited and sub-optimal” in support for people living with dementia is the “continued exclusion of people with dementia from the design process”. This section reflects on the effectiveness of methods sensitively adapted to participants’ differing capacities to actively include residents with a dementia diagnosis in the construction of knowledge.

Reflections on Interviews

Interview design was guided by the traditions of qualitative inquiry as a foundation, and then through reflexivity in interactions with the research participants, iterating between conducting and adjusting the interview approach as empathy and hence research sensitivity grew. Traditionally, Grounded Theory is characterised by rapid theory generation in extended fieldwork visits (Timonen, Foley & Conlon, 2018), suggesting the need to move quickly to gather as much data as possible from the field to expedite the inquiry. However,

as Wilkinson (2002) attests, interviewing people with a dementia diagnosis ultimately requires a slower approach.

Recursion played an important role in slowing down and ensuring useful data in interviews. Interviews were recursive both in questioning and format. Reaching a space for direct questions was often challenging, and while open-ended questions were effective inroads to finding ground on which to discuss the phenomenon, follow-up questions often required a precursor based on the participant's previous answers. Constructed as such, interview context is re-established with each question, removing pressure for the resident to remember previous answers, and enabling the more gradual construction of insights after each question. Often participants were able to recall previous answers, which helped interview momentum, but just as common, and often changing within a single interview, were instances where participants struggled to stay present in a conversation.

Importantly, as discussed in the Methods Chapter, it is not uncommon that participants struggle to hold the thread of an interview for the duration. Here a sensitive awareness was developed to know when to proceed and when to curtail the interview, challenging the notion that interviews should last a minimum amount of time. This emphasises the focus on achieving depth according to the capacity of the interviewee. An advantage of this field context is that the population of residents and staff is reliably consistent, which allowed for repeat interviews on other occasions when participants were again able to interact. These experiences suggest that researchers intending to work with participants with cognitive restrictions should plan for extended durations in the field. Full days of fieldwork interaction are preferable, in which the researcher should plan both to undertake observational and interview work. A readiness to move between the two allows effective use of field visits, and researchers should negotiate an immersive attendance for their field contexts with a gate keeper so that interactions can follow the rhythms and capacities of participants, not an external schedule.

Importantly here, recursion differs from repetition. Recursively questioning involves restating the context of the question and some of the participant's answer to contextualise the successive question and guide the participant through the interview. Repetition on the other hand can be uncomfortable and disruptive, particularly if questions agitate the participant. Researchers should avoid repetition and seek alternate lines of questioning if participants cannot or will not respond to a question directly. Agreement of this with gate keepers, family members and participants themselves prior to interviews is beneficial in establishing a tone of ease and respect.

Sensitive interview conduct, mindful of participants' capacity and comfort, sometimes meant deciding to end proceedings, but sometimes delaying the act of doing so. Residents often required a transition into a conversational tone, and the researcher a shift into participant observation mode where the nature of interaction was more participant guided and less direct and probing than interview questions. This methodological sensitivity avoided abrupt changes in tone or dropping the resident back into the interview world when they were clearly somewhere else in mind. Thus, interviews were rounded up with a necessary debrief (thanks and formal clarification that the recorded interview was complete) but often with the buffer of a joint conversational meander between the decision to do so and actual conclusion.

On the subject of time, it is well documented that memory difficulties change a person's perception of chronology, causing a muddle of sequences and experiences in their recall. While this at first seemed problematic for the reliability of interview responses, interview data were largely uninterrupted by confusion over dates and sequences, which through coding appeared more as points of order than vital to understand social-space-time contexts. Most participants could recall the nature of an occasion (was it crowded, an event, inside or out, for instance) even if specificity (the number of attendees, time of day, or exact location) were unknown. In this research, some further questioning (who was

there, did they live with you, why were you/ they there?) often triggered the recall of further relevant details. Researchers should thus be mindful about what level of detail is pertinent to their research question and avoid unnecessary data gathering, which aids both the interviewer and interviewee.

Related, the loose interview guide served as a prompt for the approach and pace of the interview rather than for specific questions. This adaption from traditional guidance for semi-structured interviews in Constructivist Grounded Theory inquiries, where Charmaz (2014) suggests interview questions should follow a pattern of open-ended introductory questions, followed by more directed intermediate questions to gain depth. This inquiry privileged looseness to keep the researcher open to the grounded nature of the data and avoid tainting it with prejudices.

The ability to move proved helpful in interviews. While traditional interviews are often held in more formal settings – 1 on 1 in a room, for instance – the ability to take a resident out into the garden, walk with them through the home, or accompany them on a routine, while asking interview questions, prompted deeper questions relative to their life in the home and revealed observational qualities in interviews, as valued by Glaser (1998). This is an advantage to working with people in their residential context and of planning extended fieldwork days so that the researcher can adapt the schedule to get the most out of interactions.

Within this slower structure, there are inevitable moments of low-productivity – when residents are simply inactive, or when the researcher cannot be present in a group interaction, for instance. These moments can be valuable to the researcher, who can use the time to pursue constant comparison methods, writing memos, open coding new insights, and framing question based on emergent concepts. Arguably, the recursive nature of interviews allowed for more informed follow up questioning, and context from a greater number of participants, than interviews conducted in a single time-constrained encounter.

Whereas a traditional qualitative interview approach may be akin to the construction and filling of a frame – categories constructed quickly and linked like girders at points of anchorage – in this inquiry theoretical categories were developed through constant comparison like the masonry of a wall; modular, gradual, and robust. Combined with the largely reliable ability to return to participants, the characteristic rapid generation of theory, and a pointed and deep inquiry, are still achievable in this context.

Reflections on Observation Design

Observations were crucial to the construction of data. They prompted lines of questioning and elements in the architecture that might otherwise have been overlooked. This speaks to the importance of interaction with intended occupants and the relevance of interdisciplinary approaches, where pre-existing architectural knowledge informed the construction of data. Here, the traditional structures of anthropology are broadened against historic caution to minimise intervention in the studied context. For instance, participant observation is an interventional activity, and central to ethnography, but is concerned only with description not effecting change. However, as argued by Gatt and Ingold (2013), ethnography claims to not be transformational or forward pointed, only documentary. However, this denies “that the practice of ethnography may have transformative effects” (Gatt & Ingold, 2013), such as in this study where engaging care staff evidently caused them to consider their relationship to the built environment differently than they had previously.

There is potential to expand the depth of the conceptual categories proposed here by negotiating extended access to care homes. Overnight visits were not possible in this study, and thus it is likely that some relevant insights remained outside the scope of the study. However, as each resident follows a slightly different routine, fieldwork visits

allowed for the observation of different residents' start and end of the day, as well as times in between. Further work should try to capture the relevance of night time life in the home to build upon work here. This is a potentially fruitful further step, since changes in the time of day and lighting cause changes in appearance and hence perception, and because people living with the symptoms of dementia often experience changes in the severity of symptoms at night time (Torrington, 2007), which may influence their interactions and perceptions of their environment.

Reflections on Design Practice

This inquiry used visual communicative languages to record, correspond, and disseminate concepts in ways more accessible to lay audiences than the traditional academic outputs of research papers, dominated by text and charts. The use of an architectural toolkit to conceptualise socio-spatial relationships retained their spatial-formal validity and avoided artificial separation of social, personal, and environmental qualities described above. Indeed, Galey and Ruecker (2010) and Bardzell, Bardzell and Hansen (2015) argue that design artifacts “reify arguments, which in addition to contributing to knowledge can even anticipate and pre-empt criticisms”. This aligns with Drazin’s (2013) argument that design concepts and their material manifestations have “social life”.

The methods used throughout this inquiry offer possibilities for the inclusion of intended occupants, particularly those with cognitive difficulties, in the design process. Moreover, the insights, which challenge the established model of expert-led design-and-evaluation based on functionally abstracted criteria, speak to the necessity of more inclusive designerly practice. The processual discrepancies frame tensions between residents' collective priorities and their lived environment, which suggests the need for more inclusive design practice, answering to Dawson and Palmer’s (2020) concerns for the need for greater education of architects and Hendriks and Wilkinson (2020) who highlight the

continued exclusion of people with dementia diagnoses from design processes. Crucially, the study spotlights the importance of more inclusive ways of seeing the relationship between residents and their care environment, which include the embodied knowledge of collective projections for alternate futures. Artist John Walter (2020) similarly used participatory practice to frame residents' views in a future oriented inquiry into the design of a hospice in the Mobius Project. Walter's resultant output describes spatial interventions including buildings in a virtual space co-authored by the participants that can be navigated and evaluated. Though more abstracted and broader in its scope, Walter's Mobius Project suggests the will of other disciplinarians to build future oriented inquiries to explore a resident population's view of their environment and define a more participatory design approach. Similarly, Wallergard *et al.* (2021) have also experimented in the healthcare discipline with the use of virtual environments to reflect on environmental qualities in interactions with aged participants. This suggests the potential for the wider impact of the methods used in this research, where others using similar approaches and technologies can develop protocols for more inclusive and interactive communications.

The use of virtual environments as visual metaphors is perhaps limited by the prioritisation of the imaginary leap from vision to embodiment, which precludes other sensorial and socially interactive experiences (Till, 2009). The realistic rendering of the environment caused some hurdles in the interactions, where participants were often concerned about decoration and appearance in the model – such as paint colours or carpet or another kind of finish. It was necessary to follow these insights to keep participants interested in the discussion, and then try to steer them toward the relevant discussions about structural configurations, lest they feel unheard. The realistic environment can distract from the point in this regard. However, the approach was necessary for the development of future-oriented ethnographic inquiry since the evaluation of material life-sized 'real world' exploratory structures was prohibitively expensive for this research and,

as Gänshirt (2020) highlighted and the reflections of this research attests, architecture – differentiated from philosophy and social theory – must be realised in spatial-formal configurations. Further the approach afforded the communication of emergent environmental configurations with remote participants, which was a necessary adjustment to the form of inquiry in the context of the COVID-19 pandemic that prevented face-to-face interaction. This workflow has the potential for impact in varied design and research contexts where remote collaborations are required, including far ranging fields like entertainment and visual experiences for adults, and human-computer interactions. Further work might explore the possibility of virtualising other sensorial and experiential phenomena in the virtual environment.

Participants suggested some insights into details of the virtual environment during remote interactions. Limitations imposed by the COVID-19 pandemic and time pressures on this research precluded the development of iterations to the virtual environment to explore the design potential of detailed elements of the fabric, however, this remains a fruitful territory for the development of research stemming from these findings.

Conclusions and Suggestions for Further Work

Many of the concepts and themes raised by the dominant guidance and research are discernible among participant priorities in the categories of embodied spatial characteristics constructed in this research. This reinforces their relevance both here and in the studies referenced, however, their spatial-formal characteristics remain intact in this research, offering structural relevance to otherwise largely unqualified designerly concerns, such as homeliness and privacy, which Lundgren (2000) suggests can be leveraged into aesthetic, placatory, and normalising veils to otherwise disciplinary structures. Hence, based on the knowledge contributions discussed throughout this chapter, this research takes a stance leery of Marquardt, Bueter, and Motzek's (2014) claim that there are few gaps in our

knowledge of environmental design for people living with dementia – “overall, the field of environmental design for people with dementia is well researched in many aspects and only few gaps in knowledge were identified” – as a limiting perspective that speaks to the normalising capacities of truths derived through veridiction. Instead it cautions against the simplification of resident priorities into functionally and formally discrete architectural components that subdue the complexities of relational experiences. Quirke *et al.* (2021) similarly caution against taking a “simplistic view of the design process” and suggest the need to temper design guidance and decisions with a principled approach. This shared concern emphasises the incompleteness of our knowledge of the relationship between the built environment and residents living with a dementia diagnosis. Moreover, it can be inferred that – as per Gatt and Ingold (2013) – the knowing may never be complete. Instead, the notion of a ‘fully correct’ design environment is itself an artifice with homogenising tendencies that seeks to preclude difference between residents. It is further suggested that inter-and-trans-disciplinary research can offer fresh perspectives on the phenomenon of life in residential care with a dementia diagnosis with the capacity to address more relational and complex understandings of the role of the built environment.

Contemporary literature has called for further research into the social significance of configurations of the built environment in residents’ daily lives so that we can better inform the design of residential care homes that support their residents. This research represents an important step to grounding that significance in built configurations, but also offers a critique of the dominant design approach, critiqued in the introduction, where design is distanced and concerned with the fulfilment of criteria in design guides, and which are reliant on the handover of knowledge from empirical to designerly disciplines. Here the suggestion of an enhanced form of interaction with intended occupants is offered, in which the intensive and rapid generation of theory with research participants can be considered analogous with the proposed intense and rapid generation of design

proposals with intended building occupants, reducing opportunities for knowledge translation between disciplinary ways of thinking. These interactions depend on the specialist architectural knowledge of the researcher, and hence emphasise the importance of a spatial practitioner sensitive to the social role of the built environment. The methods used here can serve as a roadmap for new forms of inclusive architectural practice that afford a built environment more in-tune with the lives of its intended occupants. For example, remote interactions in which participants were concerned with the appearance of interior finishes and décor were outside the scope of this study but represent the opportunity for further exploration that might benefit from virtual prototyping. Another applicable instance is in participants' intrigue around the ability for certain spaces to accommodate residents' belongings. Further work could explore the creation of real-world environments to test the inclusion of bodies and objects but also explore the potential to bring virtual models of residents' belongings into the environment to visualise personalisation and assist with the transition into the home. Again, outside the scope of this study, but this is a possible avenue wherein the methods explored here could extend from this inquiry.

Notwithstanding the valuable contribution of these insights, further work should be done to strengthen the conceptual categories that comprise the theory model. Crucially – and aligned with the Grounded Theory tradition – the findings from this study should be elaborated with data constructed from similar contexts, including broader demographics, to strengthen their transferability.

Limitations to the Methods and Findings

It is important to recognise that, while the study was conducted in residential care homes with residents of varied stages of cognitive decline and different forms of dementia, the extent of individual participants' cognitive capacities, and their formal diagnoses were not

recorded. Hence a cross-analysis between residents' medical profiles and the responses they gave was not undertaken. Thus, an important limitation in this research is that the extent to which people with different medical profiles, cognitive capacities, and stages of dementia are represented in the insights and findings is unknown. Notably, the methods used could not accommodate interactions with people with highly advanced losses. It is therefore suggested that the findings for this study likely reflect the proclivities of people with early and mid-stage cognitive impairment more than they represent the views of people with notably advanced stages of dementia. It is likely that further work is required to understand the relevance of the design of the care environment for people with advanced stages of dementia, and further research should seek to incorporate this underrepresented group through the development of more inclusive methods, including the development of methods for interaction and data collection that are more accessible to people with advanced cognitive impairments. Such studies should also include, in line with Chaudhury *et al.* (2018) and Zuidema *et al.* (2010), the collection of medical profile data to permit cross-analysis with participants' stages of decline and types of dementia, to determine any correlates between diagnoses, stages, and environmental configurations. By extension, cross-analytic studies that seek correlations between residents' medical profiles, as described in the introduction chapter of this thesis, should be undertaken to strengthen the applicability of the findings. Such an inquiry would likely be strengthened by interdisciplinary collaboration with psychologists such that participants' capacity to express their views during interactions can be better understood.

Then, the study revealed thick insights into the relationship between residents and their home environment, but outside spaces are generally underrepresented. This is because there was limited scope to spend time outside with residents and ascertain meaningful insights into their experiences with spaces outside the perimeter of the care home.

Recommendations are made for stronger connections between spaces inside and outside

the building perimeter, and the nature of a clear distinction between the two conditions has been challenged. Hence, further work should explore this threshold between inside and outside spaces and look explicitly at the occupation of spaces outside the home with similar methods.

Lastly, the significance of material qualities was subdued in this inquiry. Material was mostly used here to describe built form as the enclosure of space. However, while there is suggestion that specific material and haptic qualities can contribute to improvement in residents' wellbeing (Feddersen & Lüdtke, 2014), their potential to do so was outside the scope of this research. Further understanding into the significance of the materiality of built form is particularly relevant both against the backdrop of this research, which suggests that the social, and physical worlds are part of the same sphere; and also, in the context of tensions between largely homogenised environments, in which painted plaster is ubiquitous, and the call for homes with less institutional, more homelike qualities, as described in the introduction to this thesis. The observational grid could be developed to extend to materials and construction to address this limitation.

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Appendix A

Publication

The following publication in the Architectural Science Review special edition on Design for Dementia was produced as part of this research:

Burke, Ricky Lea, and Alejandro Veliz-Reyes. 2021. "Socio-spatial relationships in design of residential care homes for people living with dementia diagnoses: a grounded theory approach." *Architectural Science Review*:1-15. doi: 10.1080/00038628.2021.1941749



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

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ABSTRACT

This paper presents a grounded theory study conceptualizing the socio-spatial relationships of residents with dementia diagnoses in two residential care homes in the United Kingdom. The study challenges generalizations and abstractions of occupants in the design the care home and prioritizes residents' lived experiences and aspirations as rich sources of design knowledge to enabling articulation of new conceptual-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 derive a grounded theory of the research context. A theory model is constructed that encompasses embodied spatial characteristics and discrepancies in the representation and realization of residential care homes. 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.

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Grounded theory;
socio-spatial relationships;
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dementia; architecture
fieldwork; mixed methods
research

Introduction

While models of person-centred care are generally normalized 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 problematize 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 normalized in design guidance (Pollock and Fuggle 2013) for residential care settings. The piecemeal prioritization 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: centralized 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 idealized 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).

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

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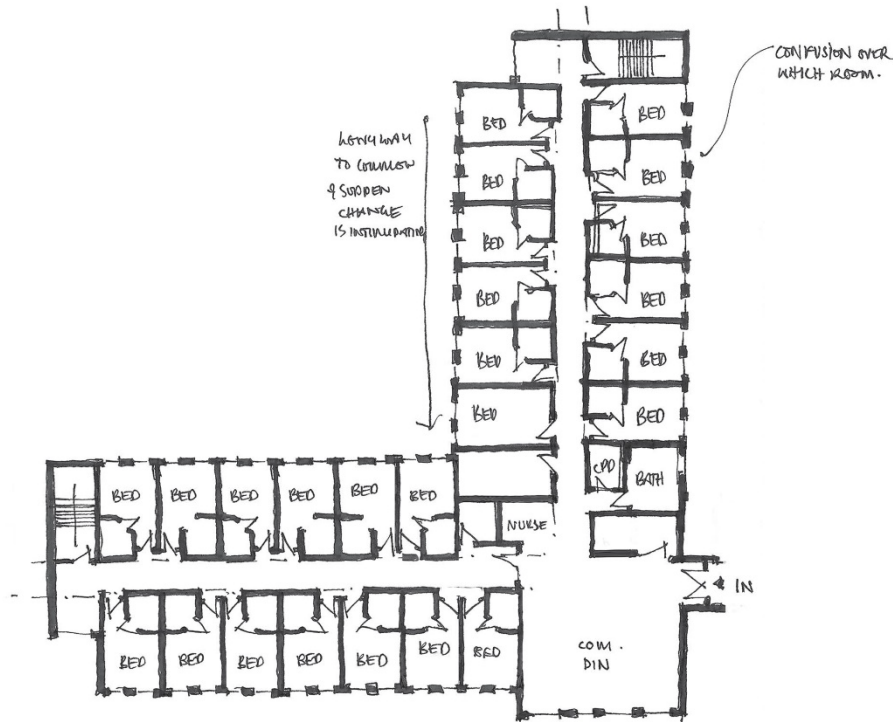


Figure 1. Floor plan of a residential care home that conforms to the typology of centralized provisions and social spaces, and wings of cellular en-suite personal rooms.

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 realizing 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

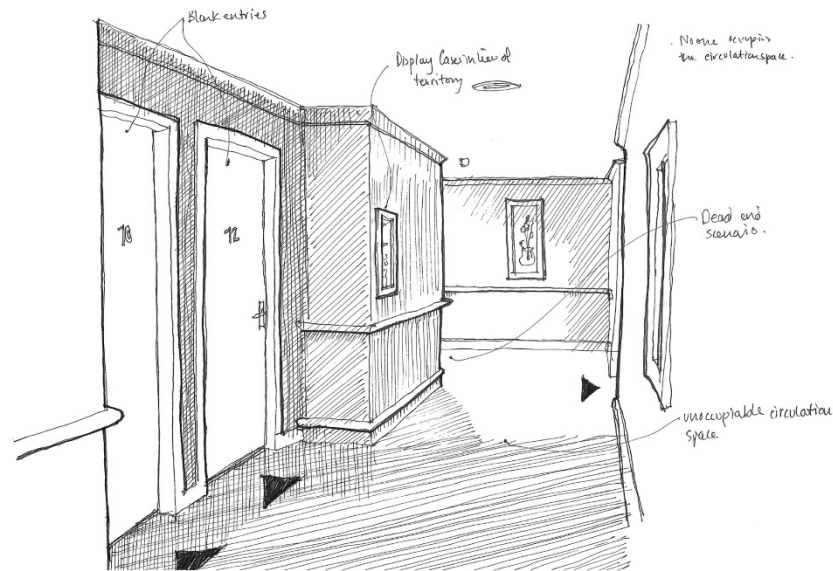


Figure 2. Sketch from fieldwork in a purpose-built residence. Bedrooms accessed from a long and repetitive hallway. The space is finished with framed paintings, cornice and display cabinets intended to promote a domestic aesthetic.

research outputs directly from the observed context (Charmaz 2006; Corbin and Strauss 2014). Residents' input and on-site fieldwork observational methods are therefore prioritized 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 focussing on fragments of the environment or specific resident behaviours determined *a priori* from pre-determined theoretical and methodological positions.

As mentioned, however, residents' experiences are multidimensional and multifaceted and comprise senses of wellbeing, spatial inhabitation, and complex architectural conceptualizations 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 University of Plymouth) 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 materialized 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 focussed 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 visualize 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

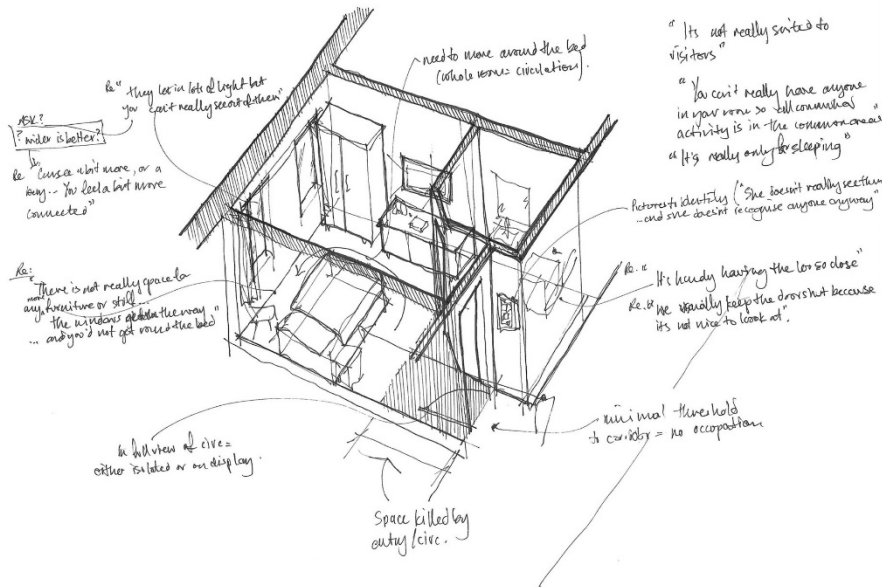


Figure 3. Example of fieldnote sketches after interaction with a resident; their bedroom.

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.

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 focussed categorization 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).

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

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.

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 organized in two core categories. 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'. 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 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'.

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

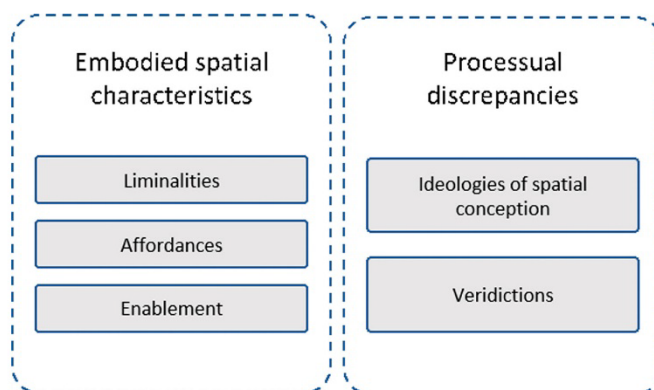


Figure 5. Grounded Theory model of embodied spatial characteristics and processual discrepancies in socio-spatial relationships in residential care.

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 characterized 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 contextualized 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 centralized 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).

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 recognizable 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

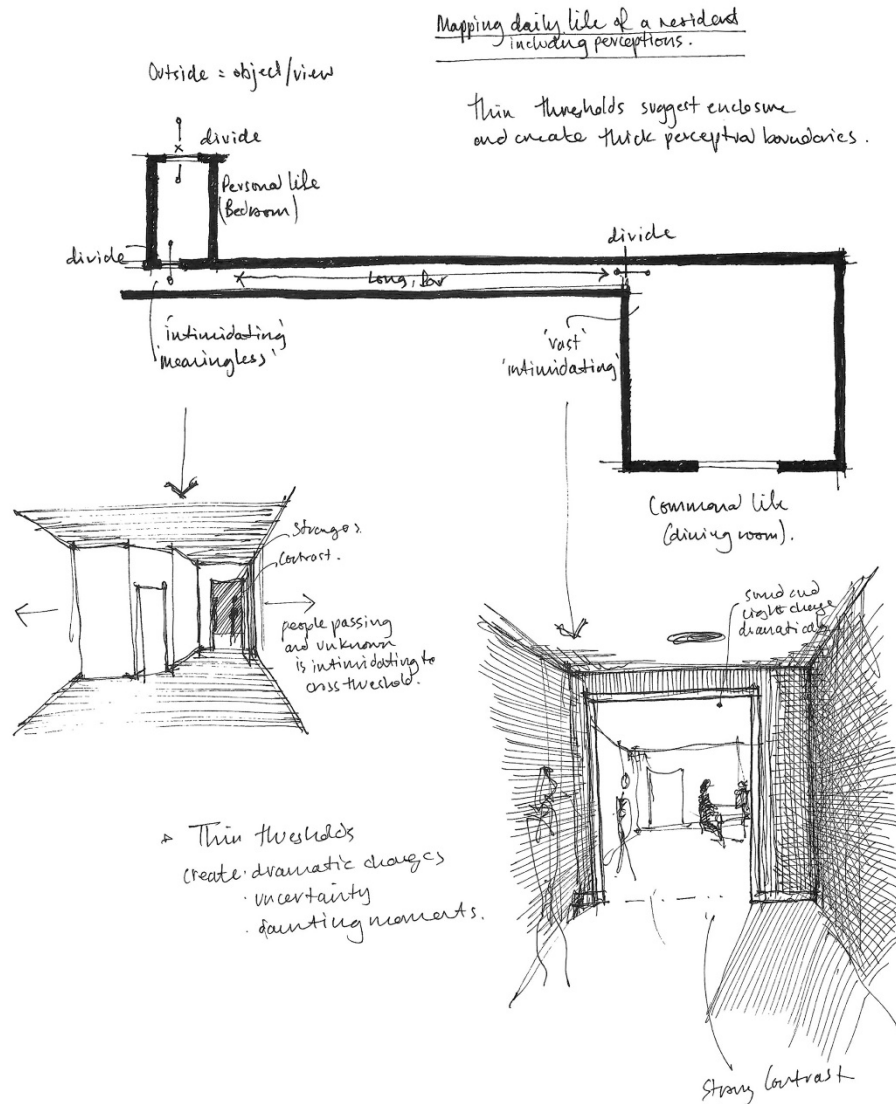


Figure 6. Mapping daily life of a resident in the context of hardlines and thin thresholds. Highlights abruptness and separation between moments and spaces.

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.

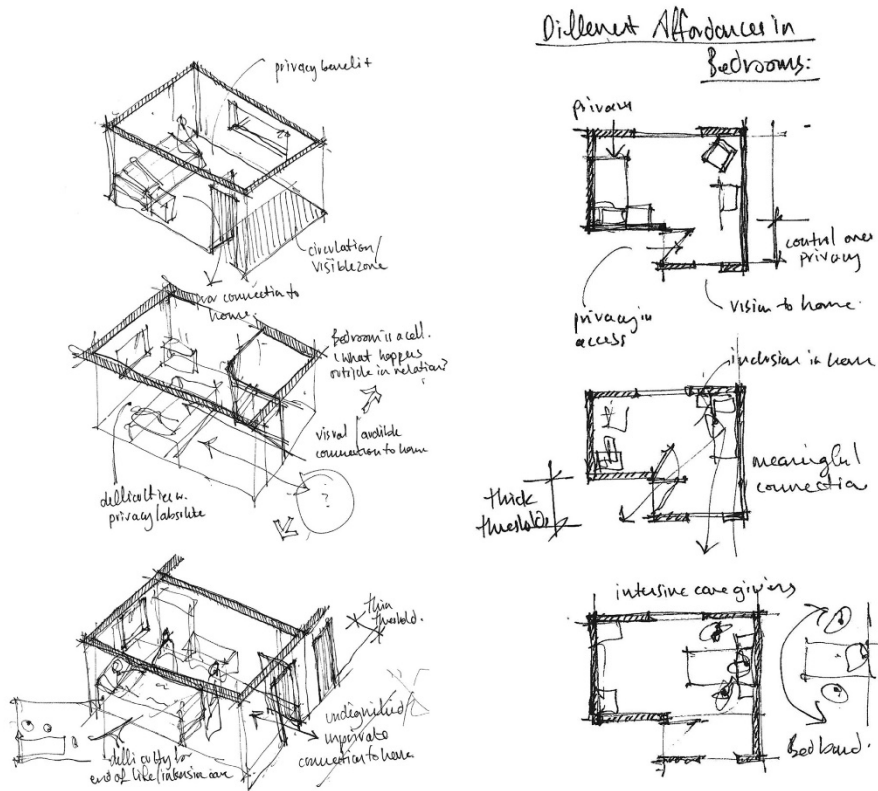


Figure 7. Exploring resident-spatial personas; complements in the layout of personal spaces for different stages of personhood.

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.

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 centralized. Residents' lives, therefore, play out in a relatively small part of a much larger space. This centralization of personal and common space instills an alienation from spaces residents do not access. Those sufficiently cognizant 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 contextualize 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 recognize 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).

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).

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

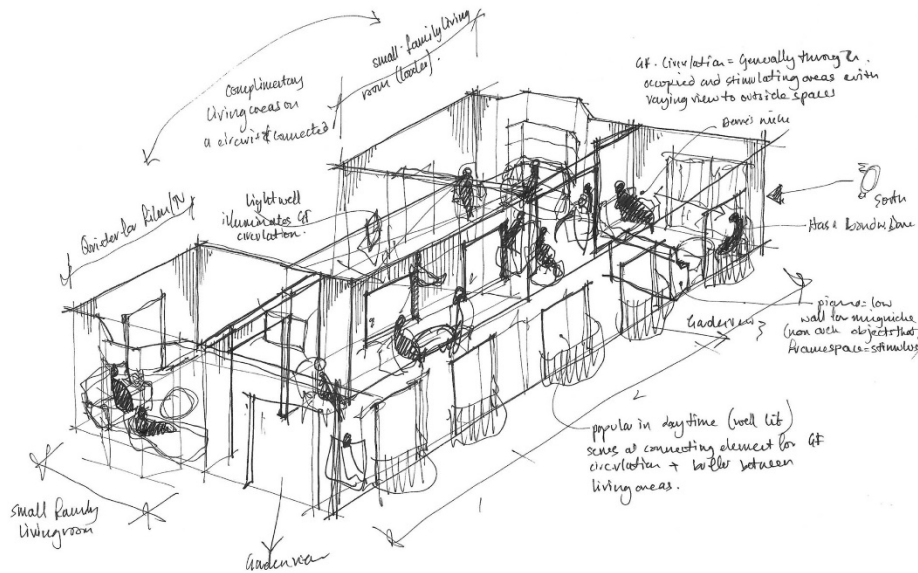


Figure 8. Multiple spaces appropriated in common areas of the converted residence.

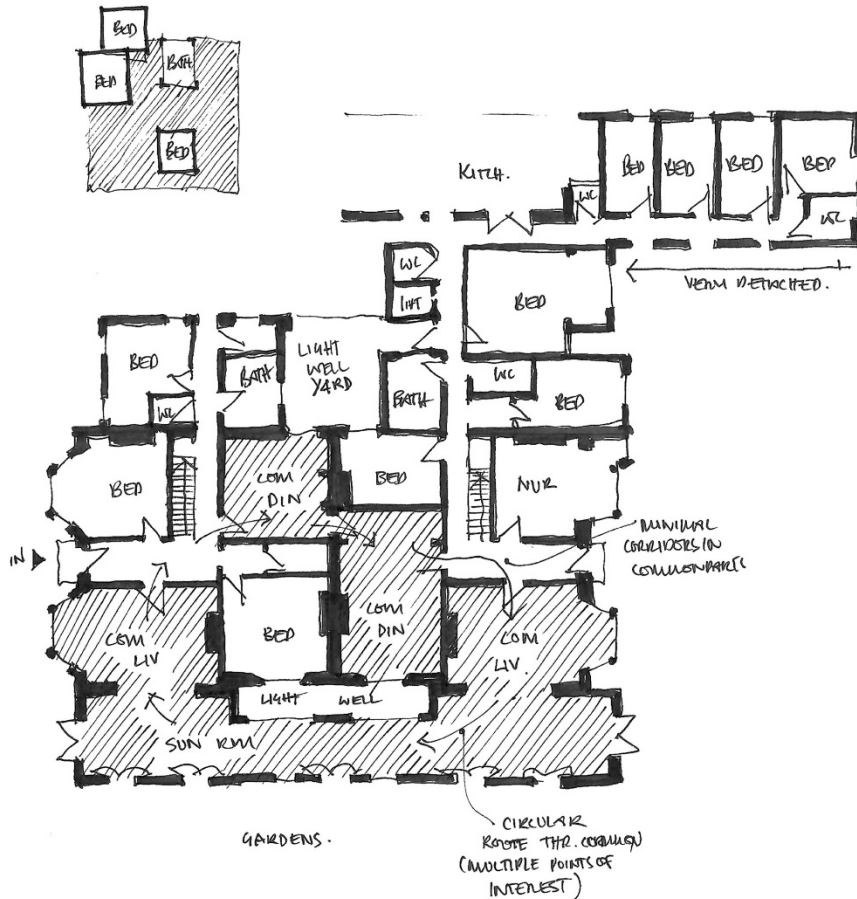


Figure 9. The plan of adapted fieldwork setting provided a circular route through the various communal spaces in the ground floor of the home, contrasting with the purpose-built home (Figure 1) divided into wings, this plan affords greater variation in scale and interest.

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 organized 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).

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 socializing (Figure 11).

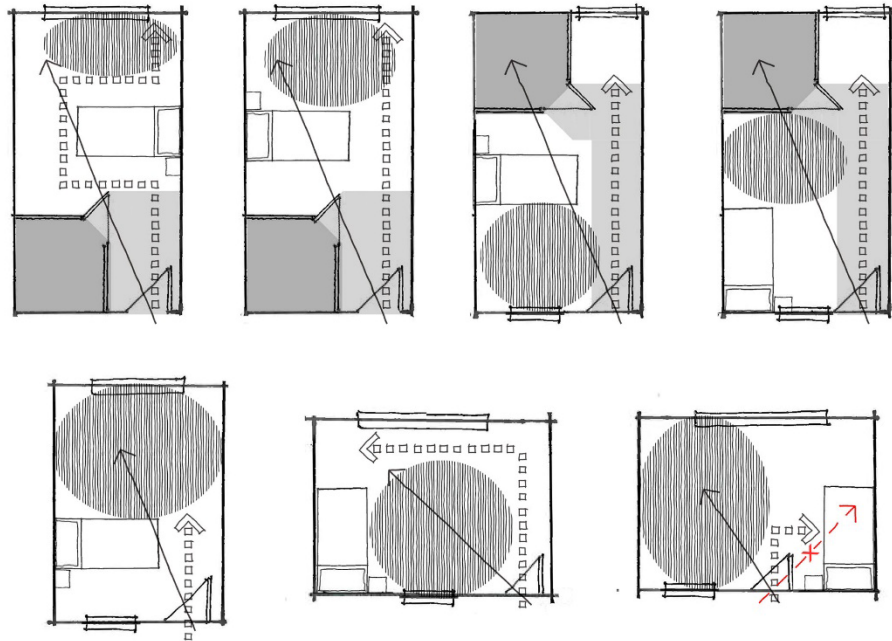


Figure 10. Difficulties with accessing hobbies were highlighted in rooms accessed from the narrow edge, and with access past en-suite bathrooms. Additionally, the rigidity of furniture and circulation layouts in bedrooms is a potential barrier to alternative fulfilling uses.

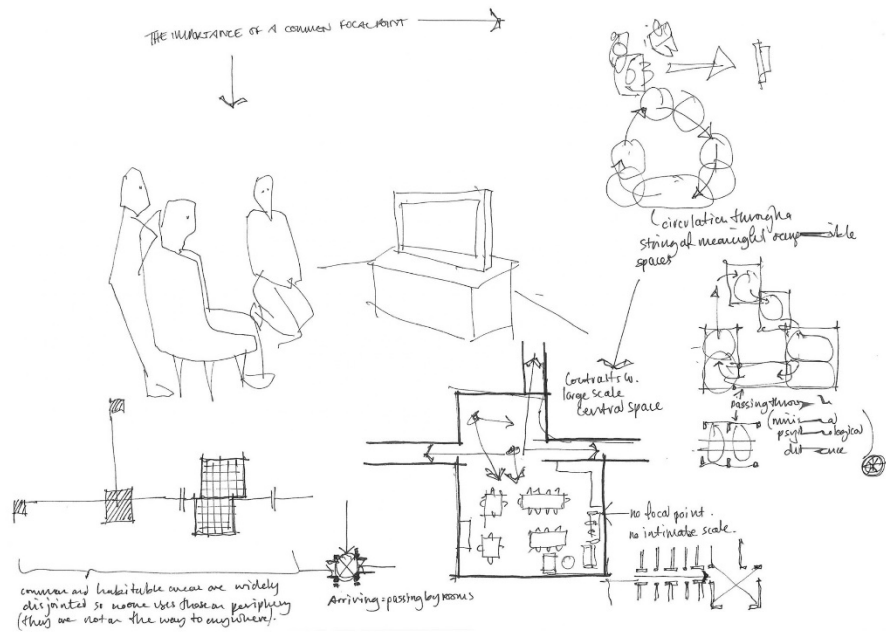


Figure 11. Notes comparing different forms of local interaction and clustering. The Multiple smaller spaces of varied scale and form afford greater complexity of inhabitation, whereas central simple forms create detachment and afford fewer modes of occupation.

Self-determination

Residents generally respond with an 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 centralized 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 fulfillment, connection and creativity, is marginally present through organizational 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 centralized 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 the 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 realization 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 equalizing 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 naturalized 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 emphasize the importance of 'relationship-focussed' 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 idealized 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 idealized notions of home, and Torrington's (2007) who suggest a negative impact on residents' quality of life in buildings that emphasize 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 realization of care environments from residents' perspectives and are thus relevant to practitioners, educators, and academics.

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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 University of Plymouth. 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.

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Appendix B

Ethical approvals and protocols

The ethical approvals below anticipated the design of fieldwork inquiry and as such include discounted methods and approaches that were not used in the inquiry. The appropriate trajectory and outputs from the research necessarily adjusted to follow the data and construction of theory.

| | |
|---|--|
| | d) Sample questionnaire(s) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> e) Sample set(s) of interview questions Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> f) Continuing review approval (if requested) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> g) Other, please state: Example floorplan and Circimplex Model of affect |
| <p><i>*1. Principal Investigators are responsible for ensuring that all staff employed on projects (including research assistants, technicians and clerical staff) act in accordance with the University's ethical principles, the design of the research described in this proposal and any conditions attached to its approval.</i></p> <p><i>*2. In most cases, approval should be sought individually for each project. Programme approval is granted for research which comprises an ongoing set of studies or investigations utilising the same methods and methodology and where the precise number and timing of such studies cannot be specified in advance. Such approval is normally appropriate only for ongoing, and typically unfunded, scholarly research activity.</i></p> <p><i>*3. If there is a difference in ethical standards between the University's policy and those of the relevant professional body or research sponsor, Committees shall apply whichever is considered the highest standard of ethical practice.</i></p> <p><i>*4. Approval is granted for the duration of projects or for a maximum of three years in the case of programmes. Further approval is necessary for any extension of programmes.</i></p> | |

| | |
|----|---|
| . | <p>If you are staff, are there any other researchers involved in your project? Please list who they are, their roles on the project and if/how they are associated with the University. Please include their email addresses.</p> <p style="text-align: center;">NA</p> |
| | <p>If you are a student, who are your other supervisors?</p> <p>Mike Philips (DoS) Alejandro Velis-Reyez Chris Benewith</p> <p>Have you discussed all ethical aspects of your research with your DoS prior to submitting this application? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> |
| . | <p>When do you need/expect to begin the research methods for which ethical approval is sought?</p> <p style="text-align: center;">June 2018</p> |
| | <p>How long will this research take and/or for how long are you applying for this ethical approval? *</p> <p style="text-align: center;">3 years</p> |
| 0. | <p>Please provide a 200 word description of the project.</p> <p>This research will investigate the relationship between resident quality of life and the design and construction of the built environment in residential care situations for people with dementia, in the context of contemporary construction development culture.</p> <p>The United Kingdom is faced with the imminent accommodation and care of a vast number of cognitively debilitated adults, the majority of whom will end up living in a residential care setting. However the mechanisms to deliver an environment supportive of personal autonomy and quality of life for residents with dementia are not well understood. Further, delivery of new residential buildings operates in an increasingly risk averse and safety oriented culture that often neglects to consider the quality of life of their occupants.</p> |

The aim of this interdisciplinary research project is to design a design tool for simultaneous guidance, design and review of the proposed environment; challenging existing design cultures and placing the resident at the centre of the design process.

The research hypothesis is that intervention in the digital design environment (BIM environment), in which virtual end users can respond to evolving design proposals, to feedback compatibility and suitability of designed environments to the designer, would return environments more supportive of continued quality of life for residents with dementia.

This assertion will be examined through development of such a digital design environment intervention (a Parametric Environmental Analysis Tool [or PEAT]), from observation and collection of data from residents in an existing residential care setting. Emerging design proposals will then be tested through use of proxy residents (long term carers) immersed in simulated digital and physical versions of the evolving design environment.

1. Please describe all methods and procedures which involve human participants in this project (You should specify subject populations and recruitment method, etc.):

This research relies on the observation and evaluation of human behaviour and opinion to inform the development of a digital building design culture. The process is reliant on the involvement of people with dementia, and their carers and support networks. As such, ‘participants’ in this application refers to all these individuals, as well as residents with dementia, as some carers and friend an family network members will be asked to partake and help understand the social-spatial construct of the home.

Proposed Methods:

1a – Stakeholder Participatory Mapping Exercise

This study will not present solutions for comment, rather will start with stakeholder opinion. Stakeholders (defined as residents, families and friends, and carers) will be asked to consider the relationship between residents’ quality of life (QoL) and their environment over a 2-week period²¹, during which time stakeholders will be asked to add their thoughts, experiences and ideas about the environment onto post-it notes on wall mounted floor plans (spatializing the information).



Figure 51: Burke R. (2020) Example of proposed stakeholder participatory mapping

The model takes precedent from the commended CABA Space Shaper²²- stakeholder engagement exercise, in which stakeholders feedback their value assessments of existing environments in respect of emerging design proposals, to gauge the needs not outlined in more ‘mechanical’ regulations. The space shaper exercise serves as a catalyst for thought and reflection, prior to more focussed data collection; it gets participants thinking about the subject before providing detailed information in later stages of communication.

The CABA Space Shaper model can be criticised for its predetermined value categories; ‘you’, ‘access’, ‘use’, ‘other people’, ‘maintenance’, ‘environment’, ‘design and appearance’, and ‘community’; which impose designer value bias on participants and, hence, data. This does not fit with the proposed Grounded Theory methodology of this study, which requires that categories emerge from the data. This

²¹ 2 weeks is considered an appropriate stretch to permit the cycles and routines of the home to play out and inform the data collection and will allow stakeholders to be more considerate and proactive than might be possible in a shorter study, without overloading the data to the point of unmanageability.

²² Commission for Architecture and the Built Environment (2007) *Space Shaper: A User's Guide*. London: CABA. Available.

study will, therefore, not impose categories for consideration beyond the criteria that comments be constrained to the relationship between residents' QoL and their environment.

It is important to communicate that the exercise is based on the living environment and relationship between the building and the occupants, not the quality of care. This is no way intended as an interrogation of the quality of care provided, nor a scrutiny of professional competency.

Further criticism of the Space Shaper model is that, due to its commercial nature, it lasts either 4 or 5 hours, which is clearly problematic in collection of value data representative of a stakeholder network. The proposed extensive exercise is an improvement over this, and much commercial architectural stakeholder engagement, which is criticised for lack of depth of consultation with stakeholders. This study will not be short and constrained, risking reactionary opinions; rather it will be sustained and promote considered reflections, and giving better chance for cognitively impaired persons to partake.

The note data will be collected and categorised to assist with the formation of interview discussion subjects.

1b – Detailed Photographic Site Survey

An extensive photographic survey of the building and site will be undertaken for reference and contextual relevance of user data. The survey, combined with already procured floor plans, and base site measurements will enable construction of a virtual model for review and mapping of the data in 4 dimensions. The proposed photographic record will not include people, rather is focussed on the physical environment.

2 – Semi structured interviews

Semi-structured interviews will be used to add detail to the emerging concerns about Quality of Life and the lived environment.

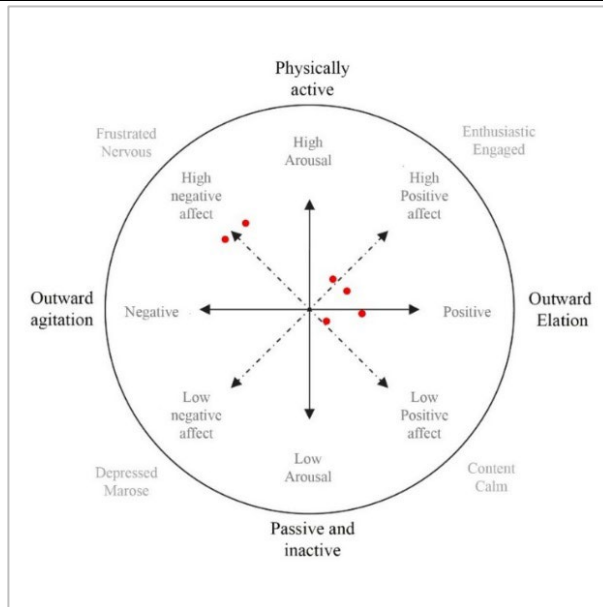
Interviews will be conducted with pairs of elected volunteer carers, friends and family, and residents. This is intended to encourage deeper conversation about the subject, rather than promote a question-and-answers format, led by the interviewer, who is not an expert on the site.

Interviews will begin by asking the interviewees to openly discuss the relationship between the residents' QoL and their environment with the interviewer, in open conversation. The lack of specific guidance will permit interviewees to bring forth their unfettered thoughts on the subject (having been prompted to consider the matter through the stakeholder participatory mapping exercise). Conversation drift will be tempered by the interviewer, by introducing key concepts from the stakeholder participatory mapping exercise of stage one, to focus conversation.

3 – Participant Observation

The researcher will observe and record behaviour of residents in accessible areas of the home. The literature review has highlighted some key Quality of Life indicators (or symptoms) that will become the focus of documentation; loci of inhabitation, sources of agitation, individual and social sources of comfort and stimulation; will be analysed in relation to environmental constraints. This list is not exhaustive and other Quality of Life indicators may arise from stages 1 and 2 (and indeed this stage, through theoretical sampling²³) that will require attention.

²³ Glaser, B. G. & Strauss, A. L. (1968) *The discovery of grounded theory : strategies for qualitative research*. ed. Strauss, A.L., London: Weidenfeld and Nicolson. p45. "Theoretical sampling is the process of data collection... whereby the analyst jointly collects, codes and analyses (his) data and decides what data to collect next and where to find them, in order to develop (his) theory as it emerges."



Records will include;

- A note of the activity and behaviour attempted or underway
- A description of the behaviour indicator, accompanied by an indication on a Circumplex Model of Affect²⁴, adapted to suit the context of this study
- A description of the environment and conditions imposed, such as; lighting, noise, thermal comfort

Figure 52: Burke R. (2020) Adapted

Circumplex Model of Affect, intended for use in this study

4 – Data Analysis, Coding and Categorisation

Substantive theory will develop through the analysis of collected data. Substantive theories about the relationship between resident QoL and the designed environment will assimilate and inform recommendations for the design of environments intended to support continued autonomy and Quality of Life among people with dementia.

5 – Development of Parametric Environmental Analysis Tool (PEAT)

Development of the PEAT will create an alternate design environment, in which the resident (end user) is embedded, in the form of a model that communicates a degree of compatibility of emerging design proposals to the designer(s).

The PEAT will be developed in the absence of a project brief, rather for the operationalisation of design of residential care settings generally.

6 – Operationalisation of PEAT

The participating care organisation has an area of land, for which a new facility is desired. This research will include the design of the new facility in the absence of the PEAT, in response to the client brief alone. The design process will be rerun, following the same client brief, but with use of the PEAT design environment, embedding a virtual user in the design process.

This process provides a control setting and an optimised design setting that can be used to evaluate the efficacy of the PEAT design environment.

7 – Triangulation and Validation– Immersive Experiments

The PEAT design environment and control environment will be experienced through immersive experience, using primary care givers as proxy residents. Multiple care givers will explore both design environments in blind trials, in which they will be asked to comment on proposed design solutions. Conversational feedback will be recorded throughout the experiments, and a post evaluation questionnaire will provide feedback on specific areas of the focus of the study (not yet known to the researcher).

This step will evaluate the efficacy of the PEAT design environment and provide results on the translation of substantive theory on the link between resident Quality of Life and their environment, into formal theory on the problem.

²⁴ Russell, J. A. (1980) 'A circumplex model of affect'. *Journal of Personality and Social Psychology*, 39 (6), pp. 1161-1178. a commonly used emotional metric.

| | | | |
|--|--|-----|----|
| 2. | Please answer either YES or NO to <u>ALL</u> questions below by placing an X in the relevant box. | | |
| | Do any of your research methods include research: | YES | NO |
| | With vulnerable groups – for example, children and young people, those with a learning disability or cognitive impairment, or individuals in a dependent or unequal relationship? | Yes | |
| | With vulnerable groups – for example, children and young people, those with a learning disability or cognitive impairment, or individuals in a dependent or unequal relationship? | Yes | |
| | That involves sensitive topics – for example, participants’ sexual behaviour, their illegal or political behaviour, their experience of violence, their abuse or exploitation, their mental health, or their gender or ethnic status? | Yes | |
| | With groups where permission of a gatekeeper is normally required for initial access to members – for example, ethnic or cultural groups, native peoples or indigenous communities? | Yes | |
| | That involves deception or which is conducted without participants’ full and informed consent at the time the study is carried out? | | No |
| | That involves access to records of personal or confidential information, including genetic or other biological information, concerning identifiable individuals? | | No |
| | That may induce psychological stress, anxiety or humiliation or cause more than minimal pain? | | No |
| | That involves intrusive interventions – for example, the administration of drugs or other substances, vigorous physical exercise, or techniques such as hypnotherapy (i.e. interventions that your participants would not normally encounter, or which may cause them to reveal information which causes concern, in the course of their everyday life)? | | No |
| <p>If you answered yes to any of the above questions, please provide further details of these potentially ethically sensitive aspects of your research.</p> <p>The research involves interaction, observation and recording of people with dementia. It is common place for informed consent to be provided by a lasting power of attorney, in the event that an individual is unable to provide consent themselves, due to cognitive impairments. While the study of the quality of life of people with dementia does not require medical analysis or questioning of individuals’ mental health, the focus subjects of the study will all have medical diagnoses of dementia of some type. All participants will be adult.</p> | | | |

3.

Ethical Protocol:

Please write an ethical protocol using the following the headings:

a) Informed Consent; b) Openness and Honesty; c) Right to Withdraw; d) Protection from Harm; e) Debriefing; f) Confidentiality; g) Professional Bodies whose ethical policies apply to this research.

You must include a statement under each heading, indicating how you will ensure this research addresses each clause of Plymouth University's Principles for Research Involving Human Participants. (Please note that your application will be returned to you if you have not done so, thus holding up the approval process).

If you have indicated that you will be using Information Sheets or Consent Forms, etc. you must attach an indicative draft version to this application and complete Question 7 accordingly.

Please refer to Guidance Notes when completing this section.

a) Informed Consent

Informed consent will be obtained in writing from all persons observed in this research, prior to any observation, recording or use of data. Records that demonstrate consent will be retained.

The partnering care provider and all participants, carers and residents will be provided a comprehensive information sheet, outlining the research aims, methods and intended outputs, including potential industrial application of the results, and information on collaborators, and where to find out more about the study. This information on the research, participants' rights and application of findings will be delivered 'unbundled' and separate from other information in the study.

People with dementia are not necessarily able to provide informed consent. In such circumstances, consent will be sought from the Lasting Power of Attorney (LPA) for person welfare²⁵, or, in the case there is no LPA, principal care provider. This is aligned with the protocols of the care organisation and precedent cases for studies involving people with dementia.

The partnering care provider and all participants, carers and residents will be provided with a project timeline, outlining expected activities, level of involvement required, and how participant information will be used throughout the project. Participants will be given the option to opt out of any parts of the study (outlined as stage 1-7 above) they wish, in compliance with the GDPR Consent guidance for 'Granular Consent'.

All information will be provided by written hardcopy and verbal explanation. A digital copy of the information will be provided where participants have capacity to receive it.

Interview participants will be given a copy of intended interview structures prior to the start of the interview. Where reading ability is diminished, carers will be given the information on behalf of the participant ahead of the interview. The interviewer will confirm participants' agreement to participate, and remind them of the purpose of the research and why they have been identified, at the start of each interview. Confidentiality will also be covered: how the data will be used and stored, and that they will not be named or identified in the research. The researcher will make it clear that the participant can stop the interview or be omitted from group observations at any time and withdraw from the research, including after they have given consent to participate.

Participants will be afforded the ability to access results from the study, should they wish to do so.

²⁵ https://www.alzheimers.org.uk/info/20032/legal_and_financial/127/mental_capacity_act, and; <https://compassionindying.org.uk/wp-content/uploads/2014/11/LPA01-Understanding-Lasting-Powers-of-Attorney-for-Health-and-Welfare-England-and-Wales.pdf>, and; <https://www.nhs.uk/conditions/dementia/legal-issues/>

b) Openness and Honesty

The purpose and aims of the research will be outlined completely and honestly at the point of introduction to any participant, verbally and in writing, as outlined above. Participants will be encouraged to approach the researchers with questions or concerns related to the content, methods or intentions of this research.

All participants will be given the opportunity of anonymity throughout the research. Those that opt for anonymity will be referred to by pseudonym.

This research requires neither the use of misleading nor withheld information.

c) Right to Withdraw

People with dementia are not necessarily able to understand or exercise their right to withdraw. In such circumstances, the power to do so will be delegated to the Lasting Power of Attorney (LPA) for person welfare²⁶, or, in the case there is no LPA, principal care provider. This is aligned with the protocols of the care organisation and precedent cases for studies involving people with dementia.

Participants will be informed of their rights to withdraw from the research, and right to restrict further processing of personal data, at any point in the research project up until 1st January 2019, or 8 weeks after last contact, whichever is later. The right of erasure of personal data at any point will be made explicit to all participants.

Participants will be made aware that there will be neither penalty nor adverse consequence in exercise of their rights, as above and under the GDPR 2018.

d) Protection from Harm

This research poses no threat of physical harm.

The researcher will have an enhanced Disclosure and Barring Service (DBS) check prior to attending the care residence, in accordance with the Safeguarding Vulnerable Groups Act.

People with dementia are prone to confusion and agitation, and the nature of semi-structured interviews is that discussions may stray into the personal and sensitive. The researcher will ensure that a care provider is present for researcher accompaniment and interaction with residents at all times, and that all participants and carers are aware that questioning and discussion causing distress may be abandoned at any time.

e) Debriefing

A debrief will be held with all participants after each stage of data collection and investigation. Debriefs will be held immediately, when possible, or within 4 weeks if participants are unable to attend immediately. Participants will be reminded of their right to withdraw their contribution prior to the deadline for data analysis during the debriefing.

Participants will be given contact details for the researcher, so they might request more information about the research or forward any questions or concerns.

²⁶ https://www.alzheimers.org.uk/info/20032/legal_and_financial/127/mental_capacity_act, and; <https://compassionindying.org.uk/wp-content/uploads/2014/11/LPA01-Understanding-Lasting-Powers-of-Attorney-for-Health-and-Welfare-England-and-Wales.pdf>, and; <https://www.nhs.uk/conditions/dementia/legal-issues/>?

f) Confidentiality

Data collected from observation and recording will be used only for development of digital design solutions and dissemination of the research methodologies and findings. It is not necessary to name participants, and each will be afforded the options of;

- full anonymity (for example, resident a, b, c)
- Partial anonymity (for example, first name only)

Participants will be informed that their age and gender will be included in the study and that they may want to consider this in their decision about levels of anonymity.

Information that can identify the residence will be used only as a researcher prompt in the analysis of data, and remain confidential within the bounds of the research (not revealed in dissemination).

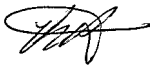

This research will fully comply with the Data Protection Act (1998). **Data Standards and Formats**

- Any data that contains personal information on participants will be kept on password protected encrypted servers, and comply with the Plymouth University data handling and security regulations. Data will be stored in the secured manner for a minimum period of 10 years.

g) Professional Bodies whose ethical policies apply to this research

- Plymouth University Research Governance
- Alzheimer's Society (2015) Assistive Technology – Devices to Help with Everyday Living Fact sheet 437LP:

[https://www.alzheimers.org.uk/download/downloads/id/1779/factsheet assistive technology %E2%80%93 devices to help with everyday living.pdf](https://www.alzheimers.org.uk/download/downloads/id/1779/factsheet_assistive_technology_%E2%80%93_devices_to_help_with_everyday_living.pdf)

| | | | | |
|--|---|---|---|-------------|
| 4. | <p>Declarations:</p> <p>For all applicants, your signature below indicates that, to the best of your knowledge and belief, this research conforms to the ethical principles laid down by Plymouth University and by the professional body specified in 6 (g).</p> <p>For supervisors of PGR students: As Director of Studies, your signature confirms that you believe this project is methodologically sound and conforms to university ethical procedures.</p> | | | |
| | | Name(s) | Signature (electronic is acceptable) | Date |
| | Applicant | Ricky Burke |  | 14.05.2018 |
| | Other Staff Investigators | | | |
| Director of Studies (if applicant is a postgraduate research student): | Mike Philips |  | 30.05.2018 | |

Completed Forms should be forwarded by email to Faculty Research Ethics Administrator (artsresearchethics@plymouth.ac.uk).

Meetings dates and their respective deadlines are published on the intranet ([Information for the Arts and Humanities Research Ethics Sub-Committee](#)). In order to be considered at the next available meeting, applications must be received before the submission deadline.

You will receive approval and/or feedback on your application within 2 weeks of the meeting date at which the committee discussed this application.

Resident Information and Informed Consent Sheets

RESEARCH ETHICS WITH PLYMOUTH UNIVERSITY

Designing Dementia Environment Design Environments | **Resident**

Information Sheet

Ricky Burke

Architect, PhD researcher, BA[hons.], MArch,
PGCArch, ARB

402 Roland Levinsky Building
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Plymouth PL4 8AA
ricky.burke@plymouth.ac.uk

Mike Philips

Professor of Interdisciplinary Arts| Director of
Research at i-DAT

204 Roland Levinsky Building
Plymouth University Drake Circus
Plymouth PL4 8AA

Project Summary

The aim of this project is to improve the home living environment for future residential care buildings, through better understanding of the needs of people living there with dementia, and their support networks. We understand that the space in which you live can greatly impact on your quality of life, and that a well-designed space could support your needs, both physically and in terms of your personal wellbeing.

You will be asked to comment on your experiences living at home, and how you feel the space is successful or could be improved. By spending time interacting with you in your home environment, and talking to you about your experiences in the space, we aim to better understand the way your home impacts on the way you live your life, and specifically how the space can be helpful or problematic when living with dementia. We want to make building design a collaborative process with active involvement from the people who might live there, and your feedback will help us to do this.

Information given in conversational interviews with the researcher, as well as observations on the way you interact with your home environment and the people in it, will be recorded. This information will be used to inform new building design guidance for residential care environments for people with dementia, and will guide the design of computer software to aide designers with the production of buildings more supportive of their specialist needs.

Details of your involvement and rights as a participant are outlined overleaf

What will be asked of you if you agree to take part?

You will be asked to partake in three interactions:

- Participatory mapping: you will be asked to reflect on how the home is supportive or challenging in helping you have a fulfilling and comfortable life. Your comments will be added to floor plans of the building, so we can understand the relationship between your views and specific parts of the home.
- Semi-structured interviews: You will have a conversation with the researcher and at least one other person from your home or support network, in which you will be asked questions related to your relationship with your home, and the difficulties you experience living there. These conversations will be recorded and are expected to last not more than 30 minutes.
- Participant observation: The researcher will spend some time interacting with you and other residents of the home, care staff and your support networks, to see how you interact with each other and the space. You do not need to do anything specific, just continue life in your normal way.

Informed consent

Your participation is voluntary and it is up to you whether you partake in part or in all interactions, if any.

Right to withdraw

We hope that you feel comfortable and able to help us with this study. If decide that you do not want to continue to take part, you are free to withdraw any time up until 1st January 2019. You also have the right to be forgotten, and for the erasure of all personal data with no consequences.

What are the advantages or disadvantages of taking part?

You may find the project interesting and enjoy answering questions about the research, as your participation may help create more supportive living environments for others living with dementia in future residential care construction projects.

You may not want to take part in this study if you are not comfortable talking about your relationship to your home environment, and how living with dementia can make this difficult.

Debriefing

You will have opportunity to learn about the outcomes of this research through a reports to feedback on emerging results, in the autumn of 2019, and to read the full publication of this research, expected to be complete in 2020/ 2021. If you have questions about the project at any point before official feedback, you are welcome to contact the researcher and ask about progress.

Confidentiality²⁷

All collected data will be kept on secure protected systems and only used for the purposes identified above. You have the option for your information to be anonymised, so that you cannot be identified in the research or its outputs in anyway.

Planned Outputs

A thesis will be produced, detailing all aspects of the research, in which recommendations are expected to be made for the improvement of building design, based on your input. This study also aims to produce a computer design software to assits with building design for human occupant needs and values.

Feedback

Please feel free to contact the lead researcher, Ricky Burke, at any time if you have questions this research study (contact details overleaf).

²⁷ In accordance with Plymouth University Ethics Policy

RESEARCH ETHICS WITH PLYMOUTH UNIVERSITY

Designing Dementia Environment Design Environments | **Resident**

Informed Consent

Ricky Burke

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PGCArch, ARB

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ricky.burke@plymouth.ac.uk

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Information given in conversational interviews with the researcher, as well as observations on the way you interact with your home environment and the people in it, will be recorded. This information will be used to inform new building design guidance for residential care environments for people with dementia, and will guide the design of computer software to aide designers with the production of buildings more supportive of their specialist needs.

The section overleaf is to be completed by participants

To take part in this study, willing participants, or their lasting power of attorney, should read and complete the form below by ticking boxes next to statements with which they are in agreement.

In the case that the form is completed by a lasting power of attorney (LPA), 'I' is used to represent consent from both donor and lasting power of attorney.

I, confirm that:

| | |
|--|---|
| | I have been given the opportunity to ask questions about the project and my participation. |
| | I voluntarily agree to participate in the project. |
| | I understand I can withdraw up until 1 st January 2019 without giving reasons and that I will not be penalised for withdrawing nor will I be questioned on why I have withdrawn. |
| | I understand that I have the right to erasure of any or all personal data at any point during the study |
| | Procedures regarding confidentiality have been clearly explained to me. |
| | Consent for interviews, audio, or other forms of data collection outlined have been explained and provided to me. |
| | The use of the data in research, publications, sharing and archiving has been explained to me. |

Please tick the box adjacent to any details you consent to being used in publications produced from this study. There are no adverse consequences of choosing anonymity

| | |
|--------|--|
| Name | |
| Age | |
| Gender | |

I, along with the Researcher, agree to sign and date this informed consent form

Participant:

| | | |
|--------------------------|-----------|------|
| Name of Participant/ LPA | Signature | Date |
|--------------------------|-----------|------|

Researcher:

| | | |
|--------------------|-----------|------|
| Ricky Burke | Signature | Date |
| Name of Researcher | | |

**Carer (and Support Network Member) Information and
Informed Consent Sheets**

RESEARCH ETHICS WITH PLYMOUTH UNIVERSITY

Designing Dementia Environment Design Environments | Carer Information Sheet

Ricky Burke

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ricky.burke@plymouth.ac.uk

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You will be asked to comment on your experiences interacting with people with dementia living in residential care, and how you feel the space is successful or could be improved to support their quality of life. By spending time interacting with residents and their support networks in the home environment, and discussing your experiences in the space, we aim to better understand the way the design of the home impacts on quality of life, and specifically how the space can be helpful or problematic when living with dementia. We want to make building design a collaborative process with active involvement from the people who might live there, and your feedback will help us to do this.

Information given in conversational interviews with the researcher, as well as observations on the way you interact with the home environment and the people in it, will be recorded. This information will be used to inform new building design guidance for residential care environments for people with dementia, and will guide the design of computer software to aide designers with the production of buildings more supportive of their specialist needs.

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What will be asked of you if you agree to take part?

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- Semi-structured interviews: You will have a conversation with the researcher and at least one other person from the home or support network, in which you will be asked questions based on the relationship between the home and occupants. These conversations will be recorded and are expected to last not more than 30 minutes.
- Participant observation: The researcher will spend some time interacting with you, residents of the home, care staff and support networks, to see how you interact with each other and the space. You do not need to do anything specific, just continue in your normal way.

Informed consent

Your participation is voluntary and it is up to you whether you partake in part or in all interactions, if any.

Right to withdraw

We hope that you feel comfortable and able to help us with this study. If decide that you do not want to continue to take part, you are free to withdraw any time up until 1st January 2019. You also have the right to be forgotten, and for the erasure of all personal data with no consequences.

What are the advantages or disadvantages of taking part?

You may find the project interesting and enjoy answering questions about the research, as your participation may help create more supportive living environments for others living with dementia in future residential care construction projects.

You may not want to take part in this study if you are not comfortable talking about the symptoms of dementia, and their effect on the relationship to the home environment.

Debriefing

You will have opportunity to learn about the outcomes of this research through a reports to feedback on emerging results, in the autumn of 2019, and to read the full publication of this research, expected to be complete in 2020/ 2021. If you have questions about the project at any point before official feedback, you are welcome to contact the researcher and ask about progress.

Confidentiality²⁸

All collected data will be kept on secure protected systems and only used for the purposes identified above. You have the option for your information to be anonymised, so that you cannot be identified in the research or its outputs in anyway.

Planned Outputs

A thesis will be produced, detailing all aspects of the research, in which recommendations are expected to be made for the improvement of building design, based on your input. This study also aims to produce a computer design software to assist with building design for human occupant needs and values.

Feedback

Please feel free to contact the lead researcher, Ricky Burke, at any time if you have questions this research study (contact details overleaf).

²⁸ In accordance with Plymouth University Ethics Policy

RESEARCH ETHICS WITH PLYMOUTH UNIVERSITY

Designing Dementia Environment Design Environments | **Carer Informed Consent**

Ricky Burke

Architect, PhD researcher, BA[hons.], MArch,
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The section overleaf is to be completed by participants

Semi-Structured Interview Questions

The exact interview questions will not be known until the first stage of data collection is complete (Participatory mapping exercise), as this stage will produce some data to guide the line of questioning. All questions will be focussed on the relationship between the design of the home and residents' quality of life, and will not be otherwise intrusive of personal matters nor the standard of care, outside the relationship to the built fabric.

Questions are expected to be similar in nature to the following;

- How does this building make life easier for you, your carers and friends and family?
- Is there anything about your home you find challenging or confusing?
- Do you feel you are free to move around the home as you please? (R)
- Are there any things you feel unable to do in this home that you would like to do, or used to do in previous homes? (R)
- How do you think the space in your home affects the ability for your carers to support you/ your ability to support the residents?
- Do you feel like this is your home/ do people here consider this their home?
- Can you explain why, or why not?
- Are you able to/ are the residents able to integrate with, and separate from, other members of the household, as and when you/ they would like to?
- What do you like about this home?
- What do you think is missing from this home?
- How could the home be improved?



Outcome of Application for Ethical Approval of Research

| | |
|--|---|
| Reference Number | 17/18-17 |
| Applicant's Name: | Ricky Burke |
| Staff or Student: | PhD student |
| Director of Studies (if applicable): | Mike Phillips |
| Title of Research Project: | Designing Dementia Design Environments |
| Date of Education Research Ethics Sub-committee Meeting | 14 June 2018 |
| Arts and Humanities Research Ethics Sub-committee Decision: | Approved. |

Thank you for submitting a full and thorough application.

Appendix C

Sample Data and Coding Records

This appendix contains samples from fieldwork data, both raw and coded, used in the construction of theory.

Data Collection Samples

The following pages contain samples of fieldnotes in the form of sketches and annotations, drawing from observation and interview sources. The appendix also includes records from online interactions in virtual environments with remote participants. These initial records were fed into the coding processes in the derivation of theory, and their lineage can be traced through the subsequent coding and theoretical constructs.

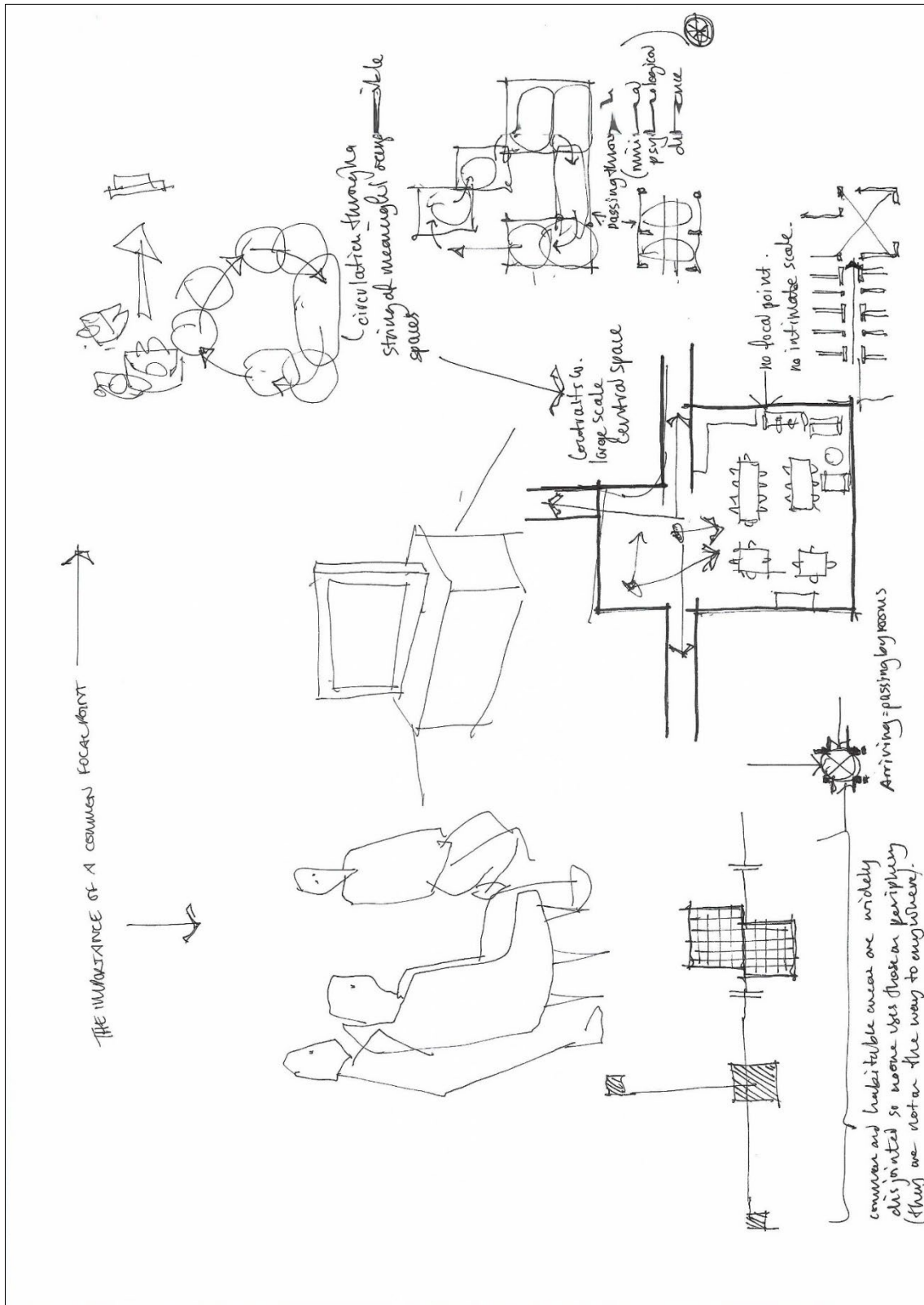


Figure 53: Burke R. (2021) Fieldnote sketches capturing scales of occupant perception in the home.

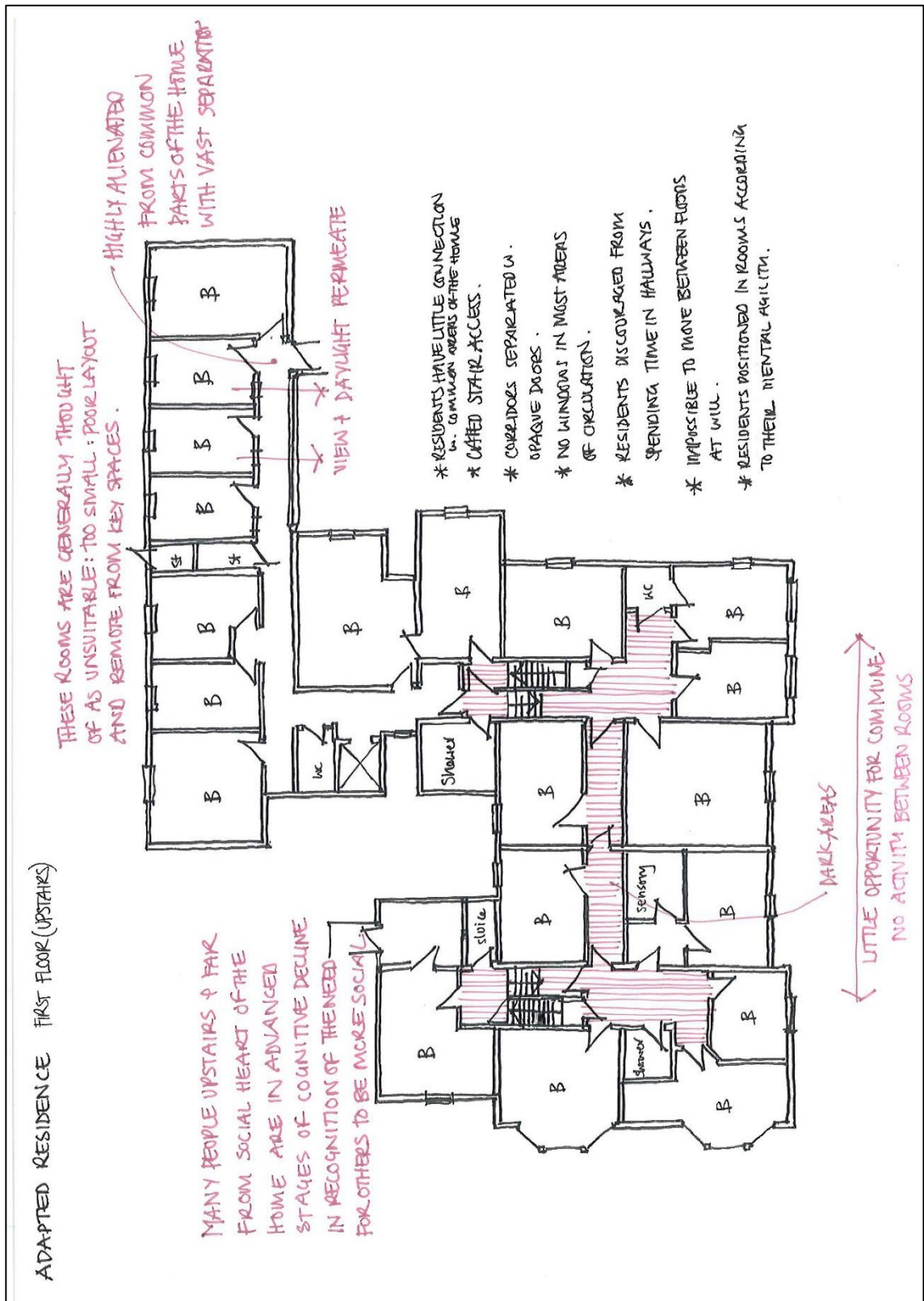


Figure 54: - The upper floor plan of the adapted residence. Used to understand the proximal relationships between different spaces in the home, and to locate perceptions and observations.

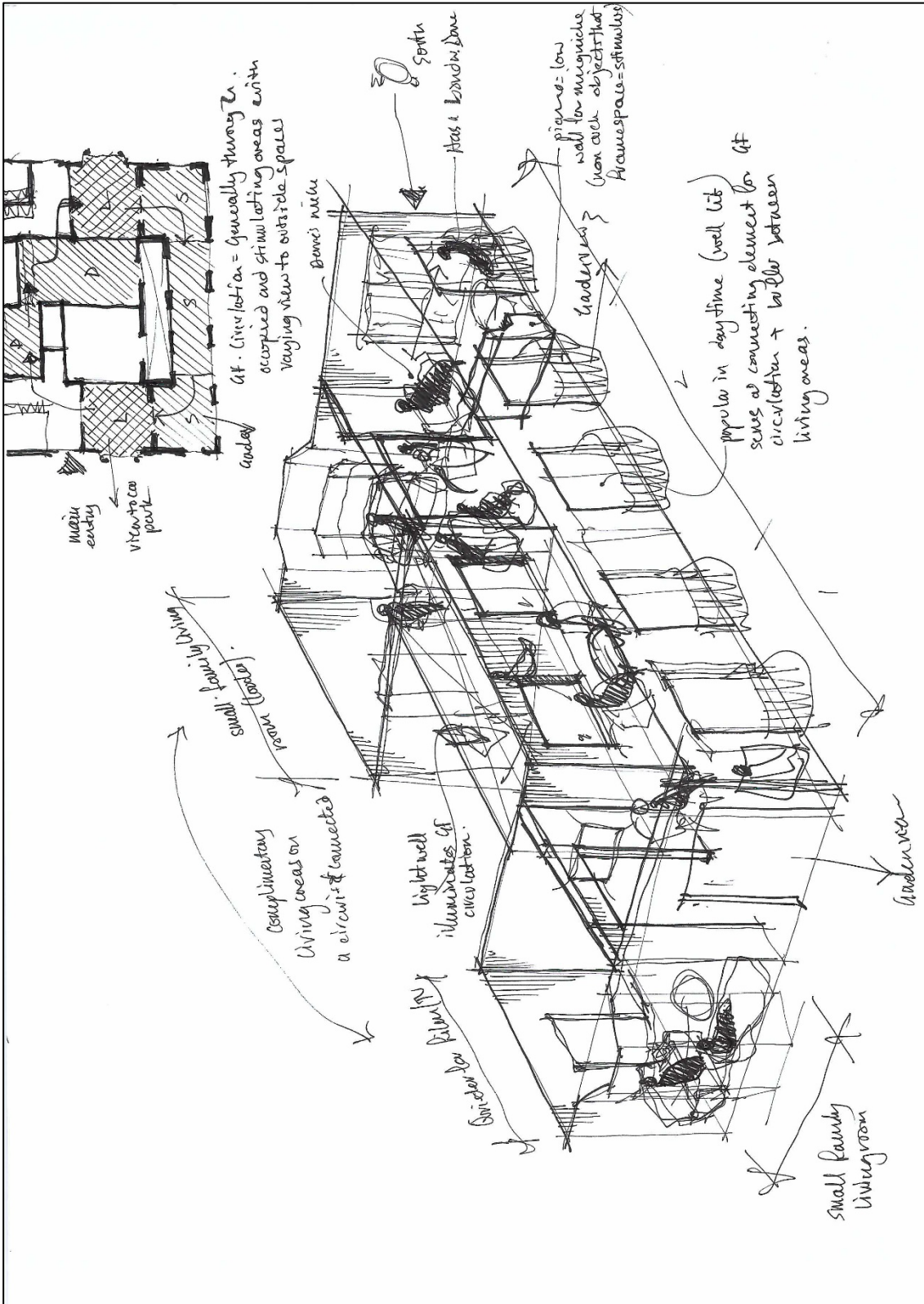


Figure 55: Burke R. (2021) Fieldnote capturing different forms of inhabitation and their spatial scales in communal areas in the adapted residence.

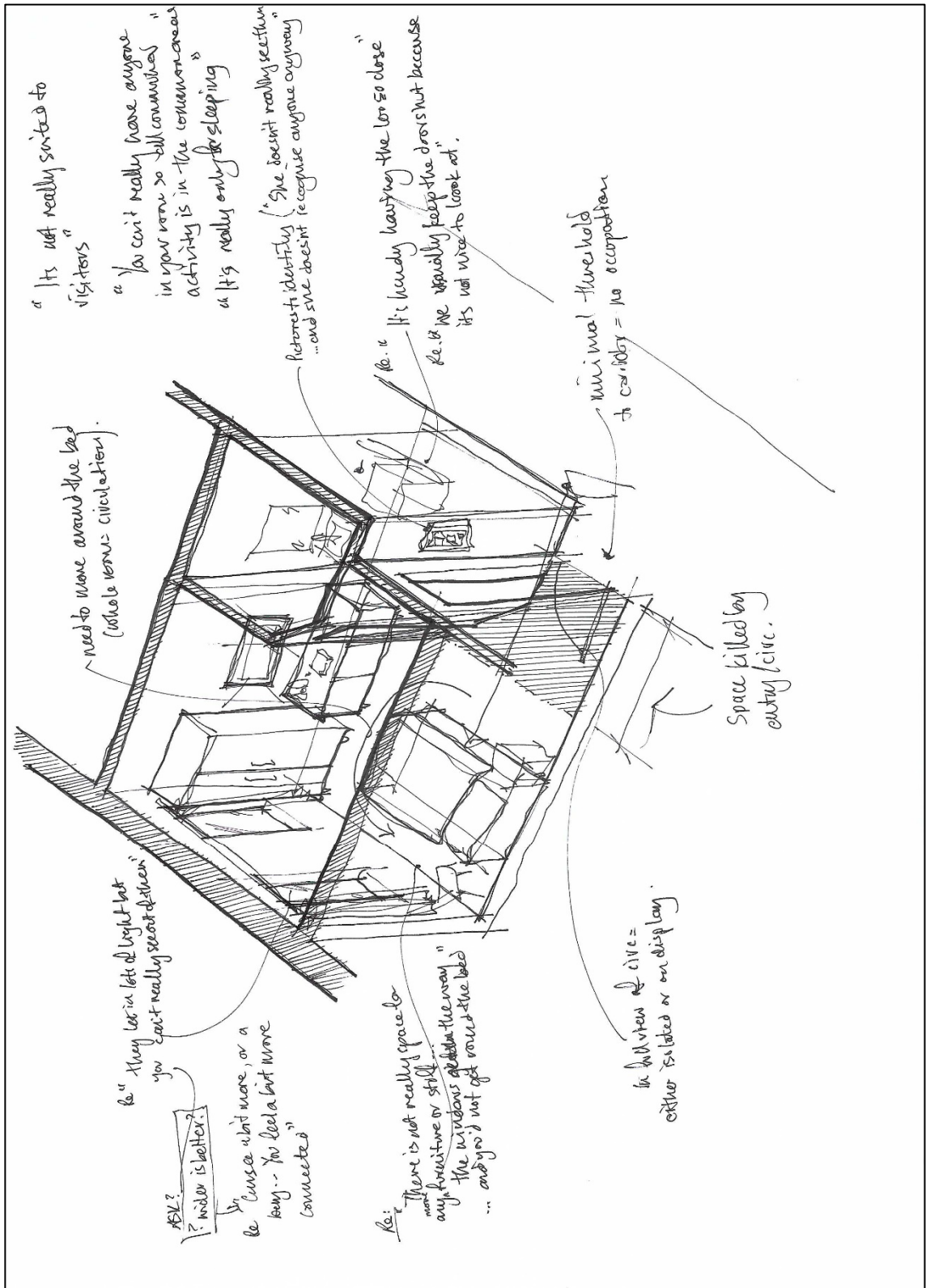


Figure 56: Burke R. (2021) fieldnote capturing a typical bedroom in the purpose-built residence, annotated with insights from observations and interviews.

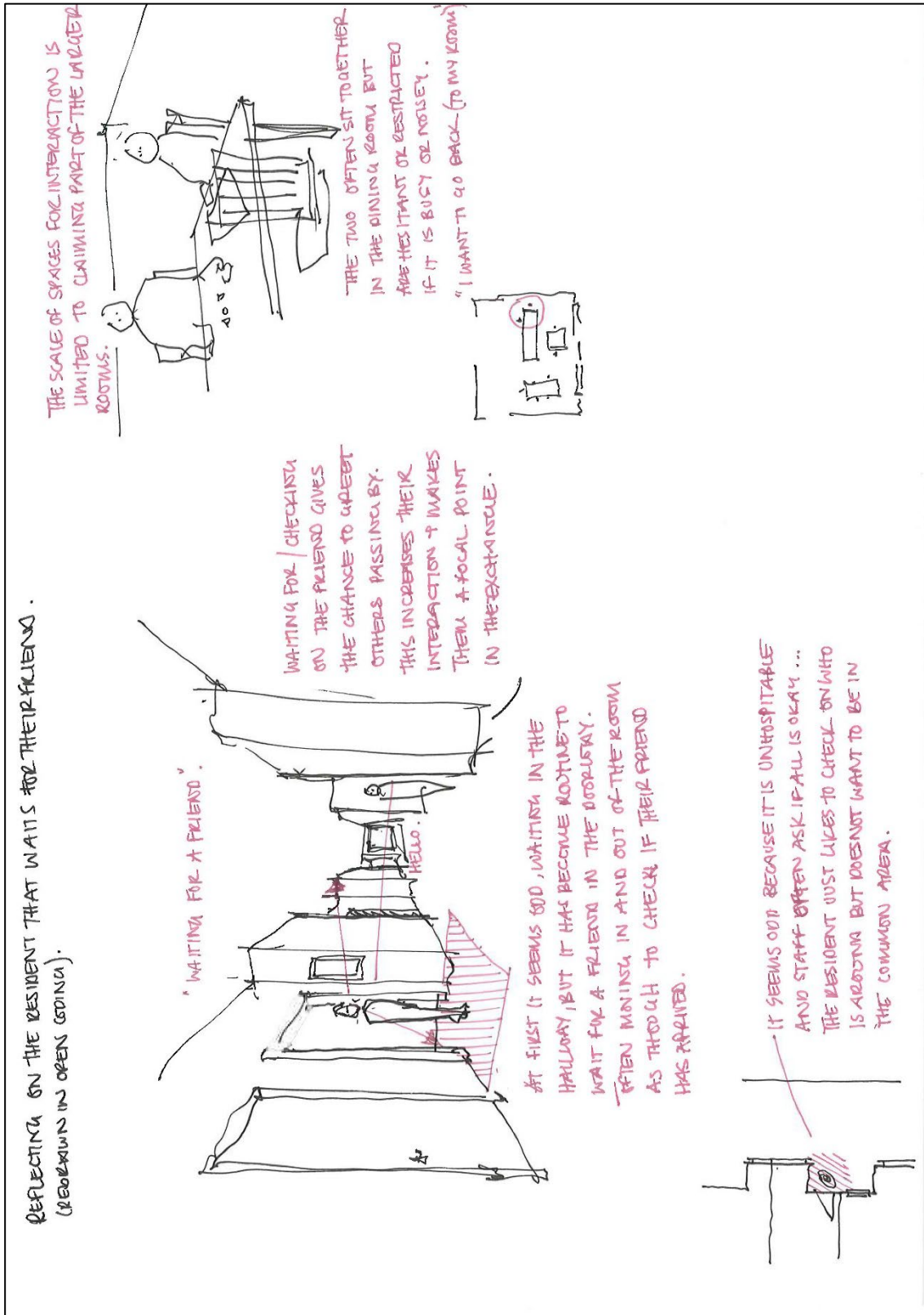


Figure 57: Fieldnotes with annotations capturing forms of inhabitation between 2 friends.

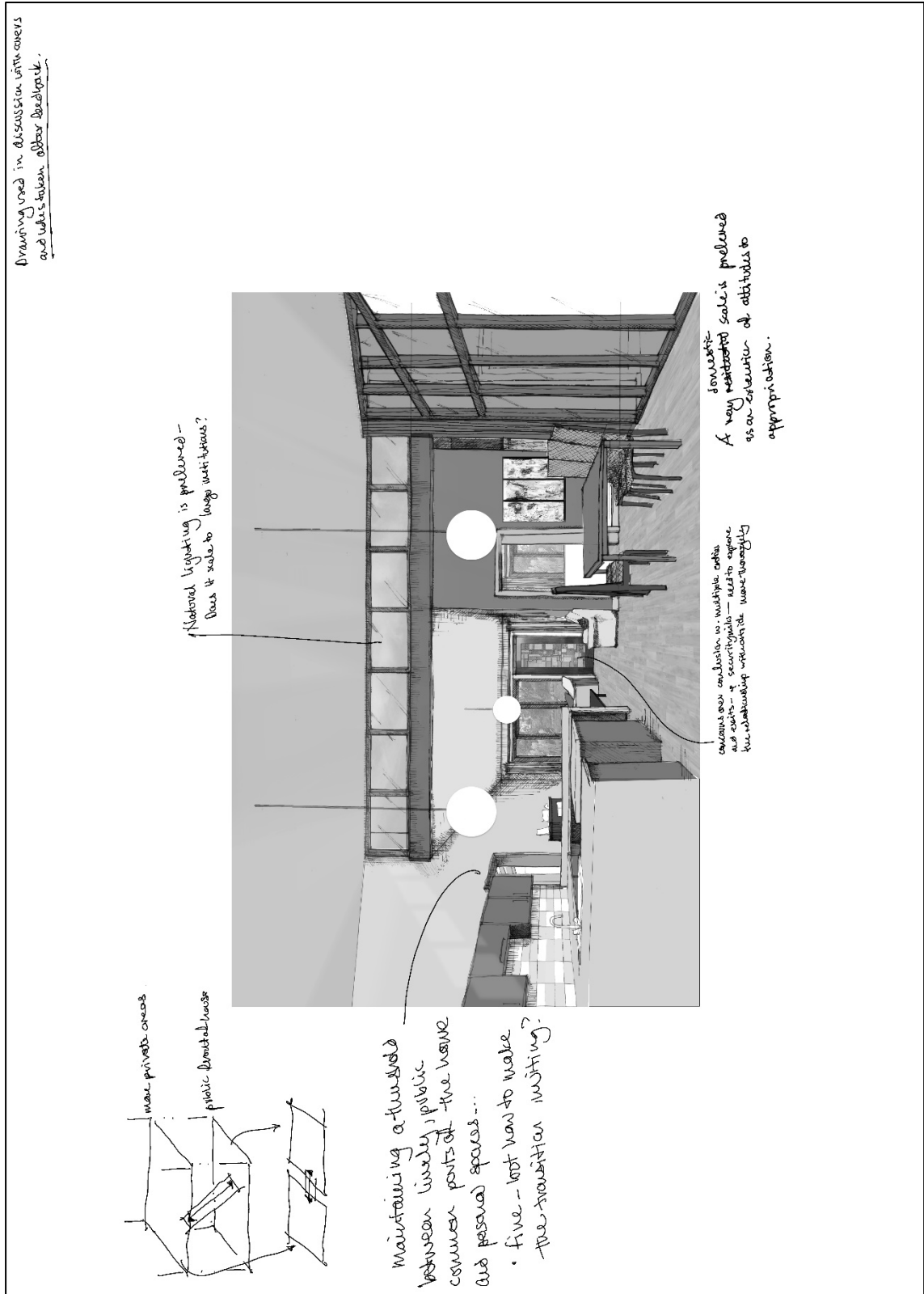


Figure 58: Sketch for common areas coalescing spatial-formal concepts. Used in interactions with participants ahead of the constructing virtual environments.

Virtual Interaction Records

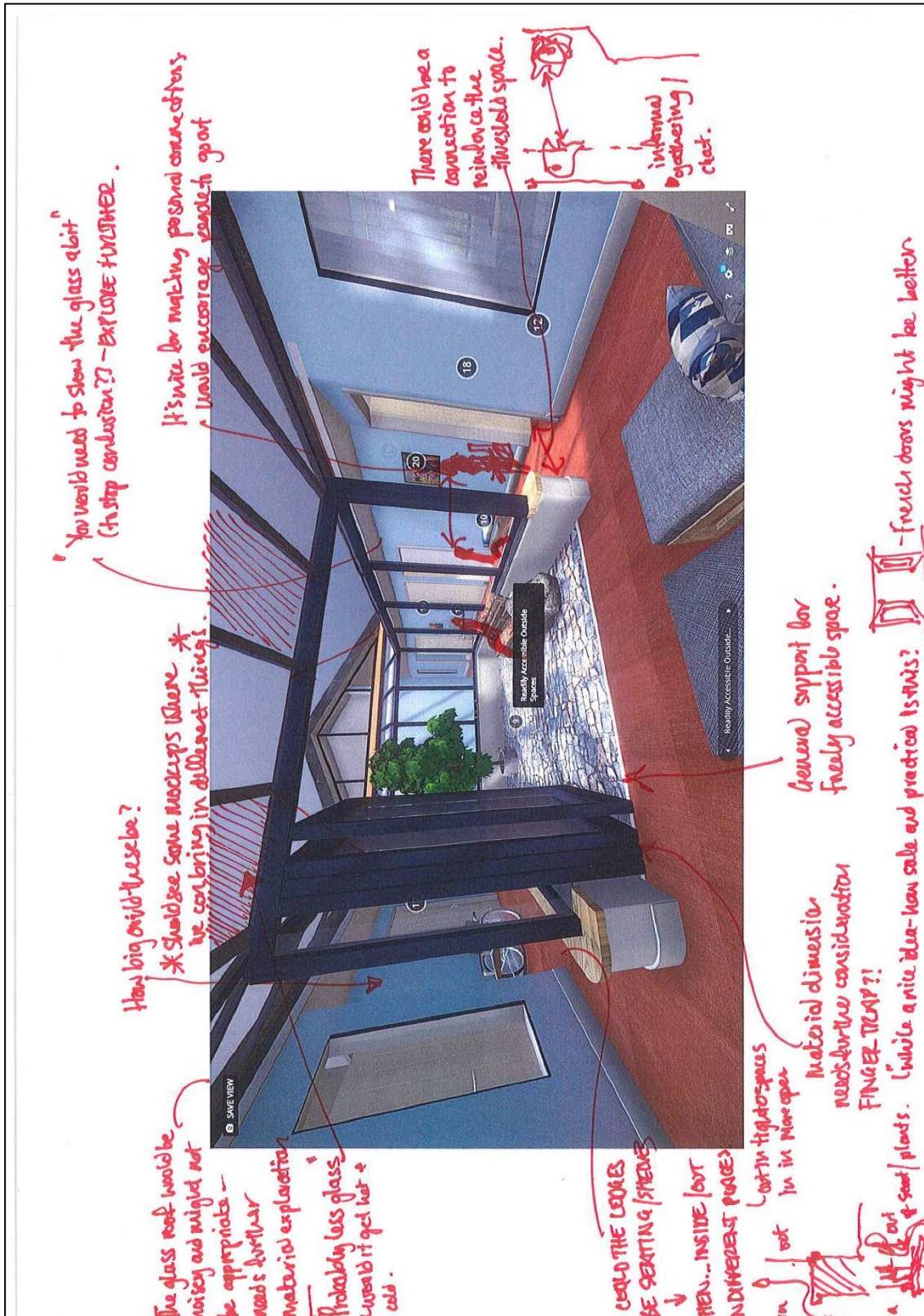


Figure 59: Remote interaction notes - central courtyard space.

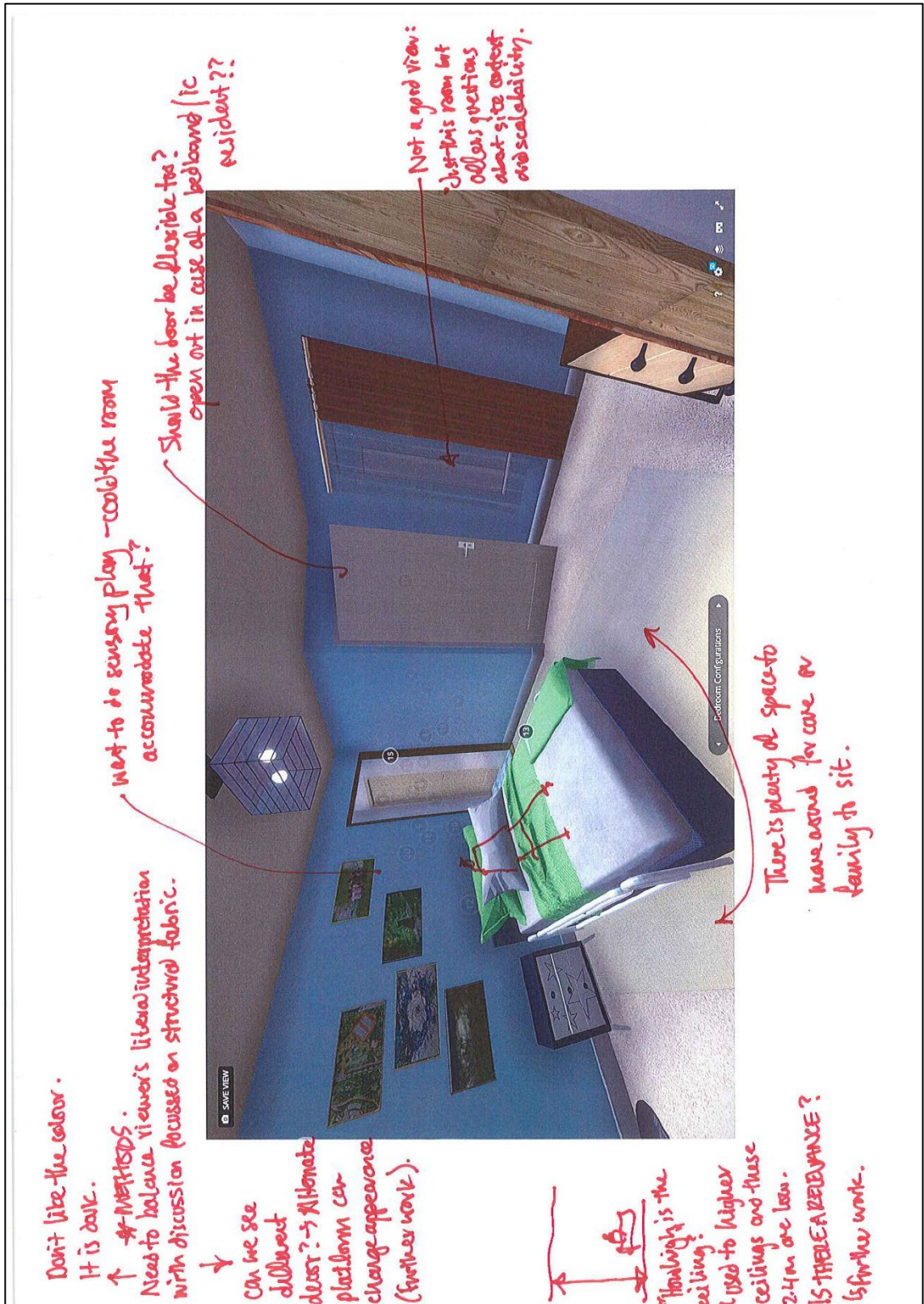


Figure 60: Remote interaction notes - adapted bedroom configuration.

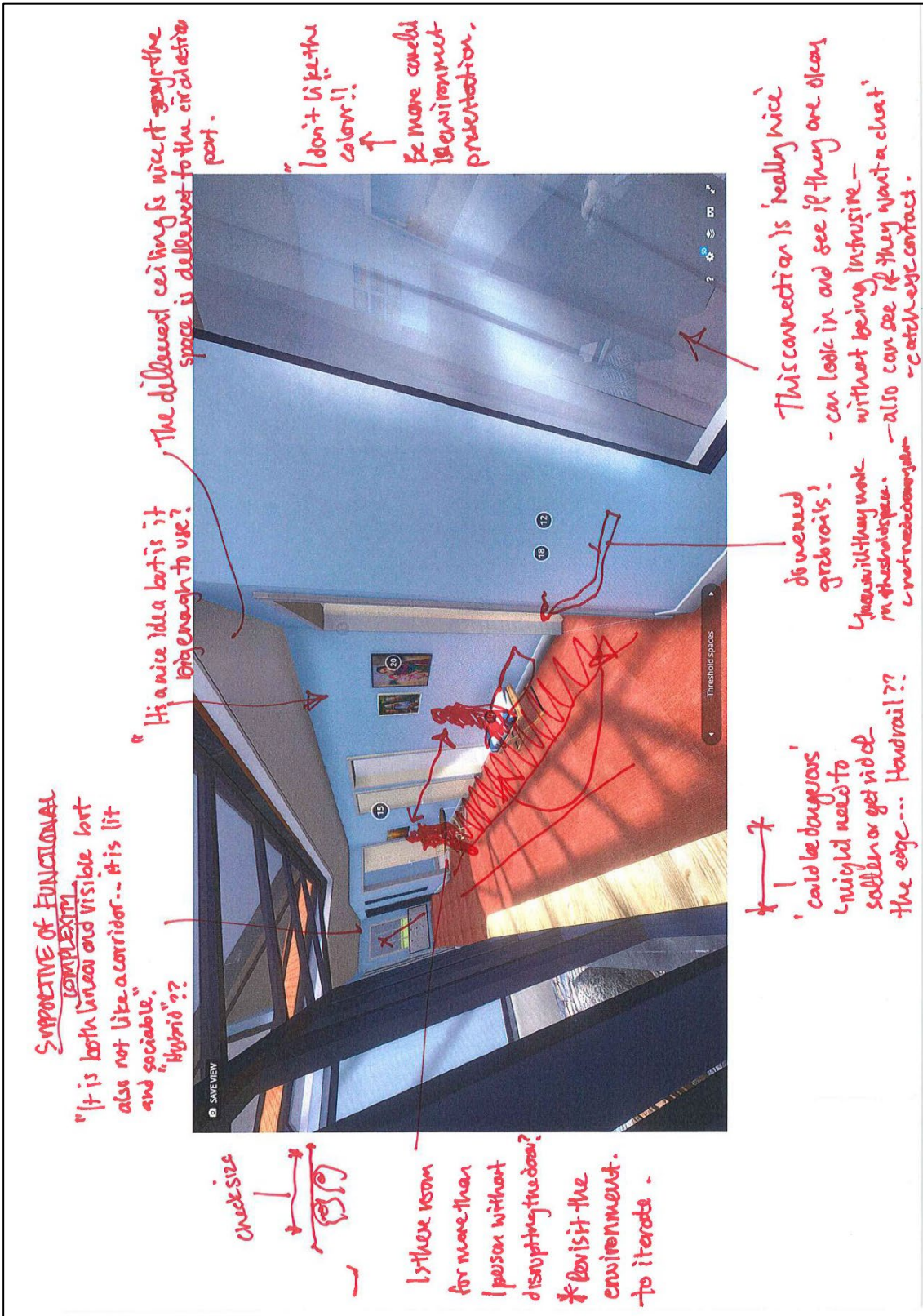


Figure 61: Remote interaction notes - liminal threshold discussion.

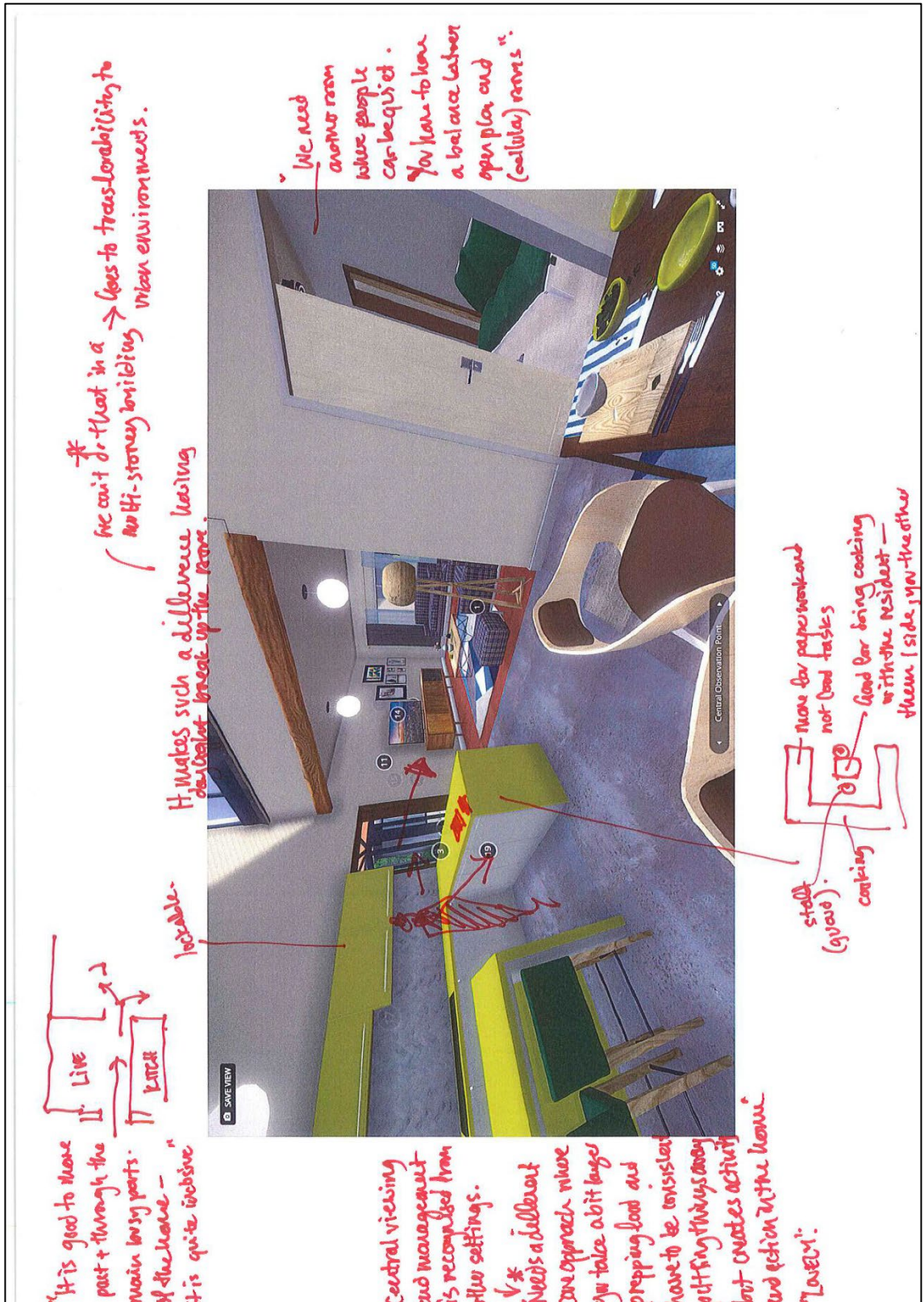


Figure 62: Remote interaction notes - a central observation point for the whole communal area.



Figure 63: Remote interaction notes - the main lounge area.

Samples, from Open to Axial Coding

These images demonstrate examples of the process of open coding and axial coding. The former are the initial formulation of clusters of commonality that suggest emergent codes and inform lines of further questioning. Axial codes continue this process, but begin to identify conceptual qualities that are later augmented, and merged with one another through focussed coding. The lines between different levels of coding are indistinct and though there was progression toward focussed coding in the generation of theory, the process involves iteration and concurrent coding levels.

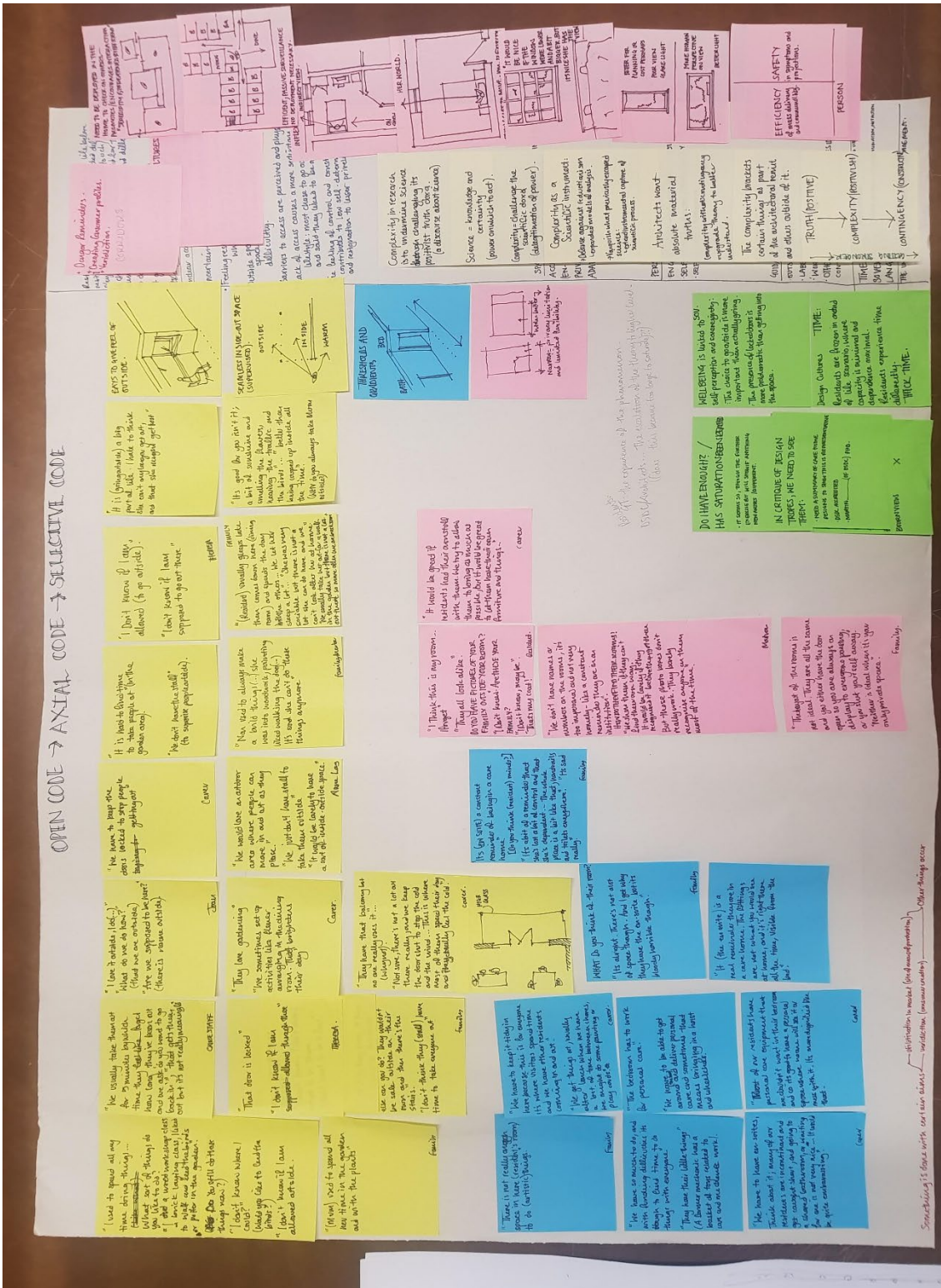


Figure 64: Early open coding excerpt formulating general themes from interview and observation excerpts.

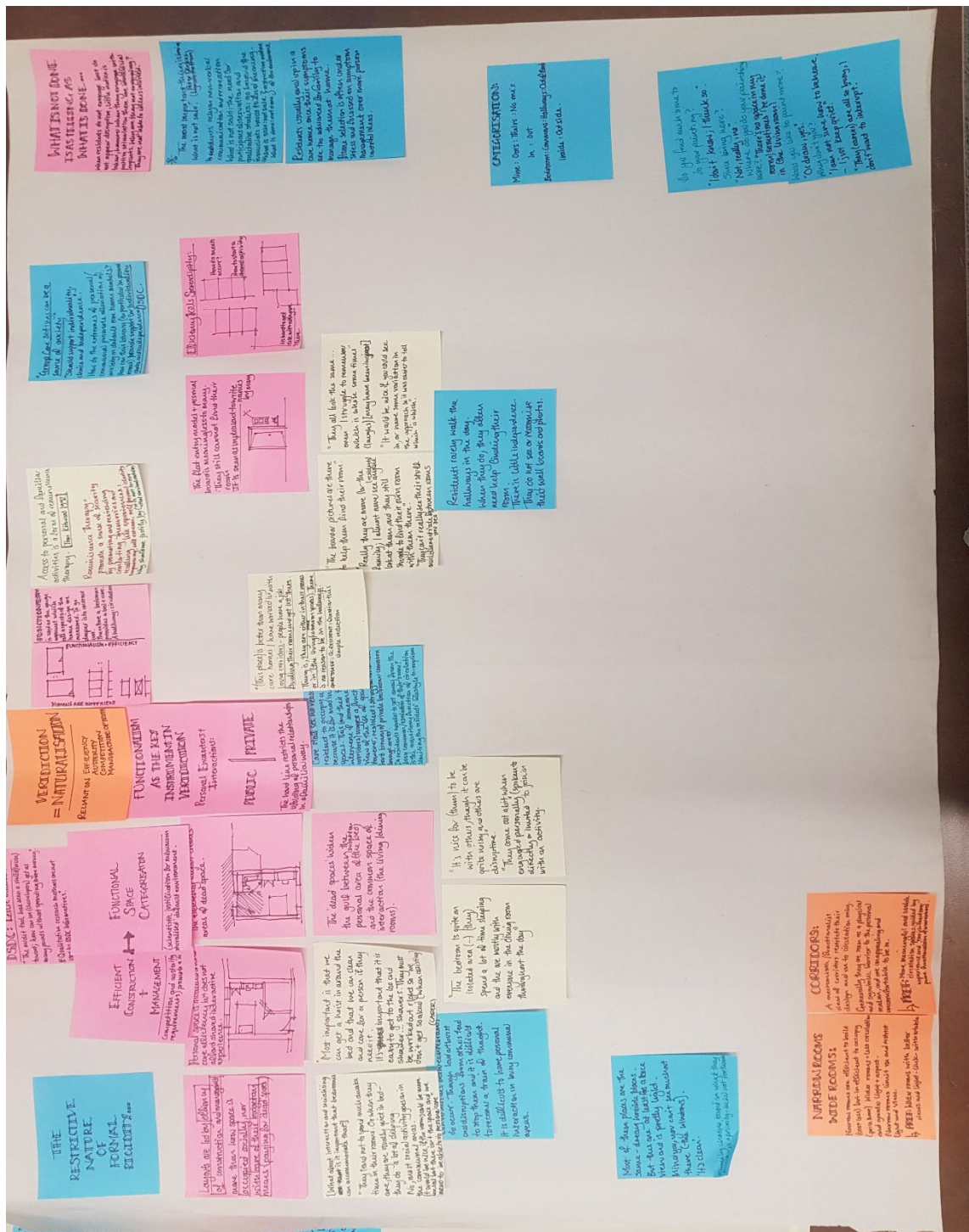


Figure 65: Early axial code "the restrictive nature of formal rigidity" was later subsumed into focused codes.

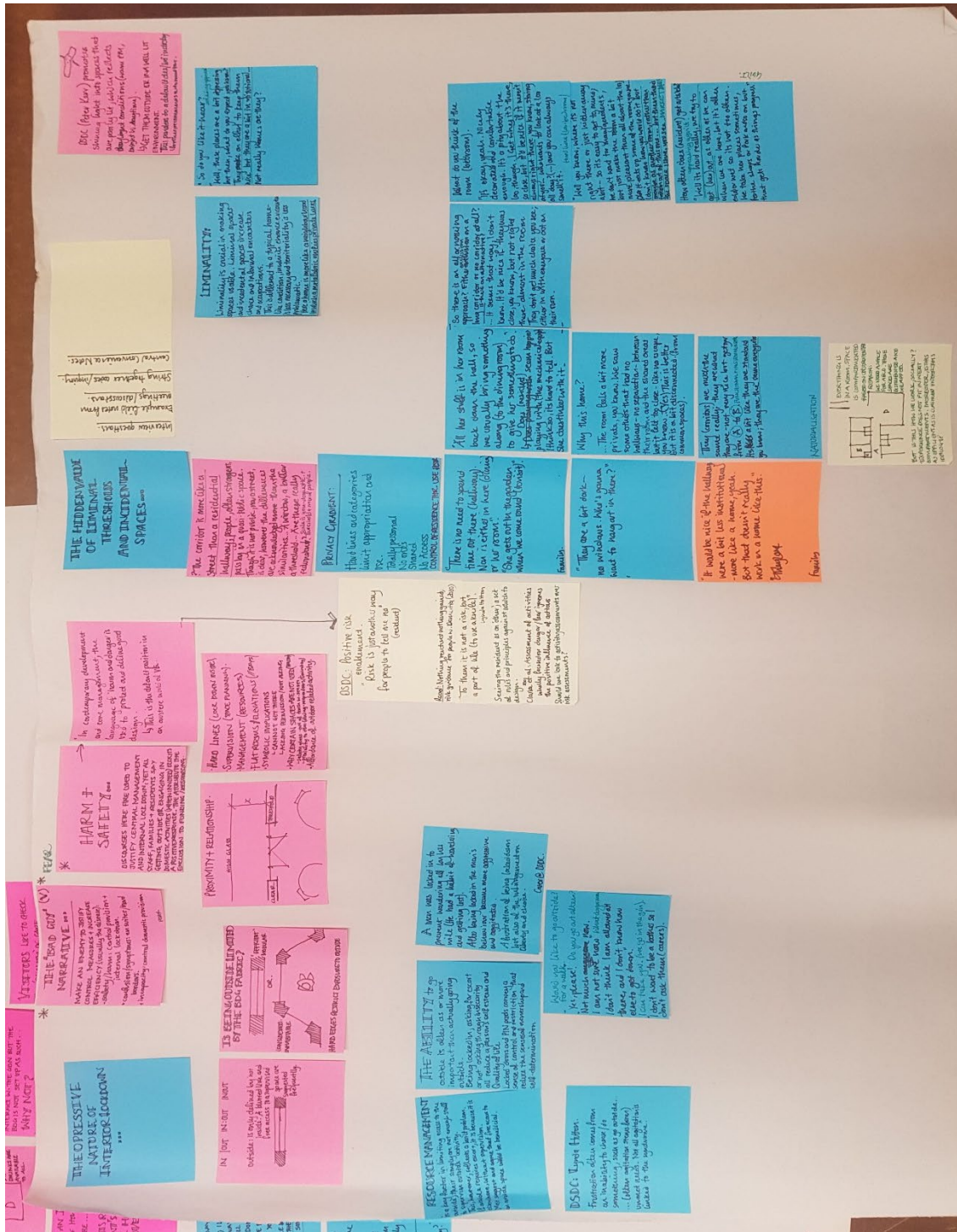


Figure 66: Early axial code "the oppressive nature of internal lockdown" was expanded through projective interactions and incorporated in later focussed codes.

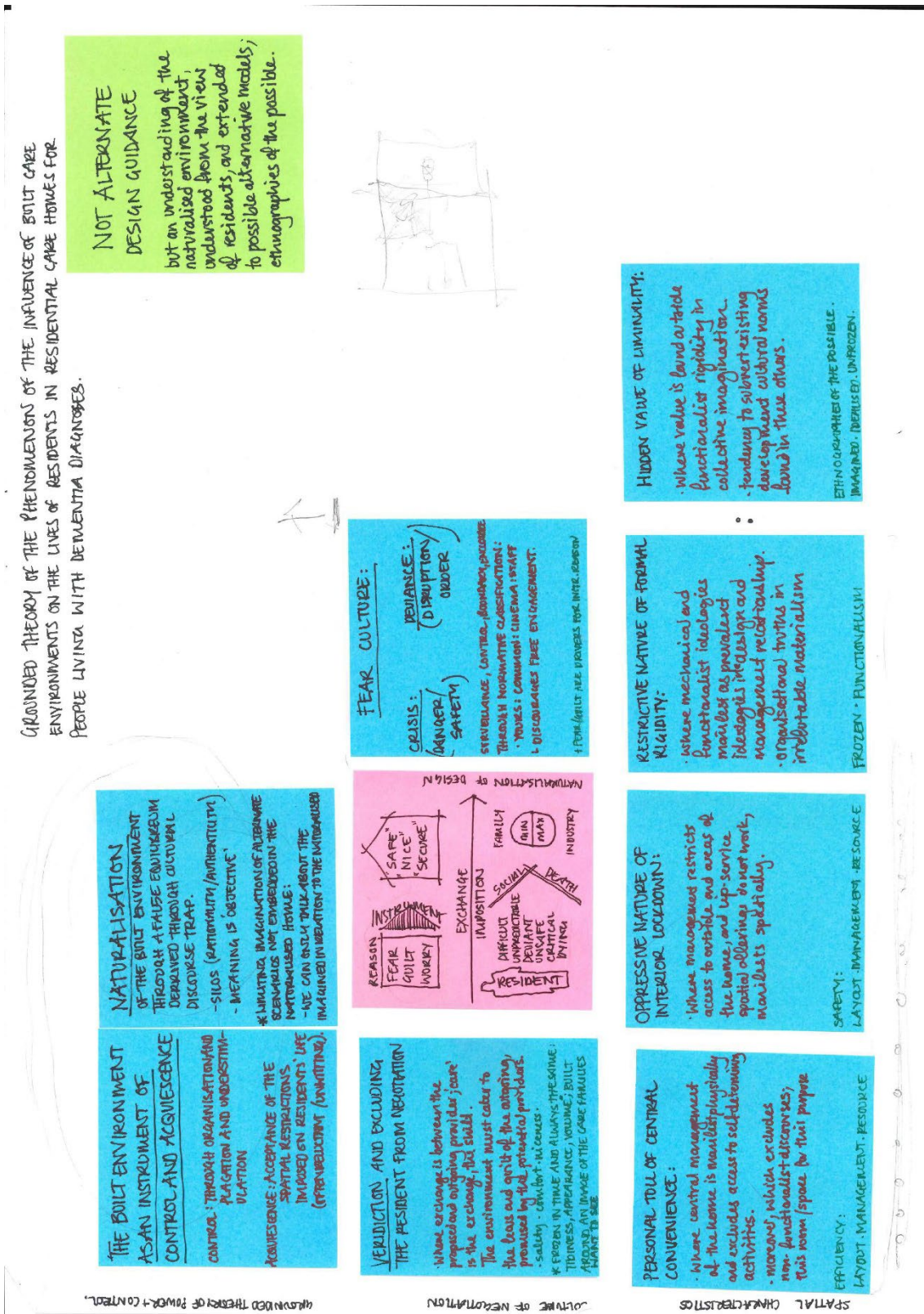


Figure 68: Early iterations aligning axial codes to explore commonalities and areas for further exploration. Codes were adapted and evolved through further fieldwork.

Focussed Coding Samples

Below are examples of focussed coding taken from the development of conceptual categories in the construction of theory. Summary sheets were used to bring ideas together and were refreshed as categories changes and expanded. Then, the key focussed codes were constructed through the assimilation of data from earlier open and axial coding. Samples of the core codes of each conceptual category are included here.

Sample Focussed Coding – Liminalities

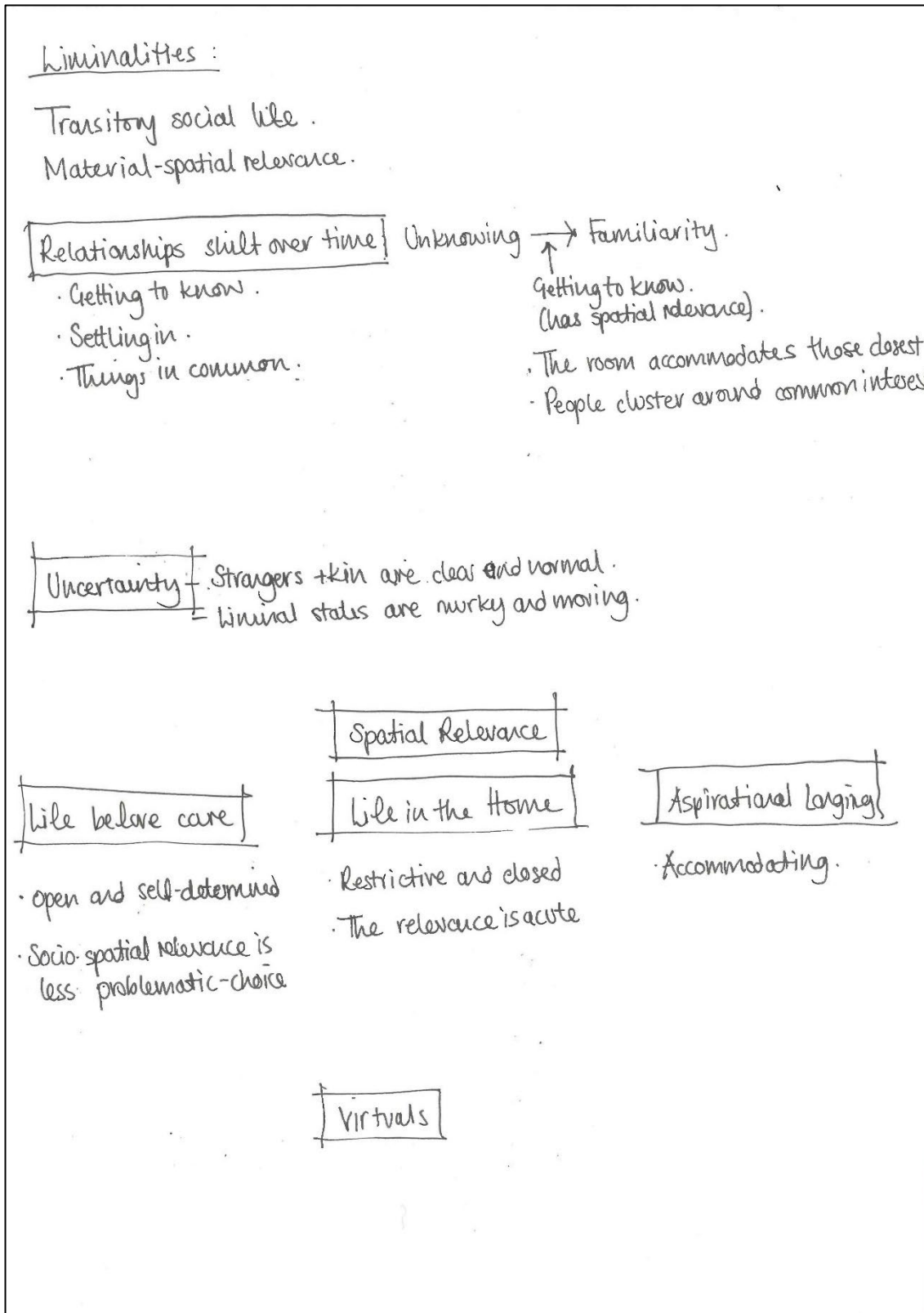


Figure 69: An iteration of the Liminalities memo-summary sheet.

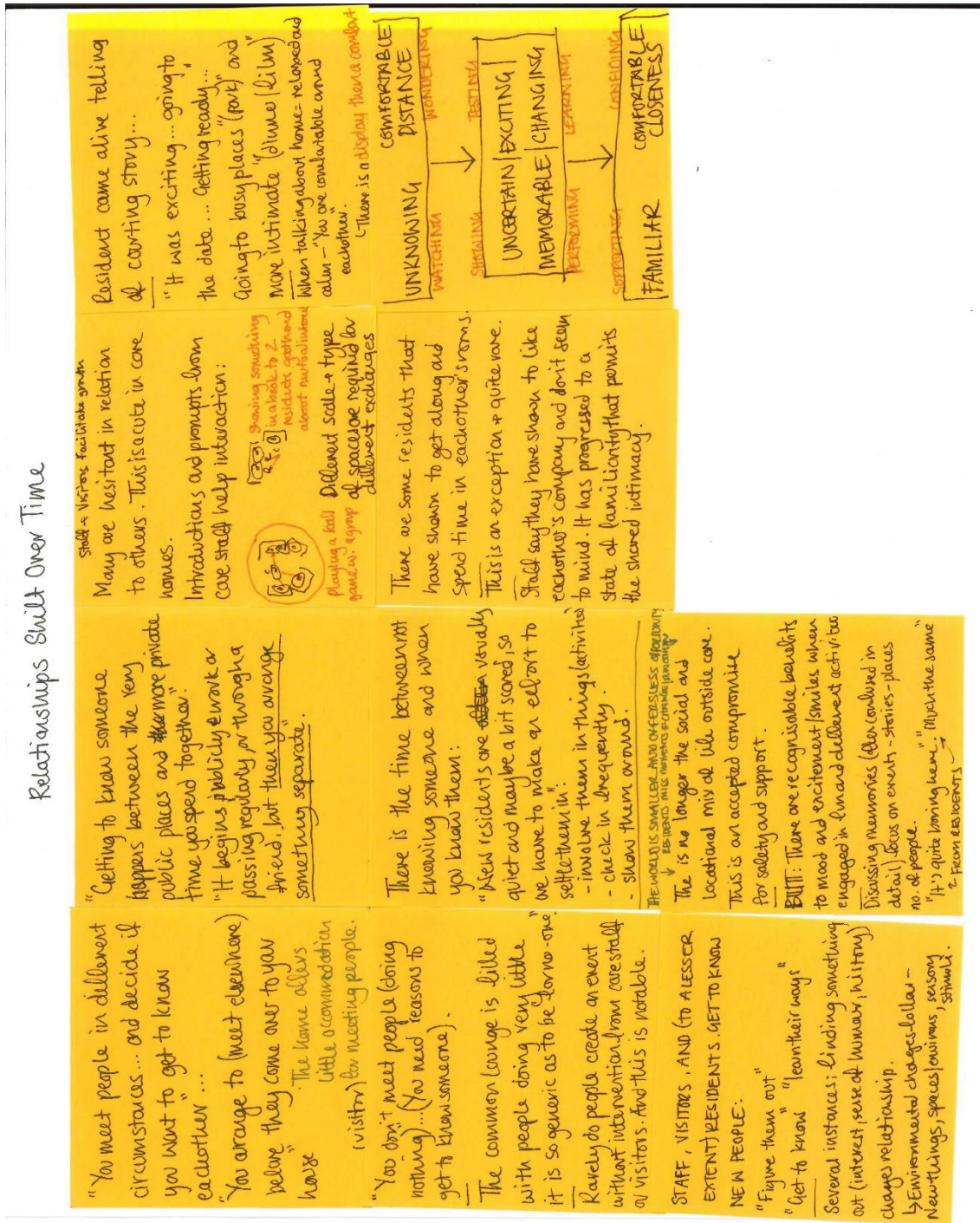


Figure 70: Axial Code "Relationships that shift over time".

Life inside the home and changing relationships

The quieter residents like to sit in the smaller niches of the sunroom, w. the view and airiness.
 The more active are often found in the main living rooms.
 Cthos spend most of their time in their rooms.
 (People cluster through commonality)
 ADAPTED RES. OBS. PURPOSE B. RES. OBS.

There are generally two spaces of interaction - the dining room and personal spaces. Personal are almost entirely for visitor interactions.
 Dining room has everyone in together (except quiet, ...)
 There is less clustering than in adapted res. w. visitors in spaces.
 The personal room is generally only used by residents + outside visitors or care staff.
 There are 'personal' things in there.
 There is a delimitation in some to letting others see their vulnerability.
 So generally, there are alone times in the bedroom and immersing times w. groups in common areas.
 (Obs. - more PB but adapted too)

2. Female residents notably like to go outside, and are invited to do so more than others because it is expected.
 These two residents spend most of their time together - and have similar characteristics - solity spoken + gentle / questioning.
 - Staff say going together forms a kind of bond.
 "They are friends" ... (sort of) followed by
 Not sure it is a normal friend-ship they don't share past experiences with each other, but they interact a lot and enjoy each other's company a few hours a day.
 Resident sometimes waits for another in the source place in the corridor - moving in and out of the room to check. INSIGHT INTO 2 RESIDENTS' KIN (PB)

GETTING OUT IN GARDEN
 Female residents notably like to go outside, and are invited to do so more than others because it is expected.
 These two residents spend most of their time together - and have similar characteristics - solity spoken + gentle / questioning.
 - Staff say going together forms a kind of bond.
 "They are friends" ... (sort of) followed by
 Not sure it is a normal friend-ship they don't share past experiences with each other, but they interact a lot and enjoy each other's company a few hours a day.
 Resident sometimes waits for another in the source place in the corridor - moving in and out of the room to check. INSIGHT INTO 2 RESIDENTS' KIN (PB)

The staff get to know residents through time. Learning their ways and find ways to enforce reaction or conversation from them (both times)
 A pianist likes to talk all day long composers - and watches TV (listens to music that others like).
 This occurs in evenings in a second lounge area w. a small (3-4) group.
 (OBS - ADAPTED)

REGULAR + HOMOGENOUS
 Common spaces provide little opportunity for appropriation of different scales.
 Everyone in together.
 Difficult to have personal space in activities music with others w. limited variations in environment

The CORRIDOR is strange, confusing and problematic.
 It is a void between the personal privacy of bedrooms and common public of group areas.
 "No men's lovo"

They don't always know which room is theirs, but a lot get the hang of it.
 "I don't know if this is my room" (when I meet someone looking lost).
 The memory losses are really for the dementia - (resident's don't tend to recognise or even see the people)
 All the rooms are the same from what I see. The doors are open so they can see their personal things.

Scale:
 - acoustic
 - light fair
 - furniture

Difficult scales of encounter (time / no. people) occur in different environments w. diff:
 - enclosure
 - acoustic
 - light fair
 - furniture

They don't always know which room is theirs, but a lot get the hang of it.
 "I don't know if this is my room" (when I meet someone looking lost).
 The memory losses are really for the dementia - (resident's don't tend to recognise or even see the people)
 All the rooms are the same from what I see. The doors are open so they can see their personal things.

Figure 71: Axial code " relationships experienced inside the home".

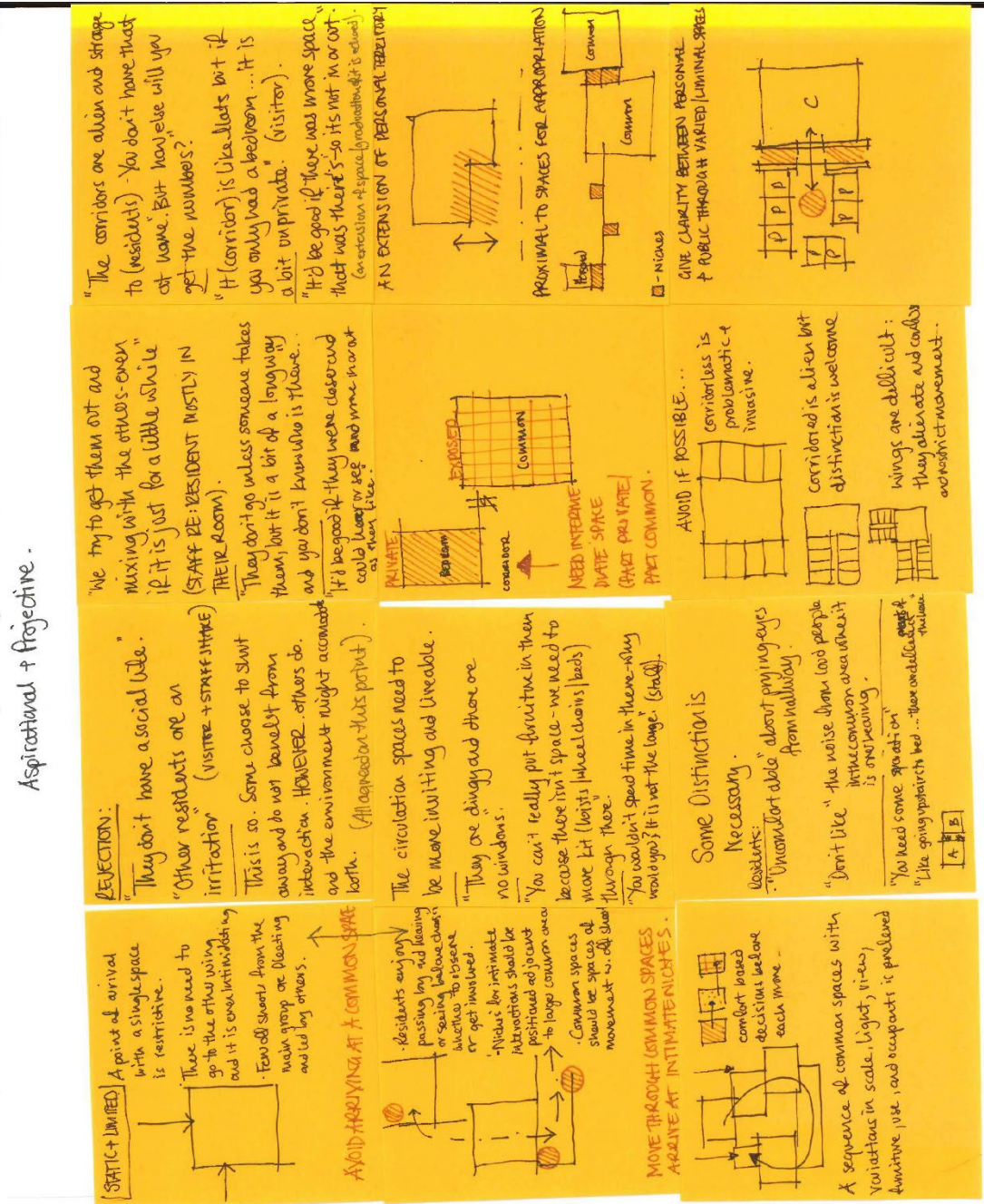


Figure 72: Projective aspirations coded from liminal insights.

Sample Focussed Coding - Affordances

AFFORDANCES:
Affordances:

Image and story of the self is tied to life before and outside residential core.

Variation → Large: street, work, friends, houses, rooms, pub, city, park
 world: coast, entertainment places, games

Negotiation → . chance interactions: People, systems, things, weather,
 . decisions : wildlife, places, control.

Exposure and decision making reinforces the self. → manifests in things, places
 people, actions.

BUT...

The resident lives in a setting (Physical and personal) different to the self image

Routine → Small: The environment is physically smaller, it is repetitive
 world: there are fewer chance interactions and less variation

Authority → predictable: few decisions are available, little opportunity for choice.
 limited: Constant environment, limited control over space.

ATRANSITION:

A compromise is necessary: the need for support should prevent further losses
 and make things easier.
 : relinquishing is reasoned thus but all relinquishes are
 taken together.

The acceptance of a different life limits expectations and the environment
 is accepted, though feelings are mixed.

LOCI OF TENSIONS:

The spaces of tension are also the spaces and moments where most aspiration
 and projection are discernible: Bedrooms
 Bathrooms
 Enclosure

Figure 74: An iteration of the Affordances memo-summary sheet.

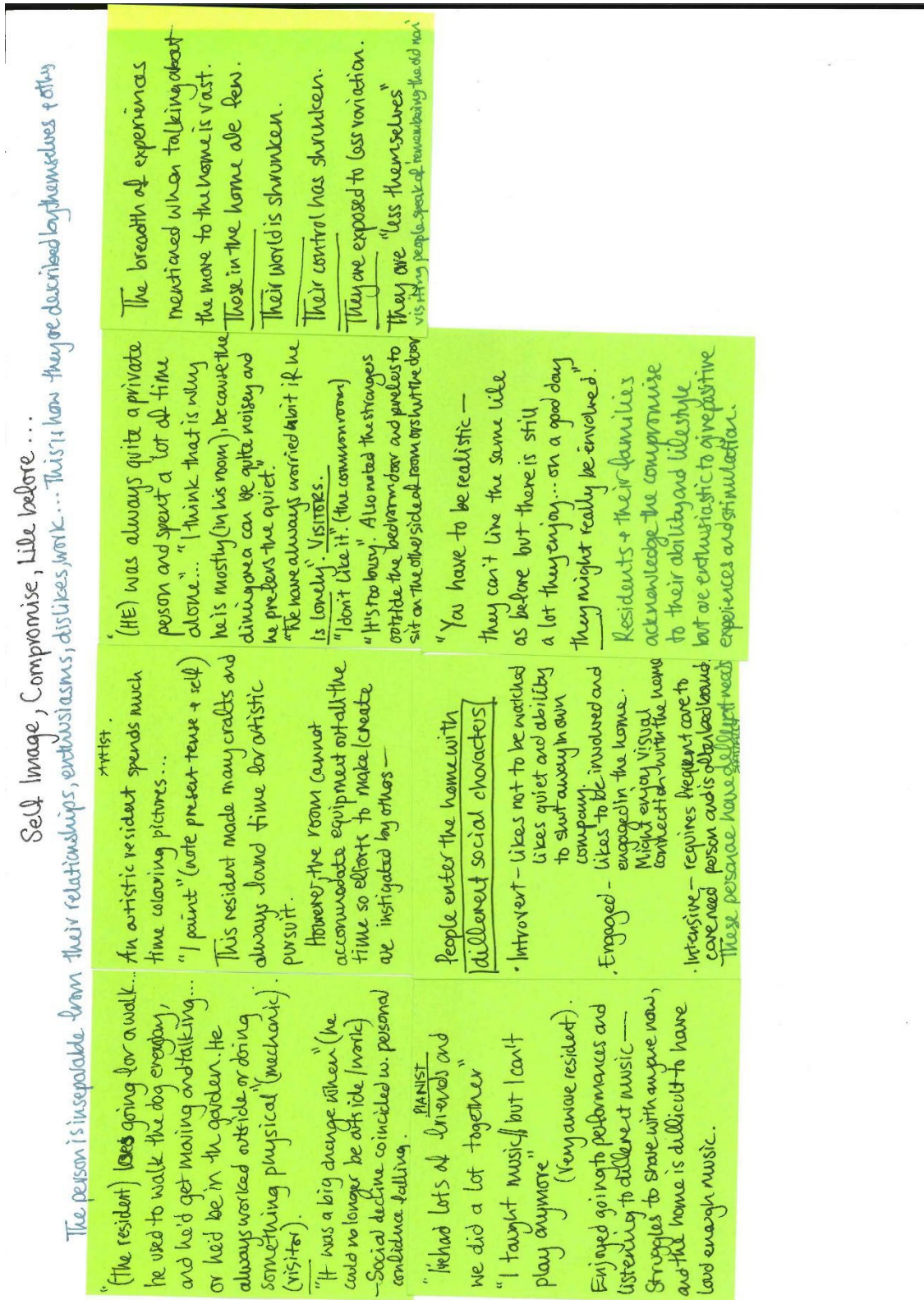


Figure 75: Axial code "self-image, compromise, like before".

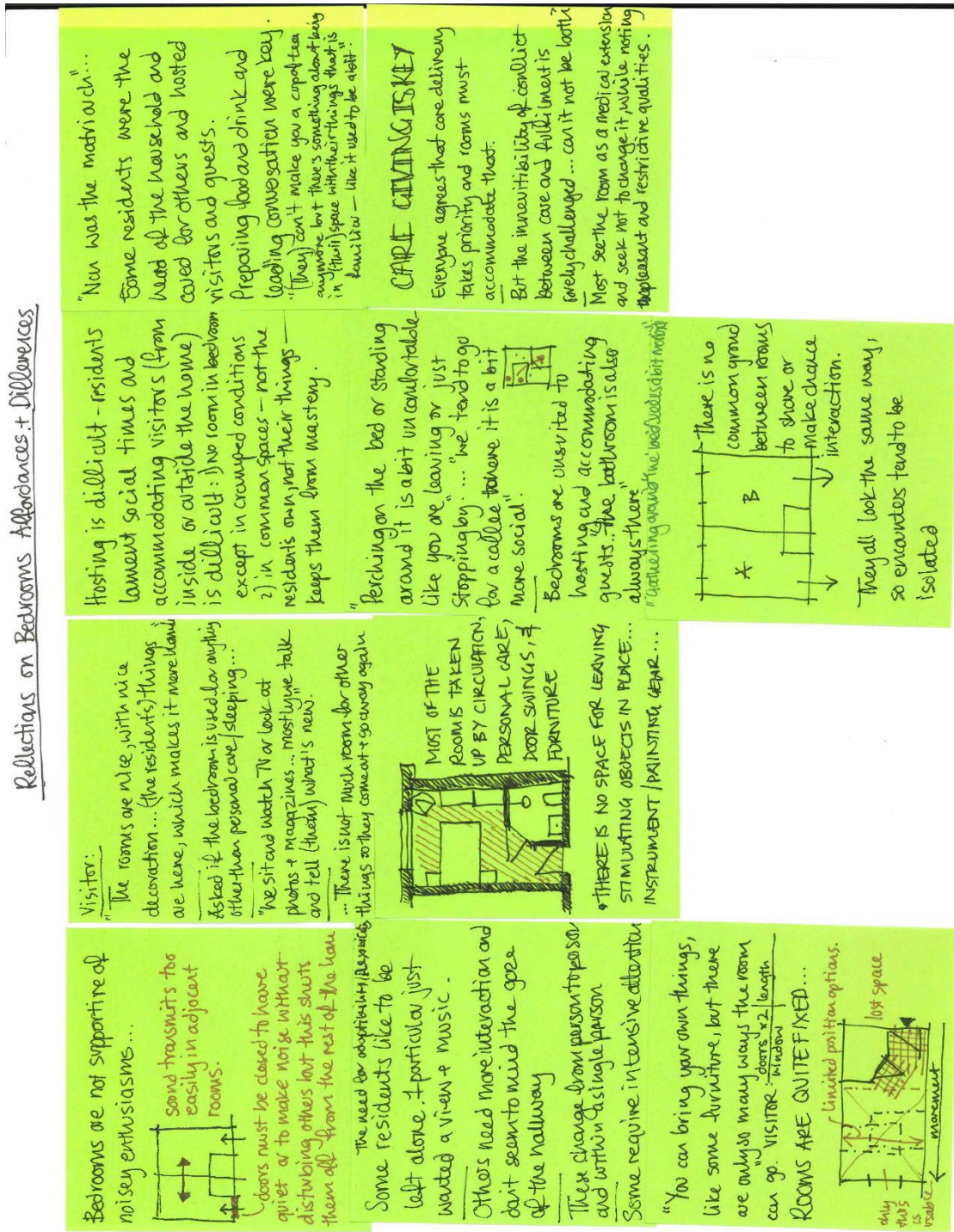


Figure 76: Axial code "bedroom affordances".

Reflections on Bathrooms ...

(EN SUITE) BATHROOMS
 Bathrooms are highly divisive:
 En-suites are expected by new families
 "You don't want to share (personal care) with others"
 "They often are caught short"

They are smelly
 A constant reminder of incontinence and a low lying body
 "They are space hungry
 They do not need a room back"

"You spend a lot of time in (the bathroom) at that age" stall.
 Regular references to the urgent need for the bathroom and to be cleared after incontinence are used to justify en-suite bathrooms ...
BUT MOST AGREE IT IS A NEED FOR A PERSONAL BATHROOM
 No one likes to share a bathroom
 "It's nice, like a hotel room."
 They need regular maintenance
 There is a tension in provision between families' expectations and care staff experience, and variation in residents' preference
 Different rooms are suggested but do not acknowledge change in individual

"It is not very nice... it's ugly. en-suite"
 "I keep the door shut because I don't want to look at it all the time."
 "It is hard to ignore the smell of bathroom cleaner"
 "Beach, piss and soap... that's a care home."
BUT THE DESIRE FOR OTHER SMELLS TO STIMULATE.

DISRUPTIVE EN-SUITE
 Always visible
 Always smelly
 They account for so much of the space we pay for. visitor.

COMMON BATHROOMS
 In board
 adjacent
 proximal
 spacing
 spacing
 spacing
 can embarrass more dependent residents

Adapted Residence:
 "It's be nice if they had their own bathroom"
 "Used by many visitors"
 "Sometimes have accidents (regularly)"
 "They could do with their own bathroom" (stall)
 "Most expect a private bathroom. It's our biggest drawback (with me too)"

Figure 77: Axial code "Bathroom affordances".

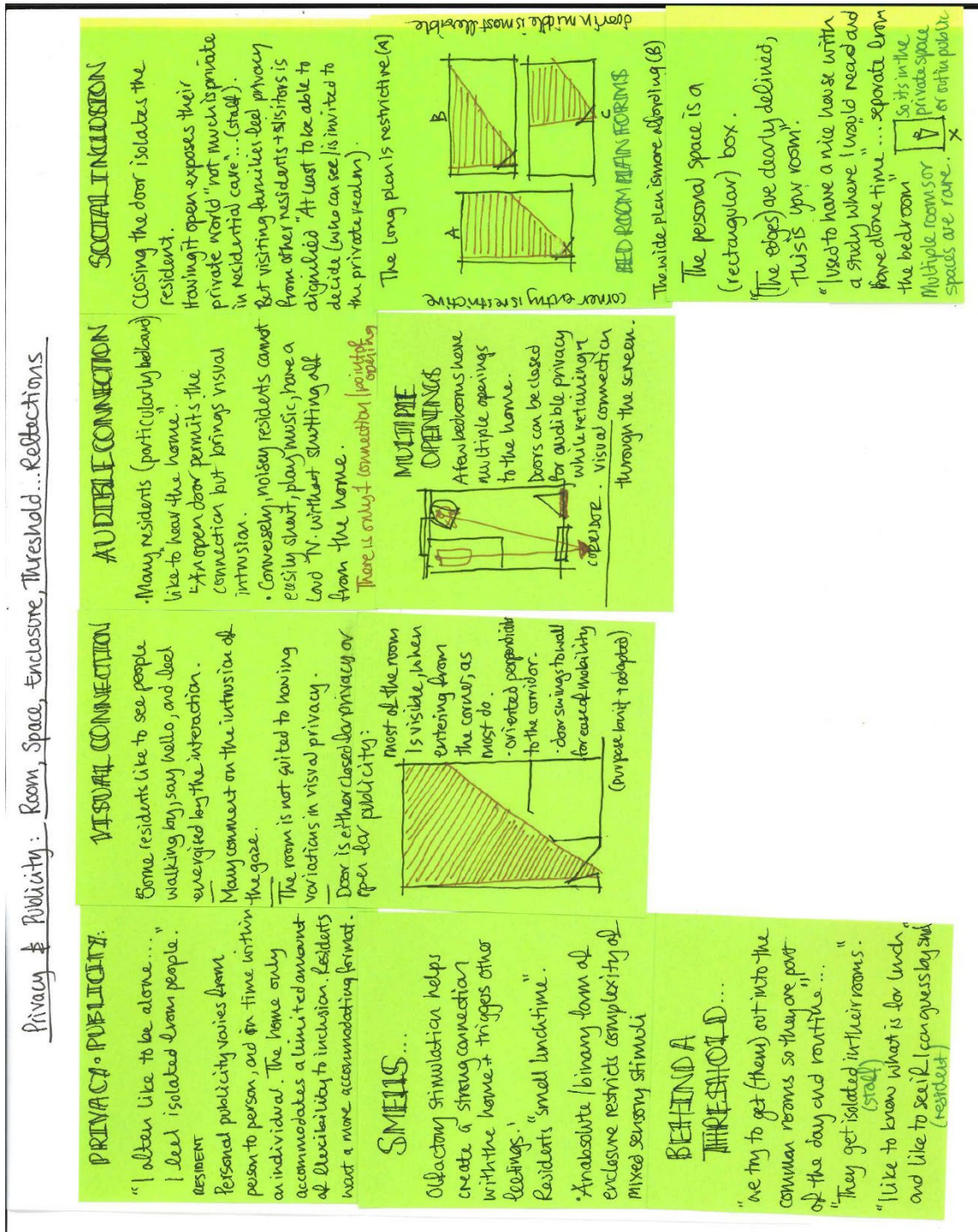


Figure 78: Axial code "room, space, enclosure, threshold".

Projections...

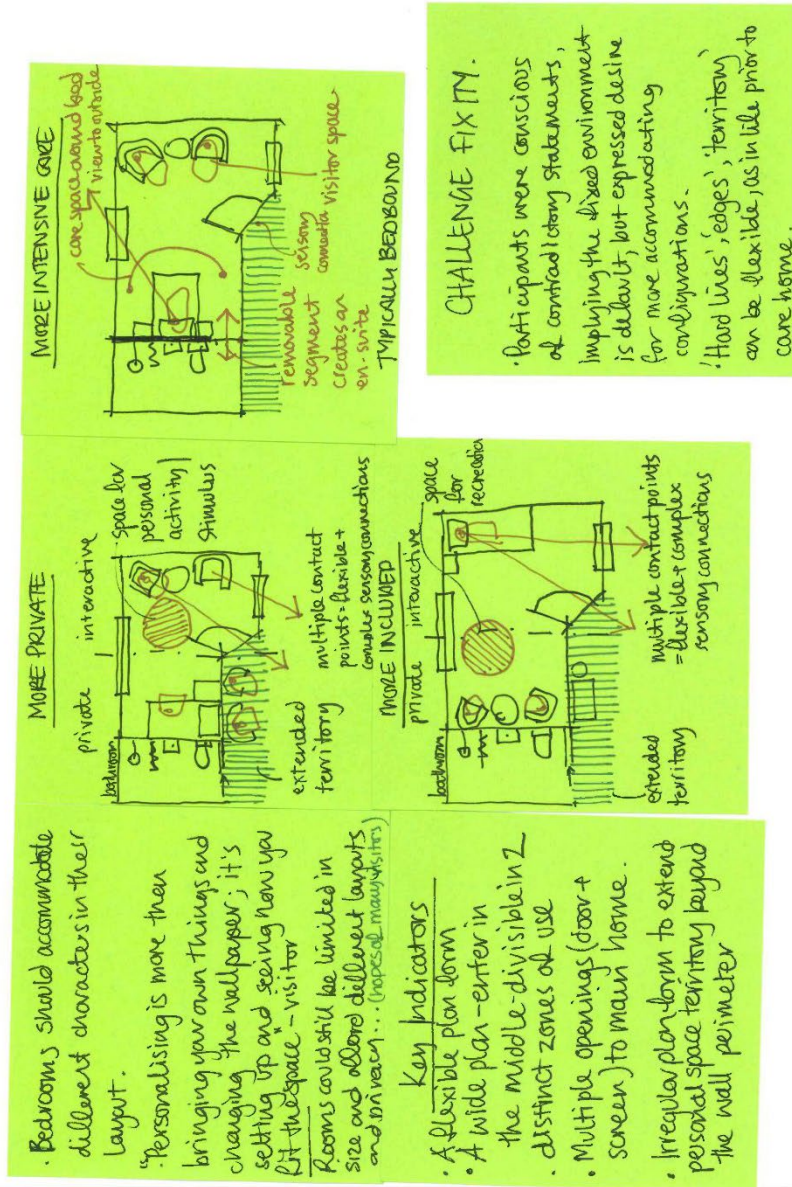


Figure 79: Coded projections for supportive affordances in the environment.

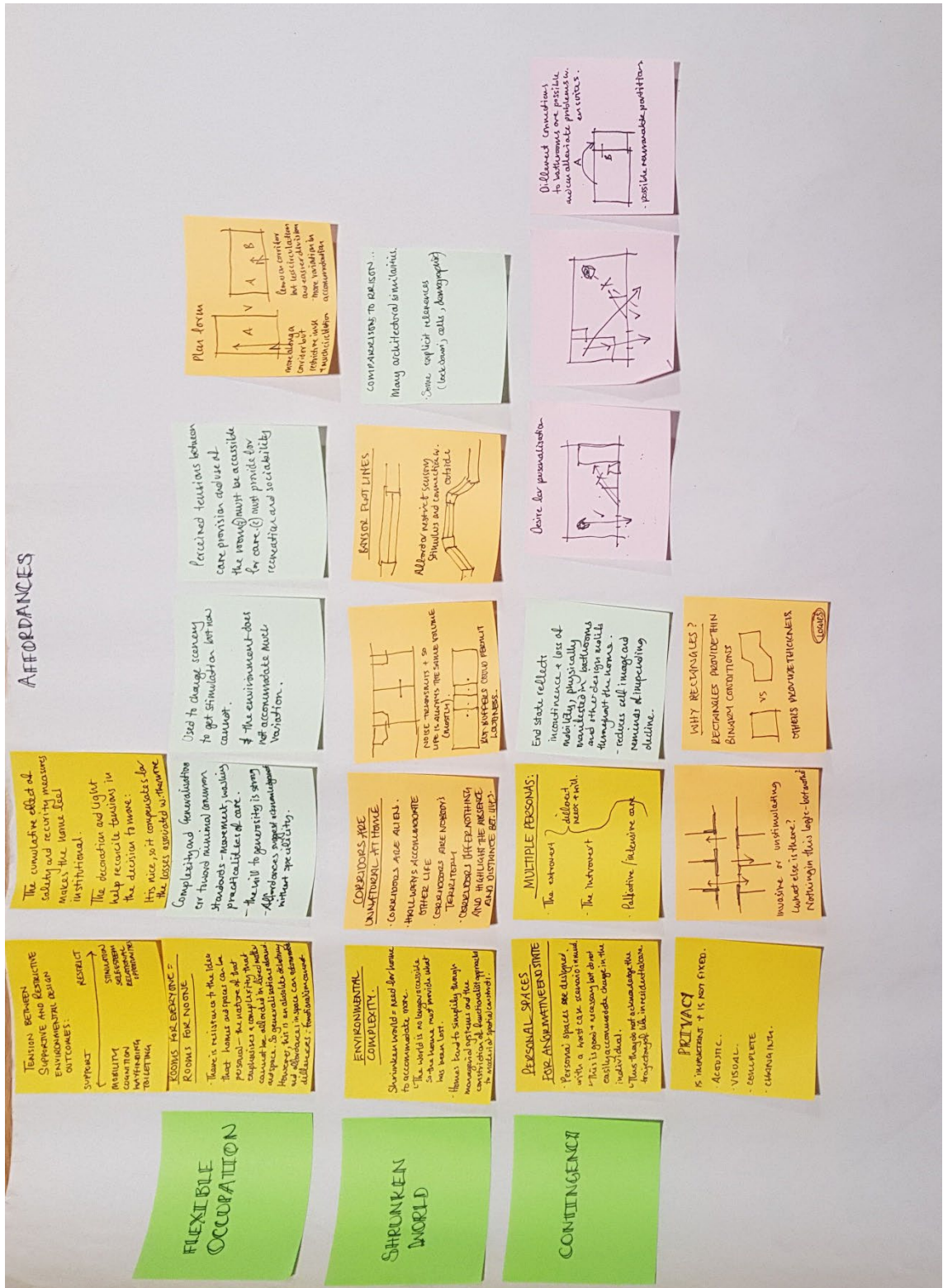


Figure 80: Checking alignment and combining affordance codes in conceptual category.

Sample Focussed Coding - Enablement

ENABLEMENT:

Residents are concerned with their freedom and unfreedom to act in a self-determined manner.

Freedom of Movement — Unfamiliar parts of the home are daunting / confusing
Private areas, all limits spaces, communicate a restriction on movement and a sense that there is 'your right place' in the home.
The will to connections with outside is prominent.

Freedom of Use and exposure — There is limited space to 'use as you want'.
Variations in the form of occupation are necessary.

Self Determination — Involvement in the reproduction of daily life.
Tension with centralised facilities for house work

Each condition is perceived on a continuum:

- Shut in ←————→ liberated
- Empowered to engage ←————→ demotivated
- Unsettled, temporary, visitor ←————→ settled, home

Perceived Power Dynamics with staff are tied to environmental freedoms

Perceived Resource Limits are connected to perceptions of freedom and unfreedom that relate to the role of the environment.

Figure 81: An iteration of the Enablement memo-summary sheet.

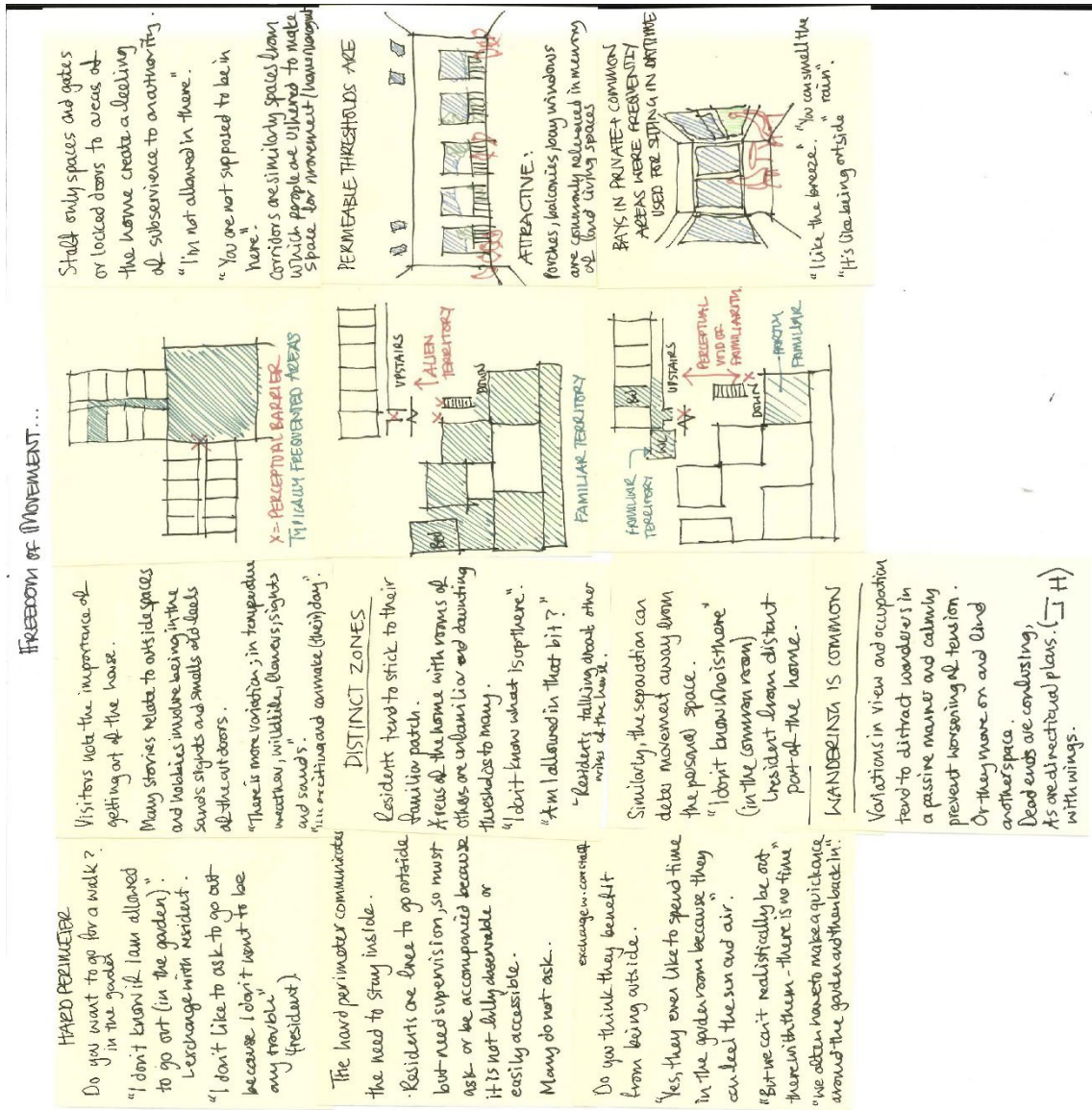


Figure 82: Axial code "freedom of movement".

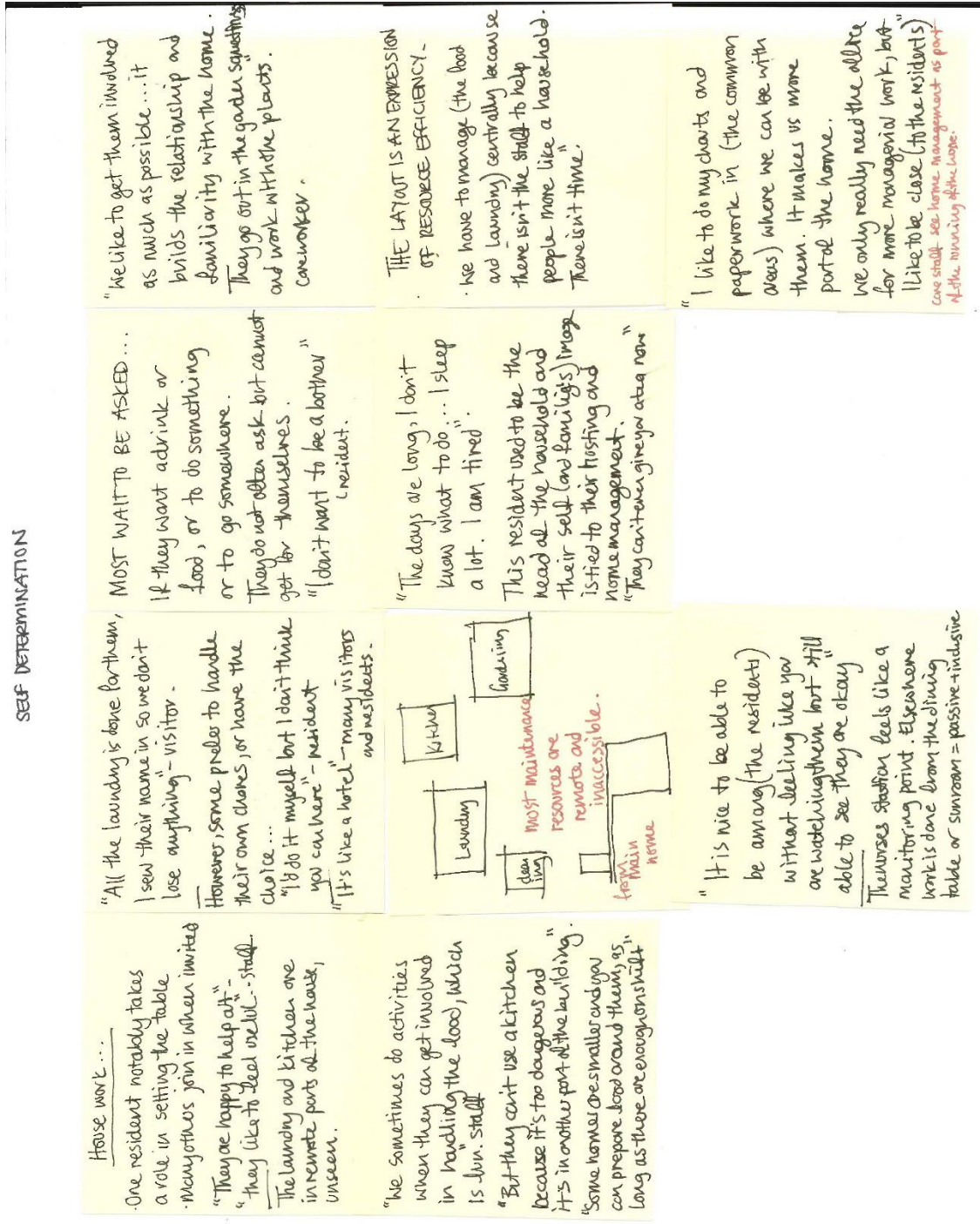


Figure 83: Axial code "self-determination".

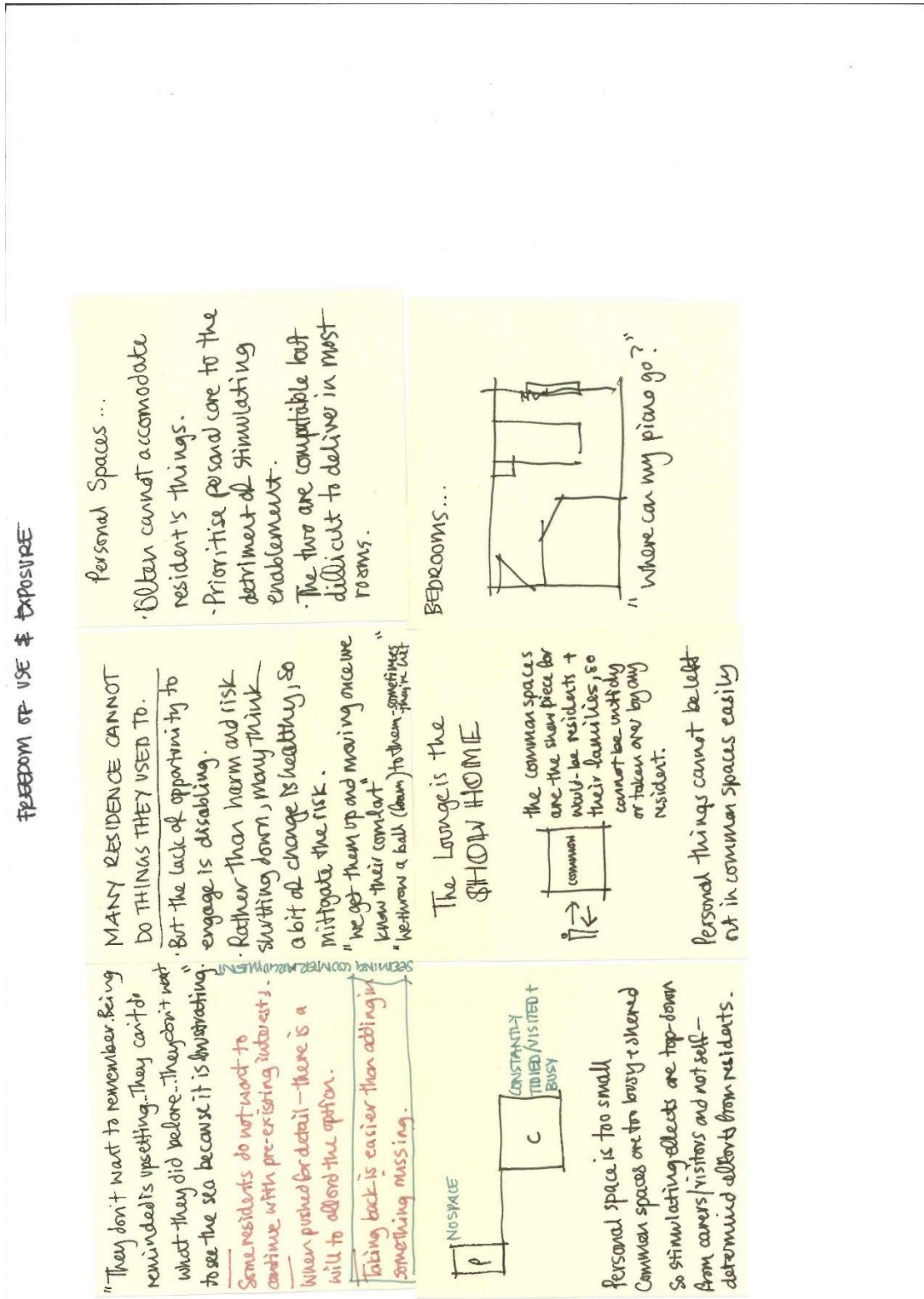


Figure 84: Axial code "freedom of use and exposure".

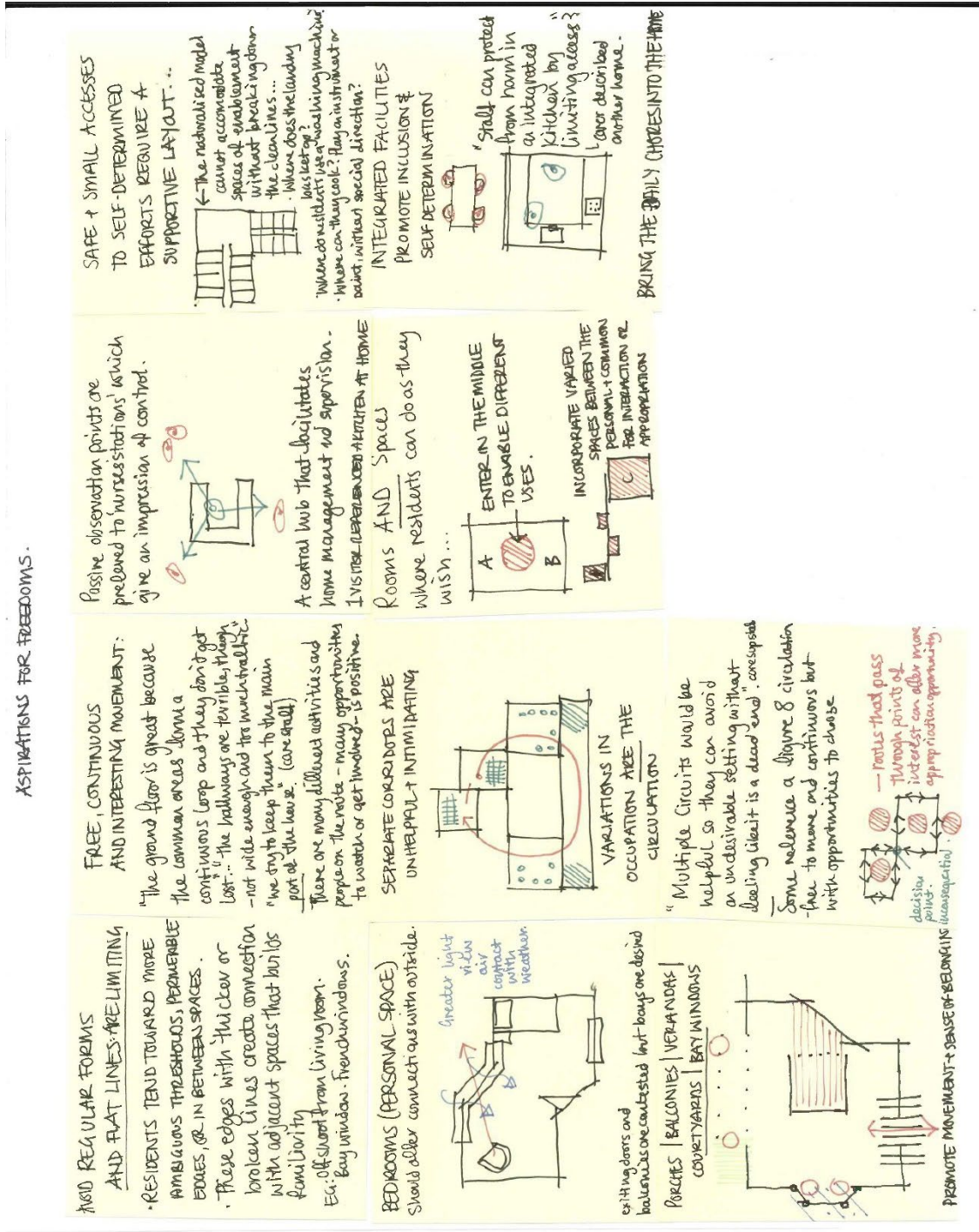


Figure 85: Coded aspirational projections from enablement category.

Sample Focussed Coding - Ideological Space-time Conception

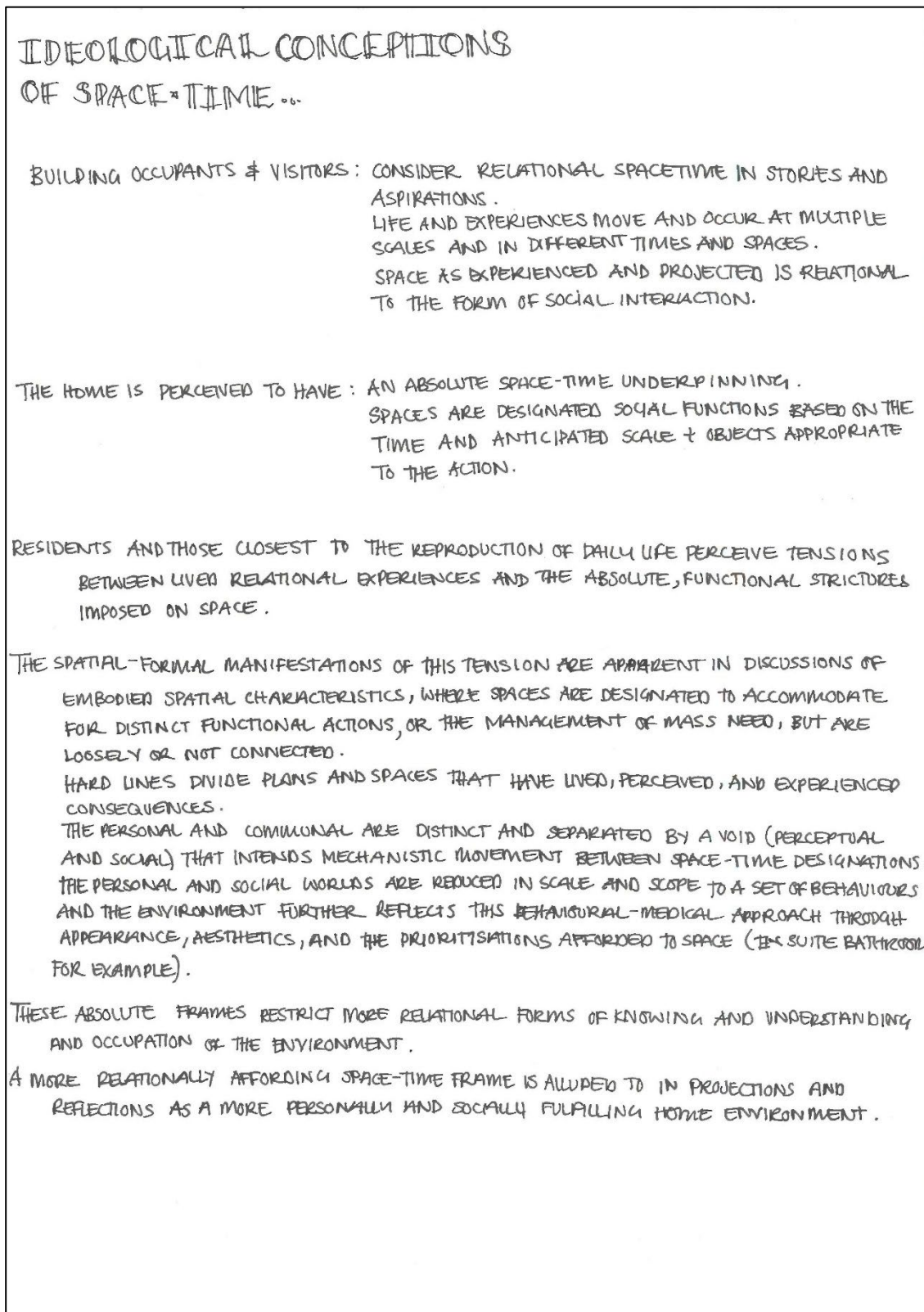


Figure 87: An iteration of the Ideological Conceptions of Space-time memo-summary sheet.

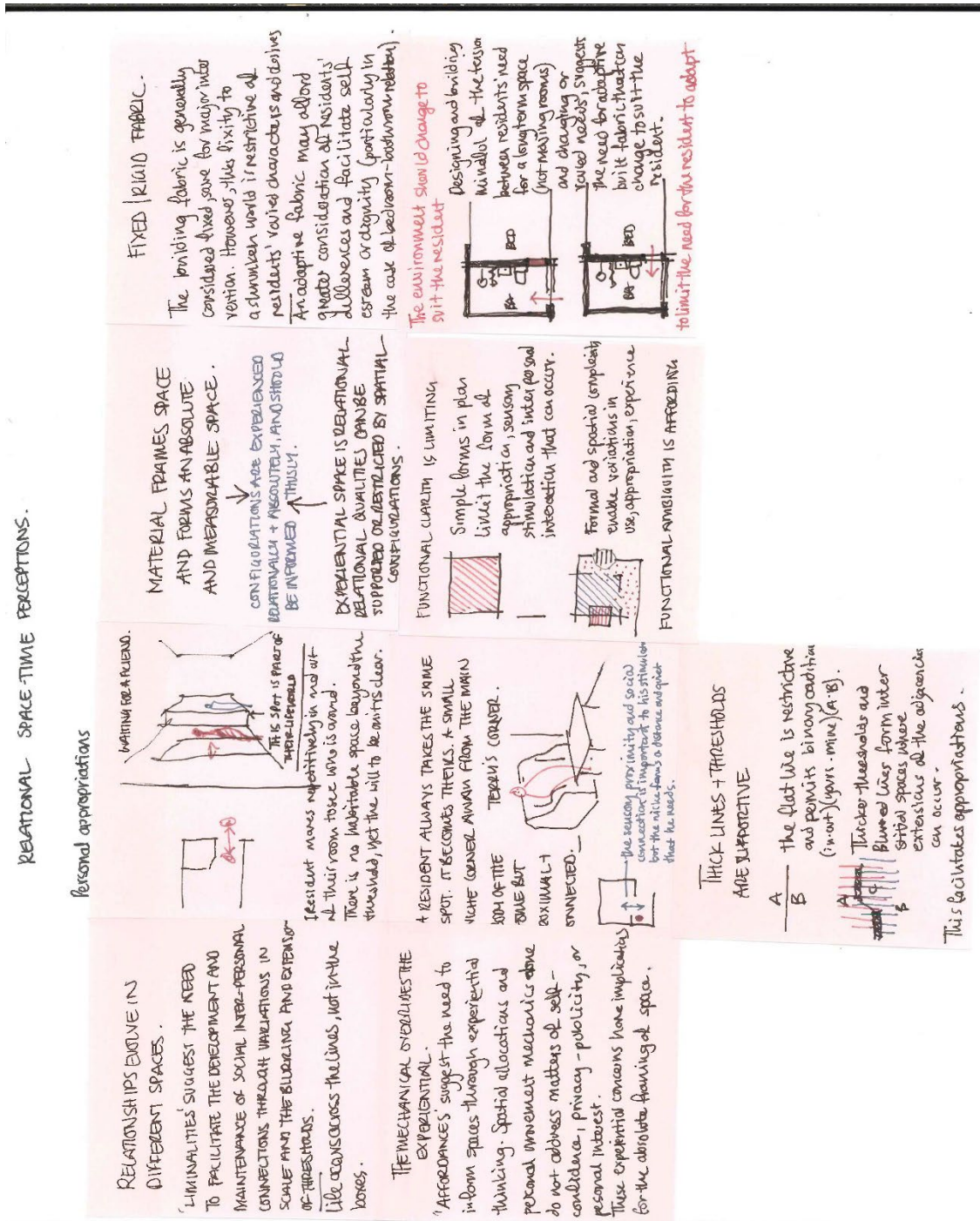


Figure 88: Axial code "relational space-time".

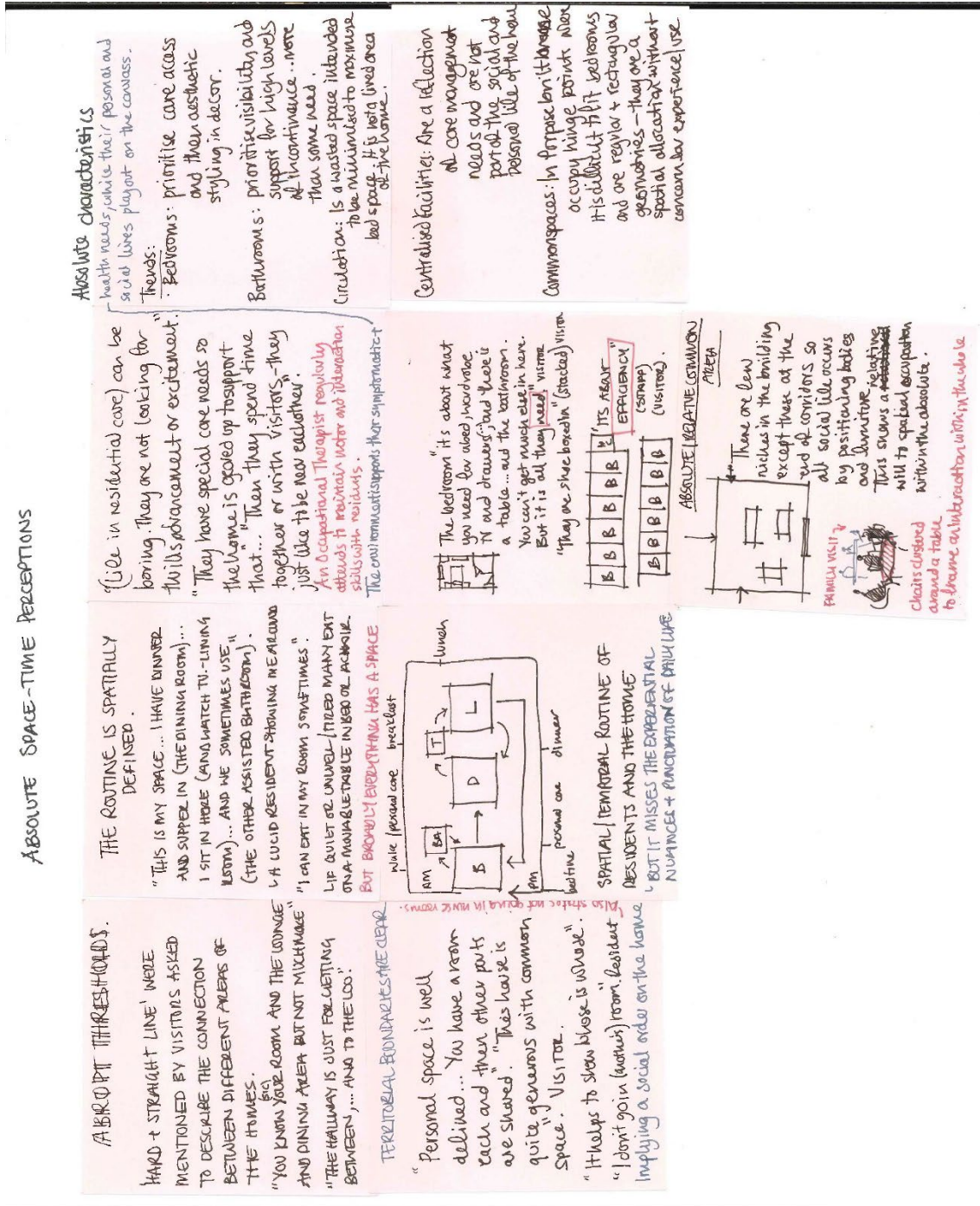


Figure 89: Axial code "absolute conceptions".

Sample Focussed Coding – Veridictions

VERIDICATIONS...

The care home is at once the facilitator for care for its residents, and it is the ongoing advertisement of its services and living environment to prospective new families, looking to move their loved ones into the home.

This advertisement takes the forms of: accreditations and endorsements
:the lived home as visited by new families

Accreditation and endorsements:

CQC and DSDC are examples. They impose criteria on the provisions and care standards in the home.

Very important bodies that emphasise the quality of care, safety, and living standards in the environment.

↳ THEY PLAY AN IMPORTANT ROLE IN ENSURING THE QUALITY OF CARE IN THE FACE OF RESIDENTS' SYMPTOMATIC DIFFICULTIES.

However, they do not emphasise resident fulfilment in environmental guidance.

→ THEY have a medical locus (largely) and some standards of care, or recommendations (ensuite bathroom for example) might be at odds with resident fulfilment, suggesting the need to explore this tension.

Visits to the home / reputation

The home is under constant prospect, its population regularly changes.

- ↳ The home must compete with others in the market, which imposes pressure to keep to standards, but also meet popular appeal. "every home is expected to have..."
- ↳ Spaces within the home must also "present well" to would-be residents' families – they must be well kept, but also free from clutter and presented "like a show home". This can preclude use of common and circulation spaces for personal preferences or in ways that challenge their ordained functions, which can have a disciplinary and normalising effect on residents – a passive form of control.
- ↳ Personalisation is encouraged, but limited to additions in the personal parts of the home and restrictive of it elsewhere, where decor must be "bright, neutral and appealing", often resembling modern-classical, western taste.

FAMILIES ARE THE KEY POINT OF EXCHANGE = NOT RESIDENTS

Figure 90: An iteration of the Veridictions memo-summary sheet.

VERIDICTIONS.

PROXY EXCHANGE.

"We appeal to the families more than the visiting resident staff."

"They need to know this is a place they feel comfortable leaving mum, dad or whoever."

With residents' best in mind care homes must appeal to the preferences of the visitors' family and meet their expectations.

REPUTATION.

"We are our own advert... we are known locally by reputation for our high standards and we have a great setting."

"we always do very well in audits" - Are highly accredited residence.

The home is very well maintained.

"We want to build a deck and garden room people can access more easily... The garden is beautiful and people fall in love with it but the residents cannot access it, so it is never used, except rarely."

Outward appearance sells the home regardless of the experience. Visual appeal is very important.

Some things are expected but also contested.

- En suite bathrooms
- Centralised services
- Neutral decor
- Always tidy common areas
- TV screens
- Memory boxes

They appeal to families as luxuries and niceties but conceal underlying structural maladaptation.

INNOVATIONS REDEFINE THE NEEDS OF THE RESIDENT.

Once families are familiar with a concept, it becomes what they focus on and they look for that.

So if a home was something eye catching or convenient, it becomes the necessary and expectation - they ask about it.

"It's like the need of the person changes as expectations shift - but most don't pay much attention."

CONSTRUCTING TRUTHS

Resident → Home IT environment → Innovation agent → Resident

Resident truth is made through daily immersive interaction. Innovation truth is made through agencies more rapidly, and at a distance. They do not fully overlap.

Veridiction as a process highlights the distance associated with differences in ideological conceptions where truth is multiple, fragmentary and operates at different speeds. The embodied character is an attempt to stay proximal and frame the other side.

VERIDICTIONS

DIFFERENT IDEOLOGICAL CONCEPTIONS OF SPACE-TIME

EMBODED CHARACTERISTICS

MAXIMUM - MINIMUM NATURALISATION

Knowledge and accommodation

Design needs / minimum expected

Competitive appeal / market pressure

"Homes have changed... they've all the same. There is a lot of research these days into the way the home can help (with idea with dementia) ... it seems everything from sight, to hallucinations, mobility ... directions can be related to the environment ... (geographical from walker | visit | road | see) side"

The home is the site of increasing research, in which the mind and body of the resident are the size of medical research study ... BUT IN THESE like study

Research innovation is used as the basis for decision making. Yet some times is met with tension in the home experience:

- High contrast neutral decor
- Conveys institutional rigidity and the sense it is not your home
- Emphasis on room layout to suit the needs of symptomatic difficulties can obscure the experiential ones that restrict enjoyment
- cellular, flat lines, corridors.

Care Home Organisation ↔ Home Environment ↔ Proxies

Care Home Organisation ↔ Endorsement → Home Environment

Figure 91: Axial code "veridictions".

Appendix D

Key Nodes from Virtual Environments

The following are screenshots from key environmental locations in the virtual environment about which participants orbited and questions about conceptual categories were centred.



Figure 92: Virtual environment nodes 1-3. Living room; common space intersections; central passive observation in the heart of the home.



Figure 93: Virtual environment nodes 4-6. Kitchen and dining area; visible WC and threshold from personal spaces to common areas; sunroom niche breakout from common areas.



Figure 94: Virtual environment nodes 7-9; circulation through connected inhabitable spaces; a central courtyard brings light, view and activity to spaces of circulation and extension to personal realms; liminal threshold serves as an extension to the personal area.



Figure 95: Virtual environment nodes 10-12; threshold space showing bedroom-bathroom relationship; bedroom configuration 1 (inclusive layout); bedroom configuration 2 (en-suite layout).

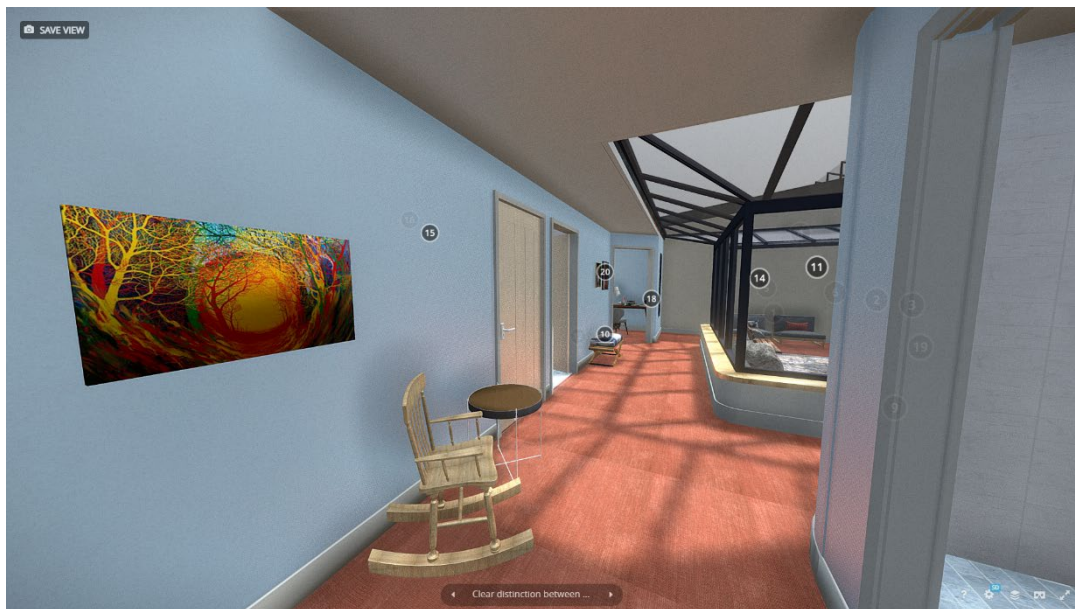


Figure 96: Virtual environment nodes 13-15; bedroom connections to outside and bay windows; more threshold spaces; lighting and connections across circulation spaces.



Figure 97: Virtual environment nodes 16-17; bedroom configuration 3 (more private); connection and awareness of communal areas from personal room side of the home.