

Organisational Learning in Dementia Practice

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Life is a perpetual to and fro, a dis/continuous releasing and absorbing of the self. Let her weave her story within their stories, her life amidst their lives. And while she weaves, let her whip, spur, and set them on fire. Thus making them sing again. Very softly a-new a-gain.

— Trinh T. Minh-ha, as cited in Barad (2014)

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I declare that this thesis has been written by me, and that it represents the results of my own research. The work has not been submitted for any other degree or professional qualification. Where I have consulted the work of others, this is clearly attributed.

The research received ethical approval from the University of Stirling General University Ethics Panel (Reference: GUEP 2024 18651 14490).

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A handwritten signature in black ink, appearing to read 'C Bartle', with a stylized, cursive script.

Signed,

Caroline Bartle

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To my husband, Simon, thank you for keeping the show on the road these past eight years while I carried a full-time job alongside working on this doctorate. There is no version of this in which you are not on every page.

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Abstract

This thesis presents a sociomaterial perspective on how dementia care practices and the digital systems through which care is increasingly situated shape one another. Conducted across two residential aged care providers in Aotearoa New Zealand, the study suggests that training delivered to individuals cannot meet the complex realities of dementia care, and connects local practices.

Learning in dementia care is situated, collective, ongoing, and materially mediated. Building on foundational dementia theories, the study extends that tradition through practice-based theory within a post-qualitative frame, positioning dementia learning as assemblages of human and non-human relations, and relationship-based care as enacted through co-constitutive relationships with the digital infrastructures around it.

Following eight months of fieldwork across four sites, the findings suggest learning is often oriented around emergent challenges. Sociomaterial arrangements influence how problems show up, who and what gets enrolled, and how new ideas are mobilised. Within these arrangements, data performed in different ways, and what mattered was the material arrangement and how leadership supported sensemaking. The relational and psychosocial dimensions of care were not always visible within the digital arrangements in ways useful for organisational learning.

Methodologically, the thesis contributes a post-qualitative, practice-based approach to researching learning in dementia care, one that follows practices and materials rather than measuring individual competence. Conceptually, it introduces digitally informed practice leadership, a capacity that supports emergent learning, working from within rather than above a network. It also introduces epistemic architecture, making recommendations on the sociomaterial arrangement of digital systems, working practices, and practice leadership through which organisational learning could emerge.

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List of acronyms

ADL	Activities of daily living
ANT	Actor-network theory
CM	Clinical manager
EPOA	Enduring power of attorney
HDEC	Health and Disability Ethics Committee
interRAI	International Resident Assessment Instrument
RCL	Regional clinical lead
UTI	Urinary tract infection

Chapter 1. Introduction

In this thesis, I explore how dementia care practitioners learn in the flow of work through their everyday engagement with technologies and data in a residential aged care setting. Rather than treating learning as something that happens mainly through linear approaches to workforce development, I examine how learning is produced and constrained in practical problem-solving endeavours. Using the concept of epistemic practice, I trace how knowledge is made and shared both in and through work. Here, I set the scene: the problems are many, the solutions multiple, complex and ever-changing. To explore this, I approach workforce development broadly: more than training, but supporting people while they work, and the material arrangements through which that work is done. I view workforce development and organisational learning not as disparate parts but as a fluid, connected, and complex entanglement.

Organisational learning has traditionally had a very broad meaning but is often understood in terms of how organisations adapt to their external environment or build competitive advantage (Wang and Ahmed, 2003). My interest is in organisational learning in its practice-based sense: how knowing is made and moves through the everyday work of the organisation, and how this is connected to the material settings in which that work takes place (Gherardi, 2012). I unpack these concepts more fully in Chapter 2. Practice is a well-developed field that I have enjoyed getting to know, one that has broadened my horizons immeasurably. Gherardi uses the common adage ‘practice makes perfect’, and states that the emergence of practice-based studies is probably one of the most important contributions to organisational learning (2012). Nicolini concurs (2009, p. 1412) ‘by recursively navigating between local instances and their connections, we can start gaining an appreciation that large organisational phenomena are but one of the effects of this seamless web of ongoing practice’. This thesis aims to explore workforce development and organisational learning by refraining from putting binaries around ‘macro’ and ‘micro’ (Latour, 2005) but instead addressing them as something more connected and fluid.

The New Zealand Context

This research is set within a New Zealand context where more than 83,000 people are living with dementia (Alzheimers New Zealand *et al.*, 2025), though recent analysis suggests this significantly underestimates true prevalence, with almost half (47.8%) of dementia cases remaining undiagnosed (Ma'u *et al.*, 2024). Dementia is one of the country's most significant public health priorities, with an estimated annual cost of \$3.62 billion (Ma'u, Cullum *et al.*, 2021). As dementia progresses, individuals often experience increasing comorbidities (Browne *et al.*, 2017) and a concomitant growing complexity of care needs. In New Zealand, 33,537 people live in residential aged care (Reid, Dixon and McDougall, 2024), with dementia-designated beds accounting for approximately 12.6% of all aged care beds (New Zealand Aged Care Association, 2022).

As with much of the developed world, efforts to improve dementia care in New Zealand are frequently directed towards enhancing the skills and training available to the dementia care workforce. Despite training efforts, challenges persist across the sector, and each is closely connected to the workforce conditions. Where staff do not have the opportunities to develop capabilities in communication skills, developing therapeutic relationships becomes difficult, with consequences for relational care. Where staff are not practised or prepared in de-escalation techniques, distress (which is common within locked environments) can escalate, contributing to higher incidences of distress, or so-called 'challenging behaviour' (Watson and Hatcher, 2021); and inappropriate approaches to that distress can, in turn, lead to the ongoing use of antipsychotic medications (Ma'u, Burton and Fussell, 2021). Where staff do not feel supported in their work, this can lead to workforce pressures (Aged Care Commissioner, 2024; Moore *et al.*, 2024). Having set out how these challenges are partially rooted in workforce challenges, this thesis asks whether there is a different, more effective way of tackling them.

Dementia practice does not occur in a vacuum; several contextual factors locate this work in residential aged care, including the regulatory, monitoring, and policy directives that influence workforce development. There are formal standards and requirements that services must meet to operate and provide

safe care: care that upholds human rights and meets basic physical needs. This includes expectations around documentation, quality, and risk management. The United Nations Optional Protocol to the Convention against Torture (OPCAT) provides a national inspection mechanism that examines the treatment and conditions of people in places where liberty is restricted and plays an important role here (Office of the Ombudsman, 2025). Policy refers to national strategies and plans that set system direction and workforce priorities, such as the Dementia Mate Wareware Action Plan (Alzheimers New Zealand *et al.*, 2025). Alongside these, the Pae Ora (Healthy Futures) Act 2022 (New Zealand Government, 2022) establishes broader system principles for a sustainable and capable workforce over time. This thesis does not explore how regulation directly influences organisational learning, although it is an important and compelling topic. Regulatory requirements rarely operate as separate forces; they become entangled with the everyday realities of work, including what staff are expected to record, how quality is evidenced, and what risks are prioritised, all factors which influence how people learn.

Read together, these policy and regulatory signals recognise persistent challenges and the need for workforce capability; however, the most actionable responses continue to default to training solutions, which risks delivering responses that stop short of addressing how these factors combine to shape care quality. Training delivers ‘knowledge’ to the person, but it does not address the realities in which that knowledge is enacted. Independent oversight in New Zealand has repeatedly identified ongoing care quality concerns in residential aged care, including within secure dementia units, despite existing training, auditing, and compliance arrangements (Office of the Ombudsman, 2025). At the same time, national strategy documents such as the refreshed Dementia Mate Wareware Action Plan 2026–2031 position workforce capability as a critical system enabler and call for a coordinated workforce plan (Alzheimers New Zealand *et al.*, 2025). While the action plan explicitly acknowledges that training alone is insufficient, many proposed workforce actions remain framed around access to information, training, and accredited learning pathways.

The framing of workforce development as ‘training’ treats capability as something that can be delivered to individuals, rather than as something that develops through everyday work. Such an approach risks oversimplifying how learning occurs in dementia care and rests on a humanist perspective that fails to take account of the agency present in ‘things’. This matters because dementia care is delivered in relational, dynamic, material-laden environments. In this thesis, I approach learning as something that is accomplished in practice, shaped not only by people and relationships but also by the material and digital arrangements of care. People and these arrangements continue to act on one another in performative ways: data is not inert, as people act on data, data too can act on people (Lupton, 2020).

The residential aged care workforce is required to function within conditions marked by rising care complexity, including higher levels of frailty, multimorbidity, and cognitive impairment, alongside workforce instability and increasing regulatory and quality scrutiny (Reid, Dixon and McDougall, 2024). These demands highlight that learning cannot be understood simply as a series of discrete training but should instead respond to the emergent and changing needs of the sector. Learning is shaped by the organisational environment in which it occurs, including the digital systems and data practices through which care is made accountable. In other words, these technologies do not simply ‘support’ practice; they help constitute what practice becomes in day-to-day care.

The Role of Technology in Organisational Learning

Digital technologies are reshaping how work is organised and how learning happens, altering the visibility and complexity of knowledge work (Dupret, 2018; Nerland and Hasu, 2021; Nerland, 2022). In aged care, this includes systems that structure and evidence work (for example, electronic care planning, incident reporting and audit systems, and communication platforms), and increasingly, tools associated with artificial intelligence that support documentation, decision-making, education, and administrative functions (Fink, Robinson and Ertl, 2024; Ning et al., 2025). These developments create opportunities to augment staff capability, but they also influence how organisations learn.

Technology within dementia care has proliferated across every aspect of the care role, incorporating not only business and support software and monitoring technology but also the rapid uptake of consumer applications (apps) (Mori et al., 2021). Workforce education accelerated further towards technology-mediated delivery during the pandemic, as remote and online approaches replaced many face-to-face programmes (Warmoth et al., 2022). As these technologies proliferate, an increasing volume of data is being generated, for example, daily progress notes, behaviour/distress records, falls and incident reports, medication records, observation and assessment data, call-bell and response-time logs, and (in some settings) sensor or monitoring data. This expanding 'data layer' offers new possibilities for tailoring learning and targeting practice development, including through personalisation and the use of business intelligence to identify patterns and priorities. However, using data and digital systems to support practice development and enable organisational learning is a complex picture; data can broaden what organisations can see and act on, while also introducing new pressures and new forms of accountability (Fenwick and Edwards, 2016).

Devices and software that support how people find, build, and share knowledge play a critical role in knowledge production (Knorr Cetina, 2010; Anthony, 2018). They are not limited to educational technologies like e-learning modules. They also include the digital systems that sit inside everyday work in aged care organisations (Gherardi and Rodeschini, 2016). When these systems become part of routine practice, learning changes shape; it is not simply something that happens in scheduled training, but reconceptualised as being distributed, ongoing, and interconnected with the material arrangements of care work itself (Dupret, 2018).

Addressing this interconnection also reveals potential tensions. Nerland and Hasu argued that, while there is much literature addressing work and learning for professionals, there is a need to understand different types of technologies and, importantly, their context, if we are to understand the challenges and opportunities for learning (2022). In a different paper, Nerland and Hasu highlight 'multi-charged' work settings and give examples from empirical studies

that show the critical work around the technology, and warn that the simple adoption of technologies often falls short because they fail to account for their complex interactions with existing practices (2021). Moreover, digital systems frequently introduce requirements for standardisation, which can generate tensions between organisational reporting demands and the relational, situated nature of care delivery. As an example, data-driven approaches can subsume more important relational factors (Hellstrand *et al.*, 2024). Where practitioners are required to document within predefined data parameters, opportunities for exploration and sense-making may be constrained (Lynch, 2017). In one multi-component service improvement aimed at reducing distressed behaviour, most elements succeeded, but the digital care plan and its recording process undermined the wider effort, the technology becoming the point at which it broke down (Akrou, Courret-Gilgen and Perrenoud, 2022). These tensions matter for the present study. If relational aspects of care are at risk of being subsumed by data-driven accounts (Hellstrand *et al.*, 2024), then the stakes are particularly high in dementia care, where the relational dimensions of care are critical not only to the quality of care but also to the quality of learning.

From practice to research: why this study?

I've worked as a dementia educator for the past twenty years. The experience left me with a stubborn question I could not let go of, and this doctorate is my attempt to address it seriously. In this research, I examine how learning is enacted in everyday dementia care work, particularly in moments of uncertainty and problem-solving.

I was responsible for scoping, implementing, and reviewing dementia care workforce programmes, but dementia training can be ineffective as there are multiple barriers (C. Surr *et al.*, 2020).

To support my work, I became interested in how to exploit digital interventions to improve the impact of training, for example, using SMS or app-based prompts to reinforce learning after sessions, embedding reflective questions into workflow tools, or timing digital nudges to reach staff while they were working. This led me to explore educational theories, reflecting on the more traditional approaches to dementia training, utilising a cognitive psychology approach,

learning as something transferred between people's minds (Sfard, 1998), something I had come across in my own basic teacher training (Gravells, 2011). However, this approach did not adequately explain how knowledge gained through training becomes actionable: how 'knowing' is translated into 'doing' in practice. Through my doctoral studies, I came across sociomaterial scholarship that spans multiple fields, including education, organisational studies, and science and technology studies, and offers a way of understanding how learning and practice are shaped through the interplay of people and the material–digital arrangements of work. I engaged most deeply with sociomaterial work in education and technology because it speaks directly to questions of professional learning in practice. This perspective challenges the dominant view about pedagogy (Martin-Garcia, 2020) that learning takes place in the classroom and is acquired through content, arguing instead that such learning is situated and mediated through complex arrangements.

Overview of Theoretical Approach

This study brings sociomaterial perspectives into a dialogue with foundational theories in dementia practice about person-centred care. Understanding where established dementia theory reaches its limits, particularly in explaining how learning and practice are accomplished through material conditions, creates the opening for sociomaterial thinking. The most influential theoretical contribution to dementia care practice came from Tom Kitwood, a social psychologist whose work in the 1990s fundamentally reframed how dementia care practice was understood. Kitwood (1997) made two foundational contributions: his enriched model (fig 1), which positions the person's experience of dementia as shaped through the interplay of neurological impairment, physical health, personality, life history, and the social environment. Kitwood's second foundational concept was the notion of personhood: 'a standing or status that is bestowed upon one human being, by others, in the context of relationship and social being', which foregrounded dementia care as relational rather than purely biomedical. Spector and Orrell (2010) extended Kitwood's enriched model to include the physical environment. These contributions are valuable because they foreground dementia care as relational and dynamic, shaped by multiple factors rather than single causes or simple solutions.

Kitwood's equation – the Enriched Model

- Kitwood's work led to his formulation of the experience of dementia having five key components:
 - **NI** represents the persons neurological impairment
 - **H** their physical health
 - **B** their biography
 - **P** the person's personality or resources for action
 - **SP** the social psychology that surrounds the person from day to day
- **D (dementia) = NI+H+B+P+SP**
- (Kitwood 1997)

Figure 1. Kitwood's Equation – Enriched Model.

However, while the Enriched Model (T. M. Kitwood, 1997) acknowledges that context matters, it offers less explanation of how practice is accomplished through the material conditions of care. Kitwood's personhood definition, though revolutionary at the time, places the entire burden on human care partners to bestow and maintain someone's personhood. Vetter *et al.* (2025) argued that personhood is instead co-constituted through ongoing relationships with human and non-human actors. Mentzou *et al.* (2025) agreed, suggesting that we are all defined by our relationships, not just with other people, but with the world around us, and call for a more posthuman lens to dementia. Lee and Bartlett's (2021) ethnographic study of object–person relations in care homes demonstrates this empirically, showing how everyday objects, such as a familiar cup or a hairbrush, actively participate in sustaining the personhood of people living with dementia, doing the relational work that human care partners alone cannot. Rhodus and Rowles (2023) advance similar arguments, proposing a Situational Model of Care (fig 2) that describes human–environment relationships as co-constitutive, revolving within a constantly changing and situated context.

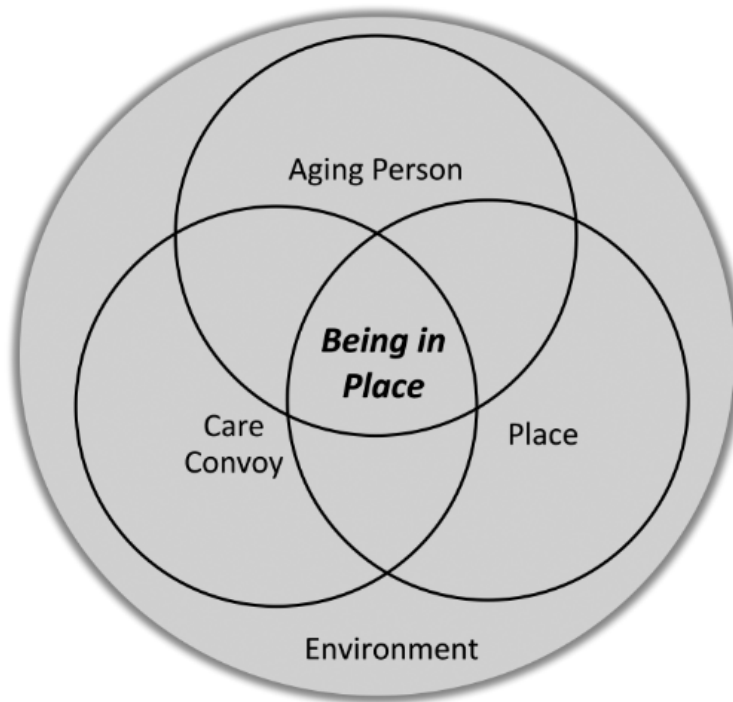


Figure 2. A Situational Model of Care. (Reprinted from Rhodus and Rowles, 2023).

These developments regarding the co-constitution of human–environment relationships within dementia scholarship create an opening for sociomaterial perspectives. Grounded in a relational ontology in which ‘social’ and ‘material’ elements are co-constitutive and intra-act, Barad (2007) challenged the idea that we know the world because we observe it and argued instead that we are part of it and inseparable from it. This is known as onto-epistemology: the study of practices of knowing and being. Sociomaterial approaches offer a way of understanding how person-centred care is enacted. Knorr Cetina’s (2001, 2010) concept of epistemic practice refers to collective ways of assessing, exploring, and critically examining knowledge claims in the flow of work (Nerland and Hasu, 2021).

Situated within a ‘machinery of knowledge construction’, epistemic practice understands knowledge as a frame of meaning through which people enact their lives (Knorr Cetina, 2001, 2007), giving it an inherently actionable quality that is embedded in what people do, the tools they use, and the activities they engage in (Eriksson and Lindberg, 2016). For example, when a care worker notices that a resident becomes distressed, the knowledge required to respond

does not come from training alone; it emerges through observation, trial and error, conversation with colleagues, and interaction with the care plan, the physical environment, and the resident themselves.

Despite its relevance, this approach to knowledge creation (informal learning) remains under-researched in dementia care practice (Surr, Smith and Latham, 2023). This represents a missed opportunity, because if we cannot understand how knowledge is actually produced and made actionable, interventions designed to improve practice will continue to focus narrowly on training, overlooking the material and relational conditions through which learning is enacted.

To adequately explore these conditions, this study leans into a sociomaterial sensibility. Originating within Science and Technology Studies (STS) through the work of Latour (1987, 2005b) and Law and Mol (1995), this sensibility is concerned with how practice is shaped through things and the entanglement of things. Including, importantly, both human and non-human actors, because as these assemble differently, different realities emerge (Mol, 2002).

Sociomateriality is not a single theory but a sensibility; this study draws selected resources from across it, taken up in organisational and professional learning contexts by scholars including Orlikowski (2007, 2011, 2015), Fenwick (2010, 2014, 2016) and Nerland (2012, 2018, 2021).

Research Design Overview

This study uses a post-qualitative research design to examine everyday work practices within residential aged care. Rather than treating data as something collected and then interpreted through theory, a post-qualitative approach (St. Pierre, 2018, 2021) recognises that data and theory are interconnected. In this study, data were generated over eight months with two aged care providers across four sites, through document analysis, interviews with staff, registered nurses, regional staff, and senior quality staff, alongside observations of practice.

The observational component focused on a series of learning practices in which everyday care work and digitally mediated activity could be examined at a fine-

grained level. This design fits the theoretical framing by enabling close attention to learning as it is enacted in practice and to the digitally mediated conditions through which knowledge becomes visible and actionable.

Research question

This study challenges conventional approaches to learning and development in dementia care. Utilising the concept of epistemic practice (Knorr Cetina, 2007) through a sociomaterial lens, which directs attention to how learning is enacted through a co-constitutive relationship of digitally mediated actors. This approach is particularly relevant in contemporary aged care, where emergent learning and non-human factors can influence how persistent challenges are recognised and responded to.

This thesis seeks to ask this question:

In what ways can digitally mediated epistemic practices enable organisational learning in residential dementia care services?

Structure of Thesis

Chapter 2 reviews the literature relevant to understanding how learning is generated and sustained in dementia care organisations, and the role technology plays in mediating this process. It brings together four linked areas: (1) dementia education and workforce development; (2) blended and practice-based learning in care work; (3) data practices and digital documentation systems where quality and education intersect; and (4) organisational learning in care settings, including how learning increasingly occurs through digital infrastructures that cross organisational and professional boundaries. Together, these studies establish that training alone cannot account for how practice changes and highlight a key gap addressed by this thesis.

Chapter 3 outlines the methodological approach and explains how sociomaterial perspectives and the concept of epistemic practice were operationalised in the research design. It describes the post-qualitative sensibility of the study and how interviews and observations were used to trace how knowledge is produced. The chapter also addresses the practical and

ethical considerations of doing research in dementia care settings and the analytic strategies used to follow how learning is enacted in moments of uncertainty and problem-solving.

Chapter 4 presents the first of the two findings chapters, an empirical analysis, by zooming in on learning practices observed across the fieldwork, some in situ and some digitally mediated, to show how problems emerge and how attention is steered. Chapter 4 highlights that learning is often enacted through situated interaction and environmental cues, while digital mediators (for example, care plans and dashboards) can both enable learning and constrain it. This chapter shows, through a sociomaterial analysis, how practical problem-solving is approached and, in doing so, highlights the role of different actors in problematisation.

Chapter 5 shifts from moments to movement: it examines how learning travels (or stalls) across the organisation through ‘boundary objects’. Focusing on the Power BI dashboard and the digital care plan, the chapter explores how these systems coordinate work across professional groups, while also shaping what counts as legitimate knowledge. It shows how the same artefacts can function as prompts for inquiry (opening learning up) or as fixed reporting devices (closing learning down), depending on how they are enacted in practice, often through the bricolage work staff do around them (sketching notes, mapping out locations). This chapter, therefore, develops the key argument of the thesis about digitally mediated organisational learning: it operates through an assemblage. It highlights that the technology matters, but so do the surrounding interpretive practices and the local conditions of use.

Chapter 6 draws together the empirical and theoretical threads of the study to address the question: So what? It brings the findings from Chapters 4 and 5 into a dialogue with the wider literature and theoretical resources to examine what digitally mediated epistemic practices reveal about organisational learning in dementia care. The chapter explores what these findings mean not only for how digital systems are designed and used, but for the broader conditions that support or constrain learning in this setting. It also explores what opportunities exist to improve dementia care through digitally mediated work–learning

practices while acknowledging that these opportunities extend beyond technology to encompass organisational digitally informed practice leadership and the intentional shaping of ‘epistemic architectures.’

Chapter 7 concludes by drawing together the contributions and implications of the thesis. It shows what a sociomaterial, epistemic-practice lens makes visible about organisational learning in dementia care: not as a deficit of training, but as a question about how learning is materially supported. The chapter outlines implications for practice (how organisations can better resource and legitimise situated knowledge work, including reflective and relational learning), for technology (how digital systems might be configured to capture richer practice-based insight and support learning in the flow of work), and for policy (how regulatory and funding settings might recognise learning enacted through practice, not just formal training). The chapter closes with directions for future research.

Ultimately, this thesis argues that improving dementia care requires attention not only to what staff are taught, but to the material and digital conditions through which they learn in everyday work. In doing so, it offers a framework for rethinking how organisations, policymakers, and technology designers can better support the knowledge practices that underpin quality care.

Chapter 2. Literature Review

The human body has its limits. When it comes to nails, the hands are not good enough; we need a hammer. With a hammer in our hand, we can extend our human body, and importantly, the range of actions the body is capable of. The development of the human body to act (to do things) is directly linked to the development of our tools. However, as our tools dramatically extend our domain of action, they do not leave us unchanged (Introna, 2007, p. 129)

Introduction

In this chapter, I review the research literature in relation to my overarching question:

In what ways can digitally mediated epistemic practices enable organisational learning in residential dementia care services?

I am interested in how digitally mediated practice influences learning. To explore this overarching question, I approached it through three component questions:

- How do people learn in and through work?
- In what ways do data practices (im)mobilise learning in dementia care organisations?
- What opportunities are there for technology and digitally mediated work–learning practices to improve dementia care?

This chapter reviews literature relevant to these questions. The review developed iteratively over the course of the research, beginning as an examination of blended learning, data practices, and organisational learning, and expanding as the fieldwork illuminated the questions that mattered most. What emerged from this was a four-part architecture that reflects both the complexity of the field and the specific gap this thesis addresses.

The literature drawn on here came from several sources. As a practitioner working in dementia workforce development for over twenty years, I brought an extensive personal store of books and empirical studies to the review; developing evidence-based education over that time required me to draw on a wide range of material, much of which proved relevant here. Alongside this, I searched a number of databases, including Cochrane, Scopus, CINAHL, PsycINFO, and Medline, and followed citation trails from key texts to locate further sources. Search terms were combined across three areas: the care setting and condition ('dementia', 'mate wareware' [the te reo Māori term for dementia], 'residential aged care', 'healthcare practitioner', 'nurse'); learning and workforce development ('workplace learning', 'professional development', 'organisational learning', 'learning organisation'); and data, technology, and sociomaterial perspectives ('sociomaterial', 'data practices', 'data analytics', 'data quality', 'digitally mediated', 'digital tools', 'technology-enabled learning'). This was a purposive and iterative process rather than a systematic review: terms were searched, combined, and refined as the conceptual focus of the study developed, and material was selected for its relevance to the research questions and its conceptual contribution.

The chapter begins with dementia education and workforce development, not because this thesis is a study of dementia training, but because dementia education is where the sector has concentrated its investment in workforce development, and therefore, where the evidence of both achievement and limitation is most developed. Examining what training can and cannot accomplish is the necessary starting point for this research, as it most directly establishes why a different lens is needed. The evidence reviewed in this section shows consistently that training, even when well designed and well resourced, often fails to produce durable change in care practice.

The second section moves from formal education towards learning as it happens in the flow of work. It examines blended and practice-based approaches to learning in deskless care settings, asking what it means for practitioners who rarely sit at desks or attend scheduled programmes to develop knowledge and capability in the course of their work. The focus is on

the learning encounter itself: how practitioners make sense of situations, and how digital tools and material arrangements support or constrain that process.

The third section examines data practices and digital documentation systems, focusing specifically on the intersection of quality assurance and workforce development. Digital care planning, incident reporting, and performance dashboards generate substantial volumes of data in residential aged care settings, yet the relationship between that data and organisational learning is poorly understood.

The fourth section turns to organisational learning. Where Section 2 centred on the individual practitioner and the conditions of their work, Section 4 asks what happens when the question is widened to the organisation and argues that the inherited frameworks (the learning organisation, knowledge management, and knowledge transfer) cannot account for the relational, contextual knowledge that dementia care depends on. It builds towards a different view: that practice is not separate from organisational learning but constitutive of it, performed in the recursiveness of practice.

These four domains are not independent bodies of literature. They are brought together here because they all bear on the same underlying question: How does learning actually happen in dementia care organisations, and what conditions make it possible? Each section builds towards addressing a gap that the existing literature has not adequately addressed. Grey literature, including policy documents, monitoring reports, and workforce frameworks, is drawn on where it illuminates the conditions in which this research is situated.

Dementia Education

Dementia care is one of the most demanding roles in the aged care workforce. It requires a working knowledge and synthesis across multiple domains: neurology, pharmacology, mental health, frailty, palliative care, communication, cultural competence, and person-centred practice applied in real time to people whose needs are complex and frequently changing. The progressive nature of dementia means that as the condition advances, co-morbidities accumulate, behavioural expressions of distress intensify, and cognitive and emotional

demands on care staff increase accordingly. Dementia care is, at its core, relational work: the quality of connection between a practitioner and a person living with dementia requires strong interpersonal skills. In Aotearoa New Zealand, the workforce spans a broad range of roles, from geriatricians and nurse specialists to home-based support workers and whānau caregivers, with over twenty distinct job titles in the direct care workforce alone (Dementia Mate Wareware Leadership Advisory Group, 2024). People living with dementia engage with this workforce across multiple disciplines, settings, and providers throughout the care continuum, and at each touchpoint, that workforce needs to be dementia capable. This is what makes workforce development such a persistent policy preoccupation and, as the evidence reviewed here shows, such a difficult problem to address with current interventions.

The dominant policy response internationally has been to develop national dementia knowledge frameworks that define what staff at different levels and in different roles are expected to know about dementia and dementia care practice. The United Kingdom has produced frameworks in England, Scotland, and Wales, with a significant update this year (Care Council for Wales, 2016; Health Education England, 2018; NHS Education for Scotland and Scottish Government, 2021; NHS England et al., 2026), and Australia has developed its own national training framework (Dementia Training Australia, 2024). The intent behind these frameworks is reasonable: to establish a minimum standard of knowledge across a large, diverse, and often under-resourced workforce, and to give employers a basis for scoping education provision. Applied well, they can orient workforce development towards what matters. Applied rigidly, as is often the case in resource-pressured services, they risk producing compliance-driven training that meets regulatory requirements without attending to emergent learning. The question they leave unanswered is not what people should know, but how that knowledge becomes practice.

In Aotearoa New Zealand, there are no such knowledge frameworks; instead, this tension is written into the regulatory architecture of aged residential care. The Aged Residential Care services agreement obligates providers to implement education strategies for their workforce, and staff working in

registered dementia units are required to hold a recognised four-unit standard qualification (Te Whatu Ora – Health New Zealand, 2022). For staff in non-registered settings where many people living with dementia also reside, requirements are considerably more ambiguous, specifying only that staff have an ‘understanding’ of dementia. The refreshed Action Plan 2026–2031 acknowledges explicitly that training alone is insufficient, yet its most concrete workforce actions remain organised around access to information, training programmes, and accredited learning pathways (Mate Wareware Advisory Group *et al.*, 2020).

Meanwhile, quality concerns in New Zealand’s residential aged care sector continue to be documented across multiple independent oversight mechanisms. The picture that emerges is not one of neglect but of a system under strain that lacks the conditions to sustain the kind of relational, responsive care that dementia requires. Independent monitoring through the OPCAT mechanism (a national inspection framework applied to places where people’s liberty is restricted, including secure dementia units) has identified ongoing concerns about safety, dignity, and everyday care practice in residential aged care settings, despite these training and compliance arrangements being in place (Office of the Ombudsman, 2025). Analysis of complaints to the Health and Disability Commissioner about residential aged care organisations identified failure to recognise and respond to clinical deterioration, including in dementia care contexts, as a primary complaint theme, with rapid decline contributing to 58% of cases examined (Mowat, Dewar and Ram, 2023). Inappropriate antipsychotic and sedative medication use in long-term care facilities providing dementia care remains a documented concern in New Zealand (Ma’u, Burton *et al.*, 2021), despite sustained attention and ongoing clinical guidance. The Aged Care Commissioner’s 2024 report identified systemic quality and access gaps across the continuum of care for older people, making twenty recommendations for improvement and calling explicitly for better workforce data (Aged Care Commissioner, 2024).

These concerns are not unique to New Zealand. Across health and social care systems internationally, studies have examined whether dementia education

and training produce meaningful change in practice. That evidence has accumulated over the past two decades, and the findings are consistent enough to demand a different kind of attention. Professional development in residential aged care is critical, but increasingly, researchers are questioning its efficacy (Aleo *et al.*, 2024). In terms of dementia education specifically, Surr *et al.*'s (2017) systematic review found that most training is brief, lecture-based, and non-interactive, producing only short-term gains in staff knowledge, with little measurable impact on staff behaviour or resident outcomes. Parveen *et al.* (2021) confirmed this pattern, finding limited impact on staff learning outcomes. Several major randomised controlled trials have tested training programmes and found no significant effect on outcomes that matter: Beer *et al.* (2011) found no improvement in residents' quality of life following staff education. A Cochrane systematic review (Geoffrion *et al.*, 2020) reached a similar conclusion, finding that training to prevent workplace aggression towards staff was not effective in reducing the number of incidents. Livingston *et al.*'s (2019) trial found that a well-designed, interactive staff training programme produced no significant reduction in agitation or improvement in quality of life, and suggested that other studies showing multi-component interventions had been more effective. Ballard *et al.* (2018) demonstrated this clearly: a nine-month programme combining person-centred care training alongside the dementia champion model and a new assessment form reduced agitation and neuropsychiatric symptoms and generated cost savings of approximately £4,740 per person. Taken together, these findings suggest that the return on investment lies not in treating training as a discrete event, but in how there were material changes to everyday practice.

This pattern is also evident in more recent studies. Giebel *et al.* (2025) show that training improves knowledge and confidence but has limited sustained impact or measurable benefit for people living with dementia. A systematic review (Zabihi *et al.*, 2025) found that where training had a sustained impact, it was through Train-the-Trainer models that embedded reflective learning within teams. Spilsbury *et al.* (2024) found that neither staffing levels nor training alone improved quality; instead, what mattered were staffing stability, relational continuity, a shared philosophy of care, and leadership that modelled practice in

context. This does not render training irrelevant but suggests that the conditions in which staff work and learn may be more consequential than the training content itself.

Person-centred care is widely recognised as the gold standard for dementia practice, with training frequently positioned as the primary mechanism for achieving it. Yet Serbser-Koal *et al.*'s (2024) integrative review of theoretical approaches to person-centred dementia care reveals something training cannot easily address: person-centredness operates simultaneously across relational, organisational, and practice levels: what they describe as microlevel interaction, macrolevel organisational culture, and application-level embedded practice. The authors note that while some approaches engage with all three levels theoretically, sociality and organisational context disappear almost entirely at the level of application, where person-centred care is consistently reduced to individual competencies and discrete interventions. Identifying this gap between theory and practice as a structural problem, not a training problem, resonates with Carparelli *et al.*'s (2024) finding that person-centred training produces at best moderate effects on knowledge, negligible effects on practice change, and, in some studies, a negative effect on staff attitudes. The limiting factor is not what staff know about person-centred care; it is whether the conditions of practice support them to enact it. The review's clinical implications are direct: education alone is unlikely to be sufficient for establishing high standards of person-centred care; it needs to be supplemented by organisational support to ensure staff have the motivation, cues, and opportunities to act on what they know.

The structural realities of residential aged care in Aotearoa New Zealand make it exceptionally difficult to release staff for training. In a sector that reports 83% of services not fully staffed (Reid, Dixon and McDougall, 2024), and where staff are working under significant time and resource pressure, the conditions required for conventional training delivery are rarely present. Newbould *et al.*'s (2022) review of reviews confirms this pattern internationally: opportunities for releasing staff for prolonged training are challenging to adopt in tightly rostered, under-resourced settings, and care workers are often unwilling to attend training

if they feel it compromises care delivery. However, the same review found that effective learning was characterised not by more or better training delivered outside of practice, but by in-practice learning blended with supervision, shared reflection, and organisational cultures that support knowledge exchange.

This points towards a more fundamental question. The dominant model of workforce development assumes that learning happens outside of practice and is subsequently transferred into it. However, the evidence reviewed here consistently suggests that this transfer model inadequately describes how knowledge actually develops in complex, relational care work. A growing body of scholarship in workplace and professional learning challenges this assumption directly (Fenwick, 2010; Fenwick and Edwards, 2011; Hopwood, 2016). Rather than treating learning as something acquired in one context and applied in another, this perspective understands knowing and doing as inseparable: produced together in the moment of practice (Reich and Hager, 2014) and shaped by the people, tools, relationships, and environments through which care is enacted.

Dementia champion programmes, which identify and support designated staff to lead practice change within teams, have emerged as an alternative or complement to centralised training. Brown *et al.* (2018) established the rationale for the champion model: that change is more likely to happen when there are knowledgeable, motivated, and supported individuals within care environments who can model good practice. Leverton *et al.* (2026), applying a theory of change approach to examine how dementia champions operate across health and social care settings, found champions function as connectors, interpreters, and relational brokers between formal knowledge and local practice. This is a meaningful development, but it still locates change in specific individuals rather than understanding how this intersects with the complex organisational arrangements.

The intellectual disability field, where parallel challenges revealed persistent gaps between training and practice, high workforce turnover, and complex relational demands, generated a different response. Drawing on the work of Mansell and Beadle-Brown (2012), Beadle-Brown *et al.* (2015), and Bigby and

Humphreys (2024), practice leadership is defined as the frontline manager focusing, in all aspects of their role, on the quality of life of people supported and providing coaching and supervision to the staff team. In this definition, practice leadership is operationalised across five domains: focusing staff attention on service users' quality of life; allocating and organising staff to deliver support when and how it is needed; coaching staff through feedback and modelling good practice; reviewing individual staff practice through regular supervision; and facilitating team meetings to share learning and ensure consistency. Beadle-Brown *et al.* (2015, 2018) demonstrated empirically that practice leadership was associated with the quality of staff practice and outcomes for service users.

Practice leadership represents a genuine advance on both training-centred models and the dementia champion approach, because it moves the locus of change from a designated individual to the conditions of everyday work, and crucially, how this influences the quality of life for the people they support. However, as theorised in the intellectual disability literature (Beadle-Brown *et al.*, 2015; Bigby and Humphreys, 2024; Bould *et al.*, 2018), practice leadership remains largely within an individual-cognitive frame: the manager as a knowing subject who observes, judges, and corrects staff practice. In this sense, practice leadership and the champion model share a deeper assumption that change flows from a knowledgeable human actor to others. What neither model asks is what the material and organisational arrangements of care make visible and possible in the first place.

This limitation is not merely theoretical. Bigby and Humphreys (2024), tracking practice leadership across 96 services over a decade, found that performance declined significantly between 2018 and 2022, with frontline managers identifying increasing administrative and documentation demands as the primary cause. One manager described their role as having become 90% administration, sitting at a computer doing paperwork; another reported having no time for observation of staff. Notably, in the organisations where practice leadership remained strong, it was protected not by the quality of individual managers but by organisational structures that explicitly allocated time and

resources for practice-focused work. Read sociomaterially, the finding is not that managers failed but that the digital and administrative infrastructure of accountability crowded out the conditions in which practice leadership could be enacted.

Trigg's (2018) comparative study of regulatory approaches in England and Australia points in the same direction from the regulatory side: it is intrinsic motivation, not regulatory pressure, that predicts care quality. While Trigg locates this motivation within the provider, a sociomaterial reading would understand it as a property of the assemblage produced through the conditions of practice rather than an individual attribute. Taken together, these findings could suggest that quality and learning depend not on the capability or motivation of the individual leader but on whether the conditions of practice are configured to make leadership possible at all.

Adjacent evidence from dementia care settings points in this direction. Backman *et al.* (2021), in a cross-sectional study of nursing home managers, found that leadership characterised by coaching and giving feedback was significantly associated with both better person-centred care and reduced moral distress, suggesting that practice-focused leadership shapes not only what staff do but what they can know and feel in their work. Furthermore, Latham, Brooker and de Vries (2024) found that care workers learn primarily through experimentation, observation and adjustment, summed up as 'what works is what matters'. Similarly, Moeller (2025) found that care workers learn from uncertainty, often triggered by 'noise' and emotional turmoil. She identified aesthetic experience as both a trigger for this learning and an important component of reflection in problem-solving.

While informal approaches to learning remain under-researched in the dementia field (Surr, Smith and Latham, 2023), the field has yet to examine how those approaches are shaped by the digital environments in which care is now organised. As AI enters care settings, it is likely to reshape how practitioners learn, reducing the cognitive effort individuals invest in reasoning and judgement (Loble, 2026) and, over time, potentially eroding the collective stock of practical knowledge on which workforce capability depends (Acemoglu, Kong

and Ozdaglar, 2026). Practice leadership research has not examined how these digital conditions shape what frontline managers can attend to. The dementia education literature has not examined how they shape what staff learn and what knowing looks like in the flow of work. This thesis takes that examination seriously, asking how the digital systems already present in dementia care organisations are shaping the epistemic conditions in which practice-based learning is enacted.

Underlying these challenges is a more fundamental shift in the conditions of professional learning itself. Markauskaite and Goodyear (2016) argued that the rapidly widening use of information technology in contemporary work has made visible the fact that knowledge is produced in a multitude of places and flows rapidly across organisational and professional boundaries. Drawing on Nerland and Jensen (2014), they note that the knowledge worlds in which professional learning is embedded are becoming more extensive and complex, and that we can no longer take for granted that practitioners' engagement with knowledge is bounded to given sites. This has significant implications for how learning in care settings is understood.

Taken together, the literature reviewed here challenges a deeply embedded assumption in dementia care workforce development: that improving practice is primarily a matter of improving training. Across policy, research, and practice, a consistent pattern emerges. Training increases knowledge and (sometimes) confidence (Rivett, Hammond and West, 2019), yet rarely produces sustained change in practice or outcomes for people living with dementia. Where change does occur, it is not the result of training alone, but of approaches that embed learning within the conditions of everyday work through supervision, reflection, and organisational support. This suggests that the persistent gap between what staff are taught and what is enacted in practice reflects a misrecognition of how learning occurs in complex, relational care work.

The persistence of this pattern carries a practical cost that extends beyond the question of effectiveness. Each time quality failures in dementia care are met with calls for more training, more compliance monitoring, and more auditing, attention and resources are disproportionately directed toward these responses.

While such approaches can drive important forms of accountability and material change, they also tend to privilege what is visible and measurable, often at the expense of the organisational and relational conditions through which learning is enacted and practice is sustained. It is a story of a system that continues to invest in the wrong place. The right place—the relational and organisational infrastructure through which knowledge becomes actionable—remains largely ignored. It is ignored not because it is unimportant, but because it is complex; it is harder to see, harder to measure, and harder to act on than a training completion rate or an audit score.

The digital systems and data practices through which dementia care is now organised have not been examined as conditions of practice-based learning, despite the centrality of both to contemporary care. This thesis takes that question up.

Blended Learning

Blended learning, traditionally understood as a mix of media and instructional methods (Hrastinski, 2019), is evolving. This concept now encompasses a diverse array of technologies, instructional methods, and pedagogical approaches, reflecting the dynamic nature of educational and workplace learning. However, new digitally mediated ways of learning are forcing us to re-examine long-standing views of education (Martin-Garcia, 2020). Facilitated web-based learning and increased digital video consultations post-pandemic have changed our learning environments (Warmoth *et al.*, 2022), and the rapid development of generative AI is offering different ways to engage with learning. AI-based tools, including avatars, conversational agents, and adaptive learning systems, are not simply new delivery mechanisms; they are changing the nature of the learning encounter itself, raising questions about what learning is for and whether AI is integrated in ways that expand dialogue and collective inquiry or in ways that displace it (Fink *et al.*, 2024; Wegerif and Casebourne, 2025). If digital technologies now permeate every aspect of care work, then e-learning can no longer be understood simply as purposefully designed training delivered through a screen. Dementia ‘education’ is widely delivered through digital means. Scerbe *et al.* (2019) undertook a systematic review of digital tools

for the delivery of 'education', showing positive results; however, its outcomes rest largely on knowledge gain and self-reported efficacy.

I am interested in how technologies are shaping learning, and while there is a considerable amount of literature on dementia 'education' technologies, I would argue that technologies most significantly shaping how practitioners learn were not designed for learning at all. They were designed for efficiency, quality, and accountability, yet they profoundly shape what practitioners come to know. This has quite significant implications for how we understand workforce development in dementia care and perhaps suggests that the term 'e-learning' has taken on a new meaning altogether. The most significant development in this trajectory is perhaps the shift towards technologies that attempt to simulate or embed learning within practice contexts, recognising that what practitioners learn cannot be separated from where and how they encounter it. Virtual reality represents the most developed example of this approach in dementia care education, with recent work demonstrating its capacity to simulate the relational and communicative conditions of care practice itself (Lin *et al.*, 2025).

Simulation, however sophisticated, can only gesture towards the complexity of what occurs in the moment of care. This is not simply a matter of making the simulation more realistic or technically accurate. Fenwick and Dahlgren (2015) argued that there is a more fundamental limitation: the emergent, relational aspects of care cannot be predetermined or scripted into a scenario because they arise through the particular combination of things, at a given moment.

As a seasoned dementia trainer, I often ask care workers to stand for a moment in their place of work, close their eyes, and focus on what they can smell, hear and feel. The aesthetic sense of learning is important, possibly even powerful, as sensory experiences can trigger curiosity (Moeller, 2025). A care worker cannot separate their own experience and professional history from that of the person in front of them, nor from the physical environment in which care is taking place, nor from the psychological and cultural dimensions that shape how both parties understand what is happening in any given moment. The feeling in the room, the carer's own fatigue, the resident's life history—these do not arrive as separate inputs to be processed sequentially; they intersect, simultaneously,

in the moment of care. This is what is also partially captured in a 'bio-psycho-social' understanding of dementia care (T. M. Kitwood, 1997; Spector and Orrell, 2010). What a practitioner comes to know in that moment is not retrievable from any single source; it is produced through the intra-action of all of them. This is precisely what makes dementia care knowledge so difficult to simulate and transfer through conventional training. It also points towards why the question of how learning is enacted in practice rather than delivered to practitioners matters so much, and why the digital systems now woven into everyday care work are not merely tools sitting alongside practice but active participants in shaping what practitioners come to know.

Virtual reality (VR) simulation has attracted growing interest in dementia care education precisely because it addresses something conventional training cannot. It places the learner inside the experience of living with dementia rather than simply describing it. The rationale draws on the experiential learning theory that learning is deepened when it is embodied, situated, and emotionally engaged. In dementia care, this has a specific application: developing empathy and perspective-taking as professional capacities, not merely affective responses. Hirt and Beer's (2020) scoping review found that VR simulation produced positive effects on dementia knowledge, attitudes, and empathy among staff. Jones, Jones and Moro (2021) confirmed this pattern, finding improvements in dementia knowledge and attitudes across multiple study designs. Wijma *et al.* (2018) demonstrated that a VR intervention designed to simulate sensory and cognitive changes associated with dementia improved empathy and understanding among informal caregivers, with effects sustained at follow-up. Lin *et al.* (2025) showed that VR-based simulated communication training improved the quality of staff interactions with people living with dementia. Sung *et al.* (2022), in a cluster randomised controlled trial of VR-based training combined with peer support for home care workers, found significant improvements in dementia knowledge and care confidence, with the peer support component amplifying and sustaining effects, a finding that echoes the broader evidence that learning holds when it is socially embedded rather than individually experienced. VR works by building perspective-taking, and perspective-taking matters because carers themselves treat the ability to

understand the resident's experience as a sign that they are caring well (Coates and Fossey, 2019).

The limitations of VR as a workforce development strategy are, however, significant and in practice more varied than the published literature tends to capture. Equipment costs and software licensing represent a substantial upfront investment, and the technical infrastructure required to deliver immersive experiences reliably across multiple sites adds further burden. Not all learners can use VR comfortably: motion sickness and headaches are documented side effects, something I have experienced personally. The physical demands of transporting equipment between facilities make consistent delivery across dispersed care settings logistically challenging. Like other forms of off-floor training, VR requires staff to be released from care delivery: a condition the evidence reviewed earlier identifies as consistently difficult to achieve in tightly rostered, under-resourced services. Its reach is, therefore, likely to remain bounded: concentrated in better-resourced organisations or used as a periodic sensitisation experience rather than an ongoing feature of workforce development. These are not merely theoretical constraints. They are the practical realities encountered by those who deliver VR-based dementia education in the field.

What the VR training research consistently demonstrates, however, is conceptually important for the argument developed in this thesis. Across these studies, the intervention that produces the most robust and sustained effects is not knowledge transfer but the development of empathic understanding: the capacity to perceive, even briefly, what it feels like to live with dementia. That empathy improves through structured experiential learning rather than through instruction alone suggests it is not a fixed personality trait or stable affective disposition, but something shaped by the conditions of learning (Foster and Yaseen, 2019) and therefore available to development, refinement, and support. However, the VR literature treats empathy solely as an outcome: something practitioners need in order to care well without asking what role it plays in how practitioners learn. Jaber (2021) shows within an education context that the capacity to tune into another's intellectual and emotional experience is

not only a precondition for responsive practice but an epistemic resource through which practitioners generate knowledge.

What this distinction makes possible and what the VR literature, focused as it is on designed interventions, cannot examine is a more fundamental question about the conditions in which emotional attunement develops and is sustained in everyday care work. Gherardi and Rodeschini (2016) argued that care is not an innate human capacity but an organisational competence, a situated knowing that emerges through the sociomaterial relationships of a professional community through people, tools, technologies, bodies, routines, and the ongoing texture of connection between them. The emotional attunement of a care environment is, therefore, not the aggregate of individual staff feelings. Drawing on Reckwitz (2002, cited in Wilkinson, 2021), it is a practice-specific emotionality: a property of the assemblage itself, shaped by what the practice makes visible, what it rewards, and what it demands. When the technological infrastructure of care changes, something more than workflow changes with it: the conditions in which caring as a collective competence can emerge are altered, and with them what practitioners can attend to. The moral distress visible in dementia care workers, the grief of not being able to give the care they know is needed (moral distress), is not an individual failure of resilience. It is evidence of structural misalignment between the caring competence practitioners have collectively developed and the conditions that contemporary accountability and documentation infrastructure make possible. Emotions are not only sites of social control but potential sites of critical inquiry (Boler 1999, cited in Wilkinson, 2021); therefore, material arrangements which enact such forms of professional knowledge are pertinent.

Many of the conditions for rich learning are already present in care work. Learning in that context is not confined to designed interventions; Brandi and Iannone (2015) argued that this kind of informal, participatory learning, long impossible to capture and therefore easy to overlook, is precisely what new learning technologies can now record and reveal, casting digital tools as a means of finally leveraging the learning that formal systems missed. Evidence suggests that features which prompt reflective practice and support the

development of empathy may significantly enhance both capability and care quality (Karimi et al., 2014; Foster and Yaseen, 2019) pointing towards what might be possible if the design of digital systems could cultivate empathy as a learning resource rather than inadvertently eroding it. This points to a different possibility. Where VR works by taking the learner out of the shift and into a simulated experience before returning them to practice, the more interesting question is whether digital systems might cultivate empathy and reflective capacity within the flow of work itself, not as a designed intervention the worker steps into, but through the everyday systems that are already present in every shift. This is a possibility the blended learning literature has barely begun to consider.

Muirhead *et al.*'s (2022) systematic review of technology-enabled dementia learning is instructive here: it found generally positive outcomes for technology-enabled education, but was explicitly limited in scope to technologies traditionally understood as learning tools and did not examine systems such as digital care plans, despite their central role in structuring how practitioners encounter, document, and make sense of care. This boundary in the literature matters. Mobile tools have shown promise in moving learning closer to practice: Su *et al.* (2021) demonstrated that mobile e-learning combined with mentoring support improved dementia care knowledge, attitudes, and competence.

Dementia care is a predominantly deskless working environment: practitioners move between relational moments, and the knowing that matters most happens in those situated encounters in space. Hopwood (2016, p.168) treats spaces as 'not used or occupied, but produced, appropriated, created, imbued with significance and meaning through practices and materiality,' and those practices and material arrangements produce spaces which, in turn, shape and even prefigure the very practices that brought them into being. In dementia care, the corridor, the resident's bedroom, and the shared lounge are not just places; they are charged with relational significance, constituted through the practitioner's presence and attention within them. When technologies pull practitioners away from that immersed engagement, requiring them to step out of the flow of care to document or retrieve information on a screen, something

more than time is lost. The practitioner moves from a mode of knowing that is relational, embodied, and attuned to the person in front of them towards a more detached encounter with a representation of care.

Some technologies pull practitioners away from the care encounter, requiring them to step out of the moment to document information on a screen. Others stay in the moment of care but begin to do their thinking for them. These are different problems, but they share the same consequence: both reshape what practitioners notice and attend to. PainChek, for example, is an AI-enabled pain assessment tool that uses automated facial recognition to detect pain expressions in people living with dementia who cannot self-report (Atee, Hoti and Hughes, 2018). It was designed to improve the accuracy and consistency of pain assessment: a care quality goal. However, when a care worker uses PainChek, the system is reading the face, so the practitioner does not have to develop that perceptual capacity themselves. As AI systems become more sophisticated, the reasoning behind their outputs becomes less legible: practitioners receive a score or a category rather than a window into how the system interpreted what it saw. The progressive transfer of reasoning and judgement to systems rather than people—what Loble (2026) calls cognitive offloading—is a significant consideration when re-imagining how to optimise learning while working.

Digital technologies are now inseparable from the conditions of dementia care work, and, therefore, inseparable from the conditions in which learning and caring as a collective competence occur (Gherardi and Rodeschini, 2016). They are not simply tools that practitioners pick up and put down: they are increasingly agentic participants in shaping what practitioners can notice, feel, and know. When AI systems take over perceptual and reasoning tasks, the risk is not only that individual capability is diminished: it is that the collective conditions in which emotional attunement and relational knowing are assembled are unintentionally eroded. However, the literature reviewed here has not examined these dynamics, leaving open a question this thesis takes seriously: whether the digital systems already present in dementia care organisations

might be understood differently not only as sources of risk to relational knowing, but as potential sites for supporting and amplifying it.

The blended learning literature has made an important advance in recognising that context matters and that the most effective interventions are those closest to the site of practice. However even these remain largely purposefully designed educational interventions, costly, logistically demanding, and bounded in reach. What the evidence reviewed in this section has shown is that designed interventions, including VR, can deliberately activate the conditions in which relational knowing develops, creating structured encounters that prompt practitioners to read the person rather than the task. What the literature has not yet examined is whether the everyday technologies already present in care settings support or erode those same conditions, not by design but by default.

Working with Data

Data has become an increasingly central feature of residential aged care, shaping how organisations plan, coordinate, evidence, and improve the care they provide. While data may possess panoramic, revealing, and almost prophetic qualities (Beer, 2019), it is not without ethical challenges (Prinsloo and Slade, 2016, 2018). An escalating reliance on data requires a cautious approach due to concerns related to surveillance (Matzner, 2016) and personal autonomy, with data being repurposed and used as the basis on which decisions are made to deny people resources, often impacting human rights (Klein and D'Ignazio, 2020; Lupton, 2020). The scale of data generated is substantial: progress notes, incident reports, medication records, assessments, audits, and monitoring data together form an expanding layer that mediates care work. The process by which social action is converted into quantifiable form is called datafication (Mayer-Schonberger and Cukier, 2013), the transformation of practice into data analytics that has become the dominant paradigm for understanding and governing organisations (van Dijck, 2014). What this transformation does runs deeper than its operational uses suggest. As Adams and Thompson observe, *'every medium that is, every lived technology is profoundly ecological, dilating and contracting, infecting and infusing human perception, action and understanding, with potentially far-*

reaching implications and reverberations in our personal, social, cultural and political lives' (2016, p. 11). In care settings, datafication is where these ecological effects converge: aspects of care are converted into actionable objects and real-time analytics (D. Beer, 2019), though, as this section argues, what gets converted and what does not is never neutral.

Data is important to dementia practice specifically: it helps organisations identify what works, target resources effectively, and reduce costly adverse events (Hovenga and Lowe, 2020). Intentional work has been undertaken to improve and refine how data is used effectively within a residential aged care setting internationally (Musa *et al.*, 2022; Hanratty *et al.*, 2023; Smith *et al.*, 2025). Policy directives across Australia, New Zealand, and the United Kingdom have intensified expectations around data use, calling for more systematic collection, linkage, and analysis of aged care data to personalise care, reduce adverse events, and improve quality (Australian Institute of Health and Welfare, 2022; Department of Health and Social Care, 2022). The assumption underlying these directives is that more data, better analysed, will produce better care. What this framing tends to overlook is a more fundamental question: which data, collected by whom, under what conditions, interpreted by whom, and made available at what point in the flow of work?

Aotearoa New Zealand has made a significant investment in data infrastructure for aged care. Data is used to support early recognition of deterioration (Daltrey *et al.*, 2024). Every person living in residential aged care is assessed using interRAI, a comprehensive standardised clinical assessment tool. All completed assessments are stored on a single national data platform feeding into a national data warehouse, and each aged care facility receives quarterly quality indicator reports enabling benchmarking at facility, district, and national levels. The quality indicators derived from interRAI assessments include accidents, clinical management, infection control, nutrition, and skin care domains that reflect a predominantly clinical and functional orientation to care quality. Relational, emotional, and quality-of-life dimensions of care, while present within the broader interRAI framework, do not feature prominently among the indicators through which quality is routinely monitored and compared. This

pattern is not unique to New Zealand. Cations *et al.* (2021) demonstrated the potential of linked administrative data for monitoring dementia care quality at scale. Despite acknowledging quality of life as central to dementia care, the indicators used to monitor care remain predominantly clinical, reflecting what is available within administrative datasets rather than what matters most in lived experience.

However, understanding what the data layer in residential aged care actually makes possible requires first attending to its characteristics. Data does not arrive anywhere neutral but is in fact part of ‘complex sociotechnical assemblage’ (Kitchin, 2014b, p.28). The features of big data in healthcare are commonly described through three dimensions: volume, the sheer scale of data generated; velocity, the speed at which it is produced and must be processed; and variety, the range of data types and sources involved (Iyamu and Mgudlwa, 2021; Pesqueira *et al.*, 2020). In residential aged care, all three present persistent challenges. Data is generated continuously across multiple systems that do not always communicate with each other: electronic care planning systems, incident reporting tools, medication management systems, rostering platforms, audit databases, and increasingly sensor-based monitoring technologies, creating fragmented and siloed data landscapes that are difficult to integrate or act upon (Bail *et al.*, 2022).

A fourth dimension, veracity, is less commonly foregrounded in the literature but is arguably the most significant in the care context. Veracity refers to the accuracy and trustworthiness of data, and in residential aged care, it is systematically compromised by the conditions under which data is entered: a workforce operating under considerable time pressure, with variable digital literacy, within documentation systems whose parameters do not always align with the complexity of what is actually happening on the ground. In the context of care services, datafication is fraught with challenges: data is gathered, for example, to meet regulatory requirements, but is not always usefully utilised, analysed, or applied. When a reduced number of falls is used as a key performance indicator for staff performance, this can leave staff feeling demoralised, particularly when some matters are out of their control. When staff

spend a disproportionate amount of time recording data for compliance's sake, this takes them away from the business of caring. When staff do not have the skills to complete assessment forms, this leads to issues with the reliability of data. When life history information critical to practice is entered for later use but sits in a digital care plan that is not accessible at the point of care, its potential to inform practice goes entirely unrealised.

These are not incidental implementation failures. They point towards something more fundamental about how data is constituted and what it is constituted to do. Lupton (2018) argued that data does not simply exist as a neutral object waiting to be collected and analysed. Instead, data comes to matter through the practices, assemblages, and power relations through which it is produced and put to use. Data and human beings are co-constitutive: we shape data through the categories we choose, the systems we build, while data, in turn, shapes what we notice, and what we respond to (Lupton, 2020). This perspective, grounded in sociomaterial thinking, reframes the question of data in aged care away from technical concerns about volume, velocity, and veracity towards a more fundamental inquiry into what data practices are producing and what they are foreclosing.

Beer (2019) offers a particularly sharp resource here through his concept of the data gaze. Data, Beer argued, is never merely collected. It is gazed upon, and that gaze is never neutral. The data gaze enacts particular ways of seeing, foregrounding certain aspects of a situation while others recede from view. In residential aged care, the data gaze has tended to be directed towards what is measurable within existing clinical frameworks: falls rates, incident counts, medication records, etc. These categories reflect a biomedical logic that prioritises what is quantifiable and reportable over what is relational, contextual, or difficult to standardise. Nevertheless, in dementia practice, I argue, these harder-to-capture dimensions are some of the most important pieces of the puzzle when trying to solve complex problems.

Fenwick and Edwards (2016) offered a theoretical framework for understanding this dynamic through the concept of qualculation, drawing on Callon and Law (2005). Qualculation captures the ways that arithmetic and qualitative

judgement are combined in acts of calculation. Things must qualify for calculation, which involves qualitative processes of selection and valuation that are rarely made explicit. Critically, calculation and non-calculation are mutually constitutive: in making certain things visible and calculable, other things are rendered invisible and incalculable. The parameters embedded in digital documentation systems: the dropdown menus, the mandatory fields, do not simply reflect care; they participate in constituting what care becomes. As Kitchin (2014) argued, these measurements require a conversion of living events and their often unpredictable ambiguity into representations at particular scales, and in that conversion, something is always lost. The DACHA study, which piloted a minimum data set in English care homes, found that mapping existing digital care record data items against an aspirational minimum data set revealed significant gaps. Measures of cognition, delirium, and care-related quality of life were absent from routine data collection entirely, not because they were peripheral but because they had not been configured as calculable within existing systems (Smith et al., 2025). Carolle *et al.* (2025) found that when structured quality-of-life measures were added to existing digital care records as part of a minimum data set pilot, some staff described how these prompted conversations went beyond end-of-life preferences towards questions about what residents wanted to do and experience in the present. From a sociomaterial perspective, this suggests that the scope of data had been shaping the scope of what it was possible to know and respond to a dynamic that remained invisible until the parameters of the data system were deliberately broadened.

This dynamic connects to a broader tension in professional work between what Solbrekke and Sugrue (2014) described as *responsibility* and *accountability*, a distinction further developed in socio-material terms by Fenwick and Edwards (2016). Responsibility is grounded in professional judgement, relational knowledge, and the situated understanding that emerges through being with people in care. Accountability, by contrast, is structured through externally defined indicators, standardised measures, and audit processes. Crucially, from a socio-material perspective, accountability and responsibility are not simply competing ideals but are enacted differently through the material arrangements

of practice. In residential aged care, the accountability logic becomes embedded in everyday work. Data systems, reporting requirements and regulatory infrastructures do not merely document care; they actively configure it (Murray and Braithwaite, 2007). What is captured in data becomes what counts, while forms of knowledge that are relational, experiential, or difficult to quantify remain largely invisible within formal care systems.

Gourlay (2024) makes a point that is easy to miss precisely because it has become so ordinary. When data systems record care, they do not simply capture what is happening: they select particular aspects of it, translate those aspects into measurable categories, and in doing so produce a version of reality. The categories available within a system determine what gets recorded, and what falls outside those categories effectively disappears from the organisational record, however significant it may be in practice. In residential aged care, this has concrete and troubling implications, particularly for people living with advanced dementia, who may have limited capacity to speak for themselves or correct the record on their own behalf. The resident who appears in the data is not the full person. The person is a collection of clinical indicators, compliance records, falls counts, and medication entries. The knowledge that an experienced practitioner holds about the person—that she becomes distressed at a particular point during support, that she responds to a particular approach only, that the pace she moves at in the morning—tells you something important about how her night was. None of this finds its way into the data layer, not because it is unimportant, but because it has not been designed as something that can be captured and counted. Gourlay (2021) describes this as datafication rendering people into documents: the person is progressively replaced, in the organisational record, by a representation of the person, shaped by the values and priorities of whoever designed the system, which may or may not align with the purpose of relational dementia care.

This is the gap this thesis addresses. Despite the expanding role of data, the sociomaterial conditions through which data enables or constrains organisational learning remain under examined. Research examining health information technology in aged care has focused predominantly on staff

satisfaction and system usability rather than on the epistemic conditions through which data becomes actionable for practice (Bail *et al.*, 2022). Iyamu and Mgudlwa (2018), applying actor–network theory to healthcare big data, identified five interconnected factors that shape whether data can be mobilised for meaningful purposes in healthcare settings. These factors are: the common requirements of the facility, the structure of the data itself, the degree of integration across systems, the availability of skilled personnel, and the availability of relevant data sets. Their argument that the conditions enabling or constraining data mobilisation are not located in the technology alone but distributed across the entire assemblage of human and non-human actors through which data is collected. Understanding these conditions requires moving beyond technical questions of data quality or how well data can be ‘implemented’ towards an examination of data practices as part of the sociomaterial assemblages through which practitioners learn. This is what the present study sets out to examine.

Organisational learning

Organisational learning is necessary to develop agility in the face of turbulent and fast changing environments (Joiner, 2019), and is one of the main vehicles for creating competitive advantage (Argote and Hwang, 2016). It can be understood as both a way of exploring new possibilities and of leveraging existing resources (Argote and Hwang, 2016). In a context of low margins and escalating reactive costs, organisations face financial pressures. With nothing on the horizon to address the funding challenges in aged care, it falls upon providers to do more with less. Providers currently gather vast volumes of data, generally organised around compliance reporting. However, compliance driven approaches alone are insufficient to support sustainable improvement. Instead, organisations need to evolve in a dynamic, technologically driven sector by harnessing innovative capabilities (Arh, Blažič and Dimovski, 2012). Yet what counts as an ‘innovative capability’ in this context remains underspecified. If the knowledge that matters most in dementia care is relational, contextual, and enacted in practice, then innovation cannot simply mean the adoption of new tools; it requires rethinking how learning itself is understood.

From a sociomaterial perspective, organisational learning is the everyday knowing and doing resulting from specific interactions between human and non-human materiality (Gherardi, 2012). In residential aged care, however, organisational learning carries a dimension that extends beyond competitive advantage. Ricciardi, Cantino and Rossignoli (2021) argued that the common good, alongside organisational performance, should be the real final goal of organisational learning, that organisations are social mechanisms with irreplaceable capacities to address societal problems, and that learning oriented towards performance alone leaves this capacity underrealised. In dementia care, where the quality of residents' lives depends directly on what the workforce knows and does in everyday work, this argument matters.

The concept of the learning organisation was most influentially developed by Senge (2006), whose five disciplines: personal mastery, mental models, shared vision, team learning, and systems thinking provided a framework for understanding how organisations might develop the collective capacity to adapt and improve. While the literature has identified knowledge acquisition, information distribution, interpretation, organisational memory, and retrieval as core processes (2003), these have been theorised primarily as humanist endeavours, leaving unexamined the material and digital arrangements through which they are actually enacted.

Critically, the concept of the learning organisation was developed in and for commercial contexts, and its translation to care settings has been partial at best. Van Biessum *et al.*'s (2025) scoping review of the learning organisation literature in nursing homes identified only fourteen studies meeting inclusion criteria across the entire body of published research, and of these, only three examined the full scope of the concept. What they concluded was that the primary aim of organisational learning in nursing homes was to improve performance, so had a direct relationship with quality. The dominant practical response to quality problems in residential aged care has been to expand measurement rather than to build learning capacity.

Burke and Werner (2019) argued that nursing home quality measures have consistently failed to capture outcomes that matter to residents, and that the proliferation of electronic records and data systems has accelerated what the

field has termed a 'quality measurement industrial complex', producing more metrics without producing commensurate improvement in care. Their analysis of 23 quality indicators in Minnesota nursing homes found weak and unpredictable associations with resident outcomes, including some counterintuitive results; they conclude that measurement alone cannot stimulate improvement without investment in the organisational conditions through which quality change is actually achieved. Van Biessum *et al.* (2025) reached a compatible conclusion from a different direction: they argued that a new quality paradigm centred on learning is necessary, one that should balance objective measures and compliance standards towards approaches that treat quality as context dependent and relational. Importantly, they noted that collecting data on patient experience is not sufficient; it must be actively used to improve care. Emerging digital technologies offer one avenue for making the relational dimensions of care quality more legible. Shum *et al.* (2025) demonstrated that real time location data can generate digital markers of social engagement, including time in social spaces, contact duration. However, the authors note that location data cannot capture the nature or quality of social interactions. What none of these developments have addressed is how data, once generated, is interpreted, acted on, and made actionable within organisations. The problem confronting dementia care is not a shortage of measurement but an absence of the organisational learning infrastructure through which measurement might become improvement.

The relationship between organisational learning and its close conceptual neighbour, knowledge management, has compounded this limitation. Knowledge management, as it developed through the 1990s, was conceived primarily as a technology and information systems problem concerned with the storage, retrieval, and transfer of existing knowledge through digital repositories and information architectures. Organisational learning, by contrast, developed largely within business and management studies as a human systems problem, concerned with how organisations develop collective capacity through shared vision, dialogue, and reflection. McElroy's integration of complexity theory with both fields represents a significant attempt to bridge this divide, arguing through the complex adaptive systems model that knowledge is not stored or transferred

but generated through adaptive, emergent interactions within and across organisational networks (McElroy, 2000). This reframing has affinities with sociomaterial theorising, yet in residential aged care, these insights have not been taken up. Providers have continued to treat knowledge management as an information systems problem, gathering vast volumes of data organised primarily around compliance reporting, while organisational learning research has remained focused on human culture and training (Kirkley *et al.*, 2011), leaving unexamined the entanglement of digital systems and practice through which knowledge is actually generated in everyday care work.

The limited empirical research on organisational learning in long-term care has largely approached the problem through knowledge transfer and innovation diffusion frameworks, attending to individual, organisational, and environmental factors that affect whether new knowledge is adopted and retained (Berta *et al.*, 2005). Berta and colleagues' contingency model identified learning capacity, an organisation's ability to recognise the value of new knowledge, assimilate it, and apply it to decision-making, as the key determinant of performance improvement in long-term care settings. Their analysis revealed that factors at multiple levels impede knowledge transfer in these settings, including poor structural capabilities for knowledge exchange and regulatory environments that shape what knowledge is valued. Crucially, they identified dementia care as a domain in which knowledge transfer is particularly challenging precisely because the knowledge required for attending to psychological state, physiological condition, social context, and environmental triggers is heavily tacit and resistant to codification in guidelines or protocols. The conditions constraining knowledge transfer have intensified considerably since this model was developed. Workforce instability compounds these structural barriers to knowledge exchange, and empirical studies of digital intervention implementation in dementia care homes confirm that organisational readiness for embedding new tools and practices is routinely undermined by workforce pressures, managerial vacancy, and the inability to release staff from direct care (Keenan *et al.*, 2020). The rapid expansion of digital systems into care documentation and reporting has introduced new forms of epistemic complexity that knowledge transfer frameworks were not designed to address (Nerland,

2022). This observation points directly to a limitation that knowledge transfer frameworks cannot themselves resolve: if the knowledge that matters most in dementia care is relational, contextual, and enacted in practice, then approaches premised on transferring explicit, codified knowledge will systematically fail to capture what expertise actually involves.

What is needed is not a better transfer model but a different understanding of how knowledge is produced and made actionable in the first place. The empirical research that does exist on organisational learning in residential care confirms both the scale of this gap and the inadequacy of current responses to it. The most direct empirical evidence of this gap comes from Augustsson, Törnquist and Hasson's (2013) study of challenges in transferring individual learning to organisational learning in residential care of older people. Their quasi-experimental intervention was carefully designed, drawing on established components of workplace learning, collective problem-solving, practical exercises, close connection to practice, and parallel leadership development. Staff rated the intervention as highly relevant and useful, yet it produced some effects at the individual level, but no improvements in organisational learning. The hindering factors they identified are revealing: a poor initial learning climate, managers' uncertainty about their role, lack of ownership among staff, and, critically, a lack of systems and routines for capturing acquired knowledge. They conclude that learning must be embedded in ongoing systems and practices—work routines, guidelines, documents, and roles—so that it can be shared and used regularly to improve care. From a sociomaterial perspective, what this study does not examine is equally significant: the digital systems already present in these organisation, such as care planning tools were not investigated as actors in their own right. The barrier identified is real; the mechanism through which it operates remains unexamined.

It is here that the practice turn (Schatzki et al., 2000) in organisational learning theory offers a more generative starting point. From a sociomaterial perspective, organisational learning is not a property of individuals or even of collective human systems. Instead, it is the everyday knowing and doing that result from specific interactions between humans and non-human materiality (Gherardi, 2012). Gherardi's reframing is significant because it refuses the

separation of learning from work: knowing is not something that precedes or follows practice, but is enacted within it. Gherardi has described organisational learning as a metaphor juxtaposing two terms, organisation and learning, to explore a system of representation, such that how we conceive of what an organisation is shapes what we can recognise as learning within it (Cuel, 2020). This has direct implications for residential aged care: if learning is enacted through practice, then the conditions of practice, including the digital systems through which care is planned, are not merely a background to learning but constitutive of it.

Gherardi's reframing, a sociomaterial reading of organisational learning, also draws attention to the role of technologies in ways that humanist approaches have not. As Weiser (1991) observed, the most profound technologies are those that disappear, weaving themselves into the fabric of everyday life until they are indistinguishable from it. Adams (2015, p. 92) extended this insight, noting that 'as we grasp hold of these powerful technologies, they too take hold of us': a dynamic she terms the hidden curriculum of digital technologies, through which technologies shape what we come to know in ways that escape conscious awareness. Digital care planning systems have become precisely this kind of invisible infrastructure in residential aged care, so embedded in the work that they are rarely examined as actors in their own right. Yet as Latour's distinction between matters of fact and matters of concern, encountered through Fenwick's sociomaterial analysis of medical practice, reminds us, what appears settled and unquestioned is often a black box whose construction has simply been forgotten (Fenwick, 2014). The digital systems through which aged care organisations collect and act on knowledge have become matters of fact when they warrant examination as matters of concern: as arrangements that actively shape what practitioners notice, and therefore what organisations are capable of learning. Exploiting innovative capabilities demands a practice-based view, exploring the entanglement of technology and practice (Orlikowski, 2007). Technology has the power to improve knowledge retention precisely because it embeds knowledge in routines (Argote and Miron-Spektor, 2011), but only when those routines are configured to capture the relational, contextual knowledge

that constitutes expertise in dementia care, rather than merely the quantifiable outputs of compliance reporting.

Another structural feature of residential aged care that the organisational learning literature has not adequately theorised is the endemic instability of the workforce through which that knowledge is held. Staff retention compounds this challenge in ways that the organisational learning literature has not adequately theorised. In aged care, workforce instability is endemic (Thwaites et al., 2023), driven by low compensation, high physical and emotional demands, and limited career prospects. When experienced staff leave, the knowledge they carry leaves with them. A systematic review of workplace interventions aimed at improving the sustainable employability of aged care staff distinguished three components of sustainable employability (Heijkants *et al.*, 2022): workability refers to the physical, mental, and social capacity needed to meet the demands of the work; vitality refers to the energy, motivation, and psychological wellbeing needed to sustain engagement over time; and employability refers to the knowledge and competence required to perform the role adequately, now and into the future. The review found strong evidence for the effectiveness of interventions targeting employability and workability, but insufficient evidence for interventions aimed at improving vitality. Critically, almost all vitality studies without significant impact were interventions designed primarily to improve knowledge or skills, with improvements in staff wellbeing and motivation expected as a secondary effect, an expectation the evidence does not support.

Vitality, encompassing the intrinsic motivation, psychological well-being, and energy that enable practitioners to remain curious, reflective, and engaged with the complexity of their work, is not a byproduct of acquiring knowledge and skills. It is the condition under which knowledge is pursued and made actionable in practice. However, organisations have concentrated their workforce investment in the component that training interventions can reliably influence, while the dimension most relevant to sustained, ongoing learning remains comparatively neglected. Without vitality, staff may be competent in the formal sense while remaining disengaged from the practice based learning that organisational learning requires. In residential aged care, where workforce

instability is already acute, the failure to sustain the motivational conditions for ongoing learning compounds the retention problem.

In residential aged care, where the workforce spans registered nurses, enrolled nurses, and largely unqualified care workers, this dynamic is acute. Power operates through these configurations: Anthony's (2018) analysis of how status differences influence responses to new epistemic technologies, distinguishing between questioning and accepting practices as two general modes of engagement, is directly relevant here. To bridge this gap, a more nuanced exploration is needed, focusing on the subtle, often overlooked practices and the dynamics of power that shape them (Hultin et al., 2021). As Nerland (2022) noted, leaders' inclusive behaviours and efforts to mitigate status differences are important for involving more worker groups in collective knowledge generating activities.

What is striking about the existing research on organisational learning in residential aged care is therefore not only its scarcity, but also its fragmentation across disconnected domains and its theoretical orientation. The learning organisation concept was developed in and for commercial environments, and its translation to nursing home care has produced a small, largely theoretical body of work that frames organisational learning primarily as a performance improvement mechanism without adequately examining the conditions through which learning is enacted in everyday practice (van Biessum *et al.*, 2025).

Where practical responses to quality problems have been attempted, they have defaulted to training and measurement, yet the training literature cannot bridge the gap between individual learning and organisational change (Augustsson et al., 2013), and an expanding quality measurement apparatus has produced more data without producing improvement in what matters to residents (Burke and Werner, 2019). The knowledge management tradition, meanwhile, has treated knowledge as something to be stored and retrieved rather than enacted and co-produced, leaving unexamined the relational and practice-based conditions through which knowing actually occurs in care work (Kirkley *et al.*, 2011). Studies across all these domains have emphasised human agency: the role of leadership, culture, and individual commitment, while neglecting the tangible, material aspects of practice. Digital systems, despite their increasing

centrality to how care is organised and evidenced, have rarely been examined as constitutive participants in what organisations can learn. This study takes up that gap: examining how digitally mediated epistemic practices enable or constrain organisational learning in dementia care, and how the material and digital arrangements of care work shape what organisations can come to know.

Conclusion

This conclusion points to something the four sections of this chapter, read together, make visible: the dementia education field has been looking in the wrong place. The literature has established, with considerable rigour, that training fails to produce durable change in practice, yet the dominant response has been to refine and expand training rather than to examine the conditions in which practice actually changes. The blended and practice-based learning literature has shown that learning in deskless, relational care settings is situated and enacted in the moment, through the tools and relationships at hand, but system designers and workforce planners have continued to treat digital technologies primarily as delivery mechanisms for content. The data practices literature has revealed that digital documentation systems do not merely record care; they constitute what is noticeable and therefore actionable, yet these effects on learning and knowledge-making have gone largely untheorised. The organisational learning literature has identified the conditions required for knowledge to circulate but has largely failed to see the practice based nature of organisational learning.

The four bodies of literature brought together here are not simply parallel conversations. They intersect at a common problem: that the residential dementia care sector's investment in learning has been systematically misplaced, concentrated in training events and measurement systems that were never designed to produce the kind of contextual and practice knowing that dementia care requires. The stakes of this misplacement are not abstract. Eighty thousand people are living with dementia in Aotearoa New Zealand, the majority in settings where workforce learning is the primary lever available to improve their daily experience of care. Resources are not unlimited. The capacity to invest in workforce development is constrained by funding, and

regulatory demands, and every investment in approaches that do not work closes down investment in approaches that might. Getting this right matters.

It matters all the more because the digital conditions in which care work is conducted are not static. Technologies are evolving at a rate that has outpaced the sector's capacity to examine their consequences. Electronic care planning, reporting dashboards, point-of-care decision support, and now AI tools that can interpret behaviour, generate documentation, and flag clinical risk are entering care settings at scale, often in advance of any sustained analysis of what they do to practice, to knowing, and to learning. The moment when a technology takes hold, when it becomes part of the invisible infrastructure of everyday work, when practitioners adapt to it rather than the reverse, is a significant moment to pause over, because once embedded, these systems are difficult to examine, let alone to reconfigure. They begin to define what counts as care, what counts as quality, and therefore, what counts as knowledge worth pursuing. If the field waits until these technologies are fully embedded before asking what they are doing to organisational learning, the window for shaping their consequences will have already closed. That is the gap this thesis enters and the urgency that makes it worth entering now.

Chapter 3. Methods

There is no 'I' that exists outside of the diffraction pattern, observing it, telling its story. In an important sense, this story in its ongoing (re)patterning is (re)(con)figuring me. 'I' am neither outside nor inside; 'I' am of the diffraction pattern. Or rather, this 'I' that is not 'me' alone and never was, that is always already multiply dispersed and diffracted throughout spacetime(mattering), including in this paper, in its ongoing being-becoming is of the diffraction pattern. (Barad, 2014, p. 181)

Introduction

This chapter describes my deliberations, explorations and challenges encountered, the approaches I drew upon, and the rigour I applied. This has been a journey of many sorts, navigating ontological tensions, zooming in and out, and trying to make meaning from complexity. In this section, I set out the practical arrangements through which the research was conducted: gaining access to the care settings, negotiating ethical approval and consent, conducting the fieldwork, and analysing the data. Throughout, the methods were chosen for their suitability for interrogating the research questions set out below.

Overarching question

In what ways can digitally mediated epistemic practices enable organisational learning in residential dementia care services?

This question is examined in these constitutive parts:

- How do people learn in and through work?
- In what ways do data practices (im)mobilise learning in dementia care organisations?

- What opportunities are there for technology and digitally mediated work–learning practices to improve dementia care?

Overview of Research Design

This study was undertaken across two large residential aged care providers in Aotearoa New Zealand, here referred to as Provider A and Provider B. The doctoral research is registered with a UK university while the study sites and the researcher are based in Aotearoa New Zealand. Conducting the inquiry across these jurisdictions required navigating different governance and approval pathways, which are detailed below.

The choice of an ethnographic approach followed from the study's theoretical orientation. Gherardi's concept of knowing-in-practice frames knowledge not as something that precedes action, but rather as a practical endeavour enacted in the moment (Gherardi, 2019). If knowledge is anchored in the world and unfolds through practice, then an ethnographic approach would provide the opportunity to pay attention and observe learning as 'enacted'.

The study was designed as an extended fieldwork exercise rather than a snapshot, with the study drawing on ethnographic sensibilities: extended time in the field, observation in everyday settings, and attention to artefacts alongside conversation (Hammersley and Atkinson, 2007). Data was collected over eight months across three strands: approximately 120 hours of field observation, eight semi structured interviews, and document analysis. I did not treat these strands as three angles on one fixed account of practice-based learning. Instead, I treated each as a different practice that brings the phenomenon into view in a slightly different way. Oosterhoff *et al.* (2021, p. 2) made a similar point when they argued for a shift from mixing methods towards combining methodologies to describe multiple realities. Oosterhoff, drawing on Law (2004, cited in Oosterhoff, 2021), argued for 'methodological humility', a heterogeneous approach to cover the multiplicity of practice. I therefore let the three strands sit alongside one another, rather than forcing them to show a single 'truth'.

Sociomaterial and post-qualitative sensibility as methodology

Dementia care, workplace learning, and the digital systems through which care practices are organised intersect in ways that resist reduction to any single cause. This creates challenges in researching diverse phenomena. In addition, the dementia field is itself shaped by the interaction of multiple disciplinary traditions: biomedical, behavioural, psychological, and social, all producing a complex terrain. Learning in dementia practice has most often been studied through evaluative approaches that ask whether training improved knowledge or altered practice (Ballard et al., 2018; Cunningham et al., 2020; Giebel et al., 2025; O'Brien et al., 2018; Parveen et al., 2021; Spector et al., 2013; C. Surr et al., 2017, 2020; C. A. Surr et al., 2020; C. A. Surr and Gates, 2017). These approaches have contributed important insights, but they centre the human practitioner as the unit of learning and do not adequately account for the intra-actions between people, technologies, systems, and environments through which organisational learning is continually produced (Jansson *et al.*, 2020). As Martin (2013) argued in education research, positivist and post-positivist traditions continue to dominate, privileging approaches built around measurable individuals and discrete interventions. To study how care organisations learn requires a methodology that can attend to how relations are assembled and continually produced. Law (2004) identified this challenge directly: methods that seek to eliminate mess, multiplicity, and fluidity risk producing false clarity. This study is approached in that spirit.

Chapter 1 established the sociomaterial ontological positioning of this study, drawing on Barad's relational ontology and onto-epistemology alongside Knorr Cetina's concept of epistemic practice (2007). This section extends that positioning to consider what it means for the conduct of the research and the role of the researcher. A sociomaterial stance departs from conventional understandings of the researcher as an objective observer positioned outside the research process (Hultin, 2019). Even within conventional qualitative inquiry, however, the researcher's implication in what can be known is already acknowledged: Dowling (2006) distinguishes several forms of reflexivity, among them what she terms epistemological reflexivity. Drawing on Koch and

Harrington (1998, cited in Dowling, 2006), she presents this as broader than the personal self-scrutiny with which reflexivity is often associated (Dowling, 2006, p. 11). A sociomaterial stance takes this further, treating the entanglement of knower and known not as a matter for self-scrutiny but as an ontological condition of the research. Knowing and being are entwined, and the researcher is part of the phenomenon under study (Hultin, 2019), bound up in the production of the relations being described rather than standing outside them, so that methods do not merely describe social reality but help enact it (Law, 2004b). How this entanglement is worked through analytically, as a diffractive rather than reflective practice, is developed in an analytical approach.

Sociomaterial theorising originated within Science and Technology Studies (STS), with seminal contributions from Latour (1987, 2005, 1994) and Law (Law, 2008; Law and Mol, 1995). Actor-network theory (ANT) shows that practice is shaped through networks of human and non-human actors; as these assemble differently, different realities emerge (Mol, 2002). These heuristics have been taken up in technology and organisational studies by scholars such as Orlikowski (2007, 2010; Orlikowski and Scott, 2015) and within education practices (Landri, 2021a, 2023) and more broadly within healthcare practices (Fenwick, 2014; Fenwick and Edwards, 2016; Nerland and Jensen, 2014).

Three conceptual resources within sociomaterial theorising are central to this study. First, Knorr Cetina's (2001, 2007, 2010) concept of 'epistemic practice' provides a way of understanding collective knowledge work in the flow of practice, developed in professional learning contexts by Nerland and colleagues (Nerland and Jensen, 2012, 2014; Fenwick and Edwards, 2016; Nerland and Hasu, 2021). Second, the concept of translation (Callon, 1984; Landri, 2021a) draws attention to how knowledge moves and becomes actionable across practice networks. Third, I drew on Hopwood and Nerland's (2019) study of nurses working with parents, where I was interested in how they theorise knowledge as enacted within partnership work. The knowings that matter in dementia practice are never singular, but include the family, the resident, and the practitioner. This is particularly relevant where outcomes for individuals depend on multiple contributors bringing partial but valuable forms of knowledge

into relation with one another (Loeffler, 2021) and how these are enacted differently by the material, digital arrangements that deliver improved competencies.

The conceptual resources above helped me see what to look at, but not how to study it. Conventional ethnography, however, assumes the ethnographer's task is to document an existing set of social and cultural practices independent of the researcher (MacLeod *et al.*, 2019) so I turned instead to post-qualitative inquiry (St. Pierre, 2021), which questions the usual assumptions of qualitative research: that inquiry starts from a fixed method, that the researcher stands apart as a neutral observer, and that data await collection. Rather than offering another set of steps to follow, it argues that research cannot be reduced to method at all. This made it difficult to grasp methodologically: without a procedural roadmap, it risked feeling intangible. Here, St. Pierre's (2021, p. 7) assertion that researchers working in this tradition have 'every right and, I think, a responsibility to invent and create new approaches to inquiry to address the problems of the 21st century' became particularly important. It was more than a licence to improvise; it was reassurance that taking an approach which fitted my inquiry was itself legitimate scholarly work. Thompson and Adams elaborated on this (2020, p. 338): 'A posthuman or more-than-human orientation insists that the researcher learns to think differently, creatively and critically about their research: the theories upon which they draw, the process and outcomes related to the doing of research and the involvement of researcher and the researched.'

Through post-qualitative inquiry, wider sociomaterial scholarship, and empirical work shaped by these sensibilities, I came to understand that the absence of fixed procedure was not a methodological gap to be addressed, but part of the point. What replaced procedural certainty was sustained engagement with theoretical concepts and attention to what the material made noticeable. This approach could not be fully designed in advance and then simply executed; it had to be worked through in practice.

Encountering MacLure's description of analysis as 'poring over the data, annotating, describing, linking, bringing theory to bear, recalling what others have written, and seeing things from different angles. I like to do it "manually"

too, with paper and pen, scribbling a dense texture of notes in margins and spilling over onto separate pages. (MacLure, 2008, as cited in St. Pierre and Jackson, 2014, p. 715). I recognised a way of working I had already been employing for years. Long before doctoral study, my work in workforce development involved reading widely across disciplines, linking ideas, scribbling in margins, and trying to understand how what I was reading related to what I was seeing AND 'doing' in practice. Finding this description, and the post-qualitative tradition it sits within, gave language and legitimacy to an epistemic practice I had already been enacting.

Research Setting and Recruitment

The Aotearoa New Zealand context shaped the inquiry. The residential aged care sector operates under contract-for-service arrangements with Te Whatu Ora (New Zealand's national public health agency), faces persistent workforce pressures, and is subject to national audit and quality monitoring frameworks whose influence on organisational learning is consequential but also contested (Murray and Braithwaite, 2007; Trigg, 2018). These conditions are not a neutral setting within which the research took place; they are part of what shaped the learning this study set out to trace.

The research was carried out with two large aged care providers. Both offer a range of provision on a single site, including independent living, residential care, and higher-level 'secure' dementia homes. The first provider was selected because I was employed within that setting when the research commenced. Throughout the research process, that relationship changed, with consequences for my position in the field that I discuss below. Both are well-established organisations with digital infrastructures used to manage care embedded in everyday practice, which made them well suited to examining digital mediation. Anonymisation was agreed with both providers as a condition of access.

Within sociomaterial inquiry, selection follows the object rather than sampling a population, tracing how knowing moves across roles and settings. Organisational learning, understood through this lens, does not reside in any

single role or level but moves across them, and the inquiry therefore needed participants whose work sat at different points in that movement: in direct support, in unit coordination, in clinical oversight, and in the regional quality function where practice and policy meet. In practice, this intention was realised through the access available to me: initial contacts were identified through my own organisational knowledge and through the providers themselves, with subsequent participants identified by direct request and recommendation from earlier interviewees, and the final group was further shaped by practical constraints of shift patterns, workload and willingness.

Eight people were interviewed and are reported by broad role level rather than specific job title (see Table 1), and are identified by pseudonym, with some details, including gender, altered in a few cases, because the sample is small and some roles could otherwise identify individuals.

Table 1. Interview participants

#	Pseudonym	Role level
1	Jenny	Senior/regional clinical and quality
2	John	Site clinical oversight
3	May	Senior/regional clinical and quality
4	Sam	Site clinical oversight
5	Maria	Unit-based
6	Monica	Unit-based
7	Sarah	Site clinical oversight
8	William	Unit-based

Participants were given written information about the study (Appendix 2). A webinar was also held at Site A to explain the research aims and to try to stimulate some interest. Data collection took place across four sites across two organisations. Written consent was obtained ahead of observations and interviews, and participants were informed they could withdraw at any point.

One group I had hoped to include, but was unable to access, was the informatics teams responsible for designing, updating, and maintaining the

digital systems through which much of the empirical material was mediated. Following the object would have led directly to them, yet within the timeframe of the inquiry, access was not made available. Tracing the network in this way could, in principle, extend without end, and every account must therefore cut the network somewhere (Adams and Thompson, 2016). In this study, the cut fell at the boundary of the informatics teams, partly through my own focus on the points at which digital systems meet practice, and partly through the access available to me. The sociomaterial account this study offers, therefore, privileges the points at which digital systems meet practice over the upstream work of designing and configuring them. This is taken up further in the limitations discussion in Chapter 7.

Ethics

Conducting research across jurisdictions is rarely a matter of straightforward duplication. Dovey *et al.* (2011) found that while ethical values may be shared across countries, their interpretation by individual ethics committees is shaped by local historical and cultural contexts. This study was registered with the University of Stirling, where formal ethics approval was obtained. In Aotearoa New Zealand, an assessment was made against the scope-of-review provisions of the Health and Disability Ethics Committee's (HDEC) standard operating procedures. Because participants were recruited as health and care professionals rather than as consumers of health and disability services, the study fell outside HDEC's scope. In addition, I was not collecting or analysing any personal data about residents. Approval was obtained at the organisational level from Provider A and Provider B. Exemption from formal HDEC review did not exempt the study from broader ethical standards: the National Ethics Advisory Committee (National Ethics Advisory Committee, 2019) makes clear that researchers must meet ethical requirements irrespective of whether their work requires formal review. GUEP approval was granted on 23 August 2024, as recorded in Appendix 1.

Procedural ethics were necessary but not sufficient. Ethics in this study were also relational and emergent. From a sociomaterial position, this work cannot be separated from the ontological and epistemological commitments of the inquiry,

as Barad (2007) terms an ethico-onto-epistemology, in which ethics, knowing, and being are entangled rather than discrete. Bazzul (2018) develops this insight into a methodological orientation in which response-ability is not an individual virtue but a property of the assemblage: an ethics system that allows others to respond and emerge rather than being imposed from outside (Barad, 2007). This is consistent with what Guillemin and Gillam (2004) describe as ethics in practice; the ongoing ethical work of fieldwork itself, beyond the moment of formal approval.

Although staff were the participants, residents were unavoidably present, which requires careful ethical attention. Dementia care is, by its nature, work with and around people whose capacity to consent is variable and whose privacy and dignity are continuously at stake. Observations focused on staff work, and engagement with digital systems, not on residents. Field notes recorded the practice rather than the person. The researcher's responsibility to keep people safe had to be understood broadly: not only physical safety, but also the avoidance of psychological harm in care environments where residents are highly vulnerable (Beuscher and Grando, 2011). Photographs were taken only of material arrangements alongside staff, never of residents, and consent for observation was treated as ongoing rather than one-time (Hammersley and Atkinson, 2007).

These commitments were felt most intensely during the on-site visits themselves. The work of deciding when to look and when to look away, when to write and when to set the notebook aside, was situated and ongoing. Among the most difficult was witnessing staff doing skilled relational work under conditions of structural underfunding, where what was asked of them exceeded what the system resourced them to give. Recognition, discomfort, and at times grief were not interferences to be controlled for but part of what response-ability required.

A further ethical complexity arose from having previously worked in one of the participating organisations. Although my employment had ended before fieldwork commenced, I retained working knowledge of the organisation's policies and the ways things were supposed to happen. There were

uncomfortable moments in the field when I observed practice that diverged from policy and felt the pull to intervene as I once would have done. Each time, I had to remind myself that I was no longer in that role. Resisting that pull was not the same as ignoring what I saw; what I saw shaped the analysis, but it could not be acted on in the moment without changing the conditions of the inquiry and breaching the trust that made access possible. This was one dimension of a broader set of relational complexities that came from having been organisationally inside. Pre-existing relationships, accumulated knowledge of organisational culture, and continuing professional connections within the sector all shaped what was possible in the field.

From Data to Generating Material/Materialities

Across eight months in the two participating organisations, what was generated was iterative and layered, unfolding through a recursive momentum that sustained curiosity and kept the inquiry moving forward. It was, at times, thrilling, but also at times confounding. By generating rather than collecting, material was produced through sustained engagement between myself, participants, and the digital artefacts through which care was organised. Sometimes the process felt messy; at other times, fragments across recordings, photographs, fieldnotes, and theoretical reading seemed to speak to one another.

Observations

Observation took place across four settings, including secure dementia units (which I prefer to call homes) and wider organisational meetings, some in person and others virtual. Within the homes, I was present alongside care practices and everyday 'learning practices'; in wider meetings, alongside the organisational conversations through which care was discussed and decisions made. I always checked ahead for suitable times. I deliberately varied when I came: some very early starts, others later in the day, and sometimes over lunch to observe across the working day. The early mornings left me tired, but also reflective, allowing me to better 'feel' the experiences of staff. Sometimes the answer was 'No' when service demands were too much to accommodate a

researcher, but that was fine too. With a background in teaching about dementia spaces (and how they shape workflow and behaviour), I found myself reading each space. I found the observations exceptionally rich. I think this was, in part, because I had had a long career in workforce development teaching about these practices that I was suddenly immersed in. **My fieldnotes on Day 19** stated *‘Sad in a way that I won’t get this amazing opportunity to consolidate my learning and I’m really considering doing this as a volunteer in the future because I get so much joy from it and it’s so important to my learning’*.

Before attending the observations, I had sought written consent but, in addition, secured verbal consent again at the outset, reflecting ethnographic understandings of consent as ongoing rather than a one-time event (Hammersley and Atkinson, 2007). Meetings were not audio recorded; instead, what I retained from them were handwritten and typed fieldnotes, alongside Dictaphone reflections recorded immediately afterwards.

Observations were undertaken online as well as in person. Physical presence offered a different kind of access from virtual observation. In the room, I could sense mood, silence, the vibe, and the positioning of bodies (Pink, 2021b), which cognitive psychology describes as multisensory encoding (Duarte *et al.*, 2025). Virtual sessions were harder to attune to: intermittent internet connection disrupted voices and expressions, documents moved rapidly across screens, and recording was not permitted. These accounts are therefore thinner than those observed in situ, more filtered by my interpretive lens, but still important for showing how organisational knowing was enacted through the assembling of actors, importantly both human and more-than-human care staff and residents, but also documents, screens, digital care plans, and the material arrangement of the room itself. This distinction is not only methodological but also substantive: learning in place is enacted through embodied attunement and environmental cues, whereas learning online is channelled through screens, documents, and data flows.

Audio Reflections

I undertook an audio reflection on a Dictaphone after each fieldwork session, capturing what I had observed, what I felt, and what I was noticing materially. Meetings themselves were not captured on tape, but were recursive reflections on what I had just witnessed, returned to repeatedly over the months that followed. The fluidity of speech allowed an immediacy that written notes could not (Crozier and Cassell, 2016), capturing the texture of an observation before it settled into something else more structured. At times, the recordings inadvertently captured background sounds; nothing confidential yet, on replay, these did the particular work of re-assembling the setting around the talk (Pink, 2021a), returning me to that place and moment. The Dictaphone became a sustained companion to the inquiry. I listened to the recordings repeatedly while walking, cycling, doing the dishes, or sitting at my desk. The recordings themselves carried the conditions of their production: parts would cut in and out; traffic, weather, and the sound of the beach shaped what was audible and what drew my attention. These conditions were not contamination to be cleaned from the analysis, but part of the sociomaterial entanglement through which the inquiry unfolded. Listening on a quiet morning produced different forms of attention than listening while cycling against a headwind. The material returned differently each time it was approached.

Interviews

Eight semi-structured interviews were recorded with written consent, transcribed, and stored on the university's secure platforms. A material-discursive approach was taken (Hultin, 2019); rather than treating the interview as a window onto individual experience, I attended to it as a situated event. The qualitative interview privileges human actors, so Aagaard and Matthiesen (2016) noted, as things remain mute, we must find other ways to get to things. Conducting the interviews onsite meant the material environment of the work remained co-present rather than excluded, one way of keeping those things from staying mute. Interviews were largely carried out in person, with only two conducted virtually owing to the remote location of those participants, and lasted between 45 minutes and 1.5 hours (questions in Appendix 3).

The interview material was often emotionally charged. There was a sense of pressure of demanding work, of needing to get through it and at times something like gratitude for the chance to voice the emotional labour of the work. Rather than reading this affect as a window onto individual states, I attended to it as part of what the interview event produced: emotion arose in the encounter, charged by the setting and the relations it made present. Engaging with it required sustained attention to emotion as both a methodological challenge and an analytic resource (Fitzpatrick and Olson, 2015).

The interview questions were informed by wider reading on interviewing objects, particularly Adams and Thompson's (2016) *Researching a Posthuman World*, from which I drew heuristics such as 'studying breakdowns' and the laws of media (McLuhan and McLuhan, 1988) and to pose questions about how technology interrupted practice, for example, questions about sounds, alerts, and how staff 'attuned to things'. One further question drew on the 'interview to the double' (Nicolini, 2009), which asks the practitioner to instruct someone taking their place at work, as if they were impersonating them, thus to adequately describe how they went through their day. These heuristics shaped the interviews productively but remained largely confined to them: as the observational material emerged, other conceptual resources came to seem better fitted.

I confess to an initial unease as I realised the material was leading me towards different ideas: a sense of incoherence, of methods not holding together in a tidy, together way. However, I came to recognise this as the nature of post-qualitative inquiry rather than a failing of design. As Law (2004b) argued, the world is not so orderly that a single, coherent method could capture it; method is necessarily heterogeneous, and inquiry calls for a certain humility in the face of a messy, more-than-one reality.

Photographs

Photographs were taken throughout the fieldwork. The focus was on unit layout, object configuration, screen placement, and the relationship between things. The original intention was to use photographs as interview prompts to draw out

sociomaterial details (Hultin, 2019). In practice, they became aids to my own recall during analysis, reminding me often of the spatial layout, and sometimes visual noise (or energy) the fieldnotes could not display. This emergent use, rather than the planned one, became another instance of the post-qualitative shift described above.

Document Analysis

Documentary artefacts also formed part of the material, encountered in use rather than collected as a separate corpus. In one of the homes, the handover book was a significant artefact in the coordination of care across shifts; I attended to it in situ and photographed it where relevant, with permission (without recording any client detail), more just where it sat, and in relation to what. I photographed and later examined many 'job aids', items added to walls to remind staff of good practice/procedure. In the virtual meetings, reports were generated and shared on screen, but I was not permitted to record or retain these, which limited my engagement with them to what could be observed.

NVivo functioned as a container for this material. Fieldnotes, transcripts, and transcribed audio reflections were stored there, and its search function enabled a return to specific moments across months of fieldwork. In practice, my use of the software was more limited than I had anticipated: it held considerably more material than I ultimately drew on, and although I moved through it highlighting and tagging passages, these were never operationalised as codes in any systematic sense, but instead just to support my thinking. Rather, I was marking what MacLure (2013) calls the moments that 'glow': fragments that seemed to reach out and demand attention, that stayed with me and pulled me back. Analytic engagement happened elsewhere: in recursive listening, writing, and sustained engagement with theory, often in odd hours! This restricted use of NVivo was a deliberate methodological choice, but not a neutral one. Even when used to hold rather than to analyse material, the software shapes what becomes visible and can impact the researcher in unexpected ways (Woods et al., 2016; Robins and Eisen, 2017).

Approach to Analysis

Traditional qualitative analysis involves coding: applying categories to text to identify patterns and themes (Braun and Clarke, 2006). The analytical work of this study took a different form (St. Pierre and Jackson, 2014). The ontological position established above does not support the separation between researcher and material that coding assumes (Hultin, 2019). What stood in its place was sustained engagement with theoretical concepts and the discipline of writing one's way into analysis rather than coding one's way through it (St. Pierre, 2018). The thinking of this study took place in writing and in movement between fieldnotes, audio reflections, interview transcripts, and theoretical reading. The work moved through what Thomson (2026) describes as 'riffing': taking a provisional idea and putting it through repeated shifts, saying it one way and then another. Analysis unfolded across the duration of the inquiry and continued through chapter writing.

The principal methodological resource for this approach was Nicolini's (2009) account of 'zooming in and out'. Nicolini frames eclecticism as programmatic rather than careless, arguing that because practice is multifaceted, it 'can only be approached through a toolkit-logic' (2009, p. 1395). He usefully offers two approaches: zooming in stays with the 'knowings' and 'doings' of practice through sociomaterial approaches; zooming out draws on additional theoretical lenses to see the bigger picture, and then holding the two perspectives together. This framing gave shape to what I had been doing across a study of the multidimensional and fluid practice of dementia care, where I had found myself drawing on multiple, eclectic, and often what appeared as ontologically competing ideas. What results is not a mish-mash but a toolkit: each lens is selected to foreground an aspect that the others cannot.

In this study, the zooming in was done through the anecdote. I engaged closely with several empirical studies that had employed a posthuman lens, examining in detail how each approached its research (Ireland, 2015; Mitchell, 2017; Scoles, 2017); these were instructive as methodological exemplars, showing how a posthuman sensibility could be carried through fieldwork, analysis, and writing, and for the theoretical resources they mobilised, which deepened my

own engagement with the literature. One made striking use of the anecdote (Ireland, 2015), and it was this that first drew me to the method. An anecdote is a short account of a particular event, a brief story. These became a powerful way to hold, in a visceral sense, the moments I had encountered in the field. Within sociomaterial inquiry, the anecdote holds a moment open so that the relations within it can be traced (Adams and Thompson, 2016), capturing the immediacy of an unfolding event in the present tense and attending to what appears and what does not. Adams and Thompson write (2016, p. 32), the anecdote ‘tries to speak without speaking, and name without naming’. Gherardi (2019) makes a related argument from within practice-based studies: practice becomes visible through the textual rendering of the moments in which it is enacted, and the writing of these moments is itself analytical work. Zooming in, therefore, meant staying with the material elements of these moments, and this shaped data generation as well as analysis.

This close attention to material was itself part of a diffractive practice. Knorr Cetina’s (2001, 2007) concept of the epistemic object and MacLure’s (2013) account of material that ‘glows’ both describe material not as passive content but as participating in the direction of inquiry. It was this glowing material that I then read diffractively. The concept of diffraction originates with Haraway (1992), who drew on its optics, the way waves bend and spread into patterns of difference; Barad (2007) develops it into a methodological approach attending to difference rather than sameness. Where reflection works like a mirror, using theory as a lens to return an image of what is already there and so presuming a human observer, diffraction reads theories through one another and through the material, attending to the patterns of difference, interference, and new insights produced in their meeting (Bozalek and Zembylas, 2017; Mazzei, 2014). It also admits non-humans alongside humans, which mattered for an inquiry concerned with how artefacts and digital systems act in the organisation of care. Diffraction suited this study because difference was everywhere: it was through reading multiple heuristics through one another, rather than applying any single lens, that new understandings emerged.

The zooming out began with translation. Translation (Callon, 1984) gave me a vocabulary for what I was already noticing as a process: how problems became named, who or what was drawn in, how issues were worked through, and how knowledge moved across the organisation. Developed through Callon's account of the domestication of the scallops of St Brieuc Bay, the 'sociology of translation' sits within the actor-network sensibilities of science and technology studies (Latour, 1993); it attends to how things move, change, and hold together, or fail to, and to the effects they produce, sometimes not as intended. Thompson (2026, p. 7) describes translations as 'splendidly prolific and complex: elusive, challenging and sometimes frustratingly tangled but usually rewarding to examine'. Callon's four moments, from problematisation to mobilisation, proved fitting as the data emerged. Translation has been used to study several complex healthcare settings (Waldorff, 2013; Cucciniello *et al.*, 2015; Bonde, Bossen and Danholt, 2018) and to study data flows (Iyamu and Mgudlwa, 2021).

Translation traces how heterogeneous human and non-human actors are assembled and enrolled around a problem, but renders less visible the differential positioning of knowers at the moment of enrolment: whose knowing is treated as legitimate, whose is displaced, and how epistemic authority is distributed. This matters acutely in dementia practice, where a person may not be able to convey a whole picture of their needs, so understanding must be assembled more widely. I therefore drew on Hopwood and Nerland's (2019) account of epistemic practices. Their distinction between strengthening the client from a professional epistemic perspective and validating the client's own epistemic contribution addresses precisely the asymmetry at stake: a question of positioning and power that enrolment can gesture towards but not resolve. Crucially, this positioning is enacted materially, not only discursively: the uniform, the documents, and the digital care plan all carry the professional's knowledge and lend it authority. But the analytic question is not only whose knowledge counts. In dementia care, where no single account of the resident's, the family's, the clinician's, or the record's is sufficient on its own, the work lies in how these partial and differently authorised knowings are drawn together and made actionable. Reading translation alongside epistemic practice let me trace

exactly this: not just how framings are enrolled, but how heterogeneous forms of knowing are assembled into a working understanding, and whose contribution is strengthened or thinned in the process.

Power, however, did not operate as a single force, and here Landri's (2021) extension of translation was helpful. Landri sets out three dimensions through which knowledge moves and shifts: the political (whose knowledge counts as authoritative), the geometric (how something changes form as it travels), and the semiotic (how its meaning changes along the way). To name the forces at work in each dimension, I drew on institutional logics (Thornton et al., 2013) following Waldorff (2013), who shows how translation can trace the way a concept is mobilised while logics name the value systems actors draw on for legitimacy. This framework fitted the setting closely, because its logics matched the specific forces at work in it. Residential aged dementia care is shaped by three logics that operate together: a corporate logic, because of the for-profit nature of these homes; a state logic, because of the national health and disability regulatory system; and a professional logic, because they are run as clinical settings led by clinically trained staff. Naming these separately matters because the state and corporate forces are distinct here and easily confused with one another. Read through Landri's dimensions, the same event plays out differently depending on which logic and dimension is at work: semiotically, a resident's refusal might be framed by a state logic as a compliance risk and by a professional logic as challenging behaviour; politically, the state logic places authority with standards, safety, and reputation, while the professional logic places it with the clinician; geometrically, the professional logic turns the resident into a clinical data point, while the corporate logic turns that same information into a quality indicator that senior staff can read at a glance. The two frameworks do not share the same assumptions: institutional logics assumes lasting belief systems that sit above local practice, whereas actor-network theory rejects any larger structure that exists before it is enacted locally (Mountford and Cai, 2023). I work with this tension rather than trying to resolve it, treating logics not as structures that act on practice but as resources enacted and made real within it (Waldorff, 2013; Mountford and Cai, 2023).

This diffractive reading also shaped the use of boundary objects, central to Chapter 5. Star and Griesemer (1989) conceptualise boundary objects as artefacts flexible enough to move across communities of practice while remaining recognisable within each; Carlile (2002) extends this at the pragmatic level, where knowledge at the boundary must become actionable, not only shared or understood but explored and recontextualised. This brought boundary objects into productive conversation with Hopwood and Nerland's (2019) epistemic practices, in which the testing of knowledge claims makes knowledge actionable where framings meet. Reading these theories through one another shifted the analytic question from whether digital systems simply coordinated information to whether they supported the collaborative reworking of knowledge into practice.

I identified two specific boundary objects for closer analysis: the digital care plan and the Power BI dashboard. Among the methods Adams and Thompson (2016) set out for interviewing objects is 'following the actor', which directs attention to micro-practices, to who is acting, who is included, and what is materially implicated. Applying this attention to my own observations highlighted the centrality of these two objects across the practices I observed. I followed them for a specific reason: attending to an actor in this way brings into view its relationships with other actors, and its effect on ways of knowing, that I wanted to trace. Following the care plan and the dashboard was, in other words, a means of becoming more aware of how knowing moved through the organisation. However, this would not prove easy or linear. Adams and Thompson, drawing on Latour, captured the apparent absurdity of the method: Latour asks how ridiculous it is to follow the actors themselves, when the actors to be followed swarm in all directions like a bee's nest disturbed by a wayward child (Adams and Thompson, 2016, p. 34).

In this study, the anecdote was both the way I held a moment and the way I returned to it. Returning with translation in the foreground brought one set of relations into view; returning with epistemic practice or institutional logics brought others. The anecdote did not change, but what became visible within it shifted according to the conceptual resources brought to bear.

Rigour and Accountability

Rigour and reflexivity in this study could not take a conventional qualitative form. The assumptions they often rest on: that a researcher is separate from the inquiry, that there is a stable object of study, and that methods that reliably produce findings are not assumptions this study can consider. Working out what could stand in their place became some of the most difficult methodological work of the thesis. Rigour was therefore understood not as removing the researcher's effects on the inquiry, but as the disciplined work of accounting for them (Law, 2004a; St. Pierre, 2018). This meant staying with theory across the inquiry rather than applying it at the end, returning to material across months rather than coding it once, and treating writing itself as analytic practice rather than the reporting of findings.

Reflexivity required further rethinking. Pillow (2003) argued that much qualitative reflexivity functions as a comfort mechanism in which researchers disclose who they are as methodological virtue, while leaving intact the assumption of a stable, knowable self and treating reflexivity as a guarantor of truth. Her call for uncomfortable reflexivity '*a reflexivity that seeks to know while at the same time situates this knowing as tenuous*' (2003, p.188) was important here. Following St. Pierre (2018) and Barad (2007), however, this study required moving beyond reflexivity as self-disclosure towards accountability to the entangled conditions through which inquiry was produced. Diffraction offered a more fitting sensibility because it shifted attention from mirroring the self to tracing patterns of difference produced through encounters between researcher, theory, material, and world (Bozalek and Zembylas, 2017). Reflexivity, in this sense, was not simply knowing myself within the research, but knowing where I was in the assemblage and how that location shaped what became knowable.

What I wore mattered. Whether I sat at the table or to one side mattered. Whether I held a notebook or recorder mattered. My organisational history mattered, as did what I felt. Recognition, frustration, grief, tenderness, and impatience were not methodological interferences to eliminate, nor confessions to tidy into positionality. They were part of the assemblage, shaping attention,

and affecting which fragments I returned to. Treating them as outside the inquiry would have reproduced the very separation this study refuses.

A further question remained throughout: were participants telling me what they thought I wanted to hear? My prior organisational role, sector history, and visible interests inevitably shaped what was said in my presence. Conventional responses often seek techniques to secure 'true' accounts: triangulation, member checking, and prolonged fieldwork as though method can separate inner reality from encounter (St. Pierre, 2021). Here words were not treated as transparent representations of pre-existing truth (Jackson and Mazzei, 2008; MacLure, 2013), but as produced within particular encounters, shaped by conditions surrounding them. The methodological task was therefore not to eliminate my effect, but to account for it: to attend to what each encounter produced or constrained.

This was often the hardest discipline to sustain. The pull towards older, tidier tools for coding, categorising, and organising was strongest when something similar kept appearing across interviews, fieldnotes, and observations. The trained reflex was to name that recurrence as a theme and treat repetition itself as evidence. What mattered was returning repeatedly to Dictaphone recordings, photographs, fieldnotes, theory, and the wider body of research I had found through this study and that, I had drawn on over many years. At times, what I observed or heard did not sit easily with what previous research had led me to expect. Rather than treating those differences as problems to be resolved, they became part of the analysis. Reading prior research, professional knowledge, lived encounters, and my own responses alongside one another made it possible to notice not only alignment but also tension, contradiction, and gaps. The discipline required was not removing judgement but holding it open long enough for the material to challenge what I thought I knew, and being willing to write before full certainty had arrived.

Researcher Positioning

The position of the researcher in this study cannot be separated from the inquiry itself. Within a sociomaterial sensibility, the researcher is part of the

phenomenon rather than an external observer of it (Law, 2004b). Positionality was therefore not a fixed property I carried into the field, but something co-produced through particular encounters between me, the people I was with, the rooms we occupied, and the conversations that unfolded.

My original training in social work oriented my attention in particular ways, foregrounding social justice, identity, human rights, self-determination, and choice as being foundational to good support. In the field, this orientation shaped what became noticeable. The positionality I brought to this study was multiple, fluid, and relational rather than singular or fixed. I am a woman, someone born to a migrant mother and a migrant myself, a researcher, a practitioner, and an entrepreneur. These were not separate vantage points held consistently, but conditions through which encounters in the field were shaped. Ryan (2015) describes positionality through the metaphor of dance, where researcher and participant shift around one another and different forms of insider and outsider status emerge, recede, and reconfigure across encounters. At times, there was synchrony; at others, tension or dissonance. Adjei and Chan (2025) extend this further by arguing that insider/outsider debates have often remained too human-centred, leaving materiality in the background when material conditions themselves help produce positionality. Whether I arrived at a meeting in a suit or casual clothes was not peripheral to insider or outsider status; it shaped how I was read, what forms of conversation became available, and what could be said. The methodological task was therefore not to declare myself an insider or outsider at the outset, but to attend to how these positions were continually produced through the sociomaterial conditions of the research encounter.

My relationship to the field was also unstable in another important sense. I began the inquiry employed within one of the participating organisations and completed it no longer holding that employment. This shift was not incidental but materially altered the conditions of the research. The informal conversations, casual sense-checking, and implicit trust that came from being organisationally inside were not fixed researcher attributes but effects of changing arrangements. My position was therefore neither neatly insider nor

outsider, but moved across and between those categories over time, and that in-betweenness became part of how the inquiry itself was conducted.

Place was itself another condition through which this inquiry was shaped, in ways that extended well beyond the practical fact of where the fieldwork was conducted. During my doctorate, I had moved to Aotearoa New Zealand, which immersed me in intellectual and professional conversations I could not have anticipated, and that have shaped how I think about the world, about how things are connected. Although this thesis does not work within a Māori worldview, encountering Indigenous scholarship while living here has influenced what I have come to find conceptually compelling, and Stewart (2021) makes the methodological resonance explicit in arguing that post-qualitative inquiry and Māori theory share important commitments, including a refusal of reductionism and an attention to writing as a form of inquiry itself. That resonance is part of what made the post-qualitative orientation of this study feel methodologically possible in this place and at this time. The curiosity that runs through this thesis about what holds things together, what mobilises and what binds is therefore not separate from where it was written.

Critical use of AI

The use of generative AI in the preparation of this thesis is methodologically relevant in a way it may not be in other studies, because a thesis concerned with how digital technologies participate in shaping learning and practice cannot coherently treat those same technologies as absent from its own conditions of production. To use AI in my inquiry without naming it would therefore be inconsistent with the sociomaterial commitments of the study itself.

The boundary I set was specific and deliberate. I did not use AI tools for the generation of data, nor did I input empirical material interview transcripts, observational records, or fieldnotes into AI for analysis, summary, coding, or thematic interpretation. The analytic and interpretive work of this study remained mine: the engagement with what was seen and said, the decisions about what mattered, the connections to theory, and the writing of argument. I used Claude version Opus 4.8 (paid version) and asked AI to check for

grammar and check for clarity. I handled all citation and reference formatting myself. I used ChatGPT (paid version), model 5.5, to generate images from my ideas for illustrative purposes. I used NotebookLM (free version) to convert papers I had already read into audio so I could revisit them while walking, travelling, or moving through the day within the constraints of full-time work. The differences between those engagements formed part of the epistemic process itself. I upgraded Mendeley to its AI-enabled version and found it less useful than the database I had built over years of annotated papers. That observation is itself part of the methodological account: a long-established reading practice carried more for me than the AI overlay.

Summary

This chapter has set out the methodological commitments through which the inquiry was conducted: a sociomaterial, post-qualitative orientation that treats learning as accomplished in practice and the researcher as part of the assemblage rather than apart from it. Material was generated through extended fieldwork across two residential aged care providers, held together as a layered sociomaterial archive, and engaged through diffractive reading and zooming in and out rather than coding.

The two empirical chapters that follow take up this work in different ways. Chapter 4 examines particular learning practices observed within secure dementia units. Chapter 5 then shifts from moments to movement, tracing how knowledge travelled across the organisation through boundary objects, principally the Power BI dashboard and the digital care plan.

Chapter 4. Learning Practices

When we think of life (or agency) as flowing, we see how it inherits conditions of possibility from prior actions and imparts conditions of possibility to subsequent actions—with every translation engendering new possibilities for being and action (Hultin, Introna and Mähring, 2021)

Introduction

Across the fieldwork, I observed numerous ‘learning practices’: sociomaterial encounters, where knowledge about dementia care is continuously enacted through people, technologies, and spaces coming together. I identified eight distinct learning practices, each involving both human and digital actors. Digital systems (care plans, dashboards) were actors in shaping what could be learnt and how. In the direct care encounter between staff and resident, these systems are rarely present in the moment itself, yet they are far from absent from the practice. The care plan that informed the approach, the training undertaken elsewhere, and the writing up of daily notes after support all shape the encounter from other times and places, as part of the assemblage that gets to that point. Technology here is an actor at a distance, part of the assemblage that produces the care moment even when there is no digitally mediated presence in a particular time and space. This displacement of digital scaffolding away from the point of care is itself significant, and I return to it below. Five of the eight learning practices took place in care settings where I was physically present, and three were conducted online through Zoom. Below, I outline all eight, organised around this distinction between in-person and online. I then examine two in depth, and the reasons I chose these in particular are set out below.

The Eight Learning Practices

In-person learning practices

1. When delivering daily care

These encounters unfolded in shared spaces amid medication trolleys being pushed between rooms, gloves pulled from boxes, chairs and tables arranged in ways that enabled or hindered movement. Light levels, noise, all shaped how practice was enacted.

2. Between care staff and the digital care plan to complete their daily recordings

This work was anchored at the nurses' station, a busy hub, with residents moving in and out of view, and computers positioned with screens angled towards staff rather than residents. Another screen on the floor was used for surveillance of the areas where the staff were stretched too thin to monitor in person. The nurses' station was positioned in such a way that it created a barrier between the staff and the residents, and staff were constantly interrupted in this busy environment while undertaking their recordings.

3. During staff handovers

Handovers took place in cramped back-office spaces away from residents, where several staff gathered around computers surrounded by continence pads, notepads, Post-it reminders, and wall-mounted protocol signs. Phones buzzed, and the environment itself pressed staff into a brisk, information heavy exchange, all the while with half an eye through the window screen at the residents in the lounge.

4. Between staff and family members

Meetings with families were held in quiet, closed rooms, softened by furnishings. Sofas were angled in an L-shape to elicit connection in important conversations. A laptop on the table brought the digital care plan into the exchange, its structured template mediating how information was introduced and discussed.

5. Between clinical managers and unit coordinators

These interactions took place in larger (whole village) rooms. Several

people sat around a large conference type table using both laptops and phones simultaneously. In some meetings, a big screen projected large visuals and data.

Online learning practices

6. Between the regional manager and the clinical manager

Held over Zoom but supported by multiple platforms, these meetings involved moving rapidly between Word documents and Power BI dashboards. Colour-coded red, amber, green (RAG) indicators set the frame of risk and performance. Moving between the platforms was very fast-paced, accompanied by a smooth exchange of dialogue between two people.

7. Between members of the regional clinical team

Also conducted virtually, but with many more participants, these meetings drew participants into shifting configurations as they logged in and out, joining the meeting at different times. Power BI dashboards took centre stage, RAG signals orienting collective attention. The Power BI graphs prompted more sustained inquiry, influenced by several experts present in the space simultaneously. The digital platform's expands, contracts, or disappears, mediating how presence was felt.

8. Between the head of quality and the quality team

Large-scale Zoom meetings revolved around rapid flicking between Word documents, policy files, and graphs. Screens were shared at pace, compressing high level oversight and detailed indicators into a single flow. The simultaneity of documents and metrics made the meeting feel paradoxically both comprehensive and fleeting.

From the eight learning practices observed, I selected two for closer analysis, each a particular moment in time and space. I selected a six-monthly review meeting as I was interested in learning practices with families, and I also selected an online quality meeting that utilised a complex digital arrangement. Analysing a small number of practices closely, rather than surveying all eight, allows the fine-grained attention that this study's approach required. These two represent key instances where the interplay between learning and practice was

analytically rich. Taken together, they capture both in-person and online encounters. The field sites also included hybrid sessions, running simultaneously in person and online; while these are an important dimension of contemporary learning settings, I did not have the opportunity to explore one in depth here.

The two learning practices each offered a rich opportunity to explore what Gherardi (2019) calls a 'unit of practice'. Expressed here as anecdotes, as a mechanism to zoom in (Nicolini, 2009), they are lively and told in the present tense, to give a sense of being there and to show how practice is enacted in the moment. The interviews I conducted are woven into this zooming in rather than standing apart from the process. While similar institutional and technological forces were at play across both, these forces interacted differently. What I aim to illuminate below is how knowing came out of the way material, human and non-human elements interacted, with digital systems sometimes doing a great deal, sometimes very little, but never acting alone.

These accounts focus on:

- Six-monthly review practice
- Meeting between the regional lead and the clinical team

Where the anecdotes zoom in, staying close to the moment, describing it as it unfolds, the analysis that follows zooms out (Nicolini, 2009), applying a set of theoretical heuristics to trace the relationships, tensions, and contradictions running through each practice. These heuristics were introduced in Chapter 3, including Callon's (1984) four moments of translation (problematization, interessement, enrolment, and mobilisation), institutional logics (Thornton et al., 2013; Waldorff, 2013) and epistemic practice (Hopwood and Nerland, 2019; Knorr Cetina, 2001, 2007). Here, I bring them into dialogue with one another and apply them more lightly, as sensitising tools rather than templates. In practice, we often assume, especially at a strategic level, that an intention travels seamlessly from A to B and arrives intact. Translation suggests otherwise: along the way, many forces are at play, material as well as human, that disrupt, distort and derail the message as it moves. This matters for care,

where the aim is to build networks strong enough to be durable, which makes understanding a practice's constitutive parts especially pertinent.

First learning moment: six-monthly care plan review

The six-monthly review is a routine yet significant event in residential care. The review is anchored to the interRAI Long-Term Care Facilities assessment cycle, as it is a required element of care practice under the Age-Related Residential Care Services Agreement and in the broader quality and person-centredness requirements of the Ngā Paerewa Health and Disability Services Standard (NZS 8134:2021) applied within that cycle. It brings together a staff member, whānau (the Māori term used here to refer to family members and significant others), and occasionally other members of the multidisciplinary team to review the care plan. It is also an important opportunity to share observations, clarify goals, and strengthen trust between families and staff. In practice, however, these reviews often balance competing logics: the clinical and regulatory requirement to document, and the relational work of sense-making and teamwork.

The following anecdote captures one such review and highlights how the digital care plan both enabled and constrained learning.

Working with Families

The meeting is held in a small, quiet room used for private conversations. Two sofas are set at right angles to each other, so everyone sits turned slightly inwards.

The staff member wears a uniform that signifies her role and authority. A slim laptop on her lap, the screen tilted towards her so only she can see it. She begins warmly, explaining the purpose of the six-monthly review, then follows the order set out in the digital care plan. On the screen, headings appear one after another from the review form. These include specific task-oriented outcomes, such as activities of daily living, each one shaping the direction of the talk. The plan's structure decides what is discussed and in what order.

The resident, David (not his real name), is not in the room. His absence feels awkward, as if something important is missing. The staff member speaks with confidence and kindness, making sure the family understand each point. She describes how David's ear infection is being treated and that he had his bowels open.

As the discussion goes on, smaller details of things that don't quite fit together begin to surface. When the staff member mentions that David loves reading, she asks whether he uses glasses. The family say he doesn't need them, but then the staff member adds that he often rubs or holds his head. There is a brief pause, the kind that suggests someone has noticed something but isn't sure what to do with it. The staff member looks back at the screen and checks the next heading.

Throughout, the digital care plan guides the exchange. Its clinical terms, 'mobility' and 'ADLs' set the tone and tempo, pulling attention back to the screen.

At the end, the family share a concern that David isn't going out much. The staff member says he often refuses outings, but the family explain that when he says 'no', he sometimes means 'yes'. She smiles, acknowledges their insight, and moves on to working through the main care plan headers. Each keystroke turns the moment of conversation into data that will travel through the care system, visible to others and shaping how David's care will be understood and actioned.

This account was in stark contrast to my own reflection.

My field notes day 11

The really big thing that came across for me was that we're talking about a husband that's lived with his wife for probably over 50 years as if he's a medical case. With no sense that the loss and fear that the family feel since this transition into care, or our responsibility to restore that relationship in the way that we care for the language that we use and the way that we present David to them as, you know, David, not being this person that has got this wrong or that wrong or is unable to do that or has had his bowels open. What they care about is that the resident expresses their identity, that they are connected to others, that they are

feeling supported and loved. But actually, the structure of the digital care plan didn't allow.

This uncomfortable moment, perhaps confronting but revealing, points to a deeper tension in contemporary care practice. The meeting felt simultaneously productive yet constraining.

The first stage of translation we explore is *problematization* (Callon, 1984); the way a problem gets framed, drawing some people and things in while leaving others out. This framing does not just describe a situation that is already there; it also helps shape what the situation becomes. In what follows, I trace how David's care was framed.

Problematization

What struck me was how the problem was already framed before anything about David himself had been discussed. The six-monthly review—regulatory, scheduled, required—seemed to define what mattered from the outset: a systematic assessment to meet regulatory requirements. I found myself wondering how much space this framing left for other kinds of knowing. Hopwood and Nerland (2019) argued that how a problem is first framed epistemically shapes what knowledge becomes relevant to address it. This framing drew certain epistemic resources into play—clinical categories, documentation requirements, risk indicators—while leaving others at the margins. Hopwood and Nerland (2019) observed that professionals bringing clients first into their epistemic frame. This is a good starting point and highly relevant in care settings where clinical knowledge matters. However, they also described how this is then developed, where the client's own knowledge is validated and augmented, not just accepted but actively built upon. Here, only the first was visible. The family were drawn into a biomedical frame, with talk of things like bowel movements and mobility, but their relational knowledge of David seemed to find no equivalent space.

Watching the staff member work through each section as it appeared on the screen, I began to think about what Callon (1984) termed *an obligatory passage point*, a node through which all knowledge must pass to become actionable.

The headings on the screen determined what got discussed and in what order, such as activities of daily living (ADLs), mobility, nutrition, and bowels, yet details surfaced that did not quite fit the template's logic. The staff member mentioned that David loved reading, asked about glasses, and then added that he often rubbed his head. Three observations, spoken aloud in the same room, but somehow, they remained disconnected. I wondered: was it the template's structure that kept these threads apart?

Throughout, the clinical language built into the template 'mobility', ADL set the tone, and care became, in large part, a matter of checking and recording, shaped as much by the categories on the screen as by the conversation in the room. This is not a failure of the nurse, who was attentive and kind throughout; it is a question of what the process itself was doing, beyond documenting David's care. Completing the review was a requirement, a series of fields to work through, but it was also a way of knowing: some ways of seeing David were made easy, and others were perhaps left at the edges. Moser (2008) showed that dementia is not a fixed condition but something shaped through practice; different tools bring different versions into view. Here, the template positioned David primarily as a body to be monitored, a set of risks to be managed. Best practice calls for a biopsychosocial approach (Spector and Orrell, 2010), yet the particular assemblage—the fields on the care plan, the laptop turned away, and the nurse's uniform—may have pulled attention towards the biological and away from the relational.

This observation brought me to the concept of institutional logics (Thornton et al., 2013). In the settings I observed, three logics were most evident. A state logic set the regulatory framework of accountability and access. A corporate logic was present across both the for-profit and not-for-profit services in my study and shaped them in ways that went beyond efficiency alone. A professional logic foregrounded clinical expertise, and the dementia support that staff provided. Institutional logics have usually been understood as sitting at the level of society and flowing downwards to shape what happens in a field and what individuals do. That does not fit easily with the flat, relational ontology of actor-network theory and sociomateriality that this study rests on. Mountford

and Cai took this up, arguing for a flatter ontology in which logics hold relationships with one another and are traced through their connections, rather than being tied to different levels of society (2023). I treat logics not as principles held in practitioners' heads, but as effects that are produced through material arrangements.

A state logic was built into the structure of the practice itself: the six-monthly review cycle and the mandatory fields. This regulatory dimension was not only imposed from outside; staff also understood it as an important part of their work, as their interviews made clear. As Jenny stated, *'If someone had to step into my shoes today, the most important thing is that they would need to understand the regulatory standards.'* This pointed not to personal belief but to how regulatory accountability had become embedded in the work itself.

A corporate logic surfaced in the template's structuring role, demanding systematic documentation across specific domains. In interviews, this orientation towards risk was evident: *'You need to remember that part from the business aspect, maybe having a risk radar, trying to anticipate things before they happen'* (John). The phrase 'risk radar' is telling, as it suggests a way of paying attention and scanning for what might go wrong. On the form, each observation is registered as a separate item to be checked. Perhaps this explains why the three observations (reading, glasses, and head pain) remained unconnected: the template offered no prompt to ask what might link them. This is problematic, as risk can be cumulative and/or influenced by multiple other risks. Hoe *et al.* (2024) found that risks are often identified independently, and this prevents pattern recognition. This forms a modular structure, which identifies topics in isolation that may have limited the opportunity to identify relationships between risk factors.

In interviews, practitioners emphasised clinical expertise: *'To do my job well, they would have to have the nursing knowledge and experience'* (Sam). This suggested that a professional logic was present. This was exercised through the digital care plan, which took up a central place in the practice. It was, in Callon's (1984) terms, an obligatory passage point: the point that all actors must pass through to get what they want. In defining a problem, an actor can make

itself necessary to solving it, so that everyone else must go through it. The care plan occupied exactly this position, and what passed through it shaped the outcomes that followed.

The care plan did not constrain the professional logic so much as confirm it. This was a setting where people were living with dementia alongside acute illness and complex physical needs, so clinical knowledge had a clear and necessary place. Yet dementia practice is biopsychosocial: it depends on understanding how clinical, psychological and social dimensions interact, rather than attending to the clinical alone. Because the care plan operated as an obligatory passage point, channelling the nurse's knowledge through its clinical categories, it privileged that clinical framing possibly over the fuller picture.

Interessement

The next stage in Callon's (1984) framework, interessement, considers how actors and artefacts are drawn into a network and aligned around the defined problem. In epistemic terms, drawing on Hopwood and Nerland (2019), this can also be understood as a phase of gathering, when different resources, tools, and ways of knowing are brought together. What gets gathered here matters: it shapes what will be available to work with later. I wondered how the digital care plan came to occupy such a central position.

The room itself performed crucial interessement work, its privacy and security creating conditions where families might feel safe to share sensitive information, while the L-shaped sofa arrangement literally angled participants towards each other, encouraging intimate conversation. Buse *et al.* (2018) used the term 'spatiality of care' to describe how physical environments actively shape care practices not as passive backdrops but as active participants in what becomes possible. Nord (2015) drawing on ANT, made a related point: the building is not a neutral container for care but one of the actors through which care practices are enacted.

The clinical language embedded in the plan warrants particular attention. Terms such as 'mobility' and 'ADLs' acted as powerful actors, drawing participants

towards biomedical categories while displacing relational ways of knowing David. This language foregrounded the biological alone, potentially narrowing space for the relational knowledge that might have enriched understanding of David's situation.

Time pressure compounded this narrowing. There was much to cover and little time to do it in. Hopwood and Nerland (2019) noted that gathering diverse perspectives takes time; time to explore, to bring to light different viewpoints. Here, there was none. Staff defaulted to procedural talk, a pattern Backhaus *et al.* (2020) attributed not to lack of empathy but to institutional demands that make slower, relational dialogue difficult to sustain. The staff member's uniform also played a part, actualising authority and signalling that this was a clinical encounter where professional knowledge would lead.

The plan's categories, the nurse's uniform, the medical vocabulary, and the conditions of time and workload intra-acted to produce a version of care centred on documentation and accountability. These elements did not simply influence one another; together, they brought into being a way of knowing. The uniform signalled authority, reinforcing the idea that clinical knowledge mattered most. But what happened to other forms of knowledge in this process? Law (2004) showed how practices enact certain realities, while othering what does not fit, or repressing or absenting what is deemed insignificant.

Enrolment

Enrolment is the moment actors accept the roles proposed for them. In this encounter, several actors have taken up their positions: the staff member, the family, the care plan template, the room arrangement that signals who leads and who follows, and the time pressure that keeps things moving. No one refuses. The enrolment succeeds. However, Hopwood and Nerland (2019) prompted a further question: how have epistemic responsibilities been allocated?

The most significant anomaly in this encounter was David's absence. The person whose care was being planned could not participate in his own review.

Without his voice, contradictions went unresolved, interpreted through others rather than explored directly with him. David's exclusion stemmed from several factors. He required communication support, demanding time and resources in short supply, and stigma likely played a role, not only professional assumptions about his capacity (Putland and Brookes, 2024) but also the family's grief over his perceived loss of identity. As Kitwood (1997) observes, excluding people with dementia from decisions perpetuates the very dehumanisation that person-centred care seeks to challenge. Calabrese *et al.* (2026) described this as 'epistemic injustice', a framework to understand how stigma and social prejudice translate into systematic exclusion from the knowledge production process. Novy *et al.* (2023) highlighted how easily care can slip into doing for rather than doing with, especially when communication is difficult.

Even if David could not be present in the room, his experience might still have been validated through other non-human actors: richer daily recordings, observation notes, and communication supports. Yet these, too, were constrained, as one participant observed about the limitations of the recording tool, staff were '*just answering what the task asks you there*', with '*a limited number of words that you can enter*', meaning '*sometimes what you wanted to say is not enough space for you to explain*' (William). The template's character limits prevented the kind of detail that might have carried David's patterns and preferences into the review.

The family was enrolled as present and contributing, but being enrolled is not the same as having your knowledge co-constructed. Bringing different forms of knowledge together is a critical practice in dementia care. Knorr Cetina calls knowledge 'woven twice' (2006, cited in Hopwood and Nerland, 2019); the family's knowledge would not simply be inserted into the professional frame, but recontextualised so that their understanding and the clinical account are brought together. Clinical information can be checked against guidelines, comparing it with previous records, but relational knowledge—his 'No' often means 'Yes'—would need to be tested against daily observations, explored across shifts, and tried out in practice. The care plan had fields for clinical information, but for relational knowledge, there was limited space. For this to

change, something in the assemblage would need to be different. The care plan template could prompt inquiry rather than asking not just ‘what does the family report?’ but ‘what does this contradict? What should we test?’ The room arrangement could position family and worker side by side, looking at the screen together. Perhaps the family could pre-populate their concerns/agenda ahead of the meeting. Time could be allocated differently. Communication supports could be available to support David’s participation. These are not simply better practices; they are different material arrangements that would make different epistemic work possible.

The staff member’s approach was also shaped by what she was navigating: an emotionally charged conversation with a family within a system that offered structure but little room for uncertainty. I wondered about the relationship between confidence and curiosity in this encounter. Professional curiosity, the willingness to probe, to ask ‘What if?’, to test assumptions, requires a sense of safety. Following the template’s sequence offered a clear path, but stepping outside it to explore contradictions like ‘No means yes’ would have required confidence in expressing professional curiosity. Concerns with confidence to challenge or question surfaced frequently in interviews, not as an individual deficit, but as something shaped by institutional conditions. As one participant reflected:

Probably for me the primary thing is to be confident, most especially when talking to residents... With family, with those living with dementia, it can be hard and very tricky as well, because every time you’re telling them, it might offend them, so they need to know what to avoid to overshare with a family member (Monica).

Another observed, ‘*I find a lot of our migrant staff think Yeah, it’s not my—not my place to ask; this thing belongs to this person who is higher up in charge than I am*’ (Maria).

Research suggests that migrant staff may experience challenges in navigating sensitive family communications, not through any lack of capability, but because organisational hierarchies and cultural unfamiliarity with systems can make

standardised protocols feel like safer professional territory (Brunton and Cook, 2018; Choi et al., 2019). Therefore, the care plan's structured approach may have functioned not just as clinical best practice but as protective professional scaffolding helping staff manage the emotional and cultural complexities of family engagement while maintaining professional credibility.

This reveals that enrolment operates not only through who is brought into the process, but also through what is most convenient. Leaving David out reduced the unpredictability, emotional labour, and time demands his participation would have required. His absence made the meeting more efficient and predictable for others, but it also shaped the outcome itself, producing a plan based on what could be recorded rather than what was known.

What emerged from this encounter was enrolment of a particular kind. The family participated; their contributions were recorded. But without David, and without mechanisms to test what was shared, knowledge was accepted rather than tested. This outcome was not located in any single actor. It was distributed across the assemblage: the template that constrained, the time pressure that pushed forward, the character limits that blocked detail, and David's absence that removed the possibility of testing claims against his response. The care plan captured information, but perhaps closed down the inquiry.

Mobilisation

Finally, mobilisation traces how the outcomes of the interaction travel and gain durability across the organisation. In Callon's (1984) terms, translation becomes visible: what gets transformed into what, and what fails to translate at all. As I observed, information was entered directly into the digital care plan as each section of the review was completed. David was translated into clinical data points. The family's fifty years of relational knowledge was translated into brief notations, e.g. 'refuses outings'.

The care plan performed a curious kind of mobilisation: it distributed information efficiently across the organisation, but it also carried forward the very constraints that had shaped the meeting itself. Following Latour (2004), translation is not simply the gathering and circulation of knowledge but a matter

of whether something is carried forward as a matter of concern, shown as something still being put together, and still open, or hardened into a matter of fact, a bare record that hides the work that made it, and is closed to question. David's needs were of the first kind. In this mobilisation, those needs were carried forward as fixed data points, closed into fact.

This meeting showed how formal, compliance-driven practices, while essential for structure and accountability, can narrow the scope of learning about what the residents and families need when they are not accompanied by relational and reflective engagement. Statutory requirements such as the Code of Health and Disability Services Consumers' Rights (Right 7) and the Ngā Paerewa Health and Disability Services Standard rightly emphasise collaboration with whānau. Yet in this instance, family involvement fulfilled compliance obligations without being meaningfully enacted as an epistemic resource. At the same time, the encounter illuminated the subtle ways practitioners try to retain compassion within procedural frames through tone, empathy, and acknowledgement of the family even when the system offers little space for it. What emerged was not a failure of care but possibly a tension between two ways of knowing: care as compliance and care as connection.

Second learning moment: problem-solving practices

This second learning moment focuses on a regular monthly meeting between a regional clinical lead (RCL) and the on-site clinical manager (CM). These meetings are designed to provide oversight, share learning, and maintain quality. Because each regional lead supports multiple facilities, their role naturally creates opportunities for cross-fertilisation of learning. The meeting was held online and followed a set agenda.

Unlike the first learning moment, which traced a single care review from start to finish, this meeting moved quickly across multiple topics. In the space of an hour, the participants worked through the following concerns:

- urinary tract infections
- bruising

- distressed behaviour
- safety in sexuality and intimacy

To capture this complexity, I use short anecdotes to zoom in on these topics, foregrounding the material-discursive elements. For each, I then zoom out and apply the heuristics mentioned above.

The image below depicts the overall structure of the meeting.

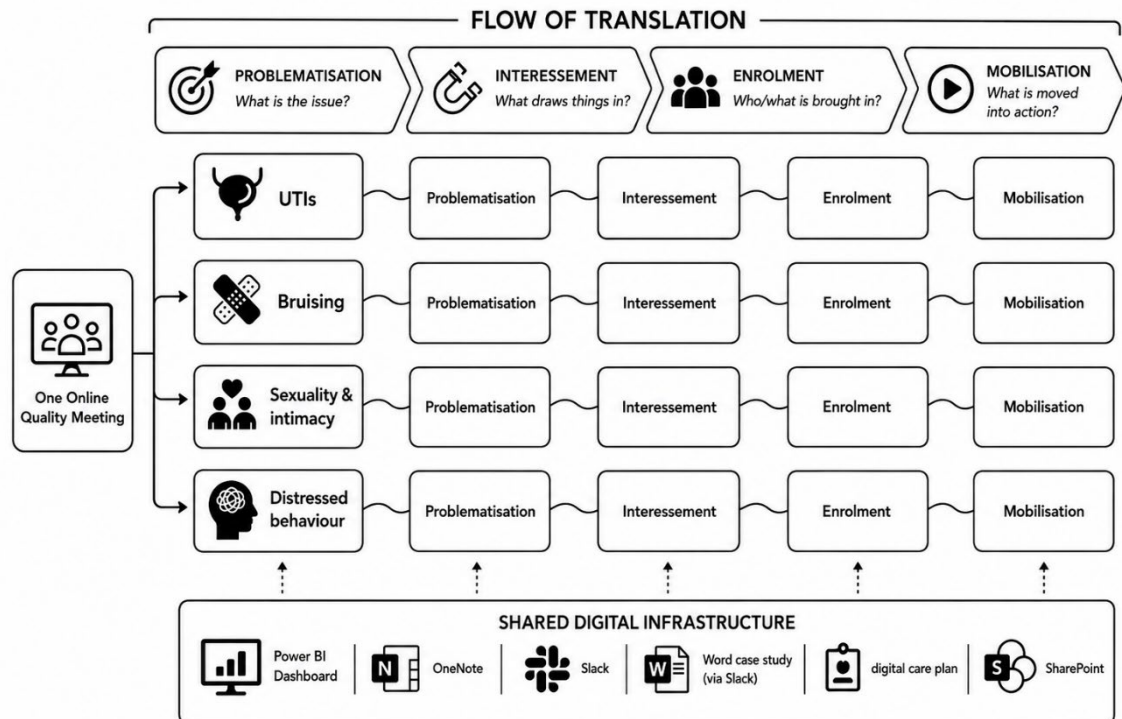


Figure 3. Created by ChatGPT. Translation of four concerns through the digital arrangement of one online quality meeting.

Before exploring these individually, I set out some general observations of this meeting. Information was drawn from multiple sources. Figure 4 illustrates the range of sources in a single meeting, each created at a different time, in a different place, for a different purpose, yet assembled in the moment to reason through problems. This is what Knorr Cetina (1999) calls the machinery of knowledge construction.

My field notes day 20

'I'm seeing this knowledge as a massive web of different complicated epistemic networks, essentially, that are coming from all different places. I wish I could visualise it, cause it would look just incredible in terms of the complexity'

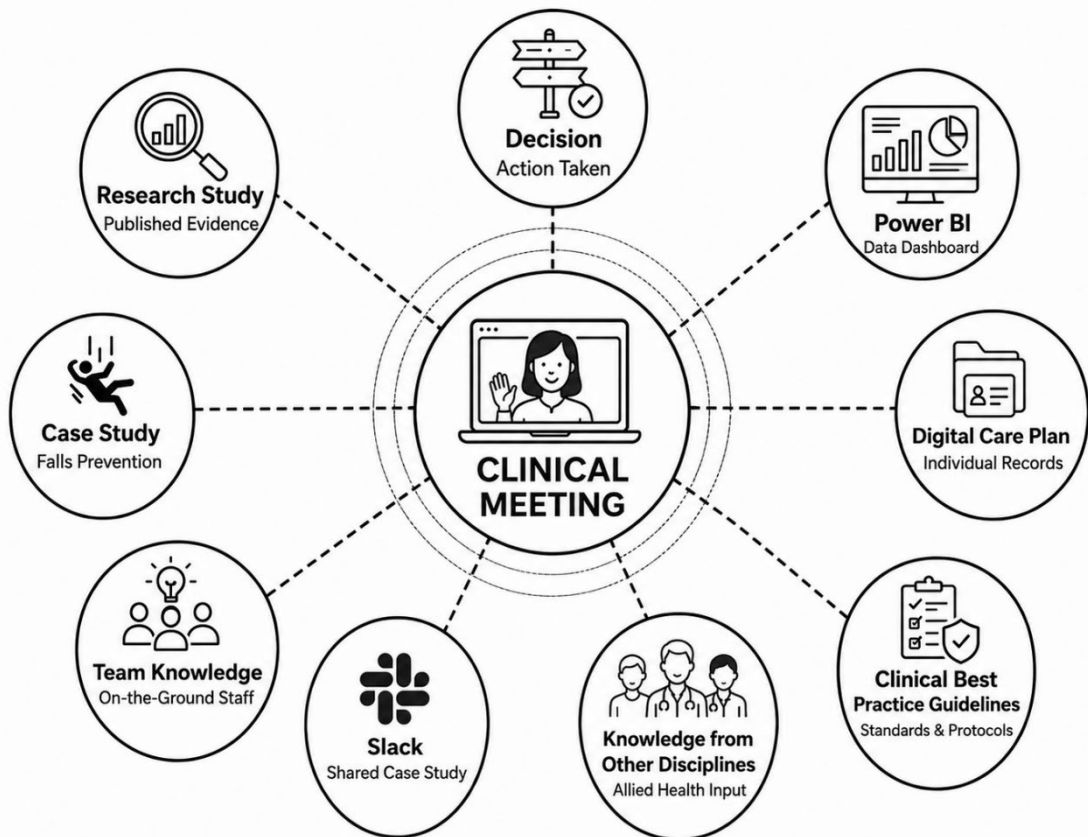


Figure 4. ChatGPT-generated image depicting information sources for a clinical meeting

Each of the four problems that were discussed in that meeting are now explored through individual anecdotes.

Working with data, solving problems: bruising

The session unfolds across a network of screens. Both participants are visible on the Zoom platform throughout, their faces appearing in small boxes in the corner while the shared screen dominates the view. This visual connection supports rapport. OneNote is pulled up to view the agenda; the RCL returns to it periodically throughout, checking what needs discussing, noting verbally what has been covered. Power BI is displayed, showing a whole sea of figures that fill the page: a dominating grid of red, amber, and green cells summarising clinical indicators across the service. One red cell captures the gaze and pulls the conversation into motion.

Hovering over a red cluster, the RCL flags increased bruising, clicks into it, and the view changes to show falls data underneath. She cross-checks figures, scrolling between screens. The bruising isn't correlating with falls, which prompts a question: if not falls, then what? The RCL asks the CM to discuss this with staff and consider whether improved moving and positioning training might help. She then switches to Slack, where a Word document has been shared earlier—a case study about an undetected fracture used as a learning tool. Colours lead to dataset, dataset to document, and document to plan. The system seems to think with them: within a few minutes, the conversation has moved from a coloured cell on a dashboard to a specific resident's story.

Problematization

The Power BI dashboard flagged increased bruising through its RAG system, but the problem was not defined just by this. Multiple framings were held open: bruising from falls, bruising from inappropriate handling or manoeuvres, and bruising from medication side effects. Each framing pointed towards different actors and different lines of inquiry. Falls data, moving and handling practices, and medication charts were not neutral resources waiting to be consulted, but were implicated differently depending on which version of the problem was being pursued.

Interessement

Other actors are drawn in to explore causes. Falls reports are pulled up and read against the bruising figures. However, there may also be some actors missing who could help solve these challenges and have not been hooked in here. For example, data on staffing levels, skills mix, and staff wellbeing sits in HR systems, not in this meeting. These conditions can bear on bruising in ways the clinical data alone cannot show: when staff are stretched thin, or have not had recent moving and positioning training, or are exhausted, the everyday work of supporting residents to move safely is harder to do well. In addition, while some location of falls data did exist, nothing links an incident's location to a bruise, so any connection between environmental layout and injury risk remains out of reach. Nutritional factors that affect skin integrity, such as protein or vitamin C, are not part of the network being assembled. Missing too were the voices of the resident and/or their family, who could speak to how the bruise

was actually experienced, whether it hurt, whether it caused worry. Hibbert *et al.*'s sociomaterial inquiry into clinical teaching also found that when assessing pain, the voice of the person was missing, relying instead on other actors (2018).

Enrolment

The RCL asked the CM to raise the issue with the wider staff team to contribute contextual knowledge about the bruising spike. Moving and handling training was proposed. Medication charts were reviewed to identify any drugs with the known side effect of bruising, they also noted that bruising data did not correlate with falls, which opened a question rather than closing one: if not falls, then what? Although medication charts were examined for drugs with known side effects, other systemic and physiological contributors remained outside the scope of inquiry, which stayed focused on falls and moving and handling practice. This created a gap where practitioners, who hold the richest real-time insight from daily practice, were unable to combine their experiential knowledge with system-level data. In practice, staff are acutely aware of how staffing levels might impact outcomes. One participant noted in the interview:

Yeah, there is poor management, shall I say, but I totally understand when it happened. We only have like three caregivers during that time, and it's just quite too hard. There was an incident where we have like 30 residents and only three staff. And then only one nurse. So yeah. Imagine during that time when I have to do medication on both sides and in between, I have to help them with the kitchen chores. And I can just see my stuff being left behind and I'm just looking at them, not doing anything for them (Monica).

In Bateson's (2022) terms, the quote above describes practitioners generating warm data: transcontextual insight about the interrelationships between clinical patterns, organisational conditions, and human experience.

The skilled practitioners in this meeting were drawing on their ability to notice patterns, question anomalies, and connect falls data, care plan records, and

medication charts to day-to-day practice realities. One practitioner described it thus:

I'm always curious around medications especially antipsychotics or anything that can affect sleep and how they might link to falls or distress. Sometimes, the data doesn't line up the way you'd expect. I've seen cases where PRN (medication when needed) use is high, but distress isn't, or the other way around, and that makes me stop and think. One time, I was reviewing a case where distress happened mostly in the evenings when family visited. Then, on Mother's Day, the resident became distressed even without family there. It made me wonder—is that about thinking their family isn't here, or are they missing something? If we don't orientate them, maybe that's what's going on? (Jenny).

Mobilisation

The intention to engage staff and consider training was noted, but there was no documented cycle to test the hypothesis, for example, a brief PDSA (Plan Do Study Act) using targeted moving and handling changes and a review of whether bruising trends changed over time. Mobilisation was not fully realised; time was limited, and this work probably happened outside the scope of this meeting/observation.

During this practice, some actors became part of the assemblage while others remained absent. Figure 5 illustrates both. Within ANT, the term *actor* refers to any human or non-human entity capable of exerting agency. To convey the agency and mobility of non-human actors, they are represented as anthropomorphic figures with digital screens for heads, visually signalling their active participation in the network while distinguishing them from human actors.

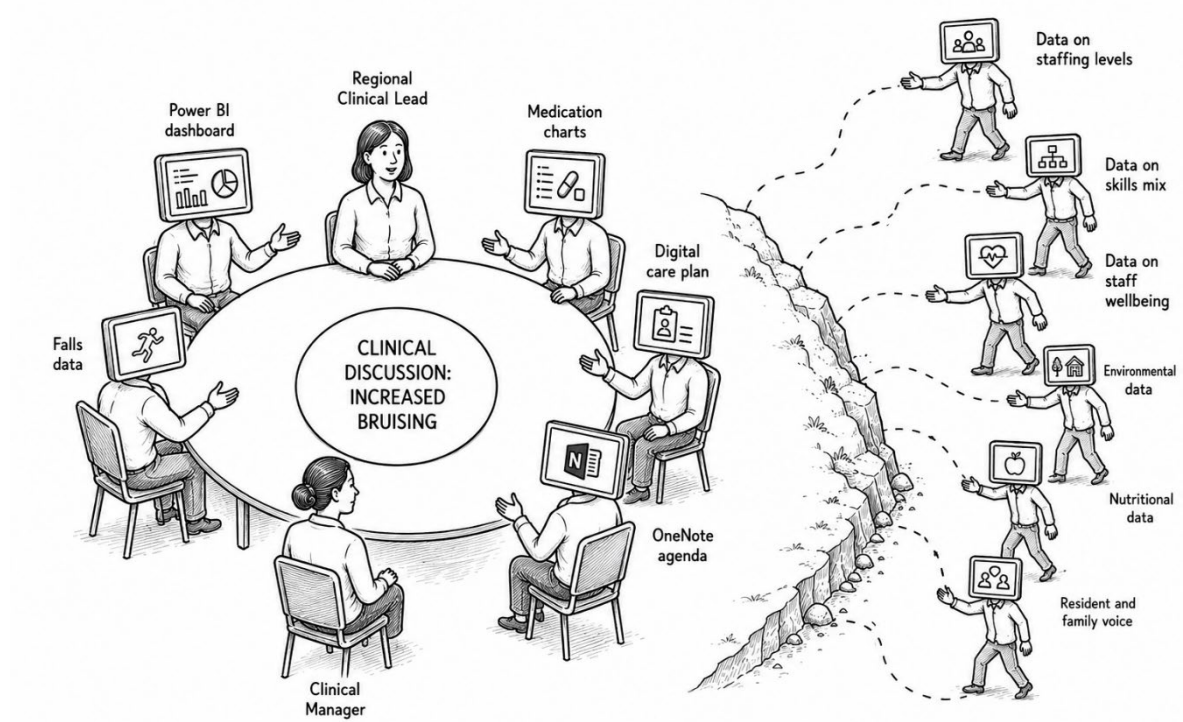


Figure 5. Created by ChatGPT to illustrate actors absent from the network

Working with data, solving problems: urinary tract infections

The RCL clicks back to the data dashboard. A red cell flags UTIs; the rates are higher than normal. The RCL and CM concentrate on the figures first, checking whether the data holds up, and the RCL asks the CM whether she is discussing it with her team. Then, they move from the dashboard into the care plans (including hydration), scrolling through clinical notes and history on the screen. The plans show which residents have catheters, and a question surfaces: should catheter bags be changed once a course of antibiotics is complete? The answer isn't on any of the screens in front of them; it sits in the research. The RCL says she will go away, check the evidence, and come back. As a resolution, she suggests reintroducing the STOP and WATCH prompt, a paper-based tool for early detection. She says it could be laminated and used.

Problematisation

The Power BI dashboard displayed a red RAG flag indicating a spike in urinary tract infections, framing this as a clinical risk requiring attention.

Interessement

Other actors are drawn in. The Power BI dashboard remained the central reference point, with the RCL and CM reviewing care plans for the relevant clinical notes and history. They hooked in a range of actors to satisfy multiple lines of inquiry: catheter use, hydration practices, and recent changes in residents' health or care routines. But there were possibly also actors absent from this gathering. What change in the assemblage could make it possible to hook these other actors in? For example, there was no way of linking this problem to the environmental risk factors, such as proximity to toilets and water access. Equally absent were the voices of the residents themselves or their families, who could have shared observations about toileting patterns, hydration access, or barriers they experienced in the environment.

Enrolment

Roles and investigative pathways were agreed. The CM and RCL acted as clinical evaluators, using care plans and clinical notes. The presence of catheters in some cases was identified, and a question emerged: should catheter bags be changed after completion of antibiotic treatment to reduce recurrence of UTIs? The RCL said she would check the evidence. Hydration practices were also explored as a possible contributing factor.

Here, the knowledge claim remained provisional; it was raised but not yet verified. This is appropriate; enrolment involves testing and examination, not premature closure, but the examination was constrained by what was available to examine. The digital care plan could show whether a resident had a catheter, but richer contextual detail, why hydration might be low, and what barriers a resident faced were missing from the record.

This tension was also evident in the interviews:

I think what I'm finding challenging is to remind staff to put in comments, you know, a lot of the information we gather are now, they wanna make it simpler for space, that you know whether Mrs X ate breakfast, take yes or no. But then on the side, there's that comment box where it would be great if you actually wrote down what did she eat? You know, did she eat

the whole bowl of porridge? Did she eat this? Or if she did refuse, what's the reason? (John).

The narrative voice of the resident is challenging to capture directly due to cognitive impairments. While direct questioning may not always be possible, epistemic work can still convey the person's perspective through the quality of day-to-day audio recordings. In this case, those recordings were often minimal and restricted by time pressures, the absence of suitable data fields, and a lack of curiosity in probing beyond tick-box entries. Without rich, observational detail from staff who lead with curiosity, the resident's experience remains absent from the record, limiting the knowledge base's ability to generate effective solutions. Dupret and Friborg (2018) argued that the individual's narrative must be recorded in full detail for professional clinical judgement to be safe and qualified.

Mobilisation

A suggestion was made to laminate and display the STOP and WATCH tool in key areas to promote earlier detection of UTIs by all staff. This represented an attempt to create actionable knowledge by introducing a new artefact into the assemblage.

Problem-solving practices: sexuality and intimacy

They return to the OneNote agenda. The next item reads 'complex clients'. The CM raises a situation: two residents, who are not married, have grown close and want to spend time together, but the family of one of these residents have raised concerns about this. The CM reports that the family who have an activated enduring power of attorney have been informed, and discussions have taken place. The RCL points to resources on SharePoint on sexuality and intimacy. The agreement, reached with the family, is that the residents can hold hands, with staff observing. The RCL suggests involving the nurse practitioner and asking the activities staff how the residents might be kept engaged to divert their attention.

Problematization

Raised under 'complex clients' on the OneNote agenda, the situation was framed largely via a family member's concerns as a problem to be managed, with a risk focus on 'inappropriate intimacy'. The residents' perspectives were absent. While the family member held enduring power of attorney (EPOA), this does not extend to decisions about intimate relationships.

I find myself wondering what might have shifted if a supported decision-making protocol had been established as an obligatory passage point at this stage and if the issue had been framed from the outset as a rights-based matter requiring the person's voice to be sought and interpreted. This would have oriented the network differently, moving from risk management towards autonomy, and wellbeing, and drawing in actors such as allied health, advocates, or communication specialists early in the process.

Interessement

OneNote prompted the topic's inclusion in the meeting, and the RCL referred the CM to a SharePoint resource on managing such situations. The family's perspective was represented in the discussion, even though they were not present. The conversation was oriented towards finding an acceptable management approach. The resident's own voice was absent. There was no

system capability to capture or link narrative to behavioural data. There was no mechanism within the assemblage to transform the residents' expressions of connection—their gestures, their seeking each other out, their comfort in proximity—into a form that could travel through the network and be considered alongside clinical notes or incident records. Sensitive subjects like love and intimacy can be difficult to report (Smith *et al.*, 2025), yet tools specifically designed to highlight these issues can create learning opportunities through conversation (Jones *et al.*, 2024).

Enrolment

The CM and RCL were enrolled, but they also drew on the experience of activities staff who had managed similar situations. The family's perspective was represented in the discussion; the EPOA acted as their proxy, carrying their concerns into the discussion. The compromise, permitting handholding only under observation, was confirmed, in part because the family's views were being treated as central to the decision-making process.

Here, the principle of symmetry invites reflection. ANT asks us to treat human and non-human actors with the same analytical attention, so as to notice how objects, documents, and instruments shape outcomes alongside people. The EPOA, as a legal instrument, was enrolled as a powerful actor in this assemblage. Yet under the Protection of Personal and Property Rights Act 1988, an enduring power of attorney for personal care and welfare confers no authority over intimate or relational life. Its scope covers matters such as where a person lives, their medical treatment, and their general care. It does not grant authority over who a person may love, touch, or form connections with; these matters fall outside what the instrument was ever empowered to decide. Moreover, capacity under the Act is decision-specific and is presumed until the contrary is proved: a person may lack capacity for some care decisions while retaining the capacity to consent to companionship or touch. In this network, the EPOA was enacted as more influential than its legal standing warranted, while the resident, whose preferences were at stake, was positioned as a weak actor.

These situations are genuinely difficult, and staff navigate them under multiple pressures: from families who may be distressed or protective, from

organisational expectations to manage risk, and from broader cultural assumptions about what is appropriate for older people, or for people living with dementia. In this scenario, the staff member likely discussed the matter with the family because they held an activated EPOA. Deferring to the family via the EPOA is an understandable path. It offers clarity, reduces conflict, and aligns with how staff are trained to respond in most care and welfare matters.

The organisational policy on sexuality and intimacy, if accessed at the time, might have elicited a different response as it details the limits of EPOA authority in relation to intimate relationships. The RCL referred to the policy and noted that resources were available, but the policy was not actively enrolled as a problem-solving tool. A more accessible tool, such as a quick-reference conversation card incorporating key policy points and rights, might have strengthened the policy's presence in the network.

Policies remain materially inaccessible at the point of care within busy environments, yet they could potentially create different enactments within this assemblage and change the outcome. Opportunities are emerging as technologies evolve; as one participant noted: *'Rather than going through whole policy, if nurses can just ask a quick question and it brings all the policies relevant things, so that's one possibility'* (Jenny).

Mobilisation

Mobilisation took the form of permitting supervised hand holding as the agreed compromise. This allowed the residents to maintain some physical connection but in a controlled way that satisfied family concerns. However, what possibly translated through this network was more like containment than connection. Risk travelled; it became the organising frame. The residents' expressions of connection, their gestures, their seeking each other out, and their comfort in proximity had no presence in the network.

There is substantial literature to draw on around the importance (Flavin, 2020; Florack et al., 2023; Jaworska and Chiong, 2021; Older Persons Advocacy Network, 2025) and benefits (Colclough *et al.*, 2025) of enabling people to make their own decisions, but despite this, there are significant challenges with its

uptake (Sinclair *et al.*, 2019). What this analysis adds is attention to the material arrangements that enable or disable such opportunities in practice. Whether a rights-based approach is taken does not rest on good intentions alone, but on whether the material forms that carry it—accessible job aids, assessment tools, quick-reference prompts setting out the person’s rights—are present in the moment and easy to draw on. Here, no such form was enrolled to bring the residents’ own voices into the room. Their preferences, expressed in how they sought each other out and took comfort in proximity, had no route into the discussion, while the family’s concerns travelled easily. A supported decision-making tool, had it been present and used, might have helped the residents’ voices to be sought and interpreted alongside the family’s.

Working with data, solving problems: distressed behaviour

Back on Power BI, the RCL clicks into distressed behaviour. The dashboard shows the number of incidents. Clicking further in, details appear about which residents they cluster around. Curious, the RCL clicks further again into the care plan, opens the types of distress logged against a particular resident: agitation, aggression, verbally abusive behaviour. This prompts a brief discussion about the resident’s agitation and BPSD. They read down through the plan together, looking at the specific approaches. The RCL asks about the ABC chart (which identifies behaviour triggers) and PRN (medication when needed). Redirection is one of the techniques mentioned. The RCL asks whether there has been any training on distressed behaviour, but that data isn’t readily to hand at this point in the meeting. The conversation settles on continuing with the approaches already in place.

The CM mentions that staff are trialling a new ‘walking handover’, using tablets as they move around the care environment rather than gathering at the nurses’ station. She explains that this lets handovers take place alongside care activity and seems to make the process quicker and more focused. Staff can see residents as they discuss them.

When the Zoom call ends, the conversation stops, but its traces remain: annotations saved in Power BI, notes added to OneNote, the Word case study sitting open in Slack, ready to be revisited.

Problematisation

The Power BI dashboard showed distress incidents trending high, flagged in red as ‘challenging behaviour’. From the outset, the problem was framed through the categories the system made available: incident counts, trend lines, and colour-coded alerts. There is nothing unreasonable about this. Dashboards are designed to identify patterns and direct attention to where it may be needed. Red flags serve a purpose; they prompt action, yet the label itself did semiotic work. Challenging behaviour, red, requiring attention, positioned distress as a risk to be managed. A different starting point might have been possible: ‘This person seems distressed; what might they be trying to tell us?’ That framing would invite different actors into the network, and stimulate different questions, and epistemic resources.

These observations seem to suggest that when something is framed as ‘challenging behaviour trending up’, the conversation naturally moves towards containment and management. The literature supports this notion that when something is framed as an unmet need, it helps to elicit problem-solving (James *et al.*, 2020). However, the dashboard, by design, offered the first framing, which influenced everything that followed.

Interessement

The dashboard and care plan acted as the main data sources. The antecedent, behaviour, consequence (ABC) chart and PRN medication logs were mentioned as potentially relevant actors, but neither was actively enrolled in the discussion, likely because of time constraints. ABC charts are designed to highlight behaviour in the context of the environment to highlight antecedents and triggers. Without this tool actively shaping the conversation, the network of actors assembled around distress remained thin. Family members were also absent from this network. Families can help decipher behaviour in context, drawing on life history and intimate knowledge of what distress looks like for this

particular person, what calms them, what agitates them, and what their expressions and gestures mean (Nunn et al., 2025). This epistemic resource was not accessed in the meeting.

Two factors emerged from interviews that help explain why richer data often fails to enter such discussions. First, behaviours that occur frequently tend not to be re-reported:

It should actually be recorded. But the thing is, if they have the same, like, for example, distressed behaviour again and again, I don't think so. I did need to update it again and again. So yeah, because it's just the same behaviour unless if it is a new behaviour that needs to be addressed straight away (Monica).

However, the 'same behaviour' occurring in different environments may not be the same at all. Research on dementia care environments identifies multiple dimensions that can trigger or ease distress, such as noise (Talebzadeh et al., 2023), lighting (van Hoof et al., 2009), and a restrictive environment (Charras, 2021). Distress in the dining room at mealtimes may have antecedents other than distress in the corridor at night. If behaviours are not re-recorded because they appear familiar, the environmental context that might reveal patterns is lost. To make sense of behaviour through an environmental lens requires data about when and where incidents occur, what was happening in the physical space, and who else was present. This information may exist somewhere in the organisation, but it was not drawn into this epistemic space. Second, simple but critical details about what the person was saying, what happened just before, were often not captured as interviews revealed:

So, I have seen lots of reports and triggers there. It's definitely explained what resident that like you know, pulling, pushing, or shouting or screaming or crying. But we are not trying to find and share that actually what happened just before that, and is it because they didn't like it, or was it is their physical condition, is it their medication or is it the environment, you know, so those kinds of things, yeah (Jenny).

Without this narrative layer, opportunities to understand meaning, intent, and triggers were lost before the data ever reached the meeting.

Enrolment

In discussing the incidents, terms such as ‘BPSD’, ‘aggression’, and ‘verbally abusive’ were used. Data in the care plan categorised events into types of aggression. The clinical language built on the dashboard’s framing further narrowed what could be seen and spoken. More enabling language might have painted a fuller picture supporting a narrative of capability and individuality alongside clinical need (Alzheimers Society, 2018; Cunningham et al., 2019; Putland and Brookes, 2024; Swaffer, 2014; Wolverson et al., 2021). However, behaviour recording is not a neutral act. Personal perceptions and emotional responses can shape what is captured. As one participant explained: *‘So, when you tell yourself, you know, about this resident that you don’t like working with her, the narrative that you’re telling yourself in your head is that she hit me and it hurts’* (William). When behaviour is normalised or internalised, the narrative may shift from describing the event to reflecting the staff member’s response. This is not a failing of individual staff; it reflects how emotionally demanding this work is, but it means the data available for analysis is already filtered through layers of experience and self-protection.

Therefore, the sense-making process was constrained by the epistemic resources available, influenced by what unfolded, each part of the assemblage enacting the other. Redirection was enrolled as the immediate response, reflecting a familiar and practical strategy under time constraints, yet redirection does not address unmet needs; it manages the moment. Like a sticking plaster, it may ease the immediate situation, but if the underlying cause remains unaddressed, the distress re-emerges (James *et al.*, 2023). Existing training on BPSD was noted. While the organisation had structured analytical tools for distress, such as the ABC chart, these were not actively applied in this meeting. The ABC chart remained a weak actor: mentioned but not enrolled into the network in a way that could reshape understanding.

Mobilisation

The outcome was to continue with existing measures of redirecting and monitoring the approaches already in place. Mobilisation stalled: distress was identified but not translated into actionable knowledge. The meeting lasted only an hour and covered many topics, making it difficult to explore any single case in depth. In this context, the meeting functioned more as a space to highlight issues than to work them through to resolution—that work may happen elsewhere or at another time.

Landri (2021a) identified three dimensions through which translation operates: semiotic, geometric, and political. All three shaped what was mobilised here and what was not. The semiotic dimension was visible in how clinical labels changed meaning: distress, which might signal unmet need or attempted communication, became ‘challenging behaviour’, a category to be managed. The geometric dimension was equally present: attention was displaced towards what was visible on the dashboard trend lines, incident counts, and colour-coded alerts, and away from contextual understanding. The resident was moved from a ‘person trying to communicate something’ to an ‘incident trend requiring monitoring’. The political dimension operated through the institutional logics of accountability and risk management. These logics shaped whose knowledge counted and what counted as a legitimate response. The dashboard’s categories carried more authority than the narrative details that never made it into the record. Staff’s emotional responses were filtered out before the data reached the meeting. The resident’s perspective was entirely absent. Family members who might help decipher behaviour in context, drawing on life history and intimate knowledge of what distress looks like for this particular person, were not part of the network assembled in this meeting.

Furthermore the residents’ own agency to speak up, to protest, to communicate through behaviour was made absent from the network. Distress that might be read as ‘this is wrong’ or ‘I don’t want this’ was reframed through a clinical lens: ‘it’s not their fault, they have dementia’. This reframing, while perhaps intended as compassionate, nevertheless performs a kind of erasure. It assumes that because someone has dementia, their protests cannot carry meaning (Barth,

2024). Their behaviour becomes a symptom rather than a statement; their distress becomes something to manage rather than something to listen to.

This interplay between tools, environments, and practice also became visible in a discussion about ‘walking handovers’, which, while not observed in the fieldwork, offered a clear example of how material arrangements can fundamentally reshape enrolment. Curious, I followed up in interviews with staff who had trialled it. From their accounts, I can see that this approach fundamentally changes the enrolment process, with the resident and the material, situated environment actively engaged in the exchange of information. This real-time presence allows staff to not only identify residents accurately, an important safeguard for new staff to avoid mistakes, but also to pick up on details about residents’ wellbeing that would otherwise have been missed: *‘During walking handover, you can get the information ... more information about the resident... whatever they have, what their feelings ... they can tell you too’* (Maria).

During handover sometimes new staff don’t know which resident you are talking about. If the new staff is there, there will not be sure which resident there are caring for. The problem is that sometimes the different residents have got the same names (Maria).

Staff also noted that it saves time on what they call ‘intentional rounding’ (checking on the resident), as relevant observations can be made and acted upon immediately during the handover itself.

Conclusion

This chapter traced two work practices: the six-monthly care plan review and a regional meeting between staff. In almost all of them, a digital mediator was present; typically, a digital care plan or Power BI dashboard. However, these devices are more than single artefacts: each is a node in a wider network, connecting people, things, and knowledge flows. Mobilisation (knowledge made actionable) seemed to work more readily where problems were clinical. In discussions around bruising and UTIs, actors were already assembled: dashboards, clinical records, guidelines, and staff with relevant expertise. But in

other domains, distressed behaviour and sexuality and intimacy mobilisation proved more limited. The data and framing available were largely medical, and the relational or psychosocial perspectives that might have opened different lines of inquiry were largely absent from the network. Labels like ‘challenging behaviour’ did semiotic work from the outset, positioning distress as a risk to manage rather than a communication to interpret. Family knowledge, environmental context, and residents’ own voices were not gathered in these epistemic spaces.

These digital systems coordinated and formalised knowledge flows effectively, but in doing so, they tended to reinforce top down learning and identified data points that were determined by senior managers as important, likely influenced by the regulatory environment. The direct care encounter offers a counterpoint. Although I did not analyse it in depth, it was present throughout the fieldwork as a site of rich, generative learning, where residents expressed directly what did and did not work for them. This learning was the least structured, and at the same time, the least supported by the digital systems in the moment. No digital mediation was directly present in the care encounter; yet the digital element is not thereby absent from the practice. Its influence reaches the encounter at a distance, in the assemblage leading up to that point. What is possibly missing is real-time epistemic scaffolding at the very point where learning is richest. Most knowledge workers now carry information at their fingertips as they work; frontline caregivers, by contrast, act in the direct encounter from memory, embodied attunement, and documentation completed at a distance and after the fact.

The walking handover was discussed, and although it was not a practice I observed, it surfaced when the CM mentioned that staff were trialling it, and I followed it up in interviews with those staff. From their accounts, the approach reshapes enrolment: the resident and the situated environment become active in the exchange, present in real time rather than represented after the fact. Staff described being able to identify residents accurately, an important safeguard for new staff, and to notice details of wellbeing that a desk-based handover would

miss. This raises questions I return to in Chapters 5 and 6. Changing where a meeting happens changes how that practice unfolds.

What this chapter has shown is that these complex digital arrangements, made up of human and non-human actors, sometimes failed to make knowledge actionable. This was in part because certain actors were never enrolled in the network. This is likely bound up with the power relations discussed throughout the chapter and further explored in the chapters that follow. It was often the things harder to capture that these power forces omitted: the relational and social dimensions of dementia care, the resident's own voice, the family's knowledge, the felt and embodied aspects of a person's experience. What is left out changes the 'doings' and 'knowings' present in practices, and this may be what a fuller, more person-centred understanding of dementia would require. In this chapter, I have explored specific learning practices; in Chapter 5, I turn to specific actors, those that connect parts of these practices, to develop a fuller sense of organisational learning.

Chapter 5. Boundary Objects

Introduction

In the previous chapter, I explored how learning is enacted in situated moments when staff notice something, make sense of it together, and adjust their response. Through the lens of translation (Callon, 1984), I traced how problems were framed, how actors were drawn in, and how particular problems were solved. What emerged was a picture of learning deeply enmeshed in people, spaces, and technologies. One question kept returning to me throughout that analysis: what happens to that learning afterwards? For many services operating in aged care, this is critical to quality improvement; how was this learning shared across teams, and how is it made actionable? In Callon's terms, the question becomes one of *mobilisation*—whether knowledge produced in one setting travels, and is durable.

This chapter picks up that thread by shifting attention from how learning happens in the moment to how learning moves between practices. To do this, I draw on the concept of boundary objects to examine two particular digital artefacts that sat at the centre of nearly every practice I observed: the Power BI dashboard and the digital care plan. A more detailed methodological rationale for why I selected these two specifically is outlined in Chapter 3.

In addition to these methodological concerns, I had a personal curiosity about these particular boundary objects. I had engaged broadly with critical software studies and was interested in the often unintended performative nature of many of these organising digital applications (Lynch, 2017). I was also drawn to the digital care plan for the role it assumes in regulation and reporting, as sometimes it is capable of both enabling and hindering person-centred care (Shiells *et al.*, 2020). I was particularly interested in the Power BI dashboard as it spoke to one of the constitutive questions guiding the study, which asked how data is mobilised or immobilised in the pursuit of learning.

Defining Boundary Objects

Star and Griesemer (1989) introduced the concept of boundary objects to describe artefacts shared across groups, flexible enough to accommodate different uses yet structured enough to maintain a recognisable identity. Carlile (2002) extended this by showing what such an object must do at what he calls the pragmatic boundary: there, an object cannot simply carry knowledge between groups but must support its transformation, so that knowledge is explored, contested, and reworked into something on which different groups can act. What has to happen at the boundary, in this account, is not the transfer of what is already known but its remaking, and the object is what makes that remaking possible. Hopwood and Nerland (2019) illustrated what such remaking involves: through practices of reasoning, recontextualising, and testing knowledge claims, professionals and clients generate an understanding that neither could have arrived at alone. Remaking is not just about bringing different perspectives into a shared epistemic frame; it is also about how the material arrangements through which knowing is enacted.

For this thesis, a digital care plan or dashboard counts as a boundary object in this demanding sense only where it does more than coordinate information across roles and settings; it must also enable the collaborative reworking of knowledge into something different that actors can act on in specific care contexts. However, recognising that boundary objects need to support epistemic work raises a further question: under what conditions do these artefacts actually open up inquiry, rather than simply coordinating what is already known? Knorr Cetina (2001) helpfully distinguished between objects that are closed and settled and what she calls 'epistemic objects', characterised by their incompleteness, that unfold and generate new questions, drawing inquiry precisely because there is always more to know. The distinction is not between two kinds of artefact but between two things an artefact can become: the same care plan or dashboard is always a boundary object, coordinating across groups, but only in some enactments does it also open an epistemic object, and in the examples that follow, I name that distinction. Scoles draws on Mol (2002, as cited in Scoles, 2017) to show that boundary objects are rarely

stable or singular. They are not simply interpreted differently by different groups; they actually do different things depending on which practice they enter. A digital care plan, for instance, might be enacted as a compliance requirement in one setting, a communication aid in another, and a planning document in a third, all simultaneously.

For this chapter, boundary object and epistemic object are not competing frameworks but names for the different things the same artefact can become, depending on how it is enacted. The question this chapter pursues is what the Power BI dashboard and the digital care plan became in the practices I observed.

Chapter Overview

This chapter proceeds in three parts. First, I examine the Power BI platform as a boundary object, focusing on how data is represented materially and how staff use bricolage practices (improvised practical workarounds), using whatever resources are to hand to make it meaningful. Drawing on observations and interviews, I explore how data mediates learning and how its reliance on quantifiable, clinically oriented indicators shapes what is learnt.

Second, I turn to the digital care plan, where the tension between codified entries and everyday discussions created ‘two worlds’ of data: in person through speech and in a digital record. By analysing both the constraints and possibilities of the care plan as a boundary object, I explore how design can influence learning while also revealing potential ways to capture richer, practice-based insights.

Finally, I bring these two cases together to consider that although both platforms function as boundary objects, their potential to act as epistemic objects—sites of ongoing inquiry and generative learning—depends less on the technology itself than on the interpretive work that surrounds it. The full implications of this argument are taken up in the concluding discussion, where I consider the wider opportunities for digitally mediated learning in dementia care.

To explore how data practices were enacted, each anecdote is drawn from observed events, some unfolding in a single moment and others across the longer course of an encounter. The use of anecdotes as analytic devices is an established approach in sociomaterial and posthuman research, where they serve to make visible the entanglements of people, artefacts, and practices in specific moments (Thompson and Adams, 2020).

The Power BI Dashboard

Reading the Dashboard: defending and exploring

The Power BI dashboard flickers on the staff-room screen as the team prepare for their monthly review. Bright bars rise and fall across categories—falls, pressure injuries, and call bell response times. ‘It’s changed again,’ one nurse says, pointing to the lunchtime spike. Another leans closer: ‘That never used to happen; evenings were the problem.’ They begin to talk through possible causes: changes to meal routines, new residents, and staff shortages. Around the room, staff scribble on Post-it notes and scraps of paper reminders to follow up, names to check on, and tasks to action after the meeting.

The dashboard had recently been updated, making it quicker, reflecting almost real time. What once felt abstract now seems urgent; the live refresh every few hours makes its patterns feel close to practice. Yet when the meeting shifts to family complaints, the data changes tone. The figures become evidence—numbers to defend care rather than to question it. ‘She rang the bell eighty times,’ a team leader explains, scrolling to the call-bell audit. ‘We checked every alert.’ Around the table, the colours and numbers shape both inquiry and accountability, prompting both action and justification in the same breath.

This anecdote illustrates how data performs different roles in practice. At times, it is enacted to open an *epistemic object*, sparking new lines of questioning and prompting changes to care. It was also evident in the interviews that the data performed different roles. If this example is an epistemic object, as John stated:

Every month, I collect data for falls and pressure injuries. It makes me think every time; it keeps changing. A few months ago, people were

falling in the evenings, and we tried to identify why and made changes. Now people are falling at lunchtime—that's never happened before, so what's changed?

In this one, the data becomes a defence mechanism for scrutiny: *'There was a time family raised concerns... so we gathered data on how many times she rang the bell, how quickly our staff responded. We found overnight she'd rung eighty times'* (John).

The same data can be enacted very differently depending on the leadership orientation that surrounds it. In an interview, one clinical manager described a contrasting approach to call bell response time data:

We've got a tool that they send to us, the data of how many minutes the call has been answered. We present that, and we ask why we did not answer the residents' call bell within 2 minutes, because the acceptable range is 2 minutes. So, if it's more than that, what happened? How can we do better? (Sarah).

Where John's use of call bell data oriented the dashboard towards accountability and numbers were deployed to defend practice under external scrutiny, Sarah's approach oriented the same data towards dialogue, bringing it back to caregivers as an invitation to explain and address the problem collectively. The data object had not changed; what had changed were the practices surrounding it. This distinction matters analytically: it suggests that the boundary object quality of the dashboard is not fixed in the technology itself but rather enacted through the leadership practices and relational conditions surrounding it.

The anecdote shows that the dashboards had been updated to provide more timely data, and this somehow changed the performative 'power'. Earlier versions of the software felt historic and disconnected from practice, but when updates refreshed every few hours, the data became a live prompt for reflection, as John noted: *'Before, it felt disconnected because it was historic, but now it's better; it refreshes every three hours, so it feels very connected. We*

know in real time how we're doing.' This shift in temporality not only improved information quality but also expanded the range of enactments available. Historic data could serve as a retrospective account of what had happened; near-real-time data could be enacted so as to open an epistemic object, provoking new questions in the flow of work. Alongside the refresh speed, new data fields had been introduced, including the ability to filter by location.

These updates were part of an ongoing effort to make the system more responsive. The introduction of location data offered a particular insight into how digital upgrades interact with existing sense-making practices. Before these updates, staff had developed their own material devices to make sense of incident data. One staff member showed me a hand-drawn 24-hour clock face, divided into time segments, with small coloured markers in green, pink, and yellow placed within each slice to represent individual falls. Each colour represented a different location. Clusters were immediately visible: mid-morning, lunchtime, late afternoon. You could see the pattern without reading a single number. Staff could glance at them and see a cluster forming near the bathroom corridor or around the dining area. When the dashboard introduced location filtering, these hand-drawn tools became technically redundant, but the digital filter did not replace what they had enabled. As John explained: *'Now you can search locations, but it's still not visual. If you plotted it on a timetable, you wouldn't have to read it; you'd just see it.'* The drawing helped make the pattern tangible; the filter, by contrast, did not fit easily into the pace of work.

This anecdote illustrates two key points. First, a single object is enacted differently depending on the practice in which it is embedded. When staff noticed the lunchtime spike and began reasoning about what had changed, the dashboard was enacted as an epistemic object—open, unfinished, prompting new lines of questioning. When the meeting shifted to the family complaint, the same colours and numbers were enacted as an accountability device—closed, evidential, marshalled to defend practice. Following Mol (2002), these are not two interpretations of the same data, but two different enactments producing different realities and different possibilities. Second, it shows how changing the architecture of one actor in the network meant that the dashboard made

redundant the work of another actor: the hand-drawn paper maps staff had used to track falls spatially. However, the digital location filter did not fully replace what the paper maps had enabled. The maps intra-acted with the person in a way that supported embodied, spatial sense-making, seeing patterns in relation to the physical environment that the digital platform, with its search-and-scroll interface, could not. Dupret (2018) described these kinds of small material adjustments as sense-making work rather than resistance, and Shum *et al.* (2025) showed how location data becomes meaningful only when transformed into visual or network markers that support sense-making and action. Melville-Richards *et al.* (2020) noted that boundary objects only become effective when people fill them with shared meaning through collective effort. The hand-drawn maps did exactly that: they turned data into something visible, tangible, and discussable in the flow of daily care.

The following anecdote begins to describe how data travels through an organisation, taking on different meanings in different assemblages.

When the Data Travels: upstairs and downstairs

Part 1. The Meeting Upstairs

The Clinical Council meet online, a grid of faces in blue and grey uniforms, each window neatly labelled with a title. The shared screen fills my view with a weighted dashboard: villages line up in columns of green, amber, and red. The presenter speaks with confidence about the new benchmarking model and how weighting indicators against national data makes the picture ‘more robust’.

There is something about the tone—precise, strategic—that makes me attentive, though I’m not sure why. Perhaps it’s the authority of the meeting, the sense that these red cells carry consequence.

I find myself wondering which of the people behind those small squares of video represent the villages coloured in red. The conversation moves between infection prevention, medication error, distress incidents, turnover, and compliance. The dashboard does what it was designed to do: organise attention, create a sense of importance, and show control. The discussion is disciplined, forward-looking, and analytical.

Part 2. The Meeting Downstairs

A few weeks later, I sit in on a local clinical review. The same data arrived, stripped of its spreadsheets and weightings but carrying the same authority. A manager reads out the figures: 'Falls up here. Distress up here. We're on the watch list.' Around the brown table, the room fills with the sound of phones buzzing, paper rustling, and laptops opening. I recognise the tension: this data isn't abstract here. Staff shift in their seats, already thinking of who had fallen, who had been distressed, what they might be asked to account for. The language that had sounded neutral and technical in the senior meeting now feels exposing.

The language used to describe data sometimes carried strong connotations. In one instance, staff referred to a 'watch list':

My field notes, Day 2

There was a list of how they compared to other homes in the group, and if you're in the top ten, you're on the watch list. Which he commented on as sounding a bit like prison, quite custodial, almost in a way.

In other cases, it was the visual display that shaped interpretation. Red flashes on the dashboard drew immediate attention and framed problems as urgent. What had been a management tool for oversight upstream became a disciplinary mirror downstream. The data 'performed' power: not through anyone's intention, but through its colour codes and comparative rankings. Someone would say, 'We're in the red again', and the atmosphere in the room would change. This is not merely a story of people interpreting data differently. The dashboards themselves are actors in these network colours, thresholds all working together to act as a 'custodial gaze', a form of surveillance in which reaching a certain threshold triggers closer monitoring, positioning facilities and staff as subjects to be watched. As John put it, '*a bit like prison, quite custodial.*' To be '*on the watch list*' was to be made visible to authority. What staff called 'being in the red' was a sociomaterial moment when performance, comparison, and accountability all merged into one.

However, frontline staff were not passive recipients of data. Even as they sat with that anticipated scrutiny, they knew things about what might be driving the figures, but this knowledge was often felt before it was articulated, based on a hunch born possibly from the proximity to residents. Maria said:

Uh, usually when we go for the meetings, when data is high on our unit at the meeting, we feel like a failure. Then our clinical manager sometimes discusses whether you think that data is accurate, so you get a chance to discuss (Maria).

Here, the invitation to enquiry is already framed through the lens of failure: to be 'high' on a clinical indicator is to be positioned as being under scrutiny and in need of justification. While staff are encouraged to ask 'why?', the scope of that question is often set by the data itself, which highlights what has gone wrong rather than what is working well.

At the senior meeting, I witnessed highly skilled digital and analytical work being used to tackle organisational challenges.

My field notes Day 16

Sort of really good digital data analytical skills to find solutions to some of the challenges that the organisation is facing. It was really interesting to see the risk management looking at infection prevention, adverse events, risk and mitigation, complaints and compliments, the workforce and the model of care, policies, procedures, legislation, medication advisory committee, and compliance and quality improvement. Village support dashboard informatics, dementia care research and development, clinical learning and development, certification, and accreditation. This data analysis is a really brilliant piece of work in terms of identifying clinical risk.

This is knowledge work of significant scope and skill, drawing on digital systems and analytical capability that the organisation has invested in over time.

However, as one participant noted, the challenge was not only in the analysis but also in how such data was then communicated.

Field notes, Day 16: *one participant asked how this data should then be presented to the teams, and I really think this is a critical point around how the data is understood.* What I observed here was an acknowledgement that consideration needs to be given to how data was presented to teams, and whether there are different subcultures at play when working with data. Knorr Cetina (2007) defined epistemic cultures that shape how different groups know what they know. In the two meetings I observed, the data was not simply received differently; it was assembled differently. At the senior meeting, data arrived mediated through weighting methodologies, national benchmarks, and shared screens at a distance from the practice it represented. At the local meeting, the same data arrived stripped of its methodology, landing among staff who carried the embodied memory of care interactions, who sat in physical proximity to the residents, and who knew they may be asked to account for what had happened. In ANT terms, the emotional weight frontline staff experienced was not a personal characteristic but an effect of the assemblage they were in, produced by the network of relations in which the data landed.

What I observed was an affective divergence: for senior staff, metrics evoked curiosity, discussion, and even pride in analytical sophistication; for frontline staff, there was a possibility that it would instead evoke anxiety, alienation, or defensiveness. The senior team's epistemic culture is grounded in training to benchmark, validate, and interrogate data and is enacted to open epistemic objects, still to be understood—prompting further inquiry. The frontline teams' epistemic culture, by contrast, is shaped by practical caregiving, emotional labour, and compliance pressures; for them, sometimes (not always) the same data is received as already 'closed', a proxy for performance or judgement rather than an object for exploration. Despite this, frontline staff do hold epistemic resources—knowledge grounded in noticing, sensing, and responding to everyday care needs. This knowledge often takes the form of a hunch rather than a data point.

The data that arrived at frontline meetings had been subject to weightings and calculations that staff were not privy to. Latour (1987) described this as black-boxing: complex negotiations and assumptions become hidden once stabilised,

leaving only the outputs visible. Anthony (2021) showed how analytical technologies intensify this by rendering certain forms of reasoning visible to some actors while obscuring them from others. The senior team operates inside the box or at least can peek into it, while frontline teams encounter only its outputs. The reverse is also possibly true: the contextual, felt knowledge that frontline staff hold about what is happening on the ground does not travel upward, because the data systems privilege what can be counted and reported. This constitutes two distinct epistemic cultures within the organisation: one where data sustains epistemic curiosity and validation, and another where it can close down inquiry, instead functioning as a form of evaluation.

However, the datasets also included other voices.

My field notes Day 16

Complaints and compliments were tracked and presented at the senior level in the meeting I observed and summarised by risk level, time taken to resolve, and trend. Complaint themes included categories such as 'basic care delivery' and 'perceived lack of attention from staff.'

This is a particular kind of voice filtered through whoever chose to make a formal complaint, compressed into categories and trend lines, and framed through the language of risk and resolution. What it could not capture was the ordinary, ongoing experience of receiving care: whether a person felt rushed, heard, comfortable, or lonely on any given day. That dimension of experience had no route into the data that shaped organisational decision-making. This is consistent with wider evidence that quality indicators in care settings tend to privilege measurable clinical outcomes, risking the systematic overlooking of social wellbeing and relational experience (Rand *et al.*, 2021a; Kawase *et al.*, 2025).

As a researcher, I was always conscious of my different disciplinary background: social work trained rather than clinically trained. Watching clinical teams interpret dashboards through a clinical lens made me aware of how my own background shaped what I saw and valued. In dementia practice, at least,

biopsychosocial approaches are considered best practice. However, measuring social/psychological domains takes time and requires tools that many services simply do not have. Social experiences are inherently subjective, context-dependent, and shaped by individual preferences, making them difficult to standardise across settings (Kawase *et al.*, 2025). In part, the determinants of what constitutes a ‘good’ dataset are driven by what can be collated meaningfully and efficiently. Quantitative data is easier to collect and audit, but decisions about which data to capture and, therefore, which issues are most visible are shaped by organisational priorities and the auditability of the metrics.

These two anecdotes show the Power BI dashboard working as a boundary object: something shared across different groups, used by each, but meaning different things depending on where it sits. It stayed a boundary object throughout. What changed was whether it opened up into an epistemic object or not. At the senior meeting, it opened up inquiry, prompting curiosity and analytical work. At the local meeting, the same data arrived as judgement rather than invitation, and that influenced what could be achieved here. This raises a question about what it takes for a boundary object not just to coordinate information across groups but to open the inquiry through which the groups learn. In the next section, I turn to the digital care plan and explore its role as a boundary object.

Digital Care Plan

The digital care plan operated across multiple locations and roles, linking daily practice with oversight, data, and accountability. It was designed to coordinate work between caregivers, nurses, managers, and allied health practitioners: the common device through which care was recorded, checked, and understood. In this section, I examine how this boundary object worked in practice: how it aided learning and what happened when staff encountered its limits.

What Counts: nowhere to record

During an afternoon shift, a caregiver mentions that one resident had been unusually quiet since her daughter’s visit. ‘She’s just not herself,’ she says

softly. Another nods, glancing towards the wall where a large poster of Tom Kitwood's psychological needs hangs: comfort, inclusion, identity, occupation, love. The ideals are there in print, but there is little time to act on them. 'We'll keep an eye on her,' someone adds, already checking the clock. No one writes it down.

At the end-of-shift handover, the conversation turns to the daily report sheet about who has eaten and who has opened their bowels. The withdrawn resident isn't mentioned; there is no category for 'sad'. When I ask later where such observations might go, a nurse explains, 'There's nowhere to record it unless it becomes a behaviour, then we log it as distress.' The system was built for what could be counted.

This scene highlights how decisions about what to record shape what an organisation comes to know. Clinical events are easily documented because they fit the logic of measurement and audit. Emotional and relational experiences, while central to dementia care, circulate informally and remain invisible in aggregated data. The poster on the wall symbolised the organisation's aspiration towards holistic care, yet the workflow and data structures supported only what could be captured quickly.

This dynamic was evident in another observation.

Field notes Day 2

A resident who fell regularly was discussed in terms of interventions to reduce falls risk. One explanation offered was that he might have been getting up because he missed his wife and was seeking company. The solution was to move him into the front room, where more staff and other residents were present. However, this created a different problem: if he valued his own company or preferred quieter spaces, the intervention undermined his quality of life. On the one hand, falls risk was reduced; on the other, his autonomy and comfort were compromised.

What is important here is the timing. Staff could see that sadness or loneliness might drive behaviour, but they lacked the means to record or act on these as

organisationally meaningful concerns. The result was a logic in which clinical incidents triggered immediate action, while psychological or social factors remained invisible until they were converted into clinical events.

In the organisations I observed, there was clear material evidence of an intention to support the full biopsychosocial domains of care. However, for such intentions to be realised in practice, they also need to be mirrored in the data parameters. This slippage reveals a tension that runs through care organisations between what can be measured and what can be felt.

The way these technologies represent practice—what they make countable, visible, and comparable—shapes what becomes available to learn. Advanced digital tools and infrastructures alter the cognitive and social dimensions of work (Nerland, 2022), extending professionals' epistemic responsibilities.

The previous anecdote showed what the care plan could not accommodate. But what happens at the point of documentation itself? The following anecdote explores what I observed when relational learning met the care plan interface.

The Moment Passes: care and connection

The caregiver kneels beside the chair as she helps a resident who is unsettled after lunch. The woman's hands are restless, tracing the pattern on her blanket, and the caregiver follows her rhythm, matching the pace of her voice to the movement. 'There you go, love ... that's better.' In that moment, there is a connection. The woman begins to hum a tune, and the caregiver joins in, laughing gently when she recognises the song. The tension eases.

As she stands to leave, the caregiver feels a quiet satisfaction. That exchange had reminded her why she loves her job—the small connections, the shared moments that make a difference. It feels like good work, maybe even great work, the kind that rarely gets noticed but stays with you long after.

Later, at the nurses' station, the noise is constant—the phone ringing, a trolley rattling past, someone calling out for help. The caregiver is worried about all the things she needs to do next. She opens the digital care plan to record what

happened earlier. The screen presents a prompt ‘What has contributed to the resident becoming settled?’ with a free-text box beneath it, flanked by a blue tick to confirm and a red cross to cancel. The boxes are there: mood, nutrition, mobility, and distress level. She hesitates, then types a brief entry and clicks the blue tick. The feeling of that earlier moment, the warmth that had filled the room, doesn’t fit into the prompt. The record captures that the resident had settled, but not the care that had made it so.

This anecdote described practices I observed over multiple field days—moments between caregivers and people living with dementia, rich with relational understanding. Caregivers were often the first to notice subtle changes in residents’ emotions and routines, but what they noticed, felt, and understood through these relationships generally never entered the systems where organisational decisions were made. The care plan was not designed to incorporate this kind of knowledge, and attempting to retrofit it would not overcome the limitation. The issue is not simply what data is collected, but whether staff have any supported space, technological or otherwise, to reflect on and articulate what they are learning through practice.

In Chapter 6, I explore how digitally mediated practice could improve learning, including how it might support reflective practice. However, this gap in reflective practice also has consequences for the data that organisations collect. When staff are not supported to articulate relational knowledge, it is unlikely to enter the digital record, even where fields exist to capture it. Rand *et al.* (2021) highlighted in their scoping review of safety measurement that current approaches in care homes often fail to capture indicators of psychological harm, resident voice, or environmental factors. These insights often surface *in situ*, during direct care, rather than in meetings or structured reviews. When daily recordings are completed at a distance both in time and place from the interaction in busy environments and under significant time pressure, staff are likely to simply enter the data the digital care plan requests, which is usually clinically framed, despite the abundance of rich emotional intelligence that was evident throughout my fieldwork and came through strongly in interviews. Staff

noticed, attuned, and responded to residents in ways that demonstrated deep relational knowledge, yet this knowledge was not utilised in any form that would support meaningful organisational learning.

As one caregiver observed:

Like one of the residents was saying, like I had my husband, but he had cancer, and he passed away. That's why she always goes around. She starts crying, you know, she wants to show her emotions. She wants to hug. So, we just try to, you know. We have to understand. So, there's the thing hardly ever anybody discusses because they we don't have time to do every now and then. (Sarah)

Being in service, caring is felt, lived and therefore entangled with emotion. Emotional struggles were evident every day in my work. As another caregiver remarked:

To be honest, I'm really attached to my residents, and then whenever they get sick, I'm crying in silence. But as much as possible, I'm trying my best to do something for them to feel better, but of course I'm not. But yeah, I think there is a proper acceptance that I can't do everything for them (Monica).

These reflections are important because care is experienced through emotion. This is emotional attunement in action, but it is a form of professional knowledge rarely talked about. It includes noticing when someone is sad (rather than simply attributing it incorrectly to dementia); recognising what a hug means; reading the small signs; understanding psychological and social needs—it is a form of professional knowledge through which many staff come to understand what residents need. This kind of knowing generates real satisfaction, as was evident in the caregiver's pride after the moment of connection described above. But it also causes pain, a kind of pain called moral distress (Ingard et al., 2024; Salari et al., 2022): knowing what good care is but being unable to deliver it. This distress is magnified when there is no time to talk or reflect and no mechanism to share what has been noticed. Staff are left holding knowledge they cannot act on. What we count shapes what we value

(Klein and D'Ignazio, 2020), and what falls outside the count risks being treated as if it does not matter. These emotions are not just private feelings but signals about how the system is functioning.

It would be too simple, however, to suggest that emotional and relational knowledge are adjudged absent from organisational consciousness. In my fieldwork, I encountered deliberate attempts by leaders to foreground mood as a clinically meaningful signal. One clinical manager described how she had developed a structured approach with her team, teaching caregivers to treat subtle mood changes as early warning indicators rather than passing observations:

Close monitoring, for example, the changes in their mood... sometimes we kinda like probably say, oh, it's just, you know, they're just under the weather today... However, we need to then monitor that change of mood... that little tiny observation can lead to a lot of areas where we can be more proactive... most of the time we would find out that from that day, the next three days they will be unwell (Sarah).

This kind of attunement to mood as a leading indicator—something to observe, track, and act on—represented a rich epistemic resource. However, it lived on in local practice, sustained by individual expertise and leadership, rather than in the larger datasets where organisational decisions were made.

This practice, where staff are attuned to the emotional experience of residents, however carefully constructed, remained local, and there is perhaps a structural reason for this that goes beyond individual leadership. Mood, as an epistemic resource, cannot easily be enrolled into the organisational data infrastructure in its raw form. The parameters visible in senior-level data that review falls rates, distress behaviour frequencies, infection rates, and UTI incidence are aggregable precisely because they can be counted and compared across time and place. Mood, by contrast, is relational, contextual, and individual. It does not aggregate meaningfully. By the time emotional distress becomes visible at the organisational level, it has already been translated into something else: a behaviour incident, a clinical event, a fall. What arrives at the dashboard is not

the mood; it is the downstream consequence of the mood going unrecognised or unaddressed. This is not a failure of intention; it is a feature of what organisational data infrastructure can and cannot accommodate. The translation from relational knowledge to organisational data requires a transformation so significant that the original meaning is lost in transit.

The felt experience of care generates emotional weight, but what happens when there is no supported space to set it down? For some staff, it travels home. One experienced caregiver, reflecting on the demands of the work, said:

Leaving it at work here, I feel I left everything at work. That's my personality. Whether it is sad or happy, leave it at work. Sometimes there are occasions that I cannot sleep ... Put it into myself. Let it change tomorrow (William).

This account reveals not only the personal cost of emotionally demanding work but also the strategy William had developed, one refined over fourteen years of experience across two countries into something deliberate and protective. He was not without any outlet; he also described speaking to his unit coordinator when something was weighing on him:

Whenever I have what in my heart to say it, I say it to my unit coordinator... I don't just keep it inside of me. Yet he was uncertain whether this was available to others: 'I don't know with them, but for me that's one thing that I do (William).

This uncertainty matters. Where a release exists, it depends on individual relationships, personal confidence, and the presence of a leader who actively creates space for that kind of conversation.

Research consistently shows that staff well-being and organisational learning are deeply connected. When workers feel supported, safe, and able to make sense of their experiences, their capacity to learn, adapt, and innovate strengthens (Heijkants et al., 2022; Rivett et al., 2019; D. Watson et al., 2018). Conversely, when they experience ongoing moral distress, reflective capacity narrows, learning stalls, and turnover increases at a significant cost to

organisations (Hall et al., 2016; Spilsbury et al., 2024; Zimmerman et al., 2005). For this reason, the emotional and moral dimensions of care should not be treated as peripheral but rather as essential indicators of how learning systems perform.

‘Tick, Tick, Done’: completing daily notes

In senior team meetings, the digital care plan is discussed. Leaders describe how it had been developed to meet stringent reporting requirements: auditors need evidence, regulators need compliance, families need transparency. But it was also designed to drive practice forward. ‘It’s not just about recording,’ one director explains. ‘It’s about prompting the right care at the right time.’ When issues emerged in the past, such as missed assessments or inconsistent documentation, a dedicated team was assembled to redesign the architecture. They rebuilt workflows, refined data fields, and consulted with staff. ‘It’s the foundation of safe, modern practice,’ the director says. There is pride in getting it right.

Later that morning, on the unit floor, a nurse opens a resident’s file. Pain assessment: she clicks the dropdown menu, selects ‘3/10’. Nutrition: ‘adequate intake’. Mobility: ‘assisted’. Six tabs in maybe twenty seconds. ‘It’s my backup brain,’ she laughs. She means it. ‘I genuinely don’t know how we managed before this. It prompts me for things I’d forget, like fluid monitoring, skin checks, the small things that matters.’ She scrolls through the morning routine checklist. ‘See? It tells me oral care is due. I’d miss that on a busy shift.’ The system holds her attention and guides her workflow. ‘They’ve refined it a lot over the years. It’s quicker now.’ She pauses at the notes field, types ‘resident seems more anxious today’, then keeps moving.

Across the corridor, a caregiver stands with her back to the resident, tablet balanced on the medication cart. She taps through the morning routine while the resident sits in the chair behind her. Showered, tick. Dressed, tick. Breakfast, tick. ‘Before, we had to write everything down,’ she said. ‘Now it’s just tick, tick, done.’ She moves to the next room. The whole routine takes less than a minute to document.

The nurse passes by again later. I ask what happened with the anxious resident. She glances at the screen, scrolls. 'I wrote something ... yeah, there.' The note sits in a field below the fold, underneath the assessments. 'Sometimes no one reads those.'

A considerable amount of work had gone into making the digital care plan a boundary object that could be generalised for use across different staff groups. This universality enabled coordination and standardisation, but it also limited the epistemic work that could be done around it. In simplifying the object so that it could be used by everyone, important nuances were lost. As John said:

Uh, maybe it would be easier for the caregivers because, for example, recently they have combined skin assessment and pressure injury assessment so that rather than doing two separate assessments, they just have to do it in one. But it's great for the caregivers because it saves them time. But then, for the nurses or for myself, we weren't a big fan of it because now you know it is simpler, but then it has less information.

I observed the efficiency of this platform in my **Field notes, Observation Day 2:**

Before this care plan was in place, they'd have to write down all of the support activities, which took a long time. But now they have the care, so they have this digital device where they can simply tick when the activities have taken place and then write comments.

As a boundary object, the care plan served its coordinating function, providing a shared format that reduced duplication and made the task more manageable for caregivers. However, the very features that made it efficient also stripped away important detail. This highlights a fundamental tension: the more a boundary object is stretched to achieve generality and ease of use, the less capacity it may have to hold the complex, situated knowledge that practitioners rely on for sense-making and clinical reasoning.

Sometimes, the digital care plan invited data; at other times, it shared data. However, the validity of the data produced through the care plan was compromised by several intersecting conditions. Staff were completing recordings temporally and spatially removed from the point of care, often in environments where interruptions were frequent. In my observations, staff were distracted multiple times while entering information.

Field notes, Day 19: *So, she was sitting down to do the interRAI assessments, and she kept getting interrupted all the time, which made it very difficult.*

Field notes, Day 11: *I also observed staff inputting data. On this occasion, the data entry was 'resident was crying during personal care', but with no explanation as to why they were crying.*

These issues were not only about accuracy or completeness but also about the relational consequences of how recording was done. At times, I observed staff entering data in the physical presence of residents in ways that inadvertently influenced the relationship.

Field notes Day 5:

On the arm of the chair of somebody who had poor mobility, with her back to this person while she was entering data, and I did wonder, if this was someone who was able to communicate and say how they feel, they would say, 'Hey, don't sit with your back to me, how rude.' It was almost like it was a form of objectification in a way, with her sitting with her back turned while she was entering data into the system.

In Kitwood (1997) calls this a form of *malignant social psychology*, specifically, **objectification**. Even though unintentional, the practice risked treating the person as an object while sitting with them, but not engaging, and instead focusing on entering data.

There were also concerns about the accuracy and the source of what was recorded, as John said:

The physiotherapist reported that the resident had lung cancer, and nowhere else was it written. You know, we can't find lung cancer anywhere. So, of course, after reading that, we start asking questions. So, where did she get lung cancer from? You know, did she write on the wrong notes this and that? So, we had to dig deeper, and we found out that, oh, she was having a conversation with her daughter, who said that, but it wasn't true.

Together, these examples highlight different risks. In some cases, interruptions and time pressure led to brief or incomplete notes. In others, unverified information appeared in the record and acquired the status of being a fact simply by being entered. Both reveal how the care plan, while functioning as a boundary object, shaped knowledge in ways that could obscure the lived reality of care.

In John's example, the issue was not only one of brevity or interruption but also of how the digital record itself can transform information into truth. Once something is written into the system, it becomes part of the official story of care, regardless of whether it is accurate or not. Gourlay (2024) described this process as one in which people and their actions are 'rendered as documents'—the digital record does not just describe reality; it helps create it. What began as a casual comment in conversation became a clinical fact once entered into the care plan. This shows how data practices can subtly reshape what counts as knowledge and, in doing so, influence the care practice that follows.

The reshaping of knowledge through the act of data entry raises a wider question: how can staff be supported and motivated to record information in ways that preserve meaning as well as efficiency? Hanratty *et al.* (2023) argued that incentives and mandates are often required to stimulate accurate and meaningful data collection. In this context, the challenge is not only about designing a boundary object that is usable but also about creating organisational conditions that make it appealing and feasible for staff to write the right thing and do the right thing. However, even with such mechanisms in

place, my observations suggested that a great deal of information was never recorded at all but was discussed, as this anecdote suggests:

Two Worlds: corridor conversations to the nurse's station

The afternoon shift is in full swing, and staff are moving at pace between rooms, sometimes with 'things' in tow—a medication trolley, some incontinence pads, or jugs of water. Two caregivers pause in the corridor, each holding a jug. 'She seemed a bit unsettled this morning,' one says, 'I talked to her; it seems some things are worrying her related to her medication.' The other nods, already thinking aloud: 'I'll tell the night staff to keep an eye out, just in case this comes up again.' They speak intently, knowing that this matter is important to pass on. Later, at one of the nurses' stations with recording open, the earlier conversation flickers in her mind, but the moment passed; she feels pressured to get on. The care plan asks for checkboxes: mood, sleep, and nutrition. She ticks the boxes quickly and moves on. The detail in the corridor remains in the corridor.

These fleeting exchanges show how much learning happens in motion, between people, and at the point of care; however, at times, this kind of knowledge crosses into the digital world. The care plan captures completed actions, not conversations or interpretations in progress. What circulates in the digital system is a record of what was 'done' rather than how staff 'knew', leaving a gap between what is lived and what is logged. I observed many instances when staff were sharing information or sensemaking, evident in some of these notes: Monica said: *'We talk about the residents as we work. Like everything, so we not go like loud or things like that. I just slowly discuss. But on the floor, like, beside together. Yes, confidentially.'*

Field notes, Day 18:

What I was reflecting on through all of this is that a lot of learning is sort of going on whilst working and whilst talking to staff teams, and this isn't

always transferred onto the digital system, and this is what I mean by the two worlds; the digital world and the real world, in practice. This, and that learning system. They're not completely connected because staff must do their updates at a particular time. They can't do it in the flow of work because they need to wait for downtime.

This gave rise to what I came to think of as 'two worlds', not separate realities as such but different parts of practice that were perhaps not connected in the way they should be. In one world, information flowed verbally in a timely manner, situated, and often richer in emotional detail. In the other, knowledge was formalised within the digital infrastructure, but in ways that were delayed, partial, and constrained. Staff recognised the gap between these worlds as John noted in his interview: *'It's already later in the day, whereas if somebody just approached me to say, hey, this is a problem, then maybe we could have spoken to her at that time.'*

Despite this disparity, the digital platform was not only a place for recording care but also a mechanism for measuring staff competence. Entries were sometimes interpreted as indicators of whether staff needed further support or training.

The digital care plan offers much insight into how their practice is, apart from feedback from their colleagues. Maybe. And yeah, the notes, you know, whatever's on that, on the digital care plan, so at least it helps me determine if the nurse needs more support with this (John).

However, the problem is that such assessments risk misattributing responsibility. Brevity or gaps in the notes may have reflected not an individual's skill, but the systemic conditions under which data entry occurred, with time pressures, noisy environments, or the fact that updates had to be done after the event, when memory recall could be limited. This highlights a deeper issue: what was being assessed was not only staff practice but also the capacity of the system itself to capture care practices in meaningful ways.

Beyond its structural design and the conditions of its use, the digital care plan also revealed language as an actor. Language shaped practice in two ways: first, through the technology itself and the data fields available for recording,

and second, in the ‘other world’ of verbal conversations. In both domains, language carried influence. Here, I draw on further data to show the impact some terminology had on learning at different intersections of practice. The following anecdote shows how the language built into the digital care plan shaped how staff understood and responded to behaviour.

She Wanders: discussing a resident at handover

During handover, a nurse sits with a tablet open on her lap, reading from the digital care plan.

‘Resident tends to *wander frequently*,’ she reads, ‘and can be *challenging to manage at night*.’

The category comes straight from the dropdown menu: *wandering, agitated, redirection required*. Around the table, caregivers nod in recognition.

‘Yes,’ one says, ‘redirection usually works.’

Pressed for time, no one questions what the resident might be seeking or whether her walking has a purpose. Within the digital system, ‘wandering’ and ‘redirection’ are neatly matched. The care plan makes it easy to record, but in doing so, it closes the space for interpretation. The resident’s movements, rich with possible meaning, are reduced to a data field and a default response.

Later that day, the same resident moves quietly along the corridor, her hand tracing the wall towards the garden door. She seems calm, curious, and sensorily engaged, but in the record, the entry would read: wandering and redirected successfully.

Here, the technology and its language act together to define both the problem and the response. The dropdown categories do not just capture what staff see. The term ‘wandering’ invites a managerial response (*redirection*), not a relational one (*connection*). In this way, language takes on agentic properties.

This pattern was not unique to the term *wandering*. Across several observations, similar terms, such as *aggressive* and *challenging*, were evident.

Staff themselves recognised this problem and reflected on how such terminology influenced perception and decision-making.

Field notes, Day 5:

Staff told me sometimes the language that's used in the assessments sounds quite alarmist to the person who's reading them. He talked to me about terminology like the person is 'aggressive' or has 'challenging behaviour', and this language is problematic whenever we're dealing with people who are upset, angry, or frustrated. Yeah, it's problematic in terms of how that is then construed, and then that influences whether somebody is accepted into a home.

Here, the language on the external assessments directly influenced whether someone was accepted.

In another instance, there was a discussion in a senior meeting that the strategic change of language from 'wandering' to 'purposeful walking' was both positive and problematic, as some staff now did not understand the significance of this and what should be recorded and acted upon. In my **Field notes, Day 13**, I noted:

Because it had moved from previously being wandering to purposeful walking, and there was a conversation that followed really around how the staff were aware of what this new terminology meant and therefore how resources should be managed in response to it.

Both organisations where I undertook my observations were, at the strategic level, already grappling with the challenges that language posed. There was clear recognition that the terms used in documentation and conversation were not neutral, but carried consequences for how behaviours were understood, how resources were allocated, and how learning was mobilised.

My observations showed how these linguistic manifestations played out in real time, how particular words potentially shut down conversations before they had even begun. Once a behaviour was framed as 'aggressive', for example, it potentially foreclosed further inquiry into the emotional or relational dimensions

of what had happened. In this sense, language was not only descriptive but also performative: it actively limited the epistemic space in which alternative explanations or responses might have been considered. In my **Field notes**, **Day 12**, I noted:

The word 'wandering' was used quite a lot, alongside terms like agitated, aggressive, and redirection, all of these, as we say, negative language. I could see the team doing what they could to resolve the challenges as they were presented, but they didn't have all the information they needed. I do believe the language use sort of shuts down opportunities for exploration. Interesting, the use of technology to check information. I'm not sure how well it served them. I think a lot of the information came from the staff. Not as much as I would have expected from the technology.

Interestingly, this observation showed that the language used in care notes was mirrored in how information was shared across the team. The technology, particularly the digital care plan, offered limited insight, so staff relied instead on collective sense-making through conversation. In this 'other world' of verbal exchange, curiosity and shared understanding became more influential than the technology itself in shaping how they responded.

In this observation, the repeated use of terms such as *wandering*, *agitated*, and *aggressive* shows how the resident becomes constituted as a problem-object, something that demands attention yet resists understanding. The 'problem' itself becomes the object of knowledge, drawing staff into cycles of response rather than reflection. The digital care plan, while designed to inform practice, reinforces this orientation by codifying the resident through labels attached to particular 'problem' behaviours. Consequently, learning is directed towards managing the behaviour rather than exploring the person or their context.

What, then, are the consequences of this, and how does language impact outcomes? Perhaps *othering* operates not as a conscious act of exclusion but as an epistemic effect of how problems are represented and circulated through both language and technology. The staff's conversations, which I earlier

described as an 'other world' of sense-making, momentarily resisted this closure, reopening interpretive space through shared curiosity and dialogue. However, without alternative framings to draw upon, this resistance was somewhat fragile, constrained by the institutional language that continued to reproduce the resident as *other*. In dementia care, language shapes the very relations through which knowledge is produced. Compassionate terms that recognise personhood potentially evoke empathy and sustain curiosity; othering labels such as *aggressive* or *wandering* do the opposite, casting the person as a problem to be managed. Such language acts as a negative epistemic force.

The patterns described above can be further understood through Knorr Cetina's account of macroepistemics, which helps illuminate how knowledge and learning become differently configured across the organisation.

Macroepistemics refers to the wider institutional arrangements, distributed across time and space, that sustain knowledge work (Knorr Cetina, 2007). In the case of dementia care, digital care plans are not just local tools; they are part of macroepistemic practices that tie together multiple actors, from caregivers delivering frontline care to managers, auditors, and policymakers. The care plan is, therefore, implicated in institutional knowledge practices far beyond the immediate moment of recording.

What I reflected on was this notion of 'two worlds'. In the digital world, information flowed as codified entries: brief and quickly outdated. In the world of practice, knowledge is developed through dialogue, reflection, and shared sense-making. The epistemic work that went on around the boundary object of the care plan, whether in staff conversations, or moment to moment adjustments, was often richer and more meaningful than what entered the digital system. Once formalised, it was the information record that travelled into the macro epistemic world of audits, care reviews, and organisational metrics.

The tension, then, is not just between efficiency and completeness but between two different practices, held apart: the situated practices of knowledge-in-use and the organisational logics of information circulation. The two are entangled in practice but not neatly assembled in a way that could produce good outcomes. This is where learning risks being shut down: when the information record is

mistaken for the knowing it displaced, and the epistemic practices that generate meaning are eclipsed by the demands of standardisation and accountability, or the pull of the next technological innovation.

Conclusion

This chapter has looked at how learning happens through two specific boundary objects: digital care plans and dashboards. It showed that in both instances, they were not neutral tools. The chapter also explored how sometimes the assemblages limit what boundary objects can be. Perhaps more consideration needs to be given to the 'connective tissue' that resides between these 'two worlds'—which are in fact not two worlds at all, but different assemblages enacting knowing in different spaces and places.

This chapter has shown that to consider the boundary object alone would be limiting, as it is the practices that surround them that perhaps matter more. These objects become boundary objects, in Carlile's (2002) pragmatic sense, when the knowledge they carry becomes actionable (Goodyear and Markauskaite, 2016). This has a wider implication for how organisational learning is understood. Where learning is treated as a problem to be solved by technology—by a better dashboard, a more streamlined care plan—the focus falls on the object and misses where learning is actually happening. My findings suggest the opposite: the richest learning took place in the practices around the objects, in conversation, and shared attention, much of which never reached the digital system at all. A disproportionate focus on the technology, therefore, risks investing in the part of the picture that matters least, while leaving unsupported the practices that carry most of the learning.

This matters for how we support practitioners in what is a very challenging role. It matters for what we hand over when we treat the technology as if it held the authority. The question is not whether to use these systems but how we might turn them towards opening up epistemic objects rather than closing them down, and how we might support staff to work with them more effectively. That capacity, to work between the relational knowing of practice and the demands of the digital record, is the connective tissue this thesis is exploring. Building it is

not a technical task alone; it is a matter of how practitioners are supported, trained, and recognised in the work they already do. This is the question the next chapter takes up: how digitally mediated practice might evolve to improve outcomes for staff, individuals and organisations.

Chapter 6. Discussion

Is it not time for some progress? To the fact position, to the fairy position, why not add a third position, a fair position? Is it really asking too much from our collective intellectual life to devise, at least once a century, some new critical tools? (Latour, 2004a, p.243)

This chapter discusses this study in relation to the research question—*In what ways can digitally mediated epistemic practices enable organisational learning in residential dementia care services?* It draws out particular points from the analysis presented in Chapters 4 and 5 and brings them into conversation with the literature. The findings suggest that organisational learning in dementia care is achieved through complex sociomaterial relations. From here, the chapter considers how recognising the way these relations work make it possible to shape them. It does so through three component questions, each explored within a residential aged care setting: how people learn in and through work; how data practices (im)mobilise (enable or disable) learning; and what opportunities exist for technology and digitally mediated work-learning practices.

This discussion builds towards two propositions drawn from the analysis in Chapters 4 and 5. Offered from my position as both researcher and experienced practitioner, they are an attempt to make the research practical, to respond to a problem that produces poor outcomes, costs services, and affects how people experience care. The first is the introduction of the *digitally informed practice leader*; the second is what I call the *epistemic architecture*—the idea that organisational learning in these settings should be skilfully and purposefully crafted, rather than left to emerge as a by-product of quality or regulatory requirements. I illustrate the potential for the digitally informed practice leader by placing critical questions throughout the text. In keeping with the thesis's sociomaterial sensibility, these propositions are both social and material; but inserting them into any service without attending to how these elements, and others, intra-act, re-define, and sometimes derail one another would be fruitless.

As Noordegraaf says (2020), 'professionalism isn't only produced by professionals.'

Organisational learning is not an end in itself. As Chapter 2 set out, it is often tied to competitive advantage, but in this setting its purpose is more fundamental: it is what sustains good-quality care over time. In a flat ontology, there are no fixed boundaries between scales: local practices shape organisational ones (Gherardi and Nicollini, 2000; Gherardi, 2012), and organisational practices reach outward into the networks and assemblages beyond the service. In the care sector, this is particularly pertinent, since how an organisation learns to care may, in a modest way, inform the wider value systems it is part of, what Ricciardi *et al.* (2021) discussed as the common good. I have come to believe that a real measure of a society is the way it treats its most vulnerable. This is why getting the conditions for organisational learning right is not a local matter; what an organisation is able to know bears directly on the people least able to advocate for themselves.

Quality, it should be said, has not been studied here as a construct. My interest in this study is organisational learning, yet one effect of improving organisational learning may be precisely a fuller sense of what quality means, in this place, at this time, for this person. For quality means different things depending on where one stands, and at what time. To a person living with dementia, it might mean feeling psychologically safe; to a clinical practitioner, it might mean demonstrable physical safety; to a care worker, it might mean the conditions that make their own work sustainable. The point is that a strong epistemic architecture gives an organisation the means to attend to these many competing definitions. Otherwise, we risk maintaining the will of the first and most dominant force. A strong epistemic architecture works against this, keeping epistemic objects open as ongoing matters of concern rather than settling knowing into matters of fact (Latour, 2004b).

How do people learn in and through work?

This section discusses staff learning in and through work, enabled and constrained, drawing primarily on the two findings chapters, Chapter 4 Learning Practices and Chapter 5 Boundary Objects. Across the learning practices I observed, there was the inseparability of working and learning, and digital systems were woven throughout, which could be considered a kind of ‘blended learning’. This inseparability has been demonstrated extensively in the literature (Nicolini, 2011; Nerland and Jensen, 2014; Fenwick and Edwards, 2016; Goodyear and Markauskaite, 2016; Nguyen *et al.*, 2017). Sociomaterial studies have much to offer in exploring the actual doings and knowings in practice (Bonde, Bossen and Danholt, 2018; Hibbert *et al.*, 2018; Rapin *et al.*, 2019; Allan *et al.*, 2024; Ryan, Ryan and Hynes, 2024), albeit, mostly do not explore practices within a dementia care context.

In this setting, blended work-learning was, fundamentally, the work of solving problems as they emerged, emergence is widely cited in the literature (Malloch, 2011; Hager, Lee and Reich, 2012; Hopwood, 2016). The trigger might be a resident who was withdrawn, or a clinical matter such as a fall or an infection; learning may also be prompted by something as ordinary as noise (Moeller, 2025). Whatever the unresolved phenomenon, it drew practitioners into ongoing inquiry.

The dynamics observed are themselves intra-active (Barad, 2007): material, relational, and political, and therefore draw on a correspondingly broad literature, which attends to the complexity of this. This includes foundational dementia care theory (Kitwood, 1997), which has largely operated within humanist commitments, alongside the smaller body of work that brings sociomaterial sensibilities to dementia and care practice (Moser, 2008; Lee and Bartlett, 2021; Vetter *et al.*, 2025). It also draws on translation and epistemic practices (Callon, 1984; Knorr Cetina, 2001; Hopwood and Nerland, 2019; Landri, 2021a), the role of the built environment (Nord, 2015; Fleming *et al.*, 2016; Buse, Martin and Nettleton, 2018), and how learning travels (or fails to) through organisations (Stoopendaal and Bal, 2013).

Problematization: framing the problem

Applying the heuristics of translation to the findings suggests that the assemblage of digital and material actors shaped how problems came to be framed, which had flow-on effects. For example, the purpose of the six-monthly review (Chapter 4) was defined by regulatory requirements rather than by what the family and/or the resident determined as important. In addition, there were several digital representations of how problems were logged. In the 'What Counts' anecdote (Chapter 5), the system held no category for what a resident was experiencing, so it went unrecorded and therefore did not represent the actual problem. In the 'She Wanders' anecdote (Chapter 5), a resident who was walking was placed in the 'wandering' category, possibly misrepresenting what the actual problem was. In the quality-focused meeting on distressed behaviour (Chapter 4), the problem was defined by the red flag that appeared on screen as 'challenging behaviour'.

Some of the examples above would suggest that the relational dimensions required to provide a more rounded view of the problem were not easily enacted. This did not mean the digital care plan held no space for relational knowledge. Relational fields, by contrast, were present but marginal: optional rather than prompted. The 'What Counts' anecdote in Chapter 5 illustrated this: at the end-of-shift handover, the conversation turned to the daily report sheet, reporting who had eaten and who had opened their bowels. The withdrawn resident was not mentioned; there was no category for 'sad'. When I asked later where such observations might go, a nurse explained, 'There's nowhere to record it unless it becomes a behaviour, then we log it as distress.'

This framing is done in part through language. The version of the person a system brings into view is influenced by the words it makes available, for example, 'wandering'. Barad (2014) and Landri (2020) both pushed this further: language and material arrangements cannot be separated, and the data infrastructures of care templates, reporting structures and standardised platforms actively shape what organisations can see and act on. Changing the language alone does not change what the system does.

Moser (2008) argued that different tools and practices do not simply produce different perspectives on the same underlying reality; they produce different realities. To problematise issues through a biomedical lens is to bring only a partial version of the person into view. Collins and Fletcher (2024) argued that the clinical framing of dementia is itself political and stated that it is not located in individual practices: 'If individual medical encounters are dehumanising, those interactions are typically constrained by institutional circumstances (e.g. consultation times, staffing levels, resource availability) rather than being a direct consequence of the prevailing "model" of medical thought' (Collins and Fletcher, 2024, p. 5). The framing of the problem is, in this sense, held in place by the material arrangements of care. These arrangements are not neutral, but embody particular priorities. The framings that came to dominate may, therefore, be shaped by particular political forces, which are taken up below.

A digitally informed practice leader might ask: what version of this person does our current system produce, and what would it take to see differently?

Interessement: what gets drawn in, and what gets left out?

In exceptionally busy environments, important things can be missed. The beeps and sounds that grab our attention, the utterance and the invitational quality of things, are material (Adams and Thompson, 2016). The way things pull us in influences opportunities for learning. Interessement points to that notion. In the six-monthly review in Chapter 4, that pull was the template itself, which structured the practitioner's attention. In such scenarios, important parts of the puzzle can be left out. For example, when trying to understand an increase in bruising and UTIs (Chapter 4), relational accounts—the voice of the person—were missing, as was data about the environment. Janicka (2023) describes translation as the 'act of persuasion'. It is the material assemblage that hooks interest, the focal actor, and what invites interest is, in large part, affective. This is not a matter of individual emotion, which sits awkwardly in a sociomaterial account, but of what the assemblage makes available to be attended.

A digitally informed practice leader oriented to interessement might ask: what does this form make it possible to bring in, and what, or who, does it systematically exclude?

Imagine, instead, an interessement that invited data stories in as a mode of participation alongside the template: narrative accounts, the kinds of accounts practitioners already exchange in the corridor and at handover, brought into the formal architecture rather than left at its edges. Schröder *et al.* (2023) suggest stories work because they grab attention through the affective register, the dimension of ‘pathos’ (Greek word for feeling), the emotional element that the template strips out in the act of recording. Steinberg (2014) argued that information which has not been affectively registered within a practice tends to be set aside in decision-making, even when it is relevant. An interessement that brought stories in alongside categorical recording would draw practitioners in differently, because what is being offered for their attention would arrive in a form where practitioners could potentially be hooked in more readily. This thesis develops the data story as part of the proposal for what an effective epistemic architecture should include, and the chapter returns to it in the discussion of data stories below.

Enrolment: is knowledge genuinely opened up, or merely noted?

In the six-monthly review in Chapter 4, the findings suggest that information was brought to the table but not integrated. Grappling with the complex challenges of dementia often requires bringing different forms of knowledge into view and weaving them together. Knorr Cetina called this knowledge being ‘woven twice’ (2006, cited in Hopwood and Nerland, 2019). They go on to quote Guile, highlighting the importance of knowledge being recontextualised (2010, cited in Hopwood and Nerland, 2019). Enrolment, in this sense, is not only about which people are brought to the table, but how the digital assemblages make certain forms of knowledge available, in ways that can not only be tested and validated but also integrated. To illustrate why this matters, imagine coming to understand how a practitioner should respond to a person with dementia who cries at the sight of a doll. The response changes entirely once the family explains that this person once lost a baby. A purely behavioural reading would miss what the

family's knowledge makes available; and a purely relational reading might miss how the setting, the doll, and the moment of encountering it shaped the distress.

Widely cited in the literature is also the important role of empathy in learning and practice (Steinberg, 2014; Jeffrey, 2016; Ford, 2018; Brown, Agronin and Stein, 2020; Moudatsou *et al.*, 2020). In the anecdote 'The Moment Passes' in Chapter 5, we observe a caregiver experiencing joy and connection after settling a resident after lunch. Later, at the nurses' station, the digital care plan and the surrounding conditions provided no opportunity to record this. This knowing is also evident in some of the interviews in Chapter 5, where some staff had described how they felt about their residents. These feelings were not incidental to the work, but arguably critical to stimulating learning.

Caring is a feeling profession felt, lived, and entangled with emotion, things, being, and doing. However, as shown above, the digital systems seemed to have limited capacity to treat this as 'data'. Feelings were present in the organisation, but they may be being kept behind what Scheffelaar *et al.* (2018) call 'professional distance', and this matters epistemically, not just relationally. As Sheard (2007) noted, feelings are not incidental to dementia care but are the primary means through which practitioners come to know a person and respond meaningfully to them. Person-centred care depends on knowing the person through an interpersonal relationship, which means empathy cannot be separated from the accumulated knowledge that comes from being with someone and learning what matters to them (Brown *et al.*, 2020). Sheard (2014) observed that care homes structured around task-based or clinical models become effectively emotionless environments not because staff do not feel, but because there is no legitimate place within the organisation for emotional knowledge to be expressed, shared, or used.

The relational was not the only under-enrolled actor, and the material is not separate from it. Buse, Martin, and Nettleton (2018) proposed the concept of materialities of care as an analytic lens for examining how the physical environment and mundane material things participate in the constitution of care, arguing that material practices and architectures of care are generative of, and

imbued by, affect and emotion rather than serving as a backdrop to them. Nord (2015) similarly suggested that architectural space actively participates in care networks, shaping what practitioners can notice and do. Fleming *et al.* (2016) demonstrated that the quality of the built environment is significantly associated with quality of life for people living with dementia, and Lee *et al.* (2021) found that many practitioners are unaware of the design intent behind the spaces in which they work and are therefore unable to activate their affordances. A practice leader who can read location data, movement patterns, and spatial triggers alongside relational observations is doing something qualitatively different from one who reads only clinical incident reports. The built environment may represent a significantly under-enrolled dimension of the blended work-learning landscape that the current operating priorities render largely invisible. Law and Singleton stated (2000), ‘This means that the success of any performance is uncertain and that anomalous performances tend to fail because they find that they cannot easily recruit the right actors.’

A digitally informed practice leader oriented to enrolment might ask: are we creating conditions in which different forms of knowledge—embodied, relational, emotional, and environmental—are genuinely opened up and brought into dialogue, rather than simply tolerated informally?

Mobilisation: why does learning stall, and what might help it travel?

Mobilisation is the fourth moment of translation: the point at which the assembled knowledge moves beyond the immediate situation to effect actionable change in an organisation. It is, in many respects, the hardest thing to achieve. In the organisations I researched, skilled practitioners who could problem-solve and see things differently were not uncommon. What remained elusive was how to get the learning to travel so that what had been understood in one place, at one moment, could shape practice elsewhere.

Mobilisation no doubt occurred across these organisations. Learning does travel, sometimes, and team communication can have a significant impact on care quality (Spilsbury *et al.*, 2024). What the findings suggest, though, is that mobilisation was challenged by several factors, particularly the pace of work. However, time alone does not explain the pattern.

Where learning did travel, it moved through informal relational channels rather than through the formal reporting structures or digital systems that were, in principle, designed to support it. As one caregiver in Chapter 5 described it, *‘we talk about the residents as we work... on the floor, like, beside together’*, knowledge moving in real time, in motion, between the people doing the work. My field notes from one observation day captured the same dynamic from a different angle: *‘a lot of learning is sort of going on whilst working and whilst talking to staff teams, and this isn’t always transferred onto the digital system.’* This is the two-worlds pattern noted in Chapter 5: a verbal world in which knowledge moved in real time, and a digital world in which it arrived later, and partial. I wonder what more can be done to build the connective tissue between them? Two other sociomaterial studies had interesting and related findings, that staff preferred to use verbal rather than digital forms of handover (Burgin, O’Rourke and Tully, 2014; Nguyen *et al.*, 2017).

Moore (2017), in her diagnostic framework for learning design, offered a useful practical heuristic: before reaching for training, she argued, organisations need to establish what kind of problem they are actually dealing with, whether the gap lies in the conditions of the environment, the design of the workflow, or the tools available at the point of practice. While Moore’s framework sits within a different theoretical tradition, her insistence on diagnosing before intervening resonates with the findings of this study. Where Moore (2017) helps us think about what kind of problem to address, Stoopendaal and Bal (2013) could help us think about what makes an intervention travel once made. Their study of a quality improvement programme moving from national conferences into the daily life of long-term care organisations found that mobilisation did not happen through documents and best-practice guidelines alone (Stoopendaal and Bal, 2013). What improved travel and hold was what they called inscription into material objects, such as a linen tablecloth or a serving dish, each of which carried the value of the improvement and steered action without depending on any individual’s recall. They argued that realising a value makes it travel further than text, because the object itself becomes an actor in the assemblage that embodies that value (Stoopendaal and Bal, 2013). The quality lead’s suggestion in Chapter 4 to laminate and display the STOP and WATCH tool reflects this

same logic: an attempt to inscribe attentive observation into the material environment of care, so that the prompt to notice change is held by the artefact rather than carried in memory or buried in a document.

A practice leader oriented to mobilisation might ask not what do staff need to know, but what material form does this learning need to take in order to travel?

In summary, what the above suggests is that technology plays a constitutive role in how learning is shaped. Each of the points raised is not a separate concern to be addressed individually; together, they form the conditions under which people work. In this next section, I explore how data practices figure in that architecture and explore possible consequences and opportunities to improve organisational learning.

[In what ways do data practices \(im\)mobilise learning in dementia care organisations?](#)

Data practices emerged as a significant site of analysis through the learning practices described in Chapter 4 and through the Power BI dashboard and digital care plan analysed as boundary objects in Chapter 5. Chapter 4 deployed Landri's three dimensions of translation (Landri, 2021a): geometric (as it means to displace from one place to another), semiotic (concerning the change of meaning when something/someone is mobilised), and political (strategies of persuasion, enrolment and power games). This section returns to those dimensions, and I curiously extend Landri's framework, developed in educational management, into the context of regulated dementia care. Power is difficult to get hold of, often invisible, working through arrangements that appear merely practical, rarely announcing itself as power.

To make those visible, I explore this alongside institutional logics (Thornton, Ocasio and Lounsbury, 2013; Waldorff, 2013), which I bring into dialogue with Landri's framework. To name power this way risks a mistaken assumption, since power is not, in Latour's (2005) view, possessed by macro-actors but is rather an effect of associations, made and remade. However, Mountford and Cai (2023) called for a flatter ontology of institutional logics, stating, 'any given interaction seems to overflow with elements which are already in the given situation, coming from some other time, some other place, and generated by some other agency' (Latour, 2005, p. 166, cited in Mountford and Cai, 2023). What this suggests is that institutional logics do not sit above practice but as something embedded, often unrecognisable; they do not sit with people or in particular places but rather are expressed in how the social and material are entangled. To explore this in more depth, I begin by exploring the spatial displacement of data, to move something from one place to the next, as Landri (2021) described as geometric.

Geometric forces

The geometric force was most visible in the two clinical council meetings analysed in Chapter 5: the 'meeting upstairs' and the 'meeting downstairs'. Upstairs and downstairs are not literal descriptions of the rooms in which the meetings took place; they are metaphorical, signalling the organisational distance between the two. The upstairs meeting was held at a different physical location and at a different time from the care it reviewed. The same dataset moved between the two meetings but was enacted very differently in each, producing what Mol (2002) described as different realities through different practices, rather than different perspectives on a single underlying reality. Upstairs, in the senior clinical council, the dashboard prompted analytical curiosity; weightings were debated openly, and the data performed as an object for exploration. Downstairs, in the local clinical review, the same figures arrived stripped of their methodology and landed among staff who could put faces to the numbers. The data was enacted as an epistemic object upstairs and as a means of scrutiny downstairs; the 'watch list' turned back on the staff themselves.

The fact that the data moved upward in the first place is itself significant. Drawing on Thornton *et al.* (2013) and Waldorff (2013), this can be read as corporate or state logic mobilising through the geometric: data is extracted from where care happens, not because it serves learning at the local level, but because the organisation needs to make itself visible to itself through performance metrics, and comparative rankings. Beer (2019) called this the *data imaginary*: the belief that aggregated data represents reality.

The two meetings illustrate the geometric force at work: data is removed from where it is generated and returned as numbers and rankings, abstracted from the relational conditions that produced them. They constituted distinct epistemic cultures in Knorr Cetina's (2007) study and a different machinery of knowledge. Upstairs could see patterns across many sites and knew how the data had been calculated. This is just a metaphor to aid understanding, as these are, in fact, parts of an assemblage. Downstairs knew the residents, the practice, and what had actually happened in the encounters the numbers came from. Neither assemblage, on its own, was sufficient for learning. The patterns visible upstairs needed the encounter context to become meaningful; the encounter knowing downstairs needed the patterns to see what no single practitioner could see from their position. Nerland (2022) identified a related point: in hierarchical healthcare organisations, digitalisation tends to concentrate epistemic responsibility upward, while lower-skilled workers face stricter standardisation and control. In dementia care, those workers are also the most relationally proximate to the person, which sharpens the consequence of the geometric force: those structurally positioned to hold the encounter knowing are the ones whose work is most tightly standardised by the systems that carry organisational authority.

The upstairs meeting depended on data that had travelled upward: as observed in Chapter 5, in the anecdote 'when the data travels', senior leaders worked from patterns aggregated across many sites. Staff enter data at the encounter partly as narrative and partly as ticks against assessment categories. As it travels upwards, this data is extracted, converted, logged, and ranked until it reaches senior reports as figures that serve a reporting function. The person

literally becomes a data point (Gourlay, 2024), and if we pause to consider how significant this is, we start to see that the consequences are more than might first appear. Prinsloo and Slade (2016) argued that the gathering and harvesting of data can shape decisions about resources in powerful ways that sometimes do not serve the person the data is about, but instead market forces. These fragmented representations flow back to the local level, stripped of the context in which staff originally recorded them. What is lost in this movement is precisely what makes the data meaningful for practice: the situated knowing through which staff first noticed, interpreted, and recorded what mattered. Latham, Brooker and de Vries (2024) showed in their study how this knowing is generated at the care encounter, where they describe learning as taking place through trial and error.

One thing to consider is the difference leadership makes as an actor at a local level. The same data does not do the same thing everywhere; it is enacted differently in the different assemblages it becomes part of, and local leadership is one of the actors through which those assemblages take shape. As an example, in Chapter 4, the regional clinical lead worked alongside the clinical manager, not above the dashboard but within it: finding that bruising did not correlate with falls, and turning that absence into a question—*if not falls, then what?* Chapter 5 illustrates something similar but goes further to show how the same response could be used differently by different people: one as a resource for inquiry, the other as evidence of shortfall. This maps onto what Ivers *et al.* (2025) identified as the conditions under which audit and feedback improve practice: individual-level feedback, delivered by a local leader with a relational connection to the recipient and oriented towards dialogue. This is what digitally informed practice leaders may make possible by bringing data closer to the encounter in a useful way.

Semiotic forces

As we have seen in the first section, language matters, and this speaks to Landri's semiotic dimension as it highlights what happens to meaning as data is categorised, where a single term embedded in everyday documentation can strongly influence both the problem and the response that follows. Landri read

through what Thornton (2013) calls a professional logic, which emerges as a biomedical framing, that is evident in Chapter 4's problem-solving practices for challenging behaviour, where the term 'BPSD' appears. Furthermore, in that meeting, 'challenging behaviour' framed distress as a category to be managed rather than a form of communication, narrowing what could be asked and which actors could be drawn in. The 'wandering' anecdote in Chapter 5 showed the same dynamic, where the digital care plan's dropdown menu *wandering* led to *redirection required*. Alyse and Neubauer (2019) argued that the term 'wandering' is stigmatised and often leads to restricting movement in people with dementia.

This is Landri's (2021) semiotic dimension of translation: language as performative, producing reality rather than recording it. The vocabulary is not neutral. It carries the weight of long-standing stigma frameworks of deficit, danger, and loss of self that continue to shape how dementia is understood (Swaffer, 2014; Cunningham, Macfarlane and Brodaty, 2019; Wolverson *et al.*, 2021).

A digitally informed practice leader oriented to the semiotic might ask: what stigmatised representations are carried in that term, and how else might we think about, or write about this?

Political forces

The political dimension is possibly shaped most prominently by regulatory standards (Ngā Paerewa Health and Disability Services Standard). The standard, together with statutory requirements such as the Code of Health and Disability Services Consumers' Rights, rightly emphasises collaboration with whānau and frames care quality in outcome-focused terms. The data infrastructure through which compliance is evidenced, however, is perhaps dominated by what is measurable and defensible at audit. This is not a contradiction so much as a structural feature of how regulation works.

Braithwaite, Makkai and Braithwaite (2007) called this dynamic *regulatory ritualism*: the displacement of regulatory goals by the means of evidencing

them, where getting the documentation right becomes the way to protect yourself rather than the way to improve the quality of life of residents. Trigg's (2018) comparative study of regulatory approaches in England and Australia, cited earlier in this thesis, reached a compatible conclusion about intrinsic motivation as the predictor of care quality, not the regulatory process. Braithwaite and colleagues added that extrinsic regulatory pressure does not merely fail to produce care quality but can actively displace the intrinsic orientation that does. When the architecture pulls staff and organisations into the work of evidencing compliance, it leaves less room for the discretionary capacity that good dementia care depends on: the capacity to notice and respond to emergent learning. This is the work the digitally informed practice leader is positioned to protect: keeping open professional curiosity flowing and fighting the pull towards compliance.

What the regulatory architecture cannot capture is as analytically important as what it can. The 'Two Worlds' anecdote in Chapter 5 illustrated this directly: a caregiver who had learnt in the corridor that a resident was unsettled by something to do with her medication arrived at the nurses' station to find that the moment had passed, and the detail was not recorded. The political dimension here operates on two levels. Residential aged care in New Zealand is chronically underfunded (Reid, Dixon and McDougall, 2024), and the thin staffing margins impact the time afforded to complete daily progress notes. In a sociomaterial study exploring electronic nursing documentation at the point of care, Nguyen *et al.* (2017) found that staff were frequently interrupted, something I also observed and noted in Chapter 5 when the staff member was trying to update InterRAI.

This is a state-logic decision before it is a corporate one: the funding settlement, set by the state, determines the staffing margins within which recording must happen. The corporate-logic layer sits on top, in the choices organisations make about how these thin staffing hours are allocated. When learning and recording are squeezed to the edges of the shift, the quality of the data that arrives is questionable, and this can have serious ongoing effects. Beer (2019) described how organisations come to treat aggregated data as if it were the world itself,

and Prinsloo and Slade (2016) named this dynamic a 'quantification fetish'. What gets counted is also an organisational choice, and confining it to what the regulator requires is powerfully limiting. New technologies, however, are beginning to open possibilities the clinical paradigm alone cannot reach. Recent studies (Grigorovich *et al.*, 2025; Shum *et al.*, 2025) using real-time location systems demonstrated how digital infrastructures can generate new forms of behavioural and social data in dementia units, identifying patterns of movement, social engagement, and proximity. While such systems are primarily positioned as monitoring tools, they also produce new epistemic possibilities. The point here is not that this technology is a solution: it carries its own risks of misrepresentation, and digitally informed practice leaders are needed as a layer of critical human oversight within the safety architecture.

Whatever new data such systems generate, they do not resolve the deeper problem: that much of what staff know never reaches the record at all. This is not simply an epistemic loss. When practitioners notice something but have no legitimate channel through which to raise it, the organisation cannot act on what it cannot see. This was evident in the interviews. Monica described not re-recording a distressed behaviour because it seemed familiar 'it's just the same behaviour' and Jenny noted that reports capture the incident but 'not ... what happened just before'. What staff noticed was present in their knowing but absent from the record: not through any individual failing, but because the arrangement, a form built for the incident, was a convention that treats the familiar as not worth logging again.

Atalla *et al.* (2022) identified this dynamic: when staff cannot raise what they observe, the risks that the knowledge that might have been made present remain absent until it materialises in more harmful ways. Their research found the strongest driver of silence was not individual reluctance but supervisory behaviour: when supervisors signal that voicing concerns is unwelcome, staff learn not to raise them. Chester *et al.* (2024) showed that in safeguarding, knowledge of harm is characteristically present among frontline staff long before it enters any formal reporting system. This is where digitally informed practice

leaders could encourage people to have more professional curiosity (Research in Practice for Adults, 2020; Taheri and Nasiri, 2024)

This is one face of a broader structural problem. The current assemblage of social and material actors, as currently configured, is built around accountability, and therefore around responsibility, but in a narrow sense: defensible at audit. Prinsloo and Slade (2018) distinguished this narrow form from responsibility: the capacity to act on what is known. They defined response-ability as having the resources, the political will, and the relational conditions through which knowing translates into action (Prinsloo and Slade, 2018). An institution can be one without being the other, and an architecture that is responsible without being response-able leaves the organisation acting on a partial picture of what is happening. This is what Landri (2021, p. 53) called an 'epistemology of seeing': an organisational orientation in which what becomes legitimate knowledge is what the system can render visible, perhaps leaving more relational forms of knowing at the periphery. The chapter develops one response below in the discussion of data stories.

Taken together, the three dimensions speak to the second research question. Data practices let learning travel when it could be counted and turned into figures but seemed to hold it back when it could not be so treated, and much of what may matter most in dementia care, this analysis suggests, sits in that which could not. The same pattern appeared to run through all three dimensions: the technical arrangement largely showed particular forces that displaced and changed meaning, impacting how information was read. Where learning did travel differently, it seemed to be because a practice leader worked within the arrangement to shift it.

This raises a further question. If a practice leader can orient a given assemblage differently, what would it mean to design the wider arrangement, systems, practices, and relations together so that it supported such work by default, rather than depending on individual leaders to compensate for it? This is the question of epistemic architecture. The next section addresses this question.

What opportunities are there for technology and digitally mediated work-learning practices to improve dementia care?

Digitally informed practice leaders are part of an epistemic architecture that, I argue, is designed by choice. What follows is an attempt to think through what a differently oriented epistemic architecture might look like. Such an architecture might mean a need to design digital systems that support knowledge-making rather than just compliance. By reading the findings for what was absent as much as what was present and ask what a differently designed architecture might make possible. This is a diffractive reading rather than a reflective one (Nicolini and Roe, 2014): the aim is not to hold the findings up as a mirror to what is lacking, but to read them through the analytic frame to see what differences a differently configured architecture might make.

The current architecture exerts particular forces which influence organisational learning outcomes. Landri's (2021) three dimensions of translation political, geometric, and semiotic name these forces, and one way to think about an alternative architecture is to consider what it would take to reverse each of them. The first step is to understand what the existing architecture does and what it prevents; from there, the question becomes What kind of reversal would let the architecture do something different? Politically, digital systems in residential care are configured within accountability regimes: they deliver what governance frameworks require to see and concentrate epistemic authority at the top of the organisation. Geometrically, they move information away from the immediacy of practice into distant organisational spaces such as senior clinical councils or regional management meetings, and what is lost in that movement is rarely recoverable. Semiotically, they support the transformation of relational encounters into categories, codes, and metrics: a translation that reduces rather than extends meaning. These dimensions are not separate problems, but an integrated logic, and the question of opportunities is, therefore, filtered through how each force might be reversed.

Each of the eight learning practices identified in this study was shaped in some way by digital mediation. Technology's tentacles had reached into every part of the assemblage that surrounds the encounter, into the care plan that framed the

problem, into the dashboard that indicated priorities, into the audit trail that determined what needed to be actioned. Into the direct care encounter itself, the tentacles reached only narrowly, at times oriented to medication administration using the electronic medication trolley. It was here, in this layer of practice, that the relational world was fully available, undiminished by translation, rich in learning, and, I argue, a potential site for digitally mediated learning. The site is not the encounter itself; bringing digital mediation into the relational moment between caregiver and resident would change the nature of the encounter. The site is, rather, the moments around the encounter just before and just after, in the spaces between residents as staff move through their work. In this thesis, I have explored two of the eight learning practices in detail in Chapter 4, and in Chapter 5, I touched on several more through the lens of boundary objects. One I did not cover in detail was the direct care encounter, which I briefly address here just to be better able to illuminate the possibilities below.

Field Notes, Observation Day 7: My Reflections

I could hear that the techniques that she was using probably weren't the best techniques, although she had told me that she had learned through trial and error. I do think that there were opportunities for her to improve her approach in terms of using the environment more. In terms of engaging with the person more. And I think she could have done more from a comfort factor because the resident kept complaining. I was interested about her learning. So, I did have a talk to her about it after. And she said to me that often as a team, they don't discuss things like this. They might once in a while, but it's not regular. I do think that there are opportunities that are missed for learning in situ.

Both temporality and spatiality matter; as they surface most readily in the in-between spaces, the corridor, for example, where staff are already in motion and already in conversation. As Brandi and Iannone (2015) argued, learning emerges over time and space in opportunities that are spontaneous, learner-driven, and ubiquitous, and it is precisely these qualities that the in-between moments make possible. What this opens up is a question of where epistemic authority sits: whether knowledge is set in motion by the architecture above the

encounter, or by the people and relationships within and around it. The section that follows is structured around these three reversals in turn.

Reversing the political

Politically, rather than stabilising knowledge primarily for regulatory visibility, a differently oriented system would shift the epistemic initiation point from the organisation level to the encounter level. Thompson and Prinsloo (2023) described this kind of inversion as *returning the data gaze*: a re-configuration in which those subject to the gaze become positioned to re-shape, re-direct, and re-story the data flows that move through them. They argued that the data gaze is not necessarily one-way, and that small, situated forms of data activism can begin to bring agency back into systems built to extract value rather than support it. What this would look like in dementia care is genuinely speculative: the privacy, regulatory, and clinical governance frameworks within which such a tool would have to operate are themselves part of the architecture. Furthermore, the point of psychological safety to share meaningful information is pertinent here. That would take some thinking through. Its success would rest on its ability to cultivate psychological safety and high trust in the system.

In practical terms, there may be opportunities to orient a technology that supports reflection, but this would mean placing the technology in the hands of those at the encounter rather than those above it. The most recent Cochrane review *Audit and Feedback: effects of professional practice* (Ivers *et al.*, 2025) found that feeding back data to practitioners produces a modest improvement in practice of around 6% on average, with substantial variation across studies and that the effect is greater when the data is about the individual practitioner's own practice, when the feedback involves a local champion with an existing relationship to the recipient. The conditions Ivers *et al.* (2025) described already point towards a more radical reorientation: from data fed back to the practitioner to data that originates with the practitioner. The architecture I am imagining inverts the flow rather than improving it. The current architecture produces reductive data points abstracted from the relational moment. A reflective practice tool in the hands of those at the encounter would manifest what staff carry from each interaction. Placing the technology in the hands of those at the

encounter is, therefore, not only a practical arrangement but a structural shift in what counts as knowledge in the first place.

A reflective practice tool that is structurally non-surveillant, where individual reflections remain within the practitioner's control, and only composite, anonymised narratives are made available to the organisation, does not depend on a supervisor's permission to speak. It may make silence harder to maintain and important matters harder to suppress, not by changing the supervisory relationship directly, but by creating a parallel epistemic channel that exists independently of it. The conditions for such a channel are demanding: true non-surveillance would require data architectures, consent structures, and employment law protections.

The added value extends beyond knowledge alone. A non-surveillant channel also creates space for the emotional and relational labour that current systems leave unacknowledged, which has implications for staff wellbeing and retention. Karimi *et al.* (2014) found that emotional dissonance, the gap between what nurses feel and what they are required to express, was a significant driver of job stress and reduced wellbeing.

The digitally informed practice leader has a particular role in this reversal, though the role is itself contingent. The political reversal does not happen automatically when a reflective tool is introduced unless it is automated through, for example, AI dialogic learning, which brings its own challenges around opacity, bias, and the displacement of human judgement. Without that automation, the reversal depends on someone with the time, mandate, and organisational backing to hold a different line: that not all knowledge needs to be harvested for organisational visibility. Some knowing can be held locally, used by practitioners themselves for their own learning and reflection, without ever needing to be aggregated or audited.

The political reversal at the level of the architecture as a whole requires a broader reorientation than placing technology in the hands of practitioners alone. As Law and Singleton (2005) argued, bringing some realities to presence necessarily others different realities. The current architecture this thesis has

described works in precisely this way: making clinical-administrative categories present while othering the relational, embodied, and emotional knowing that this study found to be important. Ground up data from staff also creates a bottom-up approach, redefining what is important to focus on and learn from, rather than what other political forces determine as such. Furthermore, in redressing such forces is also to bring multiple other legitimate voices- practitioners, residents, whānau (family) into the architecture in a way that redresses the political force that has determined what gets to count in the first place. As D'Ignazio and Klein (2020) put it, '*what counts, counts*': the act of being counted is itself political, and the work of redress requires changing what voices the architecture recognises as legitimate sources of knowing.

A parallel possibility, beyond the scope of this thesis to develop fully, would be a non-surveillant communication channel for whānau (families) themselves. A collective channel does not simply capture existing voices; it creates a technologically mediated community around the resident, drawing the people whose lives are bound up in their care into a shared space. This is the kind of design D'Ignazio and Klein (2020) described as building community solidarity and shared understanding, not gathering data about a community but creating one.

Reversing the geometric

Geometrically, the challenge is not to make knowledge travel further, but to keep it close enough to the care encounter that it retains its relational character while still being able to circulate across the team and the organisation. The form in which knowledge travels matters as much as the channels it moves through. What follows continues to work in the exploratory spirit; the question itself invites holding open an imaginative possibility.

What this study's observations have revealed is that care information already moves through stories in the corridor conversations and in the moments between rooms. This is the relational world doing what it has always done: making sense of experience through narrative. Practice cultures are made from stories (Mannion and Davies, 2018), and dementia care stories about residents aid connection and communication (Subramaniam *et al.*, 2023). Stories have

been used to shape the environments and speak through environments (Minetou *et al.*, 2023; Gramegna, 2025). Stories are told about what worked and what did not (Latham, 2020). Stories are important in so many ways, in so many places. How do we hold onto stories? Is the problem geometric? When this information is extracted from the local level into the care plan, it loses the context that gave it meaning at the encounter. What enters the record must be categorised and counted, and in that translation, the story is lost. The geometric reversal is the work of finding a form through which information can travel across the organisation without leaving its context behind.

Structured reflection offers one such form. It works as a more deliberate version of the relational world's natural impulse, creating conditions in which the stories already being told can be told with intention, held for long enough to be examined, and given a form in which they might travel. In dementia care, however, structured reflection happens rarely, constrained by time and resource pressures. Travers *et al.* (2020) noted that structured reflection helps practitioners make sense of experience, develop self-awareness, and improve practice over time; Bailey *et al.* (2016) found it works best when it makes space for the emotional and relational components that conventional frameworks tend to screen out. The point is that in dementia practice, where so much of what is known is held in practice in the body, the environment, and the relational moment before it can be articulated, structured reflection is the process through which that distributed knowing can be given a form that can be shared with colleagues, examined collectively, and, if the conditions are right, made available to the organisation.

Structured reflection produces the account; the data story is how that account travels. The term *data stories* is not used here in the common sense of simplified data visualisations accompanied by explanatory text (Shao *et al.*, 2024). It refers instead to a deliberate recontextualising practice: one that brings formal aggregated data into relation with situated reflective accounts, allowing each to inform the other without reduction. The architecture this section imagines would harvest individual reflective accounts and aggregate them anonymously into composite narratives: collective stories that no single

practitioner has told, but that emerge from the patterns across many of those stories. When this aggregation is brought into relation with the data that surrounds the encounters, what results is a form of knowledge that can travel across the organisation without losing the relational context that gives it meaning.

Data stories of this kind do mobility work in two distinct aspects. They travel horizontally between practitioners, helping staff see connections that no individual encounter could reveal, and they travel upward, carrying relational and contextual meaning into managerial and governance spaces that have only ever received reductive data points. Told as a story, knowing carries its context with it; stripped of that form, it does not. Schroder *et al.* (2023) made a related point: data that carries no human or emotional connection tends to be passed over, even when it is technically present. Where emotional connection is absent, data may be technically present but practically inert: encountered without being received. In dementia care, where so much of what needs to be understood is relational and affective before it is clinical, this is not a marginal point.

This idea that data stories—narrative accounts that carry contextual knowing into the record, as a response to the knowing that the systems could not otherwise receive—did not emerge from literature alone; it arose through the research process itself. Writing detailed fieldwork anecdotes within a sociomaterial framework showed me that an anecdote is not merely illustrative; it also performs epistemic work. Anecdote slows categorisation, reveals context, and sustains interpretive openness (Adams and Thompson, 2016) in ways abstracted data does not. What I found was that doing the analytic work through stories let me see what the data alone could not, and it is this experience that has led me here.

The data story also offers a way of working with the data the architecture already produces. Falls counts, audit codes, and RAG ratings will continue to be generated; they cannot be wished away. But these reductive data points, which are currently treated as speedy, accessible, revealing, panoramic and even prophetic (predicting the future), are in fact somewhat more limited than that, what Beer calls *data imaginaries* (2019). However, what if they could be

reanimated by being brought back into relation with the reflective accounts that surrounded them, not as a replacement for the numbers, but as a way of restoring the context the numbers were extracted from? Whatever generative technology might support this work, whether at the point of practitioner reflection or at the point of pattern recognition across accounts, human critical oversight will be paramount. Bias is not eliminated by automation; it instead becomes part of the machinery. Data stories are made through a complex sociomaterial assemblage (Kitchin, 2014b), so they can only be as honest as the conditions under which they are told. Gathered in a service still driven by compliance, data stories will simply be flattened into more compliance data. Therefore, work will need to be completed around such a tool to make sure it is not just another surveillance/compliance tool.

Reversing the semiotic

Semiotically, the question is whether digital systems can be designed to elevate rather than flatten meaning, and this is a different kind of reversal from the political and the geometric, because it concerns the language that assigns meaning. When distress becomes ‘challenging behaviour’, and a person’s protest becomes a ‘symptom’, their agency and personhood have been overwritten. What are not seen are the complex assemblages, or rather the social and power forces lurking behind them, to make it so. This can be understood through Latour’s (2004b) distinction between matters of fact and matters of concern. A matter of fact is an object encountered as settled and its history and relations no longer visible; a matter of concern is the same object encountered as complex, historically situated, and richly connected. Latour’s point is that matters of concern tend to settle into matters of fact, their assembling closing over until the category appears simply to describe what is there. The category ‘challenging behaviour’ functions in this way; it presents as a matter of fact what is in practice a matter of concern.

This is work that no technology can do alone, because it depends on a human leader who knows the language of the system well enough to interrogate it, who can support staff to notice when a category is closing down interpretive space, and who can ask the deeper questions that the tick-box cannot ask. The

digitally informed practice leader appears here in a different mode from the one in the political analysis, and the semiotic reversal also depends on supervisory capacity and the relational conditions in which questioning becomes possible at all. Where capacity is stretched, and the fieldwork showed that it often is, the reversal may not happen. A digital system can prompt a question, but it cannot create the conditions in which the question is received.

The conditions this study revealed what such an architecture would need to attend to. The paper-based reflective journal requires time and privacy that the fieldwork showed are rarely available, with staff moving between residents, documentation completed under interruption, and emotional labour carried home rather than processed in the workplace. Supervision offers one avenue, but supervisory culture can itself be a constraint, where someone can offload only when a trusted leader creates the space for it.

Taken together, the analysis of the three sub-questions has shown that working in and through work is shaped by digital infrastructures that channel attention, that data practices both enable and constrain what becomes legitimate organisational knowledge, and that the political, geometric, and semiotic dimensions of translation together produce an epistemic architecture that works best when oriented towards inquiry rather than compliance.

I now turn to the overarching question that frames the thesis:

In what ways can digitally mediated epistemic practices enable organisational learning in dementia care services?

What the discussion in this chapter has explored is a set of tensions from which an argument about leadership can be drawn: that organisational learning in dementia care may depend on a form of leadership attuned to how digital systems are already shaping what organisations can know and learn, and oriented towards creating the conditions under which that learning can be more connected and more response-able (Prinsloo and Slade, 2018). What I am pointing towards is something closer to an evolution: a form of leadership that takes seriously what Barad (2007) and others (Fenwick, 2010, 2014, 2016;

Nerland, 2018) have shown us; the human and the non-human are entangled in ways that resist neat and tidy solutions.

The first enabling condition is a form of leadership not only trained in underlying theories of dementia practice, understanding bio-psycho-social approaches (Spector and Orrell, 2010) as well as more emergent post-human approaches to dementia (Lee and Bartlett, 2021; Mentzou *et al.*, 2025; Vetter *et al.*, 2025). Also, a form of leadership that recognises translation as the sociomaterial endeavour and understands the rich, complex assemblages that unfold. Landri (2021, 2023) offered a way of understanding leadership that departs fundamentally from the competency and managerial models that dominate both educational and healthcare leadership literature. Drawing on ANT, he argued that leadership is not an inherent property of an individual or a set of traits, skills, or evidence-based behaviours. Instead, leadership is a fragile and ongoing accomplishment, emerging through networks of humans and non-humans. Power, in this account, is not something a leader possesses and deploys; it is an effect of successful translation. A digitally informed practice leader is not someone who stands outside the network and manages it: they are always already inside it. What distinguishes them is not a superior set of competencies, but a particular orientation: an understanding of how translation is already at work, and a willingness to intervene. Landri (2020, 2021) described this as requiring something closer to diplomacy than management, simply working across conflicting realities and knowledge claims without predetermined solutions, holding space for negotiation between different worlds. In dementia care, where the clinical world of data and the relational world of practice knowledge are persistently in tension, this is precisely the kind of leadership that enables learning to happen.

This is a different question from the one the e-leadership and practice leadership literatures ask. In Chapter 2, I drew from the literature to describe the concept of practice leadership, originating from studies on intellectual disabilities, alongside e-leadership/digital leadership from nursing and healthcare literature, which examines what skills, knowledge, and attributes nurse leaders need to implement digital health systems effectively (Laukka,

Pölkki and Kanste, 2022). This is a legitimate and important conversation, but it starts one step too late for this thesis. The e-leadership literature takes the digital system as a given and asks how leaders can implement it well by developing informatics competencies. What this thesis asks is something prior to and different from that question: How are digital systems already shaping what organisations can see, know, and learn, and what does leadership look like when it takes that question seriously?

Digitally informed practice leadership is not a competency framework but a reconceptualisation of the conditions under which practice change becomes possible in digitally mediated care environments. The distinction matters because most digital systems operating in the sector were not designed for learning, but for operations, risk minimisation, and efficiency. This becomes more urgent as there is a substantial risk that emerging technologies are shortcutting what organisations can learn (Loble, 2026), a concern made more urgent by the rise of AI-generated summaries in health services. Here, the opacity of automated outputs creates what Khan and Ewuoso (2024) called the Black Box problem: what cannot be understood cannot be adequately shared, and what cannot be shared cannot become the basis for inquiry or practice development.

The second enabling condition is the development of digital systems oriented towards inquiry rather than compliance. Digitally informed practice leaders can orient the data in different ways. The same digital care plan functions differently depending on whether the surrounding practices orient it towards compliance or towards inquiry. Staff learn to enter the minimum required to satisfy an audit; free text fields go unused because no one reads them. Data meetings are structured around explaining numbers rather than questioning them. These are not failures of individual practitioners, but the accumulated effect of working within systems designed for a particular purpose. What this thesis points towards is not the integration of new technology into existing digital care systems, creating interoperability challenges, or the addition of another layer to the data infrastructure. The possibility this analysis points to is of digital practices that sit alongside compliance systems that bring the two worlds into

view rather than further entrenching the dominance of one over the other. The capacities such practices would need are clear from the analysis: an orientation towards uncovering and enabling relational learning rather than mere compliance recording; a stance towards the practitioner closer to that of a critical friend than a monitoring instrument; a treatment of emotional insight and relational knowledge not as noise in the data but as the signal: the very thing that formal systems most consistently miss. What makes such practices possible is not technology alone, but leadership that understands both what technologies can do and what they cannot, and that knows how to work in the space between.

The third enabling condition: the development of human capacities and organisational conditions that the architecture cannot itself produce. A digitally informed practice leader understands both the limits and possibilities of technology. They recognise that digital systems are never neutral: they enact particular versions of reality, privilege certain forms of knowledge, and can reinforce institutional logics that work against good relational care. Where a production-oriented leader asks whether the system has been completed correctly, a learning-oriented leader asks what the system is making visible and what it is obscuring (Ellström and Ellström, 2018). This is not a rejection of digital tools *per se* but a sociomaterial orientation towards them: an understanding that technology and practice co-constitute each other, and that intervention is always possible. A digitally informed practice leader can step in at any point in the translation process to create a different possibility, to reframe how a problem is named, to open space for voices that are present but not enrolled, to legitimate the sense-making work that already happens informally, and to ask what material conditions would allow learning to travel differently.

A digitally informed practice leader also understands something that technology cannot yet replicate and may likely never be able to. The human capacities to sense, feel, and connect are not peripheral to dementia care practice; they are its epistemic core. It is through these capacities that practitioners notice what the data misses, read what a resident cannot say, and understand what a family is carrying beneath the surface of the care review conversation. A digitally

informed practice leader knows how to manifest these capacities and bring them into the organisational conversation, not as soft skills sitting alongside, but as a form of knowing that formal systems structurally exclude and that leadership must actively work to include. Such leaders challenge the pull of institutional logics that reduce complex care situations to data points. They create more practical, impactful learning opportunities that meet practitioners where they are. They work to create spaces where practitioners can articulate what they notice, what they feel, and what they sense in practice spaces where experiential knowledge is recognised as legitimate. This is not a comfortable or uncomplicated form of leadership. It requires a willingness to work at the edge of what current systems can do and ask questions that existing technologies cannot yet answer.

This chapter has imagined an epistemic architecture of digitally mediated dementia care: the integrated arrangement of digital systems, leadership, and organisational conditions through which knowing, learning, and acting become possible. The analysis developed three theoretical extensions. First, it brought Callon's translation framework into dialogue with Hopwood and Nerland's epistemic deliberations, both extending into the digitally mediated context of dementia care and revealing what kinds of partnership are required for blended work-learning to enable rather than constrain inquiry. Second, it brought Landri's three dimensions of translation into dialogue with institutional logics, extending Landri's framework from educational management into regulated care and revealing how multiple logics are co-mobilised through the regulatory architecture in ways that shape what can then become legitimate organisational knowledge. Third, it brought Prinsloo and Slade's (2018) distinction between responsibility and response-ability into dialogue with the regulatory and reporting demands of residential dementia care, showing that what presents as a responsible data architecture is one that meets the demand to give account without supporting the organisation's capacity to act on what its own systems make visible. Response-ability, in this sense, is not supplied by the data architecture itself but exercised through the arrangement around it. In the final section I try to bring this all together into a coherent whole, and discuss implications for policy and practice.

Chapter 7. Conclusion

The critic is not the one who debunks, but the one who assembles. (Latour, 2004, p. 246)

Chapter Overview

The preceding chapter developed two recommendations from the analysis: the digitally informed practice leader and the notion of epistemic architectures within which such leadership is constitutive and necessary. In this chapter, I set out why this study matters now, before presenting my findings and recommendations, turning to the implications for practice and research, and closing with my reflections. Stepping back now from that discussion, the fieldwork, the writing, theorising, and analysis I came to see something both more complex and more consequential than I had anticipated when I posed my original question. More complex, because the realities of practice could not be understood through any single theoretical frame. More consequential, because digitally mediated assemblages influence learning in powerful ways, sometimes amplifying forces that remain invisible, embedded in everyday arrangements.

Furthermore, digital technologies are increasingly being introduced to the care setting in ways that take on some of the thinking work that practitioners and leaders previously did themselves (Loble, 2026). A recent peer-reviewed integrative review of generative AI in clinical nursing practice argued that documentation gains ‘cannot be assumed’ and that without rigorous training, governance, and ongoing evaluation, such tools risk introducing new errors and undermining safety (Watson *et al.*, 2025). Furthermore, these digital technologies can also influence the emotional and relational conditions of practice, demanding more people skills, as manual skills are taken up by AI, thus intensifying emotional burden (Moulds and Horton, 2023) and significantly affecting emotional capacities (Moretti and Pronzato, 2024).

This study takes a sociomaterial stance, so it does not locate those capacities within individual practitioners but treats them as enacted collectively, in the

arrangement of bodies, relationships, and systems through which care is done (Gherardi and Rodeschini, 2016). This matters not only because emotion is central to dementia care (Sheard, 2007) but also because emotional conditions shape the very capacities through which learning becomes possible (Steinberg, 2014; Moudatsou *et al.*, 2020). When emotional dimensions are altered by the sociomaterial arrangements, so too are the epistemic conditions of organisational learning. The entanglement this thesis means to question is what these digital systems are doing to enable a caring collective, and it makes the case that leadership should be attuned to these workings, in ways that understand how these arrangements are capable of enacting or diminishing relational knowing in care.

Summary of Findings

This study found that learning in residential dementia care services happens mainly in a digitally mediated way. Learning in and through work involved engaging with problems that are epistemic objects: unsettled, and demanding of ongoing inquiry (Knorr Cetina, 2001, 2007). The framing this study contributes to this is that the conditions under which the work of organisational learning happens are shaped by an epistemic architecture into which compliance, risk management, and a wider biopolitics of dementia (Collins and Fletcher, 2024) have been built. Such an assemblage risks systematically diminishing certain voices, most acutely those of people living with dementia, in what Calabrese *et al.* (2026) termed ‘epistemic injustice’: wrongs done to individuals in their capacity as knowers. Calabrese attributes this injustice largely to the difficulties of communication; the analysis here suggests it is also, more fundamentally, a matter of material arrangement, not only of what the digital systems have a category for, but of the whole apparatus through which a person’s voice is enabled to enter the work at all—the communication supports, and the forms that either draw a voice in or do not. The contribution of this finding is not the observation that digitally mediated work learning happens, which is well established (Nicolini, 2011; Nerland and Jensen, 2014; Fenwick and Edwards, 2016; Nerland and Hasu, 2021), or that digital presence is changing roles (Hamblin, 2022). It is instead the demonstration that these digitally mediated learning practices *become* in any given organisation is determined by the

architecture unfolding around it, and that this architecture is itself the consequential site of intervention.

The study also found that data practices were not as they first appeared. We tend to think of data as revealing what we cannot otherwise see, a promise that Beer (2019), the *data imaginary*, where data is seen as panoramic, revealing, and prophetic. What the imaginary conceals is the arrangement through which data comes to be. Data is never ‘raw’ but always already ‘cooked’ (Gitelman and Jackson, 2013, cited in Kitchin, 2014), data is ‘both a component of the real and a producer of the real’ (Kitchin, 2014, p. 24), in that it literally produces the learning, often in unintended ways.

What this study contributes to the literature on data in dementia care is the observation that two worlds were enacted through the assemblages of organisational practice. Both are assemblages, sociomaterial elements of practice coming together. The term ‘two worlds’ is used in a metaphorical sense; they are not separate, but a multiplicity, and both are equally consequential for learning. What differs is recognition. One is recognised as data—clinical and measurable—and is therefore immediately actionable, entered into the care notes, and highlighted somewhere when something is done about it. The other is not recognised as data at all, seems inconsequential to learning, but is more relational, and so, though it is equally a form of knowing, it has no comparable role in the assemblage and struggles to be heard.

Drawing from research about data in residential aged care, the DACHA study (Hanratty *et al.*, 2023; Carroll *et al.*, 2025; Smith *et al.*, 2025) and the wider literature on psychosocial measurement (Kawase *et al.*, 2025; Rand *et al.*, 2021a) established that broader information about the relational aspects of quality of life is important but often missing from the data set. These studies were not sociomaterial in nature and read absence as a gap in content, awaiting a better instrument to bridge that gap. Read sociomaterially, what matters is not only that the relational is missing but that what remains is ‘lively’ (Lupton, 2018), performative, and dependent on the assemblages it operates in.

The study explored the potential *opportunities for technology and digitally mediated work-learning practices to improve dementia care*, based on its findings. It summarises the opportunity that lies in building an epistemic architecture that does not reject the existing technological infrastructure necessary for compliance, but instead builds on this: an arrangement in which technology, leadership, and organisational conditions assemble around the work in a way that supports rather than constrains learning.

Running through all three questions was a finding the study did not initially set out to make, but that the fieldwork made impossible to ignore. These findings include the relational and psychosocial dimensions of care through which practitioners get to know their residents. Following Wilkinson (2021), who draws on Reckwitz's understanding of emotion as carried in the doings of a practice, and Gherardi and Rodeschini's (2016) account of caring as itself a site of knowing, the thesis frames emotional attunement not as a property of individual practitioners but as a form of collective know-how enacted through the practices of care. What the fieldwork showed, again and again, was that the practice assemblages of dementia care already do this work in corridor conversations and in the spaces between people and places. What this thesis adds is the proposition that dementia practice, currently sustained by individual practitioners and the relationships among them, needs an architecture that can amplify it so that it can emerge as critical organisational learning.

Theoretical Contribution

Digitally informed practice leadership

Previous chapters demonstrated that much training produces only short-term gains in knowledge and confidence, with little measurable impact on staff behaviour or resident outcomes (Beer et al., 2011; Parveen et al., 2021; Surr and Gates, 2017). Where durable change has been demonstrated, it has emerged from multi-component approaches that embed learning within everyday care through supervision, reflection, and structured social interaction (Whitaker et al., 2014; Ballard et al., 2018; Newbould, Samsi and Wilberforce, 2022; Zabihi et al., 2025). Spilsbury et al. (2024) also found that what mattered for care quality was not training or staffing levels alone but staffing stability,

relational continuity, and leadership that modelled practice in context. Although these studies are not sociomaterial in framing, they point towards and extend the same recognition: that learning is not a one size fits all.

This evidence points consistently in one direction: durable change in dementia care practice requires leadership that is present in the conditions where care happens. This is precisely the work that practice leadership was developed to do in the field of intellectual disabilities, where they noticed training didn't always make change. Practice leadership emerged as a conceptual response to that, evolving through a body of work led by Mansell, Beadle-Brown and colleagues at the Tizard Centre (2015; Bould et al., 2018; Mansell and Beadle-Brown, 2012) that progressively refined what first-line leaders actually do to shape staff practice. As articulated in its mature form (Mansell and Beadle-Brown, 2012), practice leadership comprises three interrelated components: focusing all aspects of the manager's work on quality of life and how well staff support it; allocating and organising staff to deliver support when and how service users need and want it; and helping staff to shape up the quality of support over time through identifying areas to improve, coaching and modelling, and reviewing and confirming improvement. What is significant about this articulation, for this thesis, is two things first: In this context, practice leadership requires deep knowledge of the issues that affect this client group, not just general nursing knowledge. Second, that practice leadership is not framed as the property of an individual leader but within the network of relationships, routines, and material conditions through which care is produced, rather than from outside it. This thesis takes that conceptual foundation as its starting point and develops it for the conditions of contemporary dementia care, in which everyday practice is increasingly mediated by digital systems.

This thesis makes an original contribution by developing the concept of *digitally informed practice leadership*, which extends and repositions four bodies of literature that have, until now, addressed parts of the problem this thesis takes up but not the whole of it. First, it extends the concept of practice leadership as developed in the Tizard tradition (Mansell *et al.*, 2005; Beadle-Brown *et al.*, 2012), where the leader's work was conceived around the direct observation

and coaching of frontline practice. So, deep knowledge of dementia and bio-psycho-social approaches is a must. Second, drawing from technology studies, it attends to what these systems make visible, what they hide, and what they skip (Anthony, 2021; Gallistl *et al.*, 2024; Loble, 2026). Third, it extends the e-leadership and nursing informatics literature (Laukka, Pölkki and Kanste, 2022), which has tended to frame the leader's role as one of acquiring informatics competencies and driving technology adoption. Fourth, it extends and repositions the existing aged-care model of peer-led change that has the strongest current evidence base: the dementia champion. Dementia champions (M. Brown *et al.*, 2018; Leverton *et al.*, 2026) operate primarily as knowledge cascaders and role models, working at the level of content in terms of what is known about dementia and how that knowledge is shared. The digitally informed practice leader is a step further: working at the level of the epistemic conditions through which knowledge is produced in the first place.

The digitally informed practice leader, as this thesis develops the concept, draws on and extends Landri's (2023) work on educational leadership through ANT, in which the capacity to act is understood as being distributed across networks of human and non-human actors rather than located in individual leaders. The digitally informed practice leader is the leader whose capacity to act is constituted within the network of dementia care rather than positioned above it. A central part of what this leader does is to understand the process of translation and to harness it. The thesis has suggested, through Callon's (1984) translation framework and Landri's (2021) political, geometric, and semiotic dimensions, that the movement of knowledge through dementia care is never neutral: each translation amplifies some framings and excludes others. The digitally informed practice leader is the leader equipped to see these translations as they happen, to intervene, and to harness the work of translation deliberately.

The epistemic architecture

Digitally informed practice leadership is, in turn, located within a broader concept that this thesis develops: *epistemic architecture*. What this thesis proposes is a re-engineering of the machineries of knowledge (Knorr Cetina,

2007) through which dementia care is currently produced within these settings. The architecture builds a tripartite arrangement of three co-constitutive elements. The first is the existing compliance technology, which the digital infrastructure configured for regulatory accountability, risk management, and audit, and is not displaced but continues to do the work it was designed to do. The second is a suggestion for a different kind of technology, configured to reverse the political agendas, supporting inquiry rather than closing it down, and bringing the situated and the aggregated into relation; the data stories concept developed in Chapter 6 sits at this layer, as do reflective practice tools. Such a technology would not arrive onto a blank slate but into settings already running multiple technologies alongside one another, where the value of any one depends on how it integrates with existing practice rather than being introduced on top of it (Gibson *et al.*, 2022). The third is the digitally informed practice leader, working from within the network rather than standing apart from it. The three elements do not stand in sequence or hierarchy but make each other and the situations they are in, participating together in the conditions under which practitioners, families, residents, and environments can practise knowing-in-care together (Hopwood and Nerland, 2019).

Such an architecture must be capable of doing several kinds of work. One of the most consequential is in supporting staff wellbeing, in a way that enacts/enables organisational learning. The literature on aged care workforce wellbeing has consistently shown that wellbeing and learning are connected: when staff feel supported and able to make sense of their experiences, their capacity to learn, adapt, and respond strengthens (Watson *et al.*, 2018; Rivett, Hammond and West, 2019; Karimi *et al.*, 2021; Heijkants *et al.*, 2022) and when they experience ongoing moral distress (as defined in the literature review), turnover rises at significant cost to organisations and to the people they care for (Hall *et al.*, 2016; Salari *et al.*, 2022; Spilsbury *et al.*, 2024). This study was not designed to test that connection. What it does show, as Chapter 5 described, is that emotional experience exists in the work, is spoken about, and has nowhere to go. William, reflecting on fourteen years of caregiving, described this. When emotional labour cannot be acknowledged within the assemblage, it

accumulates in the people doing the work, and the practitioner who eventually leaves takes with them the knowledge the organisation cannot recover.

The central proposal this thesis develops at the second layer of the architecture is the concept of data stories. Introduced in Chapter 6, data stories are not simplified data visualisations accompanied by explanatory text (Shao *et al.*, 2024), but a deliberate re-animation of practice that brings formal aggregated data into relation with situated reflective accounts. Data stories do three kinds of work the existing architecture struggles to do: they hook attention (interestment) rather than presenting data stripped of the emotional texture that makes it actionable (Schröder *et al.*, 2023); they hold the relational and the quantified in productive tension rather than translating one into the other; and they offer a form through which learning can travel across the organisation (mobilisation) without losing what gives it meaning. Something like this has been observed elsewhere. Rapin *et al.* (2022), reviewing feedback through translation theory, found that a collection of numbers often needed someone to give them clinical meaning by describing an actual patient, and that stories brought the data to life in ways that made it easier to act on. Data stories aim to reverse the political, geometric, and semiotic directions of Landri's (2021) three dimensions of translation in the form of an artefact: politically, they shift the epistemic initiation point from the organisation to the encounter; geometrically, they keep knowledge close enough to care; and semiotically, they help to clarify meaning through connection to other constructs. The question that follows from the proposal is one of mechanism: How would the reflective accounts that data stories be generated and then shared in the first place?

Structured reflection produces the accounts on which data stories depend, and in this study, those accounts were elicited through dialogue. Reflective practice happens rarely in these services: the caregiver observed in Chapter 6 on Field Day 7 that her team discussed incidents of the kind I had observed only once in a while, and that opportunities for learning *in situ* were routinely missed, yet when I asked, accounts came readily. Staff told me stories while responding to my questions, describing how they felt about their residents and what those feelings had helped them notice, the same knowing that, in 'The Moment

Passes', the digital care plan offered no opportunity to record. The research encounter was, for its duration, the infrastructure that the relational world does not otherwise have. As I wrote in Chapter 3, I sensed, during these interviews, almost a relief to have the opportunity to share the emotional labour of their work.

What this study observed about relational knowing is that it is available to speech but often unavailable to the form. It is spoken constantly, in the corridor conversations and the moments between rooms, but it is not written, because what enters the record must be categorised and counted. This has a consequence for design. If the knowing comes out when someone asks, but is lost when it must be entered in a category, then what the arrangement lacks is not a better field but something that asks better questions.

A practice leader could encourage opportunities for reflective practice, and Rapin *et al.* (2022) found that feedback generates interessement through in-depth conversations and critical reflection. However, with limited resources available to employ people to support reflective practice, conversational AI offers one possible mechanism through which such prompting might be sustained. In their sociomaterial study of feedback, Rapin *et al.* (2022) noted that AI apparatus was not identified in their review and that current developments could open novel avenues for understanding sociotechnical interaction. Unlike systems that record or monitor activity, conversational agents can engage practitioners in dialogue, prompting reflection in the moment. AI agents are increasingly being explored as tools to scaffold learning (Duterte, 2024), as avatars (Fink, Robinson and Ertl, 2024), and as coaching tools (Passmore, Olafsson and Tee, 2025). Existing applications, however, sit in three adjacent spaces: reflection prompts deployed after training and outside the flow of practice (Olla, Wodwaski and Long, 2025); clinical decision support, analytically powerful but not dialogic (Sutton *et al.*, 2020); and wellbeing tools oriented to individual mental health rather than professional reflective learning (Hatch *et al.*, 2025). What unites them and distinguishes them from what is proposed here is the position of the human in the interaction: Gomez (2024) found that across 105 empirical studies, design has settled by default into patterns in which the human supervises AI predictions rather than participating

in knowledge construction with the system. The tool this thesis points towards inverts that arrangement, placing the practitioners' knowing first and the AI in a receiving role, eliciting reflection, and feeding it forward into collective learning.

This thesis treats the provocation with caution, since it is not without risk. Any AI system introduced into care will participate in constituting what gets noticed and named rather than reflecting practice neutrally. Gallistl *et al.* (2024) showed that AI systems carry embedded assumptions about ageing, need, and risk that become built into algorithms.

Implications for practice

The practice implications of this architecture invite organisations to take a more helicopter view of their *epistemic infrastructure* (as termed here) to see it not narrowly as a set of quality mechanisms but as the sociomaterial arrangement through which learning, wellbeing, and the early recognition of concern all become possible together. The literature asks what learning is delivered and whether conditions will support it, but the question this study raises is not what organisations put into a service, since learning is already going on in the work; it is what the arrangement lets that learning do. There is a related cost organisations carry whether they recognise it or not: in dementia care, where relational knowledge is built through knowing a specific person over time, each departure carries an epistemic cost beyond the disruption of recruitment, because what a resident needs, fears, or responds to cannot be recovered from a care plan. The financial costs of poor organisational learning through incident rates, complaints (Mowat *et al.*, 2023), regulatory scrutiny, and staff replacement (Thwaites *et al.*, 2023) are considerable, but they are downstream consequences of something more fundamental: an organisational culture that has not yet found a way to treat the knowledge closest to the person as the knowledge most worth attending to.

A further risk is now emerging and will only intensify as the technologies entering residential aged care position practitioners to act on outputs they cannot interrogate, displacing the clinical and relational judgement practitioners once held themselves (Khan and Ewuoso, 2024). What digitally informed

practice leadership offers is the capacity to mitigate this risk. The digitally informed practice leader is not a marginal role but instead requires organisational recognition and sufficient resources (Bigby and Humphreys, 2024) so that practice leaders can attend to emergent learning needs, connect individual problems to organisational learning, and ensure that the human capacity for empathy and judgement is amplified through technology rather than diminished by it.

Implications for policy

For those who shape policy, the persistent return to training as the primary lever for workforce development deserves scrutiny. The investment is real, the intentions are genuine, and many programmes have value. However, this research suggests that what is often missing is not additional content but attention to the conditions through which learning happens within organisations. Funding decisions that direct resources almost exclusively towards training delivery, or standard national qualifications, without parallel investment for learning, limit what that investment can achieve. The same argument applies to wellbeing: a policy that treats it as a peripheral employee relations matter rather than as central to learning capacity misallocates the resources it is investing.

Policy environments also shape how quality is understood and demonstrated through regulatory standards, inspection, and audit. These mechanisms create powerful signals about what matters. Trigg (2018), in a comparative study of residential care regulatory regimes in England and Australia, found that the relationship-centred dimensions of quality were largely independent of the regulatory system itself and stemmed instead from the intrinsic motivation of care providers and the individuals working within them. When audit becomes the primary mechanism through which learning is expected to occur, organisations invest in what can be demonstrated rather than in what improves everyday practice, hitting the target while missing the point. The implication is that quality and learning need to be understood as the same project rather than parallel ones, and that the conditions for both lie deeper in the organisation than regulatory levers can reach.

A related concern is the way national qualifications framework structure what is recognised as professional learning. In Aotearoa New Zealand, the Dementia Care Limited Credit Programme: a Level 4 programme composed of four NZQA unit standards aligned with the Age-Related Residential Care Services Agreement (Te Whatu Ora – Health New Zealand, 2022) fixes a set of competencies in advance and applies them across the diverse roles that comprise the dementia care workforce. The framework is well-intentioned, but the broader literature on situated professional learning has long argued that the learning that matters in practice cannot be specified ahead of the encounter: it is emergent (Hopwood, 2016; Hager and Beckett, 2019), surfacing in specific situations with specific people. Policy that funnels workforce development funding exclusively through fixed-competency qualifications risks reinforcing a model of learning that the evidence does not support.

Finally, policy decisions about the introduction of new technologies into aged residential care, care planning systems, electronic medication management, and increasingly, generative AI are typically framed as questions of efficiency, safety, and compliance rather than as questions about what these technologies do to the epistemic architecture of care. The consequences for learning and for relational practice are substantial, and policy frameworks for technology introduction need to take those consequences seriously. Without that, technology will continue to enter the sector configured for accountability rather than for inquiry.

Reflections on the reach of the study

This study was conducted within residential aged care settings in Aotearoa New Zealand, across two large provider organisations and four sites. A post-qualitative, sociomaterial inquiry does not seek findings that travel intact to other settings, nor does it offer claims that aggregate across populations of services. To frame what such a study can and cannot do in those terms would be to import an epistemology the work has set out, deliberately, to reject. Following St. Pierre (2018, 2021), the contribution lies in the responsibility to invent and create concepts that respond to the conditions of the present; following Barad (2007), in an ethico-onto-epistemological commitment to account for the

entangled conditions through which knowing is produced. The concepts developed here: *digitally informed practice leadership*, the *epistemic architecture*, the asymmetry between clinical and relational knowledge, and the mobilisation of learning through boundary objects are the contributions. They are offered as analytic resources others may find useful when looking into their own settings, not as patterns expected to repeat elsewhere.

The assemblages traced in this study extended further than the study itself could follow. Regulatory bodies, allied services, the design and development of digital systems, supplier networks, and broader policy infrastructures all participate in the configurations examined here, and a different cut through the network would have revealed different things. The decision of where to cut the network, as Adams and Thompson (2016) noted, is a methodological reality of sociomaterial inquiry rather than a deficit of it. What this study has made visible is the particular slice that the close attention to practitioner work in two residential aged care providers made available; other studies, looking elsewhere, will likely reveal what this one could not.

The Aotearoa New Zealand setting has particular characteristics worth noting. Residential aged care here is characterised by strong clinical dominance, with registered nurse leadership structurally embedded in regulatory requirements in ways that differ from other jurisdictions. In the United Kingdom, for example, it is not uncommon for residential care managers to hold leadership roles based on a Diploma in Health and Social Care, bringing a broader social care orientation to practice leadership that may create different conditions for the kinds of relational and learning-oriented leadership this thesis argues for.

The practitioner researcher position that shaped this study is, on a sociomaterial reading, not a contaminant to be controlled for but among the conditions through which knowing was produced. Thirty-four years of experience in dementia care, twenty of those in workforce development, gave me access, credibility, and a quality of attention that a researcher without that background could not have brought. Following Barad (2014), the question was not how to stand outside that history but how to remain accountable to where I stood within the assemblage and how that location shaped what became noticeable and

knowable. The theoretical frameworks applied here consistently pulled the analysis towards what was observable rather than what was already assumed, and the supervisory relationship provided a critical counterweight to the risks of practitioner capture throughout.

Directions for future research

This study has opened several lines of inquiry that it could not itself pursue, and each represents a consequential direction for future work.

The role of the regulatory system in driving institutional logics warrants dedicated research attention. This study observed the downstream effects of compliance-oriented frameworks on data practices and the way audit requirements shape what gets recorded, what Murray and Braithwaite called ‘regulated ritualism’ (2007). Comparative policy research across jurisdictions with different regulatory approaches to aged care quality would illuminate how much of what this study observed is structural to dementia care more broadly, and how much is particular to the compliance-oriented regime operating in Aotearoa New Zealand.

Comparative work across care settings and organisational contexts is also needed. The dynamics observed in large residential care providers may operate differently in smaller organisations, community-based settings, homecare agencies, and day services. The translation framework and epistemic practices lens applied in this study are well suited to such comparative work and would allow the findings developed here to be tested, refined, and extended across the full range of settings in which dementia care is delivered.

The relationship between staff wellbeing and organisational learning emerged as significant in this study but was not its primary focus. The emotional labour of dementia care, the load of relational knowing, the moral distress of caring well within systems that make that difficult, deserves dedicated research attention as an epistemic as well as a welfare concern. Understanding how organisational conditions either support or undermine staff capacity to surface and share what they know from a sociomaterial perspective would serve to advance wellbeing and organisational learning simultaneously.

Finally, the practical development and testing of the epistemic architecture proposed in this thesis represents perhaps the most directly consequential area for future research. The concept of data stories, the reflective practice tool, and the programme of digitally informed practice leadership described here remain theoretical and conceptual at this stage. Empirical work to develop, implement, and evaluate these ideas in practice, attending carefully to the conditions under which they succeed or fail, and to what the process of implementation itself reveals, would be a natural and necessary next step.

Final Reflections

There have been genuine advances in diagnostics and in medicine, and dementia design and care practice have moved forward in important ways, but a significant divide remains between these new understandings and their application in everyday care: a divide that implementation science has long struggled to close, and that sits, I would argue, at the very heart of what this thesis has been trying to understand.

When I set out on this research, eight years ago now, I carried with me one persistent and complex question that had never quite left me: a question born from many years of working in workforce development, and from a growing frustration I could not easily name at the time, a sense that training interventions, however well-designed and however generously resourced, were not producing the changes we hoped for, or that the financial investment we poured into them demanded. I knew, even then, that to understand this problem properly I would need to grapple with something I had not yet found the language for: the relationship between technology, knowledge, and the everyday conditions in which dementia care practitioners actually learn, not in training rooms, but in the pressured realities of the work itself. From that question, my overarching research question and three sub-questions were born, though what I could not have anticipated then was how much the inquiry would be shaped by where I stood within it, or how much I would change in the process of pursuing it.

What followed the formation of those early questions was not a straight line. I was fortunate beyond measure to have supervisors whose balance, insight, and intellectual generosity made the work possible in ways I could not have managed alone. They met with me across hemispheres and time zones, entertained the many directions my thinking pulled towards, and yet held, with remarkable patience and clarity, the capacity to channel all of that into something singular and coherent. That was not straightforward for any of us: having spent 20 years in workforce development, grappling with theory and building programmes across multiple organisations, I came to this research already full of possibilities, so keeping me grounded, thoughtful, and critical was no small task. There were times throughout this journey when I felt as if I was sprinting, and there were other times when I was walking through mud, unable to see the end of it, and at times, as the years passed, I wondered whether the capability had passed me by.

What I can say, with the clarity that only comes from reaching the end of something long and difficult, is that my capability and understanding grew in the doing, in the entanglement of living this research across eight years, across two hemispheres, through a world that kept shifting beneath the inquiry itself. That is not an admission of an imperfect process; it is, I have come to understand, precisely the argument this thesis makes. We cannot front-load understanding before the conditions of practice have been encountered, whether we are care practitioners learning in the flow of work or researchers learning in the flow of inquiry, and the more deeply we understand that, the better placed we are to design the conditions, the tools, and the relationships that make such learning possible for others. It was not until I began to understand what I had found and, more than that, to make the leap towards the practical implications of those findings that the pieces began to settle into something coherent, and this is where the excitement set in about what this research may make possible for others. The findings alone, as a practitioner at heart, never quite felt like the finish line, and I kept returning to the question: So what? What does this actually mean for our sector, for the people who work in it, and for the people who depend on it? What my research points towards is something I had not

anticipated when I began, not a set of technology recommendations, but a reconceptualisation of leadership itself.

Closing

I am a practitioner at heart, so I end this work with a call to action. Not because the academic work is finished, though it is, and not because I have run out of questions, though I have answered some of them, but because the people this research is ultimately about—the residents, the families, the caregivers working double shifts in under-resourced facilities, the leaders trying to hold it all together—do not have time to wait for the academy to catch up with what practice already knows.

I have invested enormously in this work. Intellectually, yes, but also personally and emotionally, in ways that are hard to separate from the thirty-four years that preceded it, and from the conviction that has driven every year of it: that people living with dementia deserve care that sees them whole, and that the people who provide that care deserve conditions in which their knowledge, their feeling, and their commitment can actually make a difference. At my stage of life, the title matters less than the change. What I want, and what this thesis reaches towards, is not recognition but influence: a shift in how we think about learning, leadership, and technology in dementia care, practical enough to be acted on and grounded enough to last.

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Appendix 1



University of Stirling
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23/08/2024

Dear Caroline Bartle

Ethics Application Form : [In what ways can digitally mediated epistemic practices enable organisational learning in dementia care services](#)

Ethics Reference Number: [GUEP_2024.18651.14490](#)

Thank you for your submission of the above ethics application.

The ethical approaches of this project have been approved and you can now proceed with your project.

Please note that should any of your proposal change, a further change request submission will be necessary.

If you have any further queries, please do not hesitate to contact the Panel by email to ethics@stir.ac.uk

Yours sincerely,

General University Ethics Panel

Research Ethics in Practice training is available online:

[Staff & Postgraduate Research Students](#)

[Undergraduate & Postgraduate Taught Students](#)

Appendix 2

Participant Information Sheet



Research Project Title: In what ways can digitally mediated epistemic practice enable organisational learning in dementia care services?

1. Background, aims of project

We invite you to take part in this project because, as a dementia care professional, you work in an increasingly complex environment where technology is essential in supporting your work. Technologies like digital care plans, mobile devices, communication platforms, webinars, and other tools offer significant opportunities to embed and create knowledge directly within your daily work.

However traditional training methods are still widely used in dementia care. Research shows that these methods often don't meet the needs of dementia care workers. This is a big problem because it leaves some of the most important issues in dementia care unsolved. Also, traditional dementia training can be very expensive. So, we need to look at more informal ways for professionals to learn. This means understanding how workers interact with each other and their tools, especially as digital technology changes how we think, learn, and work. Even though technology is changing the workplace, we don't fully understand how it can help with learning on the job and organisational learning.

As digital technology grows in dementia care, it creates more data. This data can help personalise learning programmes and improve business insights. But using this data to improve practices and organisational learning is challenging and not well developed in dementia care.

This study uses socio-material theory to explore how social interactions and tools affect each other in professional development. Understanding digital capabilities is key to improving workforce development.

Looking at blended work-learning approaches can show how learning can be part of daily work. This helps continuous improvement and organisational learning. The research aims to show how data can be used to support this and how staff interactions with technology can highlight the challenges and opportunities of integrating technology into care.

2. Why have I been invited to take part?

You have been invited because you work in dementia care and your work involves engaging with technologies such as digital care plans, mobile devices and communication platforms.

3. Do I have to take part?

No. You do not have to take part.

If you do decide to take part, you can withdraw your participation at any time without needing to explain and without penalty by advising the researcher of this decision.

If you withdraw, we will not collect any more data from you. However, any data collected up until the point that you withdraw will be kept and used in the data analysis.

4. What will happen if I take part

You will need to complete a short interview that will take no longer than one hour.

You will be observed in your practice over a number of sessions to see how you are working and learning. This might involve being observed in meetings where data is discussed.

5. Are there any potential risks in taking part?

There are no foreseeable risks in taking part.

6. Are there any benefits in taking part?

The benefits of taking part are:

- You will receive a debrief of the research which will help you and your organisation understand how to make the most from professional development opportunities.
- Your participation will contribute to a better understanding of how technology can be used to support dementia care. This can lead to improvements in training and practice for dementia care professionals like yourself, benefiting the broader community.
- Engaging in this research could provide opportunities to connect with other dementia care professionals, share experiences, and learn from each other.

7. ESSENTIAL IF COLLECTING PERSONAL INFORMATION: Legal basis for processing personal data

As part of the project, we will be recording personal data relating to you. This will be processed in accordance with the General Data Protection Regulation (GDPR). Under GDPR the legal basis for processing your personal data will be public interest/the official authority of the University.

8. What happens to the data I provide?

The research data will be kept anonymous using pseudonyms, any identifying information about residents or staff will be removed from transcripts and publications. All information from participants will be kept confidential unless there are concerns of abuse /harm, in which case confidentiality will be broken in accordance with safeguarding practice.

Your personal data such as name and contact numbers which will only be kept for the projects duration on a computer secured with a password.

Research data will be kept for a minimum of 10 years on the secure university's servers.

9. Recorded media

As part of the observation process, photographs may be taken to capture how you engage with your tools of practice. For example, this might include a picture of you using a tablet or another digital tool. These photos may include you, but they will definitely not include any residents. The purpose of these photos is to aid discussion in the interviews, ensuring the focus remains on how you interact with your tools.

These photos will not appear in any publications and will be used solely for reflection and discussion.

Additionally, meetings where data is being discussed may be recorded. The recordings will be transcribed for analysis, and the audio files will be deleted afterward. The transcripts will be securely saved for the duration of the analysis

10. Will the research be published?

The University of Stirling is committed to making the outputs of research publicly accessible and supports this commitment through our online open access repository STORRE. Unless funder/publisher requirements prevent us this research will be publicly disseminated through our open access repository.

In addition this research may be published in relevant journals. You will not be identifiable in any report/publication

11. Who has reviewed this research project?

The ethical approaches of this project have been approved via The University of Stirling

12. ESSENTIAL IF COLLECTING PERSONAL INFORMATION: Your rights

You have the right to request to see a copy of the information we hold about you and to request corrections or deletions of the information that is no longer required.

You have the right to withdraw from this project at any time without giving reasons and without consequences to you. You also have the right to object to us processing relevant personal data however, please note that once the data are being analysed and/or results published it may not be possible to remove your data from the study.

13. Who do I contact if I have concerns about this study or I wish to complain?

If you would like to discuss the research with someone you can contact the researcher Caroline Bartle c.b.bartle@stir.ac.uk or the supervisor Dr Grant Gibson on grant.gibson@stir.ac.uk. If you would like to make a complaint please speak to Dr Marty Chamberlain on marty.chamberlain@stir.ac.uk

You have the right to lodge a complaint against the University regarding data protection issues with the Information Commissioner's Office (<https://ico.org.uk/concerns/>).

The University's Data Protection Officer is Joanna Morrow, Deputy Secretary. If you have any questions relating to data protection these can be addressed to data.protection@stir.ac.uk in the first instance.

You will be given a copy of this information sheet to keep.

Thank you for your participation.

Appendix 3

Interview Questions

1. If I had to step into your shoes tomorrow, what would I need to know to do your job well?
2. Can you describe a time recently when you learned something important about a resident or about your work?
3. What kinds of knowledge do you think get shared well in your service? What kinds don't?
4. What digital tools do you use without really thinking about them—ones that just fit into your day?
5. Can you describe a moment where a digital tool supported your memory or decision-making really well?
6. Are there times where a system gets in your way or interrupts what you're trying to do?
7. Can you describe a time when a system made you notice something you otherwise wouldn't have?
8. Can you recall a time when the system didn't work as expected? What did you notice? How did you respond did you have to find a workaround or go outside the system?
9. Have you ever been surprised by something in the data something that made you stop and think?
10. Are there times where data feels helpful, and part of how care happens?
11. Are there times when it feels disconnected from what matters?
12. When something important happens like a resident becoming distressed how does that get recorded or shared?
13. Can you describe a time when what was written in the care plan didn't match what you knew about a resident?
14. What does this system or tool help you do better or more easily than before?
15. Is there anything you've stopped doing, or do less of because of this system?
16. How could technology be used differently to better support your learning as a team not just as individuals?
17. If you could change one thing about the way digital systems support care, what would it be and why?
18. What would it look like if the system really supported your learning not just compliance?

