Innovative Learning Spaces in Higher Education:
Perception, Pedagogic Practice and Place

Thesis submitted by
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For Bill,

who loved books and poetry, work and wood, dogs and farms, beer and laughter –

and me.

Thank you, Dad. For it all.

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Abstract

Space is relational. As 'innovative' learning spaces continue to become part of the landscape of universities in Australia and internationally, this thesis represents a sociomaterial exploration of enacted infrastructure. The case of 'Knowledge Hub' provides a regional Australian example of the complex realities of practice with/in such a learning space, which embodies innovative principles of learner-centricity, connectivity, flexibility and digital affordance. Through a distinctive methodological approach, students and staff act as contributors and co-evaluators of rich sociospatial narratives of practice, in a participatory reflection on the materialised experience of teaching and learning in new, pedagogically-designed spaces. This spatial enactment, at once spontaneous and fluid, responds to and is dependant on the priorities, values, beliefs, and embodied sense of community belonging of the occupiers. While staff are identified as core spatial enactors who purposefully arrange and enact spaces to support an embodied professional apprenticeship, students are recognised as beginning professionals, who willingly take up dispositions of engagement in and exploration of the 'mess' of disciplinary learning. Staff-students-spaces exist as mutually-constitutive ensemble. In this way, while spaces are integral participants in teaching-learning instances, investment into university learning spaces must equally attend to nurturing the pedagogic relationships that work to enact and sustain them.

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Introduction: A Learning Location

In 2014, I travelled to Europe for my first educational conferences. I had never been so far away from my hometown and family. With no specific intention to learn, still each interaction abroad shifted me.

On Bastille Day, I pulsed along with the crowd over the bridge towards the Champs-Élysées to see the parade and air show, the *tricolore* waving against the deep green of the trees and distinctive French architecture. Once in place, I caught an Australian accent as a girl in front of me asked her father in English when 'our' soldiers would be coming past. He was patient in saying it might be another hour. By chance, the unfamiliar streets and the patterns of my feet had positioned me with a family of people from my country.

"No-one here will even care about the Australians except us," the girl said.

I smiled to myself, unseen, thinking, "I do!"

Our shared nationality and co-location created a brief if unacknowledged connection. I hadn't anticipated Australians being represented or present in French celebrations, and it made me feel welcome – included – even in my invisibility. I left with a momentary feeling of home in a place far away from the everyday life I knew.

Later, serendipitously, I saw the family again, leaving the parade and walking towards me. As if we weren't strangers, I smiled, making eye contact with a wave. I stopped to say hello, explain, and ask the girls about our soldiers before inevitably the conversation turned to our hometowns. The man said that they were from Canberra.

"Oh, it's cold down there." I had lived in the tropics my whole life, my aversion to low temperatures clear in my tone. "I'm from up north."

As I reflected on the spontaneous encounter and the circumstances that allowed it to come into existence, it was hard to identify any singular cause. While I took the second crossing-of-paths in the space of a morning as an opportunity to open a conversation, was it the crowd in motion that co-positioned us, twice? Did our common culture and my naïveté ease my smile? Was it the girls, reminders of my own children and that I missed them, who inadvertently invited me to connect? Perhaps the aesthetic of the city helped me find beauty in the coincidence? Maybe it was the intense emotion of the moment – my affection for France colliding with the unexpected joy at hearing the familiar inflections of their voices?

I couldn't establish clear boundaries between one and the next. All of them entwined intimately. Inseparably. And whatever the catalyst in the combination, the unplanned and impromptu detour was a memorable teacher. The event became indicative of the entire trip: a flowing constellation of language-music-food-mistakes-coffee-confidence-rooftops-boredom-hunger-doubt-the unrelenting search for working internet-questioning-streets-exhilaration. Through it, I learned myself differently – who I was, where I came from, and how I existed with and belonged to the world.

There are significant parallels between travel and the learning journeys of university education. As a metaphor, it offers an effective symbol to conceptualise structured education as embodied movement, a process along pre-organised pathways through new and unfamiliar content, with an aim to arrive at a particular target (Kalantzis & Cope, 2008), both the journey and the destination similarly important. The unfamiliar terrain sharpened my awareness of previously unconscious and uncontested routines and knowing, showing learning as a situated practice, even (and perhaps especially) when unscheduled and unexpected. France, as a contextual contrast to the home I knew, made me intensely aware that the places I traversed were participatory in my learning. The notion of travel further indicates a continued process of personally-reflective *becoming*, rather than fixed and unchanging being (Kincheloe, 2003). In particular, the comparison between travel and formal education indicates the importance of location, positioning, place, and the situated physicality of learning experiences. As I experienced in Paris, places are pedagogic (Hickey, 2012).

Material settings, therefore, are more than a backdrop to human action. They entangle with and participate in more-than-human happenings, at once social *and* corporeal. In France, the city became my teacher, equal with the people I met. This understanding of learning as material practice moved beyond and challenged a traditional anthropocentric view of education (Charteris, Smardon, & Nelson, 2017). My later engagements with sociomaterial theory informed my reflections of the journey and combined with my professional practice, to highlight the taken-for-granted and mundane ways that spaces 'act' and are acted in and through in everyday educational experiences. Through the combination of my lived experience, as traveller, teacher, and researcher and with an emergent sociomaterial theoretical orientation, I came to realise and know education, both formal and unstructured, as a flowing *assemblage* (Mulcahy & Morrison, 2017) of place-traditions-interaction-theory-culture-materials-histories-people-beliefs-practice.

This understanding was woven with my research focus. Higher education institutions' attention to the redesign of physical learning spaces is representative of a view that infrastructure shapes learning practice. However, this implicitly understands space as separate from and hence causally able to influence social behaviours in pre-determined ways. This is inconsistent with a sociomaterial onto-epistemology of learning as situated social relationship, existing and evolving in the interactions between spaces-technologies-practice-ontologies-ideas-people-discomfort. As an educator, I was familiar with socioconstructivist theories that viewed learning as an experiential process that occurs in and through interactions with others,

and with the world (Dimitriadis & Kamberelis, 2006; Kalantzis & Cope, 2008; Vygotsky, 1978). Indeed Todd (2014) affirms that it is through encounters "with others (human and non-human alike) we shift the borders of our self-understanding. That we alter and transform in this way is not merely the hope of education, but it is the pedagogical act of living *par excellence*" (p. 232). However, learning which challenges the existing limitations of self-understanding is far from comfortable.

Of benefit in the transformation of self are dispositions towards and processes of concerted intrapersonal engagement. Through critical reflection, one can strengthen and deepen professional learning through making explicit confusion, misinterpretation, and subjectivity for the purposes of resolving and elaborating understanding (Biggs & Tang, 2011; Kincheloe, 2003). Storying my lived experience provided a method for focused self-introspection in which I could make sense of the events with others and the city, uncover their meaning, and to think through my identity as it shifted with the landscape (Chase, 2011). This process of storied reflection came to comprise one of many diffractive 'experimental encounters', weaving events, materiality, onto-epistemologies, and data in order to come to know differently (Davies, 2014). It represented a "deep and personal encounter with knowledge" which helped to "nourish certain ethically worthwhile forms of human being" (Barnett, 2009, p. 435). Student engagement in similar processes in their university studies can develop dispositional willingness and 'epistemic virtues' (Barnett, 2009) to engage deeply, consciously, meaningfully with the ways of coming to know and with others and the world, as well as with 'knowings' in order to support further development.

As an educator who aims to enact a critical ontological reflexivity (Kincheloe, 2003), it was in thinking about the connections between spaces, cities, social interaction, journeys, aesthetics, learning, travel, belonging, places, theory that I began to realise the myriad ways in which my everyday practices and educative work were fundamentally spatialised, material, physical. I became conscious that material space:

> cannot be separated from its occupation; changing learning spaces for the better is thus about understanding and improving the socio-spatial practices of education … the design of learning spaces is not so much about providing solutions as enabling the optimal conditions for learning (Boddington & Boys, 2011, p. xx)

I recognised within my educational 'socio-spatial practices' the value of incidental and unexpected teaching instants, of intellectual challenge and cultural unfamiliarity and the willingness to meet it, and unions between living and non-living beings. I found value in

explorations of the materiality of educative spaces and technologies in conjunction with learning relationships and pedagogic practice. This approach aligned with and elaborated Keppell and Riddle's (2012) assertion that spatial transformations have potential to enact university institutions' broader educational purpose to enhance society through the development of students with capacities for scholarship, social interaction, reflection, continued learning, ethical awareness, and professionalism.

The provision of a learning environment that materially supports a transformative learning experience is ostensibly at the heart of new university learning space designs. This thesis reports on a particular case of one 'innovative' building in a regional Australian institution, known here as *Knowledge Hub*. Initially occupied in 2013, Knowledge Hub was designed specifically for staff and student members of the discipline of Education, both familiar with pedagogic discourse, theory and practice. The occupation of the new building represented a significant spatial transition. The previous spaces that housed the disciplinary group were a series of stark 'traditional' rectangular concrete blocks, where formal teaching spaces arranged students in rows, digital technology was minimal, and access to Wi-Fi sporadic at best, but mostly non-existent. Staff offices were spread over separate levels and between multiple buildings, removed from teaching spaces and the front office (also at a distance from formal student areas). Signage was minimal, resulting in staff appearing 'hidden' from students. There were no informal spaces for independent study (or access to cafes) to encourage student presence outside of scheduled class time. When they moved, as an entire disciplinary unit, into Knowledge Hub, a singular building with contemporary technology-enhanced teaching spaces, Wi-Fi and power outlets, staff and administrative offices on one level, with both adjacent to a central student lounge, it made unscheduled and informal staff and student interaction possible for the first time. This initial transition grounds the following exploration of the ways spatialised teaching and learning are changed (and sustained) in practice over the subsequent two and half year period.

The research is founded in a commitment to understand how material learning spaces as active participants entwine in teaching and learning practices that aim to broaden and enhance students' professional and personal trajectories. While I foreground material spaces and technologies for learning, I consider these simultaneously with the pedagogies, people, philosophies, and social relationships of Knowledge Hub. When these coalesce with a shared commitment to purposeful learning, they may work with students as they embark on meaningful, emotive, uncomfortable, and ultimately expansive educative journeys as part of

an ongoing process of becoming robust professionals. Rather than simplistically transforming teaching and learning practice in pre-determined ways, learning space enactment entwines with, and depends upon, inhabitants, their beliefs, and their valued practices. The intention to simultaneously value the spaces, practices, and people is embedded within this thesis.

'Innovative' Learning Spaces

University landscapes internationally are undergoing a spatial revolution. In a time of technological change, increased global competition for highly mobile students, an emphasis on retention, and escalating financial restrictions, physical learning spaces have emerged as a way of responding to and anticipating complex and shifting social, economic, and digital futures. These new flexible, open, and digitally-enhanced spaces "are fast becoming *the* strategic option for the building of new … educational facilities … yet they are often framed as unproblematic – a self-evident good" (Mulcahy & Morrison, 2017, p. 749, original emphasis). In this context, new 'innovative' facilities for learning have been conceptualised and interpreted as a causal catalyst for assuring 'transformational' educational reform (see, for example, Australian Government, 2008; for further discussion, see Charteris et al, 2017), although this assumption has been challenged (Acton, 2017; Blackmore, Bateman, Loughlin, O'Mara, & Aranda, 2011). The underlying suggestion is that spatial designs that materialise student-centred pedagogical orientations support students to develop digital literacy, critical thinking, and effective social interaction, essential competences for professional life in the 21st Century (Adedokun, Henke, Parker & Burgess, 2017; Benade, 2017; Brown, 2005; Dane 2015a; Neery & Beetham, 2015, cited in Carnell, 2017; Oblinger, 2005; Riddle & Souter, 2012; Souter, Riddle, Sellers, & Keppell, 2011). The 'transformative' hope of learning spaces, while often remaining unelaborated in policy (e.g. Aust. Gov, 2008), seems grounded in an expectation of realising both pedagogic transformation *and* transformative student experiences that, in combination, enable improved student retention, enhanced capacities for innovative thinking, and a strengthened national economy.

On-campus infrastructure, whether new or refurbished, increasingly combines embedded technologies and physical affordances with an aim to invoke collaborative, student-centred, and active pedagogies. Whether termed '21st Century learning space' (Adedokun et al, 2017), 'technology-enriched learning spaces' (Steel, & Andrews, 2012), 'next-generation learning spaces' (Radcliffe, Wilson, Powell & Tibbetts, 2008), 'spaces for knowledge generation' (Souter et al, 2011), 'innovative learning environments' (Charteris et al, 2017; Mulcahy &

Morrison, 2017; OECD, 2013) or 'technology-enhanced learning laboratories' (Reushle, 2012), all refer to spaces deliberately designed to emphasise and enhance student learning through technological connectivity. These materialise an orientation to education aligned with social-constructivist theories of learning, which foreground the social, experiential and situated nature of personal knowledge generation and refinement (Adedokun et al, 2017; Dimitriadis & Kamberelis, 2006; Kalantzis & Cope, 2008; Matthews, Andrews & Adams, 2011; Vygotsky, 1978). In this thesis, I use the term 'innovative learning spaces' to encompass both the physical, technology-enhanced infrastructure and pedagogic practice as jointly woven in innovating university learning and teaching beyond a traditional didactic lecture approach.

Innovative on-campus spaces range from formal to informal learning environments. Formal learning spaces include lecture halls, seminar and discussion rooms, laboratories and studios (Oblinger, 2005). In an innovative learning space, these rooms, while remaining structured, are also likely to have movable seating, tables that allow for group conversation, and access to technology, power, and the Internet to afford opportunities for peer collaboration and personalised access to information. Informal innovative spaces include flexible and comfortable areas for students to study, which "act as a medium through which the social and the academic aspects of university life can coincide" (Matthews et al, 2011, p. 107). These unstructured social spaces have been found to have a considerable influence on student learning, retention and the development of learning communities (Matthews et al, 2011; Radloff, 1998 in Jamieson et at, 2000; Wilson & Randall, 2012). Each space provides different opportunities to teach, learn, and engage with others.

While differing in material design, furniture, and fittings, the spaces share common design principles that support active and collaborative learning. The body of academic work in this area is considerable and highly-concentrated (Blackmore et al, 2011), and I synthesise these according to four principles: learner-centricity, connectivity, flexibility, and digitally-affording. In their physical materialisation, these ideally facilitate a suite of pedagogic practices and purposes, which Radcliffe and colleagues (2011) summarise using the terms *didactic*, *active*, *discursive*, and *reflective* as a shared discourse for considering teaching behaviours. While the principles intend to inform the development and evaluation of spaces, there is often an uncritical and idealistic assumption as to the extent spaces can affect learning and teaching, with causal change assumed rather than empirically justified (Acton, 2017;

Benade, 2017; Blackmore et al, 2011; Boys, 2011; Cleveland & Fisher, 2014; Wilson & Randall, 2012).

In practice, however, evidence of a change in teaching appears contentious. Although Adedokun et al (2017) found a 'significant' impact on group work and staff-student interaction, and Scott-Webber, Strickland, and Kapitula (2013), Brooks (2012) and Whiteside, Brooks and Walker (2010) found positive impacts on teaching, concluding that new designs were correlated with infrequent lectures and frequent discussion, other studies contradict these findings. Fox and Lam (2012) found that students reported that "most of their teachers still taught in a traditional teacher-dominant way" (p. 76), mirroring findings in other studies (Dane, 2010; Kirkwood & Price, 2013). Henshaw, Moore and Moy (2016) suggest that while active learning works, faculty staff and students may be reluctant to change, bringing traditional pedagogies to new technology-enhanced teaching environments (see also, Fisher, 2004; Kirkup & Kirkwood, 2005; Steel & Andrews, 2012). This aligns with other findings that even when staff are aware of the benefits of innovative practices, they can resist implementing them in their own classes, particularly when they are not consistent with their pre-existing views of 'good' teaching (Matthews, 2017). The misapprehension that space and technologies are 'revolutionary' for practice fails to acknowledge that changes in action are likely to be evolutionary, occurring in a gradual, generative and on-going process where existing practices are modified, adapted, and renewed, often with known and new practice co-existing (Kirkup & Kirkwood, 2005; Souter et al, 2011).

This presents a tenuous evidence base concerning the impact of spatial transformations. As perceived catalysts for reform in pedagogic practice, the demonstrable impacts complicate the policy aims intended in university infrastructure conversion. The rhetorical premise of spatial changes often rests on assuring innovative teaching and learning experiences. In Australia, the now discontinued *Educational Investment Fund* (Australian Government, 2008) suggested that 'strategically-focused' investment into higher education buildings would "transform Australian tertiary education" (para. 5). This spatial discourse suggests a neat linear relationship between infrastructure and people's behaviours, with space capable of causally affecting practice. However, it seems that spatial affordances do not necessarily translate into in-practice realities. Boddington and Boys (2011) argue that space alone cannot implement innovative teaching and learning socutions, while Charteris et al (2017) state: "the dynamism of these spaces are coproduced through complex affective flows of human bodies, acoustics, airflow, textures, lighting, furniture, and non-human creatures" (p. 819). These

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statements echo Fisher's (2004) earlier suggestion that learning spaces in practice are 'co-created' in interactions between people and built form. Teachers and students are irrevocably entwined in spatial transitions that aim to assure active, engaged knowledge construction (Dane, 2010; Hunt, Huijser & Sankey, 2012; Reushle, 2012; Steel & Andrews, 2012). Explicit understandings that pedagogic relationships and their underlying power hierarchies are integral considerations in spatial reform have been largely missing from the discussion (Blackmore et al, 2011).

Pedagogy, Place, and Power: Critical concerns in learning space research

Assumptions of causal change negate the diverse, complex, and often subconscious interplay of traditions, power relations, and educational hierarchies in the enactment of pedagogic spaces for learning. A common perception is that space informs and shapes practice, directing patterns of social interaction (e.g. Benade, 2017; Fisher, 2004; Jamieson, Fisher, Gilding, Taylor, & Trevitt, 2000; Oblinger, 2005; Pouler, 1994). However, the literature is often uncritical and idealistic as to the extent spaces can affect learning and teaching, with linear change assumed rather than empirically justified (Acton, 2017; Benade, 2017; Blackmore et al, 2011; Cleveland & Fisher, 2014; Wilson & Randall, 2012). Assigning agency to spaces as unequivocal catalysts for reform silences the agencies of spatial selves who work with learning spaces in ways that may reflect (and resist) the intent of designers, architects, or institutions to sanction active and collaborative teaching-learning (Acton, 2017). Co-creating lived space occurs in an interaction between teachers and students, ideologies and agendas, spaces and technologies (Fisher, 2004) in a way that is neither homogenous nor arbitrary (Dovey, 1999). It seems "buildings alone are not enough; it is about relationships and changing cultures and practices" (Blackmore et al, 2011, p. 37).

Relational place-practice-people understandings are essential in negotiating living spaces. Bourdieu (1977) suggests there exists a "dialectical relationship between the body and space as a form of 'structural apprenticeship' through which we at once appropriate our world and are appropriated by it" (p. 89, in Dovey, 2005, p. 284). Benade (2017) found that even in innovative new spaces, teachers can 'default' to traditional practices. Kalantzis and Cope (2008) similarly understand that sociospatial logics, entwined with traditional classroom hierarchies and power relations, can be internalised. These can influence, perhaps unconsciously, teaching and learning despite shifting spatial and material arrangements:

most classrooms in the world today operate more or less in the didactic mode for a fair proportion of the school day. Maybe the desks have been unbolted from the floor … as small concession to a newer way of learning, but teachers … still perform to the script of didactic teaching (Kalantzis & Cope, 2008, p. 20)

Similarly, Wesch (2005) challenges the pervasive assumption that technologies will innovate teaching:

[t]echnology itself often acts as nothing more than a magnifier of our pedagogical assumptions. For over ten years, university teachers have had access to LCD projectors that give them 786,432 points of light on giant screens connected to the internet. The possibilities for the use of such machine is endless, yet they have overwhelmingly been used for little else but PowerPoint presentations that reinforce authoritative pedagogical models and support received knowers (p. 28)

While it is important to recognise the ways histories-space-relations-power weave through practice, I concur with Boys (2011) that it is a 'generalisation' that "most university teachers still use and prefer a traditional 'chalk and talk' method, and are resistant to any sort of change" (p. 3). Traditional and 'new' pedagogies are not an oppositional binary of practice. However, the above statements offer an important reminder and serve as counter-narratives to the "assumption that [contemporary learning spaces] will be used in ways that are student-centred" without consideration of the ways that teachers' pedagogical beliefs and values influence the way they act (Steel & Andrews, 2012, p. 250). In particular, those educators who have developed a critically reflective professional awareness (Kincheloe, 2003), and a pedagogic-spatial literacy, may enact spaces in different ways, regardless of the perceived limits and traditions of the design.

Sustained and meaningful professional development opportunities for staff have been identified as necessary to support the enactment of spaces in student-centred ways (de la Harpe, Mason, McPherson, Koethe, & Faulkner, 2014; de la Harpe, McPherson, & Mason, 2012; Hunt, Huijser & Sankey, 2012; Keppell, Suddaby, & Hard, 2011; Steel & Andrews, 2012). This position however needs to ensure that staff resistance to technology use is not equated with a deficit in teacher skills and aptitudes, instead needing to recognise and build upon existing staff pedagogic, digital, and spatial repertoires of practice without presuming them 'digital immigrants' (Kennedy et al, 2009). These assertions that staff capacities are central to space enactment are at the heart of Boys' (2011) critique of 'flexibility' as a central tenant of learning space design, asking "if flexibility is actually about enabling different modes of teaching and learning, then surely this is an issue of changing educational practice rather than spaces?" (p. 18). Students also can similarly be constrained by traditional

practices, where engagement in situated 'studying' behaviours may be superficial, without actually engaging in deep, transformative learning (Biggs & Tang, 2011; Ellis & Goodyear, 2016). As with Blackmore et al. (2011), who argue that relationships at the centre of teaching of learning are implicated in enacting change, Boys (2011) suggests that what is necessary is:

> a better understanding of the range of existing and potential teaching and learning modes in any particular situation, as well as the particular spatial and architectural conditions which can support them. Ultimately this is less a matter of generic 'flexibility' than of developing techniques for the creative and constructive mapping of teaching and learning practices and spaces (Boys, 2011, p. 18)

It is these combined ideas that led me to an interest in unravelling the relational-spatial assemblages of pedagogic practice: educative traditions, staff-student positions, cultural-spatial logics, technological non-compliance, classroom locations, institutional agendas, political contexts, resistances of spatial invitations, pedagogical reasoning, teaching purposes.

From this relational perspective, space is understood as *assemblage*, a sociomaterial mélange that exists, becomes, and evolves in the relations between non-human and human beings. Rather than suggesting a static arrangement, *assemblage* refers to the shifting process of arranging, the connections, flows, and becomings that emerge relationally between bodies, technologies, things, ideas, practices (Kennedy et al, 2013 in Mulcahy & Morrison, 2017). Space *is* social, just as the social is irrevocably material. It is only through the social sciences' legacy of demarcation (Law & Urry, 2004, cited in Orlikowski & Scott, 2008) and the limits of English language, that we have come to 'know' what is united via linguistic representations that divide what is ultimately inseparable (Orlikowski & Scott, 2008). Mulcahy, Cleveland and Aberton (2015) state that a relational and sociomaterial approach to investigating learning spaces 'pursues a non-dualist analysis of the space-pedagogy relation and offers less deterministic causal accounts of change than those frequently put forward in the popular and policy literature' (p. 576; see also, Mulcahy & Morrison, 2017). Space, therefore, and its use, benefits, purpose and effects are understood to be formed through interaction with living and non-living entities in ways that move beyond an anthropocentric understanding of the world.

Existing gaps in the literature

Within the field of university learning spaces, there are substantial gaps in understanding innovative, technology-enhanced learning spaces. Drawing on Mulcahy et al (2015), Mulcahy (2013), and Dovey (1999) I examined the literature using three entwined elements of space:

Perception, *Pedagogic Practice,* and *Place*. These refer to textual conceptualisations of spaces, the function of physical built form, and the lived experience of space respectively. While there is a concentration of studies that focus on the development of physical spaces*,* considering the design principles of effective built form (Blackmore et al, 2011; see for example: Jamieson, Fisher, Gilding, Taylor & Trevitt, 2000; JISC, 2006; Keppell & Riddle, 2012; MCEETYA, 2008 in Reushle, 2012; Oblinger, 2005; Radcliff, 2009 in Reushle, 2012; Souter et al, 2011) and several that elicit the qualitative lived experiences of staff (Dane, 2010; Grellier, 2013; Matthews, Andrews & Adams, 2011; Steel & Andrews, 2012; Wilson & Randall, 2012), few add the qualitative perspectives on the lived teaching-learning experiences of students (exceptions being Adedokun et al, 2017; and Grellier, 2013). Given the impetus to include students as equal partners in learning and research within university contexts (see, Kahu & Nelson, 2018) this omission is problematic. Very little empirical work has been done to focus on the materalities of teaching and learning, with a need for a focus on the *pedagogic practices* of teaching and learning, with a move beyond descriptive representations of space that bury practice and lived experience 'under a mound of meaningless language' much needed in the field (Benade, 2017, p. 800).

Qualitative understandings of the co-creation of learning spaces in practice have been lacking for some time (Fisher, 2004), with a dearth of studies that consider the perspectives of both staff of students (Wilson & Randall, 2012). Analyses of spatial discourse, considering the ways texts and policy represent and construct higher education spaces rhetorically are limited, with Childs and Wagner's (2012) investigation of visual representations of space an isolated example (although this seems to be shifting recently in school contexts, see, Charteris et al, 2017; Mulcahy & Morrison, 2017). There is a consistent acknowledgement that higher education contexts, pedagogies and spaces for learning and teaching are in flux, but few studies take a methodological approach that is responsive to and seeks to understand change (Hall-van den Elsen & Palaskas, 2012 being an exception). Longitudinal studies that investigate change over time are also an omission within the existing literature base (Blackmore et al, 2011; Cleveland & Fisher, 2014; Hall-van den Elsen & Palaskas, 2010; Lee & Tan, 2011).

These gaps are significant, considering that ongoing improvement of learning space design, construction, and use depends on appraisals of the relations between infrastructure, pedagogy in practice, whether enacted practice is aligned with government and institutional intent, and in what ways this may (or may not) be sustained over time. Evaluative information

can then be fed-forward to ensure the significant investment into university infrastructure provides the imagined benefits for teaching and learning (Cleveland & Fisher, 2014; Oblinger, 2005). Given the longevity of learning space it is particularly important that spaces are not created that are educationally problematic, and instead align teaching philosophy and space in ways that enable quality learning (Cleveland & Fisher, 2014; Jamieson, 2003; Oblinger, 2005). Evaluation and assessment of learning space requires a thorough and detailed analysis of the complex interrelationship between practice, intent and material space (Blackmore et al, 2011; Cleveland & Fisher, 2014; Ellis & Goodyear, 2016; Hall-van den Elsen and Palaskas, 2010; Lee & Tan, 2011; Oblinger, 2005). Understanding how space performs in practice is a foundational premise of building performance evaluation techniques (Cleveland & Fisher, 2014). This values the collection of a range of data from various sources, which prioritise the voices of spatial inhabitants, their perceptions and practices, consider what contextual factors inform a particular space, and identify those aspects of physical infrastructure that most scaffold particular practices.

An additional silence in learning space research in education is that it remains distinctly under-theorised (Acton, 2017; Blackmore et al., 2011; Boys, 2011; Ellis & Goodyear, 2016; Lee & Tan, 2011; Mulcahy & Morrison, 2017; Mulcahy et al., 2015). Few studies consider simultaneously the connections between rhetoric, material space and technologies, and social practice with a distinctly theoretical orientation (Grellier, 2013 is an exception, although recent examples in school contexts, e.g. Benade, 2017; Charteris, et al, 2017; Mulcahy & Morrison, 2017, are perhaps demonstrative of a shift in approach and a new materialism). A robust, theoretically-entwined understanding of the alignments and tensions of enacted and evolving space has been identified as an area that will strengthen the field. New materialist understandings challenge a view of infrastructure and practice as separate, considering this to falsely represent both space and the social – as independent, as 'knowable' apart from the other. In contrast, the view taken here is a postmodern methodological approach that challenges the inheritance of the social sciences to demarcate and separate (Law & Urry, 2004, cited in Orlikowski & Scott, 2008), instead intentionally seeking to disturb individualistic ontologies and epistemologies (St. Pierre, 2011). Drawing on a sociomaterial approach, the term itself a deliberate discursive fusion that signals a relational place-practice ontology (Orlikowski & Scott, 2008), I work with the understanding that space exists only in and through its relations with; in the 'relations-between' (Massey, 2005).

Rationale for the Study

In recent research, there have been a number of calls for rigorous evaluations of learning spaces that ascertain the effects of innovative university spaces on teaching and learning practice, as this has been identified as an area lacking empirical evidence (Adedokun et al, 2017; Benade, 2017; Blackmore et al, 2011; Cleveland & Fisher, 2014; Lee & Tan, 2011). Ellis and Goodyear (2016) describe the growing necessity for thoughtful, research-informed, conversations about the relations between space, place, material and learning, and draw on Boys (2011) to stipulate that "architecture cannot be seen as a source of ready-made solutions to educational problems. Space is integral to, but neither central nor singular in, understanding how universities function and can be made better" (p. 161). In taking a mixed-methods, longitudinal case study approach, the research unifies and interrogates the spatial rhetoric of *Perception*, the physical form and function of *Pedagogic Practice*, and the lived experiences of *Place* from staff and students, areas that have predominately been conceptualised and investigated disparately.

This addresses a need for learning space research that considers multiple perspectives. It brings together "the underpinning university vision, the architect's intent, the types of teaching and learning spaces traditionally used, the extent of student engagement, and the functionality of the new spaces, as well as the complexities, opportunities and constraints" (Hall-van den Elsen & Palaskas, 2010, p. 2210). It further prioritises and repositions the plural voices of spatial occupiers, with a concurrent focus on the materialities of teaching and learning in practice, necessary in quality spatial evaluations (Cleveland & Fisher, 2014). In addition, the longitudinal design responds to Lee and Tan's (2011) calls for research that ascertains whether changes are continued in sustained ways. More recently, Benade (2017) works with LeFebvre's (1991) spatial triad theory to argue for explorations of "the holistic interrelations of things in space with the space" (p. 800). This aims to foster an approach that moves beyond reductive descriptive rhetoric that understands space as a container or 'thing', as an unproblematic taken-for-granted commodity (Benade, 2017; Mulcahy & Morrison, 2017). Assumptions of space as natural and therefore neutral marginalise more critical views of space, its impacts, and its functions.

The benefit of taking a sociomaterial approach to spatial research – in addition to responding to a current gap in theoretical research within the field – is that it carefully illuminates the junctures, tensions, and lived experiences of spatial-social relationships. It works to make explicit embodied learning and teaching, the synergies between place and

people, the relations between the imagined affordances implicit in infrastructure design and construction and the experienced realities of the people who inhabit those spaces. In particular, when evaluating educational reforms premised on the unidirectional logic of spatial implementation leading to pedagogic change, a focus on material practices is useful in examining complex enactments of political agendas (Benade, 2017; Fenwick, 2015, 2011). New materialist ontologies contest anthropocentric narratives, and recognise matter as having agency in teaching-learning practice (Barad, 2003; Charteris et al, 2017). Sociomateriality challenges the notion of staff (or students) as separate selves, disconnected from the spaces they inhabit and the people they are present with, understanding that 'materials *participate* in knowledge practices' (Mulcahy, 2013, p. 1278, emphasis added). This sociospatial whole exists and functions as more than the sum of discrete parts, and is here conceptualised, investigated, and acknowledged as evolving constellation.

Guiding Research Questions

This introduction has briefly outlined the literature base relating to investigations of learning spaces in higher-education teaching-learning practice, identifying key gaps and silences. This provides a basis for the thesis, and was instrumental in the development of the following overarching research question:

> *How do 'innovative' learning spaces, discursive representations of space and lived experiences unite in teaching and learning practice?*

This is supported by five key contributing questions across the connected elements of *Perception*, *Pedagogic Practice,* and *Place*:

- How is space perceived and represented discursively as contributing to teaching and learning?
- What pedagogical modes are being performed within the formal learning spaces?
- From the perspectives of staff and students, how do physical spaces contribute to and support their teaching and learning?
- What do staff and students report as the most significant elements of change in their teaching and learning experiences after the transition to an innovative learning space?
- How do students and staff describe their teaching and learning practices after a sustained period of operating in innovative learning spaces?

These questions inform a responsive, reflective and purposeful research design that aims to uncover the subtleties and nuances of a range of spatial functions (identified as necessary in the field by Ellis & Goodyear, 2016) and an analytical understanding of space that moves beyond a perception of space as container (as recommended by Benade, 2017).

The Structure of the Thesis

The thesis is organised into four sections. Section One introduces the methodology and research design. This structure is necessitated by the methodological approach and sociomaterial theoretical orientation, which inform the following sections' compilation and presentation of literature and data that entangle across the three complementary areas. Section Two presents data related to discursive *Perceptions* of space and its impacts. Principles of *Pedagogic Practice* and enacted material practices are synthesised in Section Three, while *Place* as social experience is explored in Section Four. The details of each section are each briefly outlined below.

Section One philosophically grounds the methodological research design and processes. Chapter One outlines the sociomaterial orientation to the methodology, the interpretative research paradigm, and researcher subjectivities that entwine in the research processes. The specificities of the research design are then detailed in Chapter Two as an assemblage of methods which focuses on localised personal experiences in relation to a spatial change at one regional Australian institution. The study works with an overarching case study strategy (Flyvbjerg, 2011; Stake, 2003; Yin, 2003), with the built space of *Knowledge Hub* bounding the understandings and experiences of Education disciplinary staff and students following a spatial transition. The infrastructure materialises key 'innovative' principles, common across national and international university spatial designs. The compilation of the case includes a suite of mixed methods: a document analysis of national and institutional policy, and institutional and architectural design intent statements, and observations of teaching practice are complemented by the Most Significant Change (MSC) mixed methods research technique (Dart & Davies, 2003; Davies & Dart, 2005). The MSC approach is a narrative-based dialogic process that considers outcomes of change in organisations through a stepped progression that allows narratives of change to be collected, collated and appraised using participatory interpretation (Dart & Davies, 2003). Data are presented and organised across the thesis using *textualities* (Perception), *materialities* (Pedagogic Practice) and *socialities* (Place), "three

microsites [that] are not distinct; their workings depend on one another" (Mulcahy, 2013, p. 1280; Mulcahy et al, 2015).

Section Two explores discursive conceptions, those *Perceptions* of learning spaces that rhetorically imagine what built infrastructure can achieve. These explorations of spatial textualities present the story of the aesthetic of form. First, Chapter Three synthesises government, institutional and architectural documents. The analysis demonstrates the ways *Knowledge Hub* is written in ways that envisage, anticipate, and aim to predict and ensure change. The chapter illustrates the tensions in the way policy conceives of space as a way of constructing a distinctive image in an internationally competitive marketplace, which works to position students as strategic consumers and economic capital in a competitive global market. This neo-liberal positioning marginalises the deeply emotive aspects of teaching and learning, and is juxtaposed with the understandings of staff and students presented in Chapter Four, which instead foreground the deeply affective value for and enactment of Knowledge Hub and its processes of doing learning. Through staff and student MSC stories of aesthetics, the chapter investigates space *as* text to explore the ways inhabitants actively 'read', interpret, and respond to infrastructure. The findings indicate that while university spaces are discursively constructed as a marketable commodity, agentic in facilitating pedagogic transformation, performance, productivity and excellence, students and staff understand and connect to spaces in emotive, personalised ways, reflecting a professional commitment and depth beyond their 'consumer' positioning. While space speaks and acts as a symbolic capital, how this is understood and interpreted changes in relation to different users.

The ways spaces function materially in *Pedagogic Practice* is the focus of Section Three. Through stories of continued practice and technological learning, I contemplate the physicalities of the infrastructure, with specific attention to the materialities of pedagogy and the functional aesthetic of the structured spaces of *Knowledge Hub*. Chapter Five works with observations of teaching, and provides descriptive statistics on enacted teaching modes in the interactive lecture theatre and collaborative tutorial room, while Chapter Six presents MSC data on changes and continuities in teaching practice. Key findings suggest that while formal innovative learning spaces can and do enable the performance of a range of pedagogic modes, these are rarely enacted as envisaged in the institutional and design intent. Staff described changes in pedagogic practice as subtle adjustments, rather than transformations, interwoven with and reflective of their pre-existing philosophical beliefs about teaching and learning. Existing orientations to student-centred pedagogies informed spatial and technological

enactment in purposeful, responsive, and critical ways, rather than spatial designs simplistically or causally leading to changed practice. In pedagogic acts, staff and student practice reflected embodied relations of power and spatial literacies, strategically aligned with personal philosophies, preferences, and learning needs. One of the most significant aspects of change appreciated by students was the way the space functioned to enable personal technology use for professional learning. Space supported these actions and beliefs, offering invitations for reflective, critical and meaningful enactment of space and technologies for purposeful learning and apprenticeship into conscious spatial professionalism.

An understanding of *Place* as the experience of situated socialities is illustrated and discussed in Section Four. Firstly, in Chapter Seven, I synthesise sustained staff and student lived experiences of space through MSC stories that articulate *Knowledge Hub* as an embodied community of learning, imbued with an aesthetic of collaborative professionalism. Here, I consider the ways the unstructured peer-learning lounge, a new space to this group of participants with no correlation in their previous buildings, functioned with staff and students to enable supportive learning relationships that allowed students to take intellectual risks. The collegial social environment valued displays of unfinished, negotiated knowings, with physical performances of *doing* learning often centring on the writable walls. Through this space, highly visible displays of student-directed scholarship were centralised, with staff as more capable expert others in a learning community of colleagues invited into learning processes at points of grappling with problematic knowledge. It was this process that most transformed traditional staff-student learning hierarchies, enabling dynamic, vibrant and student-centred discursive patterns in ways that ensured the enacted space 'felt like a university'. The enactment of *Knowledge Hub* as a *Place* of and for learning is continued in Chapter Eight, which consolidates and articulates the synergies and dynamics of Perception-Pedagogic-Practice-Place as a constellation of doing learning. A learning community of this type requires the embodiment of a shared commitment to learning, including the manifestation of an ethical responsibility for and horizontal accountability to others within the community (including the spaces and technologies as non-living others). Ultimately, the discussion presents a co-produced understanding of space and technologies as active co-participants in a situated learning community.

The thesis concludes that enacting transformative pedagogy requires rigorous and thoughtful attention to teaching and learning practice, in addition to the specificities of innovative built infrastructure. While policy and literature often causally assert that spatial

transformation will result in teaching and learning revolutions, the story of *Knowledge Hub* problematises this assumption. A staff commitment to enacting student-centred pedagogies existed prior to the transition, with the new building design supporting and responding to potentials of practice that had no home in the previous buildings. Resistances to spatial positioning and technological expectation, rather than indicating deficit spatial or digital knowledge, reflected critical understandings of personal philosophies of teaching, enacted with the spaces and in conjunction with technologic function and student responses. For students, the space and technologies were valued for their capacity to meet immediate teaching, learning, and social needs through the enactment of collegial pedagogic relationships that encouraged meaningful, deep learning with peers, staff, technologies, and spaces. The disciplinary learning community reflected a shared commitment to meaningful staff and student learning, and an ethic of place-based 'pedagogic care' (Carter, Hollinsworth, Racti & Gilbey, 2018), and the embodiment of horizontal professional accountabilities (Wenger, 2011). These findings flow into significant implications for policy, spatial design, and pedagogic practice. In particular, they suggest that rhetoric needs to reconsider and reposition students as capable beginning professionals rather than technicist consumers, that recognition and support for staff capacities as spatial enactors would benefit institutional management, and that disciplinary learning lounges and writable walls are important material features in universities oriented to professional learning communities.

With a conceptualisation of learning as a journey of becoming that occurs across spaces and in the connections-between self, others, and more-than-human participants, this thesis weaves together plural narratives of change, storying the sociomaterial learning encounters of staff, students, and myself as disciplinary community members of *Knowledge Hub*. While initially I understood my focus to be on innovative spaces as a support for teaching and learning, as the research evolved it has become – with me – more about the materialities of embodied teaching and learning, and the inseparability of place from doing, knowing, being and becoming. I argue that to realise the potential of spaces to innovate student-centred learning, spatial revolutions must also value and recognise the people who relationally inhabit, enact and co-create the spaces – their identities, emotions, purposes, values and beliefs, which entwine in sociomaterial pedagogic performances. Rather than reverting to anthropocentrism, these entwine with places and things and practices, and are at once human and beyond-human. The research concludes that pedagogic and spatial practices reflect negotiated and complex assemblages of place-theories-materials-people-beliefs-processes-

ideas-technologies-values. It is in recognising space as inseparable more-than-human mélange that the vision of university learning as dynamic, safely uncomfortable, collegial and inclusive may be purposefully and meaningfully enacted. In this way, staff, students, spaces and university institutions may better come together to innovative teaching, establish participatory and dynamic learning communities and foster a strong sense of place-based belonging.

Section 1: A Sociomaterial Orientation

'The spatial and the social need to be conceptualised together'
>   (Mulcahy, Cleveland & Aberton, 2015, p. 579)

In this thesis, I have aimed to take a strongly theoretical methodological approach that pays deliberate attention to the relations between policy, infrastructure and practice as an enmeshed suite. As explained in the Introduction, space is often explored partially and without attention to theory. As a way of addressing this, I have consciously entwined and aligned the onto-epistemological orientations integral to the thesis within the structure of the research design. It is for this reason that I start with sociomaterial theory, which assumes an underlying unity between living and non-living beings. When mindful of this view, all separation is imagined – constructed – for the purposes of untangling and illuminating the relations-between (Massey, 2005; Mulcahy et al, 2015; Mulcahy, 2013). In the embodied processes of the research, in encounters with the data, and in the writing of the findings and implications, I came to recognise my working, thinking, being and becoming as sociomaterial encounter, and my existence as both human and more-than-human (Acton, 2017; Fenwick, 2015; Mulcahy 2013; Mulcahy et al, 2015; Orlikowski & Scott, 2008).

Chapter 1 A Sociomaterial Methodology: Situating-Seeking-Sensing-Saying

Introduction

To synthesise the research design, and provide a brief structure to this chapter, the study works with an interpretive (or constructivist) paradigm (Lincoln, Lynham, & Guba, 2011) in synergy with a sociomaterial theoretical orientation (Fenwick, 2015; Mulcahy 2013; Mulcahy et al, 2015; Orlikowski & Scott, 2008). These participate in my development of a mixed-methods case study (Flyvbjerg, 2011; Heck, 2011; Stake, 2003; Yin, 2003). In constructing the case, the research worked with three entangled complements to organise and consolidate the collection, analysis and presentation:

1. *Perception*, which considers rhetorical conceptualisations of space through a synthesis of Mulcahy's (2013) *textualities,* and Dovey's (1999) discursive textual representations,
2. *Pedagogic Practice*, which focuses on physical structures for learning and their functioning, informed by Mulcahy's (2013) *materialities*, and Dovey's (1999) spatial syntax, and
3. *Place*, exploring situated, social learning relationships, cognizant of Mulcahy's (2013) *socialities*, and Dovey's (1999) lived experience of space.

Sections Two, Three and Four present the data collected within each complement (*Perception*, *Pedagogic Practice* and *Place* respectively) and are inclusive of the analysis.

I selected methods appropriate to each complementary dimension of space and its practise. These included a document analysis (Bowen, 2009; Payne & Payne, 2004), direct observations (Wilson, Lukin, McGavin, Eagle & Sutton, n.d.; Yin, 2003), and the Most Significant Change (MSC) technique (Davies & Dart, 2010; Dart & Davies, 2005) to collect and analyse narratives of significant change, using interview (Kvale, 1983) and focus group (Kamberelis & Dimitriadis, 2011) methods to gather the stories. This methodological assemblage allowed deep consideration of the relations between spatial intent, design, infrastructure and occupation of new learning space.

The bounds of the case coincide with the walls of a university building, known in this thesis by the pseudonym *Knowledge Hub*. Designed and purpose-built for Education disciplinary staff and students at a university in regional Australia, *Knowledge Hub* embodies common principles of 'innovative' learning spaces: learner-centricity, connectivity, flexibility

and affording digital learning (which I elaborate in detail in Chapter 5). When complete in 2013, staff and students transitioned from their previous traditional learning spaces to their new 'home'. The case documents collated included national, institutional, and architectural texts, selected according to their relevance to the space, and were either publically available online or obtained through the facilities office. In seeking participants for interviews, focus groups and observations, Education disciplinary staff were invited by email to participate in interviews (across two phases in 2013 and 2015) and observations (in 2015), with students also invited by email to contribute to focus groups in both phases. In total, 15 academic staff and 43 students were active in the data collection and evaluation processes. The study received ethics approval from James Cook University (approval numbers H5160 (2013) and H6167 (2015)). Copies of these are attached in Appendices i and ii.

In this chapter I first describe the interpretive paradigm and the sociomaterial theoretical orientation taken in the thesis. I then present the methods according to the spatial dimension they helped investigate: the document analysis process is outlined in relation to *perception*; the direct observation process is active in understanding *pedagogic practice*; with Most Significant Change (MSC) stories, interviews and focus groups consolidated through their benefits in understanding *place*. While this chapter outlines the methods using this structure, each section of the thesis is introduced through a MSC narrative. This focal point of sustained spatial practice situates the discussion, with staff and student reasoning for selecting the story entwined with other data. This is partially to foreground staff and student voices and illustrate their perceived changes (and constancies) in *Knowledge Hub* through the narratives they selected, but also to demonstrate the ways that the categories themselves (*perception*, *pedagogic practice*, and *place*) are blurred, porous, and indistinct. In the complex, situated and 'messy' (Law, 2004; 2006) material processes of doing teaching and learning, perception-place-practice-people exist only as constellation.

Research Questions and Potential Outcomes

An overarching research question guided the investigation process and development of the case:

> *How do 'innovative' learning spaces, discursive representations of space and lived experiences unite in teaching and learning practice?*

Across each complement of perception, place, and pedagogic practice, I then mapped five contributing questions to guide me in thinking through the relations between the building's intent, function, and ascribed meaning (see, Table 1).

Table 1: *Summary of Overarching Research Questions*

Dimension	Contributing Question
Perception	How is space perceived and represented discursively as contributing to teaching and learning?
Pedagogic Practice	What pedagogical modes are being performed within the formal learning spaces?
	From the perspectives of staff and students, how do physical spaces contribute to and support their teaching and learning?
Place	What do staff and students report as the most significant elements of change in their teaching and learning experiences after the transition to an innovative learning space? (Phase 1, 2013)
	How do students and staff describe their teaching and learning practices after a sustained period of operating in innovative learning spaces? (Phase 2, 2015)

The outcomes from the research have directly contributed to:

- this doctoral thesis
- literature on learning spaces and pedagogic practice
- informing learning spaces policy and design, and
- understandings of the materiality of enacted pedagogic practice.

Rationale for Approach

Although the connections between space, technology, pedagogy as social practice are becoming more common in educational and space discourse and research, numerous studies focus specifically on ideal design principles of learning spaces without empirical evidence (Blackmore et al, 2011; Ellis & Goodyear, 2017; Radcliffe et al, 2008). Considerably less is known however regarding the sustained impacts of changed learning spaces on practice, social relationships and student outcomes, given the lack of longitudinal studies in the area (Blackmore et al, 2011; Cleveland & Fisher, 2014; Lee & Tan, 2011). Hall-van den Elsen and Palaskas (2010) argue that evaluation of spatial transitions must "consider the multiple perspectives, spanning the underpinning university vision, the architect's intent, the types of teaching and learning spaces traditionally used, the extent of student engagement, and the functionality of the new spaces, as well as the complexities, opportunities and constraints" (p.

2210). The research design of this study brings together these areas. The synthesis of, and reflection on, plural perspectives enabled a rich, multifaceted and nuanced understanding of how context, intent, space, pedagogy and social practice mingle in higher education teaching-learning practice.

Methodological Approach

An Interpretive Paradigm

The research, aiming to better understand and illuminate the mangle of educational-spatial discourse, physical learning spaces, and situated formal and informal pedagogic practice, aligns with an interpretive paradigm in its methodological orientation. The aims of interpretive (or constructivist) research to "gain understanding by interpreting subject perceptions" (Lincoln, Lynham & Guba, 2011, p. 102) mirror the aims of building performance evaluation (see, Cleveland & Fisher, 2014). A transactional epistemology underpins the interpretivist approach, assuming the creation of knowledge in and through localised personal interactions with others (Guba & Lincoln, 1994 in Lincoln, Lynham & Guba, 2011). This aligns with the research design to co-create a contextualised understanding of enacted pedagogical spaces, tangling the perspectives of staff, students, designers, institutional and government bodies and therefore prioritising and valuing multiple voices. Also relevant is a relativist ontology that views 'reality' and 'truth' as local, constructed and co-constructed in specific ways (Guba & Lincoln, 2005 in Lincoln, Lynham & Guba, 2011), allowing multiple realities which reflect the nuances and idiosyncrasies of individuals (Guba, 1996 in Lincoln, Lynham & Guba, 2011). This is pertinent to quality building performance appraisal, which necessarily occurs in different ways, reflective of the local values and contexts that inform its construction and use (see, Cleveland & Fisher, 2014).

According to Lincoln, Lynham and Guba (2011) constructivist methodology is hermeneutical (concerned with interpretation) and dialectical (takes interest in multiple divergent opinions and perspectives, logically considering each in relation to each other and the 'whole'). Within this paradigm, individuals or collectives reconstruct knowledge through working with and within the social consensus (Lincoln, Lynham & Guba, 2011, p. 99). From this perspective, the researcher becomes 'passionate participant' – an active facilitator of a multivoiced reconstruction of knowledge (Lincoln, Lynham & Guba, 2011). Rather than being a limitation, when this process is made transparent and with a reflective self-awareness

it "contributes to enhancing the quality of our interpretative acts" (Peshkin, 2000, p. 9). Kincheloe (2003) similarly advocates a 'critical ontology' for educators, and I make my own subjectivities known in subsequent sections in order to make apparent the positionality that informs the interpretation and assemblage of the data.

Other studies in the area echo a constructivist approach (Dane, 2010; Graham, 2012; Grellier, 2013; Hall-van den Elsen & Palaskas, 2010; Hunt, Huijser & Sankey, 2012), aiming to better understand space, but only occasionally with an orientation or strategy for considering the alignment between space, policy and pedagogy in practice. Grellier (2013) in particular is a notable exception, in presenting multiple voices in space research, borrowing Deleuze and Guattari's Rhizomatic mapping to analyse data and intertwine staff, student, institutional and researcher voices.

While my interpretations rest on mixed-method data, the overarching approach leans towards a qualitative search for detail, seeking the meanings people make of their lives in the places they exist and assuming that "social interactions form an integrated set of relationships best understood by inductive procedures" (Payne & Payne, 2004, p. 175). The study primarily takes the view of research from a qualitative perspective, that it is:

> a situated activity that locates the observer in the world. Qualitative research consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations … This means qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them
> (Denzin & Lincoln, 2011, p. 3)

In qualitative research, the researcher acts as 'interpretative bricoleur' to produce a set of representations that are woven together in response to the specificities and complexities of the situation being studied (Denzin & Lincoln, 2011). This emergent process intertwines various representative tools, methods, and techniques in a way that is both pragmatic and self-reflexive (Denzin & Lincoln, 2011).

Understanding being and knowing as transactional, plural, situated, embodied and complex, an interpretive study benefits from exploring and including a sense of the 'mess' of conducting research and presenting the realities of phenomena that are not necessarily singular or neat (Law, 2006; 2004). Doing research is a generative and iterative process, and sharing practise is important to enhance academia as a social learning community where the processes of developing understandings through moments of mistake, not-knowing, and confusion could be valued in developing robust knowledge:

The expressibility of practice requires a lot of candor and such practice-based candor is a pillar of the social learning space. But it is not necessarily easy. Theory and policy are clean, but practice is messy, improvised, and always requiring judgment. It is made up of fragments of experience that are not necessarily coherent. This is a condition for its effectiveness, but also something that makes it more difficult to share, not only because of the difficulty to express what really happens, but also because there is a personal vulnerability inherent in opening the door of reflection on the messiness of practice. One's identity may easily seem at stake. Engaging with knowledge as lived practice requires a lot of trust. Practice is always complex and dynamic. It is difficult and challenging. In practice, there are no smooth-sailing superheroes. So when practitioners become less guarded with one another, when they recognise each other as co-practitioners, candor becomes almost a relief. There is a *comfortable discomfort in the shared refuge of authenticity*. Candor can then become a mutual aspiration (Wenger, 2011, p. 197, emphasis added)

Courage and candour are essential dispositions of a qualitative researcher (and, I would add, of a learner, or a teacher as a reflective practitioner). As Davies (2014) points out, "if we are courageous enough, [qualitative research takes us] on an exciting and very demanding path of experimentation. It can take us to the edge of the not-yet known" through a process where "research problems, concepts, emotions, transcripts, memories, and images all affect each other and interfere with each other in an emergent process of coming to know something differently" (p. 734). This affective interference between human and beyond-human beings becomes a site for reconciling deep understanding.

Aware of the complexity and 'mess' of living realities, teaching-learning and research I have aimed to move purposefully into my own discomfort and work with my vulnerabilities to make clear my process of coming-to-know. In order to develop more robust understanding, I have supplemented my own partial knowings (and not-knowings) with those of the participants in the study, through the incorporation of range of mixed and participatory methods. In qualitative research, a multimethod focus "reflects an attempt to secure an in-depth understanding of the phenomena in question. Objective reality can never be captured. We know a thing only through its representations" (Denzin & Lincoln, 2011, p. 5). Rather than using multiple methods as a triangulation tool for increasing the validity of research, multiple methodological practices add rigour, breadth, complexity, richness and depth (Flick 2002, cited in Denzin & Lincoln, 2011). With staff and students, my data encounters were material, social and experimental, simultaneously affective, physical and cognitive. And each time I was challenged I came to know 'messy' spatial, cognitive and affective practice (including my own), differently.

The Theoretical Landscape

Spatial theory, while often neglected in literature, has taken a distinct turn towards understandings of material space as relational, enacted, and fluid, evolving in relation-with, rather than static or fixed. Recent studies indicate the value of materialism as a theoretical orientation that can support the untangling and understanding of space and social practice (e.g. Acton, 2017; Benade, 2017; Charteris et al, 2017; Mulcahy & Morrison, 2017). Despite this theoretical shift, the field of learning spaces in education is recognised as distinctly under-theorised (Acton, 2017; Blackmore et al*.,* 2011; Boys, 2011; Ellis & Goodyear, 2016; Lee & Tan, 2011; Mulcahy et al, 2015; Mulcahy & Morrison, 2017). The limited theoretical consideration in the field hints at an interesting paradox, since social theorists have long explored the amalgamation of space and social spheres.

The emergence of thought on the intertwined nature of space and the social can be identified historically in the works of sociologists. Engels (1887/2009 in Hickey, 2012) theorised spatial design, production, and construction as forms of control, segregation and continuation of class distinctions in capitalist societies. Similarly, Lefebvre (1991) and Bourdieu (2005) connected people's performances and behaviours within a location as attributed to internalised spatial understandings (*spatial practice* for Lefebvre, or the *habitus* for Bourdieu). Soja (1980) elaborated on the work of Lefebvre, to theorise the socio-spatial dialectic, stating that the 'structure of organized space is … *simultaneously social and spatial*' (Soja, 1980, p. 208, added emphasis). In more recent architectural contexts, Dovey (1999) critically considers the intersections between built structure, textual representation and personal experiences of spaces, illuminating the way space works to mediate power. Fisher (2004) further emphasises the lived experience of spaces, advocating investigation of the interaction between learning and the physical environment as an essential area of study.

While the idea that space and social practice exist together is well established, an emerging sociomaterial perspective reflects this ontological understanding explicitly – that "people and things only exist in relation to each other" (Orlikowski & Scott, 2008, p. 455). Specifically in relation to education, from a sociomaterial perspective, rather than clinging to a (reductive) subject-centred understanding of learning, the overall argument is that matter *matters* and, ultimately, there is much value in considering a 'more-than-human' view of the world (Charteris et al, 2017; Fenwick, 2015; Mulcahy, 2013). Fenwick (2015) argues that,

> Materials – things that matter – are often missing from accounts of learning and practice. Materials tend to be ignored as part of the backdrop for human action,

dismissed in a preoccupation with consciousness and cognition, or relegated to brute tools subordinated to human intention and design. This treatment still tends to privilege the human subject, which is assumed to be different or separate from the material: the material is the non-human… Today, however, it is fair to acknowledge a growing educational interest in understanding everyday material and social inter-relations: why *matter* matters, and how to unpick the abstractions that can blind us to the micro-dynamics that influence everyday practices (p. 84)

In an attempt to make materials visible, the thesis at times seems to personify space, stating that it 'acts', 'invites', 'participates'. Rather than simply humanising space, this discourse seeks to reposition matter as an integral actor in the world, with an agency that does not always conform to human imaginaries (as students and staff participants in this research attest, technologies in particular often act in unforeseen ways to shape practice).

A sociomaterial understanding assumes the relationship between space and social as more than simply 'intertwined', 'mutually constitutive', or even 'merged'. These terms suggest plural yet distinct elements that come together, but exist separately, a constraint inherent in language identified by Orlikowski and Scott (2008). The focus instead is centred on relational materiality, and particularly on 'patterns of materiality', which contemplates the ways affection, power and cognition permeate the entanglement of space and social (Fenwick, 2015; Mulcahy & Morrison, 2017). Instead of classifying the world in binary terms of 'non-human' and 'human' or 'material' and 'social' and then ascribing a link between them, a sociomaterial approach begins from and works with a position of togetherness.

The term sociomateriality (specifically with no hyphen) is itself employed as a deliberate discursive and implicit ontological union, highlighting the approach in a growing suite of studies that, instead of self-contained entities, focus on "agencies that have so thoroughly saturated each other that previously taken-for-granted boundaries are dissolved" (Orlikowski & Scott, 2008, p. 455). Sociomateriality focuses on the intrinsic physicality of social life and relations; it pierces the illusion of separation between human and material spheres to theorise an inherently inseparable relational onto-epistemology of the social and material. In this view, space does not exist as a container for human occupation, or a backdrop to action, but rather space is *lived, enacted* in the relations between people, practice and place (Fenwick, 2015; Massey, 2005; Mulcahy & Morrison, 2017; Mulcahy et al, 2015).

The entanglement of human and non-human is known as a fluid assemblage, performed and enacted relationally. In much the same way as Kincheloe (2003) posits ontological 'becoming' rather than an unchanging 'being', space in a sociomaterial perspective is always in flux, *becoming* with its inhabitants (Mulcahy & Morrison, 2017; Mulcahy et al, 2015).

Dovey and Fisher (2014) work with Deleuze and Guattari's (1987) and Delanda's (2006) conceptions of assemblage in relation to learning spaces to state,

> An assemblage is a whole that is formed from the interconnectivity and flows between constituent parts – a social-spatial cluster of interconnections between parts wherein the identities and functions of both parts and wholes emerge from the flows between them… [It] is not a thing or a collection of things, it is the assembled connections between them (at once social and spatial) that are crucial. Assemblage is at once a verb and a noun: it is the flows of life, people, materials and ideas that give the learning cluster its emergent potential (Dovey & Fisher, 2014, pp. 49-50).

This reflects a non-subjective assemblage of physical objects, humans, time, space, and the intangible, where each affects and informs the other (St. Pierre, 2011). In this 'mangle of practice' (Orlikoski & Scott, 2008) "learning spaces and the uses made of these spaces are created and sustained together; they are in a mutually constitutive relationship. Design can never provide a direct fit between space and its occupation, and this space is never simply occupied by people" (Mulcahy et al, 2015, p. 579). The material aspects of human life, including technologies, built infrastructure and classrooms, are not merely tools that assist people in completing tasks but rather act *with* humans in a way that constitutes identities as well as the activity performed (Orlikowski & Scott, 2008). In this view, neither space nor the identities of the occupiers are fixed or given, but rather are in a communally constitutive state of becoming.

A distinctly postmodern insight is intrinsic in a sociomaterial approach. Simultaneous consideration of multiple voices and perspectives (human and unhuman), in a way that challenges separation, clearly aligns with the study's interpretive methodological paradigm and its epistemological reasoning that knowledge is transactional and co-created within particular social spaces (Lincoln, Lynham, & Guba, 2011). An entangled relational approach challenges the modernism of the past to pursue understandings of learning spaces through "a non-dualist analysis of the space-pedagogy relation" offering "less deterministic causal accounts of change than those frequently put forward in the popular and policy literature" (Mulcahy et al, 2015, p. 576). This confrontation and questioning of neat categories or domains of space (see, for example, Dovey, 1999; Dovey & Fisher, 2014; Fenwick, 2015; Mulcahy et al, 2015; Orlikoski & Scott, 2008) provides opportunities to illuminate and make meaning of enacted and performed learning spaces from multiple perspectives, a key benefit to taking a sociomaterial approach.

Walking in the Wilderness: Researcher Subjectivities

In conducting and interpreting the research, I became aware of my position as a situated self, a spatial self, and that this student-teacher-researcher subjectivity would inherently inform the understandings I eventually co-created with the voices and understandings of the research participants. I found guidance in Grellier's (2013) study, and the similar recognition and positioning of her reflective and academic voices among and with others in a spatial analysis. I seek to show my own subjectivities, connections and relations to make transparent the ways this may inform the analysis, valuing my voice and my subjectivity as one among the many, cognizant that "a researcher's self, or identity in a situation, intertwines with his or her understanding of the object of the investigation" (Peshkin, 2000, p. 5). Through a process of coming to know my subjectivities explicitly, I aim enhance the quality of my interpretative acts through the embodiment of a reflective self-awareness (Peshkin 2000) and a 'critical ontology' (Kincheloe, 2003).

Conscious and critical self-knowledge is essential to quality research, and I draw on Kincheloe's (2003) assertion that there is a need for educators to develop an explicit and robust critical ontology to support pedagogic practice and research. This explicit mindfulness of my position is grounded in a wish to develop "new forms of self-awareness and an understanding of consciousness construction" while (attempting to) avoid the "ontological quest for self knowledge and self reconstruction to mutate into new forms of egocentrism and narcissism" (Kincheloe, 2003, p. 47). In taking a sociomaterial orientation, I have aimed to grow my awareness of "the ontological implications of studying things-in-themselves as opposed to studying things-in-relationship to one another to their contexts" (Kincheoloe, 2003, p. 48). With this in mind, I am aware of and transparent about my personal investment in the research, knowing that I too am in a process of becoming, and my identity as captured here has no single meaning, as it is in transition in relation to the world (Deleuze & Guattari, 1980/1987 in Grellier, 2003).

My awareness grew from engagement with St. Pierre (2011), who weaves together multiple theoretical perspectives (including Barad, 2007; Benjamin, 1999; Deleuze & Guattari, 1980/1987; Gilder, 2008; Rajchman, 2000) to show the mingling of space, self, time, sound, object, and beyond that, to the relations between them, where none is the backdrop to human action, but rather an immutable part of it. Deleuze and Guattari's *haecceity* (1980/1987), is recounted as an assemblage of "humans, time, space, physical objects, and everything else: 'It should not be thought that a haecceity consists simply of

décor or a backdrop that situates subjects … It is the entire assemblage in its individual aggregate that is haecceity … that is what you are, and … you are nothing more than that' " (Deleuze & Guatarri, 1980/1987, p. 262 in St. Pierre, 2011, p. 618). Through this engagement, I came to conceptualise my existence as *haecceity*, assemblage: a situated, spatial self. Emulating St. Pierre's (2011) exploration of localised constellation, the following is a reflection on and constitution of some of the socio-spatial entanglements that shape my researcher subjectivity.

> In my research work, I am at once the eight year-old girl who attended my father's university graduation on this same campus; the undergraduate student who breathed in, happy and content to feel the exhilaration of intellectual work every time I was at the university; the centralising force of the hill with its sheer red rock overlooking the ocean; the deteriorating and worn concrete rectangular prisms of my undergraduate study, housing isolated rooms and traditional classrooms that were innovative forty years ago; the studying mother with children attending undergrad lectures and whose five-year-old son told his teacher that his favourite place in the world was 'the curriculum section' of the university library; the university tutor who had to rearrange falling apart furniture for collaborative learning activities; the concrete circles of the library architecture, holding the memory of my mother and her friends, studying in the first intake of teachers' college, and forty years later me and mine; the school student, bored, hot, and restless, in rows while the teacher droned and my mind wandered; the oppressive heat; the post-graduate student and sessional staff member, excited to be working in a new space and familiar with students and staff, and frustrated about the Wi-Fi. I act and am only in the intersection of my relations – to place, people, things, space and time.

I make my entanglements, my historical sociomaterial assemblage, explicit here with some developing awareness of "the productive power of relationships in the (re)construction of self" and that I am always in process, realising "that the nature of this world, the meanings we make about it, and our relationships with it are never final" as self *"emerges* in its relationships to other selves and other things in the world" (Kincheloe, 2003, p. 48). As an emerging self, past-current student, school-university teacher, and researcher, engagement with theory is a powerful way of shattering and transforming my life (St. Pierre, 2011), and I interpret within this mangle of becoming. As I engage with the theory, and encounter events, ideas and data experimentally (Davies, 2014), I theorise myself as a spatial self. Enacted, embedded, experienced.

This understanding directly informs my interpretation and analysis of the research data, and my construction of emerging understandings. While I explore what the spaces mean to the staff and student inhabitants, I concurrently and critically enact a symbiosis of space-theory-method-teacher-learner-researcher in and of those spaces. Through this process, I

refine my understanding of what it means to be (with)in those educational spaces. I research myself as I research my community in order to better

> explore what it means to be human and to negotiate the social and ideological forces that shape [my] pedagogical consciousness. In light of a critical knowledge of power, we are pursuing a key dimension of critical ontology—a way of being that is aware of the ways power shapes us, the ways we see the world, and the ways we perceive our role as teachers (Kincheloe, 2003, p. 51)

In doing so, I perform the processes of research spatially, physically, materially: data gathering, working with, thinking through, speaking across, writing becoming.

From my location, as a non-Indigenous woman in regional Australia, thinking sociomaterially provides a unique opportunity to work with an onto-epistemological sense that 'knows' the entwined and grounded nature of my professional existence. Importantly, this position allows for explicit recognition of the *Country*[1] infrastructure exists with, the eucalypts outside the building and the screech of black cockatoos in their branches, the smell of fresh coffee, Wi-Fi connectivity, chairs, tables, and technology, as equally important in the enactment of teaching and learning as the human participants. This is perhaps counter intuitive to traditional patriarchal, Western and Northern ways of knowing (Connell, 2006; Fenwick, 2015; Whitehouse et al[1], 2014) and, as such, is of particular value to research conducted outside of the metropole, allowing the specificities of place *as* practice to be voiced and valued: known.

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1. More than just the land on which construction stands, *Country* for Australian Aboriginal and Torres Strait Islander peoples represents an intricate physical, spiritual and emotional relationship with place. The term encompasses "all the values, places, resources, stories, and cultural obligations associated with that geographical area" (para.1, Smyth, 1994).

Chapter 2 Methodological Assemblage: Methods that Participate in the Research

Introduction

Following from the sociomaterial orientation to interpretative research discussed in Chapter One, in this chapter I clarify the techniques and methods of the study's research design. Sociomateriality understands that research strategies, techniques and methods become active non-human participants in the research process. These entwine in the methodological assemblage and covertly guide and inform the development of the research outcomes. In this sense, rather than implying a fixed arrangement of methods, *assemblage* refers to the shifting interdependencies, connections, flows and becomings that coalesce and dissolve relationally between bodies, things, ideas, and concepts (Mulcahy & Morrison, 2017). Here, I describe methods with the understanding that they are my co-collaborators, hinting at their agencies in the research process, to make explicit the role they played in birthing the narratives of practice in the case of *Knowledge Hub*. I conclude that bringing together this methodological constellation provides a strength to the research that addresses current gaps and absences in the field.

Case Study Design

Case study research develops nuanced and detailed understandings of situated social occurrences. In particular, it seeks to illuminate the intimacies of the relations-between context and social practice through a process of collecting and comparing multiple sources of evidence (Flyvbjerg, 2011; Heck, 2011; Stake, 2003; Yin, 2003). These multiple sources coalesce to afford richness, detail, a variety of perspectives and a sense of completeness in data collection and presentation. In this way, case studies facilitate a holistic and deep conceptualisation of social phenomena (Flyvbjerg, 2011). They are distinctly suitable within an interpretivist paradigm "where the concern is with sensemaking, or the social construction of reality" (Heck, 2011, p. 205) and to investigations of phenomena where social realities cannot be easily separated from the contexts in which they exist (Heck, 2011; Yin, 2003). This aligns smoothly with a view of intent-space-materiality-people-practice, not as discrete entities, or even as mutually dependent ensembles, but rather as sociomaterial assemblages, where each is saturated by the other and the imagined boundaries between them are dissolved

(Orlikowski & Scott, 2008). The holistic, unified and contextualised assemblage of multifaceted data is a distinct benefit of the case study, delivering an enriched array and depth not available through purely quantitative methods.

Specifically useful in answering 'how' and 'why' questions to explain phenomena (Yin, 2003) case studies focus on "complex, situated, problematic relationships" (Stake, 2003, p. 142). This aligns the strategy with the overarching research question: *How do innovative learning spaces, discursive representations of space and lived experience unite in teaching and learning practice?* Guided by this question, the research inquiry must consider a "technically distinctive situation in which there will be many more variables of interest than data points" (Yin, 2003, p. 13) requiring multiple sources of evidence which converge in a comprehensive research strategy. The number of variables involved in teaching-learning practice, which make it difficult to assume causality in outcomes, often complicate educational space research (Powell, 2008 in Cleveland and Fisher, 2014). As a single-site case, and aware of the intricacies of spatial investigations, I have consolidated multiple sources of evidence to ensure construct validity (Yin, 2003). A case study allows iterative flexibility in its development, but with an unrelenting emphasis on methodological rigour (Yin, 2003). As such, the inquiry method complements both the study's experimental encounters with data (Davies, 2014) and the evolutionary nature of the Most Significant Change technique (Dart & Davies, 2003; Davies & Dart, 2005). This allowed the case to emerge and develop responsively through each phase.

The Case of *Knowledge Hub*

Effective case studies define clear boundaries to guide the collection of cohesive data. The building itself, the transition to it, and the Education disciplinary group members who experienced this shift bound the case of Knowledge Hub. Data for inclusion in the case development were selected for relevance to the design, construction, occupation, and representation of a pedagogically-informed educational building at a regional Australian university, which was completed and occupied in 2013. Knowledge Hub was purpose-built to house Education disciplinary staff and students, achieve 'full functionality' for staff and students and align the university with pedagogic methods delivered within other schools and universities (*Business Case*, Regional University Facilities Office, 2011). In doing so, the institution aimed to ensure a 'continued relevant curriculum' for pre-service teachers

(*Business Case*, Regional University Facilities Office, 2011). The intention was that the construction of new 'active learning spaces' would achieve these goals.

The previous buildings, separate from the centre of the university and with bare concrete façades and an almost untouched 1960s modernist aesthetic, were the precursors to and catalysts for the change. In initial interviews staff described their prior teaching and learning spaces as 'a dustbowl', 'old', 'musty', and 'broken'. Lee, one of the staff members interviewed, said that the "tyranny of distance [between staff and students] we had over there was just ridiculous" (Staff Interview #6, 2013). The discipline had been divided over three levels and two buildings with little signage and everyone "kind of hidden away over there in their own little spaces and no-one was as close" (May, Staff Interview #7, 2013). Students similarly reflected that in the previous spaces, "everyone was sort of spread out", "you could hardly access Wi-Fi", "it was just doom and gloom" and it was "dull." The sense that "[t]here was no coffee cart there … There was just nowhere to actually chill out" for students outside of class time was noted (repeatedly). The buildings materialised a paradigm of traditional teacher-centred pedagogy and a hierarchical staff-student separation. Indeed, one of the key factors in seeking funding for a new space listed in the *Business Case* was that the Education disciplinary group at the time operated from "aged and pedagogically obsolete facilities" (Regional University Facilities Office, 2011, p. 8). A new building would provide much needed social learning spaces and a new delivery model focused on enhancing the student experience.

Although an application to the Education Investment Fund in 2009 was ultimately unsuccessful, university funding was eventually secured in 2011 and the construction of new facilities began. Members of the disciplinary group taught and learnt in the traditional 'obsolete' infrastructure until January 2013, when their new space was finalised and Education members transitioned into *Knowledge Hub.* The discipline's new 'home' represented a significant shift in educational thinking, with dedicated informal spaces for students co-located with staff offices, formal teaching spaces with shared desks and movable chairs on wheels, tutorial rooms equipped with touch screen computers, whiteboards for student use, readily available food and coffee, and embedded technology with Wi-Fi throughout the building. Although there was an undeniable excitement about the move, there was also a sense of sadness. While the previous spaces may have been identified as 'aged', it was also 'safe' – a known and familiar 'home' that held "a lot of wonderful memories; it still does" (Lee, Staff Interview #6, 2013). It was a sentiment almost identical to that described by

a student, interviewed in her final year of undergraduate study. Having spent the first three years of her degree studying in the previous space, she recollected that prior to the spatial transition she "was excited … But I felt really sad … you've made some memories of one place [that] had beautiful views … trees; the little wallabies" (Bes, Focus Group #1, 2013). This showed the previous place of learning also as an assemblage, of natural surrounds-memories-parking-affection. The excitement to be shifting, to be moving forward into 21st Century spaces, was not wholly uncoloured by a sense of loss.

Three key areas represented the biggest spatial changes: the interactive lecture theatre, the collaborative tutorial room, and the informal student lounge. In contrast to the narrow aisles, steep slope and connected but individual fold down chairs with fold-out tables of the traditional spaces, the new lecture theatre provided continuous shared desks, chairs on wheels, and a two-tiered gradual incline with large open walkways to allow ease of movement and collaborative work. The collaborative tutorial room, equipped with on-desk touch screen computers, rounded tables, big screen displays, and continuous writable whiteboard walls reflected a significant change from the individual school-style desks (arranged in rows), (broken) free-standing teacher whiteboard, television and video player, and mis-matched chairs of the 'pedagogically obsolete' previous spaces. In their previous dwellings, Education students had no social spaces, making Knowledge Hub's inclusion of a new learning lounge, fitted with couches, Wi-Fi, power outlets, big screens, and writable walls, one of the most significant spatial transformations. The co-location of this spaces with staff offices made patterns of informal staff-student interaction possible. These three spaces were the focus of staff and student responses and have in turn become the focus of the thesis. They are explored further in Chapters Five, Six and Seven.

Through a suite of methods and data (see, Table 2), the case of Knowledge Hub provides a holistic sense of the political, institutional and architectural contexts that informed the spatial change, along with the personalised initial pedagogical responses to a significantly updated educational environment. Further, the research design takes a participatory approach in its involvement of students and staff in the evaluation of change narratives. In this way, the case considers the sustained occupation of the new building, responding to a need for a change-centred, multifaceted, longitudinal approach to educational spatial research (as identified by Hall-van den Elsen & Palaskas, 2010).

Table 2: Data Sources for Knowledge Hub Case Development

Phase	Method	Data Source	Participants	Relationship to Case
Phase One: six months post-occupancy	Staff Interviews (n. 10)	Transcripts	Tia*, Sal, Tes*, Cal*, Ali*, Lee*, May, Hal*, Rod, Nel* *participated in Phase One and Phase Two Interviews	Teaching Staff members (Academic and Sessional) who had taught in previous traditional spaces and Knowledge Hub
	Student Focus Groups (n. 36)	Transcripts	**FG #1:** Ela, Tye, Ted, Lis, Nae, Dot, Bes **FG #2:** Kas*, Lil, **FG #3:** Kat, Ben, Nia **FG #4:** Tay, Ria, Tri, Lei, Dar, Lin **FG #5:** Tim*, Ned, Mit*, Shi*, Lea, Spa, Lem, **FG #6**: Jan, Dea, Nee **FG #7**: Has, Ash **FG #8**: Ely, Ray, Nat, Joh **FG #9**: Esh, Ron *participated in Phase One and Phase Two Focus Groups	Second – Final Year Bachelor of Education Students (experienced one or more years of teaching in the traditional buildings and six months in Knowledge Hub)
Phase Two: two and a half years post-occupancy	Staff Interviews (n. 10)	Transcripts	Tia*, Ali*, Ida, Lia, Tes*, Nel*, Hal*, Lee*, Cal*, Nay *participated in Phase One and Phase Two Interviews	Teaching Staff members (Academic and Sessional) who had taught in previous spaces and Knowledge Hub
	Student Focus Groups (n. 11)	Transcripts	**FG #1**: Shi*, Kas*, Ira **FG #2:** Tim, Mit, Bel, Nic, **FG #3:** Mel **FG #4:** Rae, Kat, Tan *participated in Phase One and Phase Two Focus Groups	Final Year Education Students (who had experienced one or more years of teaching in traditional buildings and two and half years in Knowledge Hub)
	Observations (n. 10)	Quantitative and qualitative notes on practice	Tia*, Lia*, Lee*, Sid *also participated in interview/s	Current Knowledge Hub teaching staff.
Phase Three	Document Analysis (n. 7)	Documents	• a national policy level document • institutional policy documents • the institutional funding application document • architectural publications and, • a university webpage promoting the space	Documents that directly informed the design, construction, and/or the representation of Knowledge Hub.

With such an assemblage of data, weaving the story of a case can be difficult. "Even though the most competent researcher will be guided by what the case somehow indicates is most important … [w]hat results may be the case's own story, but the report will be the researcher's dressing of the case's own story" (Stake, 2003, p. 144). As previously discussed, my presentation of the 'truth' of the learning spaces of *Knowledge Hub* is informed,

unavoidably, by my position as past undergraduate student and tutor on the previous campus and current research student and tutor in Knowledge Hub, working with many of the participants. Across multiple roles, I experienced the shift with participants. While the previous acknowledgement of my own subjectivities is essential to validity, I have also attempted to temper my interpretations by ensuring participants are active in the co-creation of the presentation of the case. In particular, including students in the telling, evaluation and selection of stories of significant sustained change represents a commitment to value student voices in a bottom-up spatial evaluation process (Cleveland & Fisher, 2014) and position them as active partners in research in higher education contexts (see, Kahu & Nelson, 2018). Theoretically guided interpretation provides an additional way of assuring external validity in relation to the research questions (Yin, 2003).

Some authors note the lack of generalisability of single-site case studies as a limitation, however Flyvbjerg (2011) argues that singular cases can contribute meaningful scientific knowledge to a field of research: "That knowledge cannot be formally generalized does not mean that it cannot enter into the collective process of knowledge accumulation in a given field or in society. Knowledge may be transferable even when it is not formally generalizable" (p. 305). A case study strategy is commonly used in the field (see, for example, Benade, 2017; Cheers, et al, 2012; Dane, 2010; Graham, 2012; Hall-van den Elsen & Palaskas, 2012; Hunt, et al, 2012; Steel & Andrews, 2012; Wilson & Randall, 2012). Identified as exemplary in the area of evaluating building performance (Leaman, Stevenson & Bordass, 2010 in Cleveland & Fisher, 2014), an overarching case study design allows for a sense of continuity with and connectivity to other studies, effectively providing a harmonious elaboration of the existing field of knowledge.

The case makes use of multiple data sets, both quantitative and qualitative, to illustrate the ways space and pedagogic practice relate. The study's methodological pluralism originates from a pragmatic approach to allow the nature of the problem (the lack of longitudinal empirical understandings of spatial transformations on teaching-learning practice, particularly from the perspectives of staff and students) to direct the selection of techniques and methods (Payne & Payne, 2004). In my use of a quantitative approach and statistical data, I am not attempting to seek or create grand narratives, positivist patterns or causal logics, as is common to quantitative approaches (Payne & Payne, 2004). Instead, I use numbers as a complementary discourse to make visible the multiplicities and complexities of educational practice (Denzin & Lincoln, 2011).

Perception: Document analysis

The document analysis component of the case considers qualitative discursive representations of space through texts relevant to *Knowledge Hub*. In particular, this phase sought to make sense of how texts participate in the construction of higher education learning spaces and teaching-learning relationships.

Table 3: *Summary of Methodological Approach for Perception*

Dimension	Contributing Question	Method	Data Source/Participants	Analysis	Chapter
Perception	How is space perceived and represented discursively as contributing to teaching and learning?	Document Analysis (Bowen, 2009; Payne & Payne, 2004)	• Policy Documents • University Policy • University Plan • Architectural Material • University Website	Thematic analysis (Bowen, 2009; Payne & Payne, 2004)	Chapter 3, 4

Written texts mediate contemporary social life (Peräkylä & Ruusuvuori, 2011). Documents themselves are artefacts of sociomaterial processes, often the result of highly mobile politics evolving through networks of policy actors (Ball, 2016). Documentary methods, therefore, provide unique insight into social worlds, as they implicitly represent the values and beliefs of their constructors (Payne & Payne, 2004). A document analysis is a systematic process of examination and interpretation of textual material "in order to elicit meaning, gain understanding, and develop empirical knowledge" (Corbin & Strauss, 2008, cited in Bowen, 2009, p. 27).

Bowen describes the analytic process as one that "entails finding, selecting, appraising (making sense of), and synthesising data contained in documents. Document analysis yields data—excerpts, quotations, or entire passages—that are then organised into major themes, categories, and case examples specifically through content analysis" (Labuschagne, 2003 cited in Bowen 2009, p. 28). Similarly, Peräkylä and Ruusuvuori (2011) state that a qualitative analysis of texts involves a researcher in reading and rereading their compiled texts to identify themes in order to "draw a picture of the presuppositions and meanings that constitute the cultural world of which the textual material is a specimen" (p. 530). Narrowing down those underlying beliefs and values can be a complex process, with the both authors' and researcher's cultural contexts jumbling the interpretation process (Payne & Payne, 2004).

In light of this I draw on literature to inform and shape my analysis, weaving perspectives beyond my own to untangle the meanings and politics in the rhetoric.

In the case of Knowledge Hub, the seven compiled documents included:

- a national policy level document, the *Education Investment Fund* (Australian Government, 2008);
- institutional policy documents (*University Plan 2013-2017* (Regional University, 2013) and *Learning & Teaching Blueprint 2014-2016* (Regional University, 2014));
- the institutional funding application document (*Business Case* (Regional University Facilities Office, 2011))
- architectural publications promoting their conceptualisation and design of the building (*Designing the Future of Education: Universities of the Future* (Hub Architects, n.d.a) and *Designing the Future of Education: Social Learning Spaces* (Hub Architects, n.d.b)); and,
- a university webpage promoting the space (*Knowledge Hub* (Regional University, 2017))

The document analysis in the case of Knowledge Hub presented several ethical considerations in its presentation. In the ethics approvals, I had specified that I would endeavour to protect participants' identities, particularly staff given the small sample of contributors. This included not identifying the work environment. In addition, Cleveland and Fisher (2014) comment on the difficulties of balanced critical descriptions of spaces and spatial practice when buildings are identified in evaluations. This has led me to use pseudonyms for participants, the building and the university in the presentation of the documents throughout the thesis and in referencing the institutional policies. In the sequence of the study, although the document analysis is presented first in the thesis to elaborate the rhetorical context and intent of the building (Chapter Four), as indicated in the case development (see, Table 2, p. 48) it was the last aspect of the research, completed in Phase Three. This was a conscious design consideration to ensure that my analysis of staff and student perspectives was not performed informed by a detailed understanding of the national, institutional and architectural intent for the spaces.

Pedagogic Practice: Direct observations

Observations offer unique insight into performed pedagogies in context, and are particularly valuable in contextualised investigations (Cleveland & Fisher, 2014; Heck, 2011; Yin, 2003). Direct observations provide information on the extent of implementation of initiatives and a way of relating what people say they do with their in-practice behaviours (Heck, 2011).

Dimension	Contributing Question	Method	Data/Participants	Analysis	Chapter
Pedagogic Practice	What pedagogical modes are being performed within the formal learning spaces?	Direct Observations Wilson *et al* (n.d.): pedagogic modes performed	10 learning situations (4 staff members)	Descriptive Statistics	Chapter 5

The subjective nature of observations (Yin, 2003) led me to use Wilson, Lukin, McGavin, Eagle and Sutton's (n.d.) template (see, Appendix iii) for exploring the 'Performance of the Room', recording *didactic*, *active*, *discursive* and *reflective* teaching modes in practice as a way to enhance the validity and reliability of the method with a single observer. These modes align with and reflect the spectrum of pedagogic descriptors identified in the university's *Business Case* (Regional University Facilities Office, 2011) and offered the opportunity to consider whether key policy aims to provide teaching along a spectrum of modes was achieved. While the modes themselves may be potentially limiting in their ability to capture the richness of student-led or non-traditional learning experiences, they offered a way to feasibly capture and quantify teaching practice using descriptive statistics. Prior to conducting observations I elaborated each of the modes, comparing them with other models of pedagogic practice and compiling sample teaching strategies that might exemplify the focus and purpose of each mode (see, Table 5).

Table 5: *An elaboration of pedagogic modes*

Pedagogic Mode	Description	Teacher Purpose	Alignment with other models	Example Teaching Strategies
Didactic	Teacher as 'knower' and students as passive receivers (Wilson, Lukin, McGavin, Eagle & Sutton, n.d.)	To communicate already organised information or content	• Teacher-controlled/ managed (Biggs, 2003; Biggs & Tang, 2011) • Didactic Mimesis (Kalantzis & Cope, 2008)	• Lecture (Biggs, 2003; Biggs & Tang, 2011) • Giving instructions • Modelling • Demonstration
Active	Student-centred learning, affording opportunities to engage deeply in learning with elements of personal choice, multiple perspectives, self-discipline, critical thinking and developing their opinions and connecting this to pre-existing knowledges	To engage students in action – the focus is the activity and the outcome	• Teacher-controlled/ managed; student centred/peer controlled; student managed (Biggs, 2003; Biggs & Tang, 2011) • Authentic synthesis (Kalantzis & Cope, 2008)	• Brainstorming (Biggs, 2003) • Jigsaw strategy (Biggs, 2003; Biggs & Tang, 2011) • Problem Solving (Biggs, 2003; Biggs & Tang, 2011)

	(Wilson et al, n.d.)			
Discursive	Ensuring students participate in learning activities through language is the focus of the Discursive mode. Examples of teaching and learning behaviours include discussion with peers, questioning, and individual or group student presentations (Wilson et al, n.d.)	To promote learning through interactive communication and discussion – the focus is on the process of using language as a tool for learning	• Peer Controlled/ Student managed (Biggs, 2003; Biggs & Tang, 2011) • Transformative reflexivity (Kalantzis & Cope, 2008)	• Jigsaw strategy (Biggs, 2003) • Reciprocal Questioning (Biggs, 2003; Biggs & Tang, 2011) • Intensive debate (Biggs, 2003)
Reflective	The reflective mode of pedagogy incorporates intrapersonal time, allowing for individual synthesis of ideas, thinking and reflecting on learning on learning outcomes (Wilson, et al, n.d.)	To allow individual development, connection, refinement and understanding of concepts	• Self-controlled/ individually managed (Biggs, 2003; Biggs & Tang, 2011) • Authentic synthesis (Kalantzis & Cope, 2008)	• Note Taking (Biggs, 2003; Biggs & Tang, 2011) • Concept Maps

Wilson et al. (n.d.) used these pedagogic categories to capture teaching and learning in an innovative learning space minute-by-minute according to the enacted mode of teaching, simultaneously recording the complementary technologies used. This therefore provided an empirical way of representing and evaluating the relationship between pedagogic practice, space and technologies. The template also provided a structure for quantifying observations, allowing for a comparison of teaching modes enacted. In addition to recording the mode of teaching, I also took written qualitative notes on the strategies being used within each mode as a way of clarifying and justifying selection, and, when necessary, communicating any uncertainty in the categorisation of practices with participants later. The strategies (detailed in Chapter Five) serendipitously acted to recognise and value staff members' enacted pedagogic repertoires of practice.

While the observation template uses distinct categories, the process of classifying modes was complicated. It was difficult to make a clear 'cut' between *active* and *discursive* modes as both often involved students in collaborative learning strategies and activities. When resolving the mode was at times layered, complex and 'messy' (Law, 2006), staff participants and I discussed the main purpose of the pedagogic action, in a shared participatory and experimental *encounter* with data (Davies, 2014). The method invited dialogue between researcher and participant in a process that exemplified the observational method's ability to

act as more than a data collection technique, but also as a context in which parties involved in research can reflect and collaborate (Angrosino & Mayes de Pérez, 2000, in Angrosino & Rosenberg, 2011). Through these participatory conversations I came to classify *active* teaching strategies as focused on learning achieved through a set action, which often involved student discussion as a support to learning but was not an intended outcome. In-practice examples included creating a collaborative concept map of a key content idea, where actively completing the concept map was the intended purpose and outcome, with opportunities to refine ideas with peers assisting the process. In comparison, the discussion of a key concept (an example included a group discussion on an open conceptual question, or a think-pair-share) was motivated by a *discursive* purpose to ensure students talked through concepts as a way of generating and consolidating learning. The facilitation of rich discussion was the intended outcome. The key complication was that all *discursive* learning was *active* learning, and that active learning was often founded on an aim to expedite clear articulation of concepts. Discussions with teaching academics served to clarify the purposes underlying teaching strategies, and reflected a methodological approach that assumed knowing as plural, co-created and transactional (Guba & Lincoln, 1994 in Lincoln, Lynham & Guba, 2011).

Place: Narratives of significant change

Understanding the lived experiences of staff and students in relation to spatial change and pedagogic practice was fundamental to the research. The *Most Significant Change* (MSC) technique (Dart & Davies, 2003; Davies & Dart, 2005) provided a systematic mixed-methods research approach to the collection and analysis of narrative data, which illustrated staff and student understandings of *pedagogic practice* and *place*. The Most Significant Change (MSC) technique is based on a series of steps to collect, record and appraise stories of change using collaborative interpretation (Dart & Davies, 2003). It is best in situations where the focus is primarily on learning about and improving future change processes, rather than demonstrating accountability (Davies & Dart, 2005; Willetts & Crawford, 2007). The implementation is systematic process that is emergent through the gathering and reviewing of stories of change. The technique provides a valuable means for identifying unexpected changes, and it can "clearly identify the values that prevail in an organisation" and enable "practical discussion about which of those values are the most important" (Davies & Dart, 2010, p. 12).

Table 6: *Summary of Methodological Approach for Narratives*

Dimension	Contributing Question	Method	Data/ Participants	Analysis	Chapter
Pedagogic Practice	From the perspectives of staff and students, how do physical spaces contribute to and support their teaching and learning?	MSC technique (Davies & Dart, 2005) • Individual Staff Interviews • Student Focus Groups	Staff : • 2013 n.10 • 2015 n.10 Students: • 2013 n.36 • 2015 n.11	MSC technique (Dart & Davies, 2003; Davies & Dart, 2005)	Chapter 6
Place	What do staff and students report as the most significant elements of change in their teaching and learning experiences after the transition to an innovative learning space? (Phase 1, 2013)	MSC technique (Davies & Dart, 2005) • Individual Staff Interviews • Student Focus Groups	Staff: • 2013 n.10 Students: • 2013 n.36	MSC technique (Dart & Davies, 2003; Davies & Dart, 2005)	Chapter 7
	How do students and staff describe their teaching and learning practices after a sustained period of operating in innovative learning spaces? (Phase 2, 2015)	MSC technique (Davies & Dart, 2005) • Individual Staff Interviews • Student Focus Groups	Staff: • 2015 n.10 Students: • 2015 n.11	MSC technique (Dart & Davies, 2003; Davies & Dart, 2005)	

In addition, MSC delivers "a rich picture of what is happening, rather than an overly simplified picture where organisational, social and economic developments are reduced to a single number" (Davies & Dart, 2010, p. 12). Complex changes (such as the spatial conversion experienced by the staff and students of *Knowledge Hub*) that produce emergent and divergent effects are particularly suited to MSC research, which provides a way to make sense of impacts on people's lives.

There are three key steps that 'fundamentally define' the MSC research process (Davies & Dart, 2005). These are:

1. the collection of MSC stories from stakeholders (often through interviews and focus groups)
2. the selection of significant stories, and
3. feeding forward to stakeholders regarding what stories were selected, making clear the justifications for inclusion in a transparent way.

With its focus on enabling participants to reflect on the meaning and value of changes, the MSC technique benefits from implementation within an organisational context where there is

"an organisational culture that prioritises learning and reflection" (Willetts & Crawford, 2007, p. 377). This focus is an important aspect of Education disciplinary professionalism (Kincheloe, 2003).

The highly structured and focused nature of the MSC technique is potentially deterministic in its systematic filtering of stories to ascertain key narratives that represent shared understandings. The structure implicitly assumes change, and deliberately focuses answers along that path. This may seem incongruent with a paradigmatic approach that values personalised 'truth', plurality, nuance and detail. With an awareness of this, I noted with interest when staff and students refused the method's invitation to be corralled in their answers. Participants often narrated constancies alongside changes, 'playing' with the domains provided, and negating the neatly defined categories, selecting stories but qualifying their inclusion, and telling stories of the (mis)use of space (such as sleeping on the couches or using the big screens and hi-speed Wi-Fi to watch movies in Focus Group #2, 2015) that went beyond traditional educational purposes. In practice, my experience aligned with that noted by Willetts and Crawford (2007) in their critique of the implementation of the MSC technique. They assert that in effect the MSC approach is a "delicate, multi-faceted process of interpretative research" that is more complex than its seemingly simplistic stepped pattern of implementation implies (Willetts & Crawford, 2007, p. 368).

Given these limitations the MSC approach did however provide a pragmatic way of evaluating and synthesising a large data set in a participatory way. In the process, the participants, stories, ideas and materials each demonstrated an agency in their coming together to elaborate the method's potentially narrow outcomes. I too have attempted to ensure that the stories themselves represent a more complex picture of practice than the abstract MSC method may indicate is achievable.

Phase One, 2013: Collecting stories of change. The MSC questions were structured across three domains of change, seeking descriptions of alterations in pedagogic practice, professional relationships (staff-student and student-student), and the use of space and technology. In the MSC technique, domains of change provide loose categories that are used to distinguish different types of stories (Dart & Davies, 2003). These are pre-identified to help track whether stories reflect progress towards particular objectives (Davies & Dart, 2005). The domains used here emerged from key themes within literature and policy that reflect the areas that learning space design commonly aims to transform in social practice. This then

allowed for the comparison between anticipated future function in policy documents and enacted practices as experienced by staff and students. Within each domain, the MSC collection process used a structured open question to focus participants' storytelling. As an example, the MSC question in relation to changes in pedagogic practice used in staff interviews was: "Over the last twelve months, from working at the prior campus to your work here in *Knowledge Hub*, what has been the most significant shift for you in your pedagogical practice?" The question has particular sections to guide participants' answers:

1. 'Over the last twelve months' – refers to a specific time period,
2. 'from working at the prior campus to your work here in *Knowledge Hub*' – establishes boundaries about change being investigated,
3. 'what has been' – asks respondents to use their own judgement about stories of change,
4. 'the most significant' – requests that respondents select and report on one important change,
5. 'in your pedagogical practice' – providing a specific domain of change again asks participants to be selective in reporting aspects of change.

I repeated this process across each domain area, with supporting questions seeking to draw out contextual information, rich descriptions of events, interpretations of their meaning and value, and the reasons why this particular story was especially significant (see, Appendix iv). Using the storyteller's own words enhances the process and is most powerful when evaluating change (Davies & Dart, 2005). How tellers narrate stories is an essential aspect of sense-making, as the very act of narration "is the practice of constructing meaningful selves, identities, and realities" (Chase, 2011, p. 422). Stories can reveal this identity construction of participants.

I collected stories initially from academic staff and students in 2013, as a way of valuing those most directly affected by structural (both physical and organisational) changes (Davies & Dart, 2005, p. 10). In prioritising affected parties' perspectives (in this case, staff and students), the MSC technique is particularly useful in demonstrating the social impacts of change in organisations to management and administrative staff responsible for policy implementation (Wilder & Walpole, 2008). Valuing user groups' perspectives is essential in quality spatial evaluations (Cleveland & Fisher, 2014). Importantly, and in alignment with an interpretative paradigm, an MSC process is a participatory data collection and evaluation method, inclusive of diverse voices: "Everyone can tell stories about events they think were important" (Davies & Dart, 2005, p. 12). Semi-structured interviews and group discussions are suitable methods to capture and document stories (Davies & Dart, 2005).

Researcher effect is an important consideration in MSC, with the possibility that respondents will share narratives they perceive will be of value to the recorder, particularly in cases where the power relationship favours the researcher (Denscombe, 2007; Willetts & Crawford, 2007). This researcher effect is particularly evident in insider research, where participants may hold particular expectations of the researcher's values and philosophies. While my 'insider' position within the Education community being researched, as teaching staff and post-graduate research student member, afforded me a certain 'cultural literacy' (Trowler, 2011) in terms of the histories, practices, and knowledges of the discipline, it also meant participants were potentially familiar with the Educational priorities of my practice. There was then the potential for this to influence their responses to align with what they perceived to be of value to me (Trowler, 2011, recognises this as a form of the effect of 'interview bias'). In the interview process however the easy sharing of stories that were not 'positive', or 'endorsed' (such as students reporting that some spaces were distracting and that staff did not feel their practice had changed) indicated that there was a comfort in going beyond recounting 'acceptable' changes. While the collective evaluation of stories served as an in-built verification process, and my insider-researcher position limited the possibilities that participants would share stories that did not reflect the shared realities of our practice, I was aware that "what people say they do, what they say they prefer and what they say they think cannot be automatically assumed to reflect the truth" (Denscombe, 2007, p. 203). For this reason, my interpretations are necessarily tentative in the claims I make in relation to what staff and students thought, felt and believed.

Interviews. In-depth interviews remain one of the most common methods to collect narrative data (Chase, 2011), allowing a "broader and more richly nuanced picture of the themes focused upon" (Kvale, 1983, p. 189). Semi-structured interviews make use of prepared questions, but allow for flexibility in the order topics will be addressed to ensure emphasis is on the interviewee elaborating on points of interest (Denscombe, 2007). Narratives gathered using interview methods have been referred to as *big stories* (Freeman, 2006 in Chase, 2011), where their "distinctive value as data is that they allow the narrator distance from and thus the opportunity to reflect on significant life events. Narrative researchers also value interviews for the window – a frequently used metaphor – they offer to the narrative environment external to the interview" (p. 424). The metaphor also gives clues to the limits of the method, as a window frames the seen environment, providing boundaries

that constrain the view. The method however allows participants to "explain their own life-world, their opinions and acts, in their own words" (Kvale, 1983, p. 173). In this research the method allowed staff participants a focused opportunity for reflection on their practice, which aligned with an aim to support their professional practice as Educators.

Ten teaching staff participants (including academic and sessional staff members) contributed significant change stories in Phase One of the research in 2013. Contributors needed to have experienced teaching and working in both the previous traditional spaces and the new spaces of *Knowledge Hub*. With informed consent, interviews lasted around thirty minutes (with a range of between twenty and sixty minutes). Interviews took different pathways through the questions, responding to participants' answers. One participant had asked for the questions before the interview, to reflect on them prior. She came to the interview with the printed questions and written notes to guide her responses, an artefact of a sociomaterial process of critical reflection on experience that entwined with the data collection process. Not all stories of change discussed were positive, and not all descriptions of the previous traditional space were negative. Interview conversations were digitally recorded, transcribed, and sent to participants for review prior to analysis.

Focus Groups. Focus group interviews are unique in their potential to produce socially negotiated data: "the synergy and dynamism generated within homogenous collectives often reveal unarticulated norms and normative assumptions. They also take the interpretive process beyond the bounds of individual memory and expression and mine historically sedimented collective memories and desires" (Kamberelis & Dimitriadis, 2011, p. 559). Further, group discussion encourages spontaneous significant stories that build on and link to each other and are enjoyable (Davies & Dart, 2005). Interaction between cooperatives "helps the researcher to understand the reasoning behind the views and opinions that are expressed by group members" (Denscombe, 2007, p. 179) particularly through the sharing of both synergies and differences of opinion which hint at why and how individuals embrace or reject particular ideas and communications (Stewart, Shamdasani, & Rook, 2007). In total, 36 students participated in nine Phase One focus groups. These included only students who had experienced learning and teaching in Knowledge Hub after shifting from the previous traditional campus.

Trust is an essential foundation in focus group interviews to enable honest discussion about experiences (Denscombe, 2007) and is essential to ensure the integrity of stories

collected in the MSC technique (Willetts & Crawford, 2007). While I assured group members of my ethical responsibility to maintain their confidentiality and protect their identity, they were reminded to be aware that their co-participants were not so constrained. As peer members of the Education discipline, participants were often familiar with each other, and aware of respecting shared confidential information. A friendly rapport already existed between members in most focus groups and conversations flowed easily between group members, describing, confirming, countering, and elaborating each other's experiences. Each focus group lasted around an hour, with digital recordings transcribed.

Analysing stories of change. Answers were coded thematically, with the themes that had the most frequent responses from participants merged to become a singular narrative of change, characteristic of comments in that area. While other directions and themes were identified and compiled from the initial interviews, quantifying the comments according to the MSC method did work to limit the inclusion of particular stories, and acted to constrain what would be re-presented to staff and students for further interpretation and evaluation as collectively 'significant'. As a consequence, certain stories, although deeply meaningful for individual participants in initial interviews, were discarded from the process in the enactment of entangled method. Although this perhaps suggests a selective and singularising research technique, in my assemblage and presentation of a range of MSC stories back to staff and students, I aimed to give a sense of the alternative directions and the 'messiness' of the described changes (Law, 2004).

To demonstrate the ways I worked with a sociomaterial consciousness to interpret and analyse the interview and focus group data, I present the process of developing one of the representative stories of change. In coding staff interview data, one theme that emerged was a repeated narrative of increased student presence on campus outside of formal learning hours. Staff described this as enabling a new frequency to informal interactions between staff and students. All 10 staff participants in phase one of the data collection made comments on this change, with 13 stories collected in the area overall. The nature of this theme is captured in Tia's comments, encompassing an assemblage of interaction, students, peer-focused spaces, seating, food, presence, and the structured learning of tutorials and classes, describing that she had experienced a:

> complete increase in interactions with … students, because the peer learning spaces
> are [close by] … [previously] you would see them for their class. You would see

them for their tute, and then you wouldn't see them again … there wasn't food over there, there wasn't nice spaces to sit, for students to be. And so, they wouldn't be out there. Whereas now, more and more students are out here (Staff Interview #1, 2013)

Lee similarly felt that "I think that's certainly where it transformed from being a space where [in the previous building] you only saw people when you officially had contact with them, where now we have more of a social setting" (Staff Interview #6, 2013). I noted here that time was an implicit part of the narrated assemblage; with the social learning spaces opportunities became available to see students both inside and outside of the 'official' scheduled (and formal) class learning time, representing a significant transformation in practice.

An affective element was often evident in the spatial entanglement, the perception of more frequent interaction and the increased visibility of students frequently described as a positive, enjoyable and professionally rewarding aspect of changing learning spaces, and one of the most valued elements of the transition. Rod made clear that,

> The positive part [of Knowledge Hub] is actually having students out and around that you can chat to and being here … I would've probably spent about ten hours in [exam preparation] week, just sitting with students, answering questions, doing little seminars if you like, but basically it was very interactive … they'd ask me a question and I'd say, 'So, what are you thinking? What are you sharing?' and that kind of thing. Now, to me, that's what university life ought to be like (Staff Interview #9, 2013)

Ten hours is a significant proportion of Rod's workload that week, however making time for this interactive investment in student learning was noted as worthwhile. Nel's personal expectations about what effective or successful academic university life 'ought' to be also merged and intertwined with the assembled theme. She identified an improved sense of a meaningful academic community in students and staff as a key change, stating,

> The atmosphere of having the students around is much more conducive to the academic life, I think, because they're all around and you feel as if you're part of this big group of people who are actually all aiming to get to the same thing … in terms of the students, yes, there's much more opportunity to interact with students and to say hello to them when you see them in the corridor, and I think that helps. I'm sure it's very good for the students to feel part of a community of learning, which I think is really much more obvious here [in Knowledge Hub] than it was [in the old space]
> (Staff Interview #10, 2013)

It seemed that the physical-social study space for students who shared a common disciplinary purpose and goal was active in the performance of spontaneous and informal interactions

between them and staff. This space allowed the creation of an atmosphere of belonging and academic learning between students.

Complementing these, affective elements were apparent in Sal's comment that, "Seeing students about outside [in the student peer space] is nice. So that didn't happen at the other place" (Staff Interview #2, 2013). Cal also suggested that:

> one of the things that was really nice … was [students'] sense of being a bit special because they have this new building … That's really different here. I mean there wasn't even anywhere for people to get coffee over there at the end … they'd come to a lecture and get in their car and they'd go home. Whereas, that has changed
> (Staff Interview #4, 2013)

Tes' narrative similarly described how,

> With students, just having them hanging around has changed things … I do interact with students in a different way … I'm more likely to be talking to them in a shared space, like outside or over coffee, or at a lounge or a table or something. So I think that interaction between staff and students is taken out of their office and it's more visible. Yeah. Community is probably what I most value (Staff Interview #3, 2013)

While the theme centred on student presence and interaction, looking anew from a sociomaterial perspective, the entanglement of human and beyond-human – inseparable – emerged in the comments: the shared social space that permitted and encouraged active informal and student-led interactions, the availability of coffee and food, time, the comfort of chairs and tables in allowing student presence for long periods of time, community and belonging, beliefs and imaginaries of what academic university life should and could be, and affection – of feeling special, nice and valued. I retained key phrases from the participants that represented overarching themes in the amalgamation process, with an aim to value both their words and storied identities (Chase, 2011; Davies & Dart, 2005) in a unified representative story of change:

> At our old campus you would see students formally—for their lecture, for their tute, for a scheduled appointment in an office—and then they would go. Students didn't hang around, not even for an hour between classes, or if they did, I didn't see them. Here, they've occupied the peer social spaces, I see them around, and they see me. They ask questions and we can talk in that shared space, both informally just to say hello and spontaneously about learning questions they're engaging with. Seeing my students energetically engaged together in real life learning with each other, off each other, helping each other and debating the ideas and exploring, that has been such a highlight. It must feel good for students to feel part of a community of learning that includes staff and students

The analysis of staff interviews realised eight representative staff stories of change (see, Appendix v), while student interviews resulted in twelve change narratives (see, Appendix vi). The representative stories were useful as they served two purposes, firstly, to allow for realistic data handling when stories were presented back to staff and student groups in the second phase of the project for evaluation, and, secondly, to protect the identities of contributors, who may be recognisable from their comments to people familiar with working with them.

In compiling the stories for re-presentation to staff and students in 2015, I deliberately sought to include several themes that had fewer repetitions, wondering if these 'smaller' narratives would emerge as more significant with sustained habitation of the space. This also served to balance the narratives, showing a range of perspectives regarding the impacts of spatial change. The assembled stories were then shared with staff and students who co-evaluated and reflected on sustained changes, effects and continuities in spatial practice.

Phase Two, 2015: Co-evaluating stories of change. The MSC method, itself an active participant in the research process and the creation of social worlds (Law, 2004) acted in participatory and generative ways with human participants as they read the representative narratives. While generally the MSC feeds stories forward to line managers and administrators in a hierarchical process for selection and evaluation, there is "considerable value in having a community discuss and debate which changes they believe are most significant. The benefits might include a focus on, and learning about, the community's preferences regarding their social development" (Willetts & Crawford, 2007, p. 374). To give a sense of those aspects of sustained change over the two and a half years of *Knowledge Hub* occupation, community members evaluated stories rather than university administrators or facilities management staff.

Phase Two Interviews. In the second round of interviews, conducted between July and September 2015, ten teaching staff members were presented with eight summarised stories that captured the most frequently described changes resulting from the spatial transition to Knowledge Hub for them to read and review (see, Appendix v). Seven of the participants also contributed to the initial interviews and three new participants joined the research. They were then asked to reflect on how the change stories compared with their personal experiences and

select the narrative that best captured the primary most significant sustained change from their point of view (see, Appendix vii for interview structure and questions). An additional aspect included the selection of one story of change for each of the three domain areas — Pedagogic Practice, Professional Interactions (with staff and/or students), and the use of Space and Technology. Staff then explained why those particular stories were meaningful in their working lives. Interviews again lasted between 20 and 30 minutes, with digital audio recordings transcribed for analysis.

As will be illustrated in the following section, staff simultaneously discussed human and non-human participants in their professional practice, and in multiple interviews challenged the domains and the ways they interconnected. While the MSC method may be potentially deterministic, research accomplices refused to be led into neat agreement with stories, and instead opened new possibilities for knowing, negotiating categories, embracing plurality, opposing and discarding, adding qualifiers to, connecting and expanding stories, physically arranging and repositioning printed stories, questioning ideas. In practice, the narrative stories thus became catalysts or triggers for exploratory and complex thinking through practice, generating with materials, participants and researcher further understandings that alternated, entwined, contradicted and elaborated the initial stories.

Phase two focus groups. Eleven student participants in their final years of study contributed in the Phase Two analysis in four focus groups. Students had begun their Education degree on the previous campus and studied for the remainder in Knowledge Hub. These included four of the initial participants and seven new evaluators. Willetts and Crawford (2007) acknowledge that, "the MSC technique requires skills in managing group decision making, and also hinges on participation in the process. The intention of the group decision-making process is to reach consensus on which story of change is most significant" (p. 373). This was demonstrable in one focus group in particular (Focus Group #2), where one of the group members (Tim, who had also been a contributor in the initial collection of stories) assumed the lead role. He asked each member which stories they had chosen after everyone had finished reading, quickly identified the commonality between them (Story 5) and asked if everyone was happy to put that forward as their MSC. Students then each contributed their reasons for selecting the story.

Again, students did not demonstrate unthinking compliance with the method's positioning. One student (in Focus Group #4) chose Story 10 about the beauty of the building

and how it made her feel, but qualified that by adding that she did not agree with the last line; she did not feel that she wanted to "go to uni just to be in building" as one of the 2013 respondents had. As peers who had worked together in classes over a number of years, the conversation in student groups flowed easily, with rapport and trust previously established. They spoke freely about staff who could (and could not) use the technology, about their practices, and about why Knowledge Hub mattered to them. Recorded conversations lasted between thirty minutes and an hour and digital recordings were transcribed for analysis.

Phase two analysis. Once student and staff participants had selected their most significant change stories, I tabled and quantified the responses (see, Appendices ix and x for staff and student responses respectively). For the stories most frequently selected, I then collated the accompanying explanations of why these were most meaningful in participants' experiences. These were then analysed again for themes, with this analysis becoming the basis of each MSC data chapter (Chapters Four, Six and Seven). In this way the stories chosen by the inhabitants of the spaces, those most affected by the change, as most representative of sustained impacts, changes, continuances, and outcomes of spatial transition to an innovative building became the foundation of the thesis. The stories represent a shared understanding, co-created 'truths', and are artefacts of sociomaterial processes.

Writing the Case

In the thesis the presentation of the narratives from the case aligns with the three entwined areas of spatial practice: perception, pedagogic practice and place. These were used as guides in writing up the data, although the easy categorisation of stories according to element was difficult. One frequently chosen story from both staff and students became the focus for compiling and synthesising each section, although each invariably considers perception-practice-place in tandem, demonstrating sociomateriality and the inseparable nature of space-sociality. The overarching case (presented in Chapter Eight) summarises the findings, which leads into the concluding implications.

Perhaps the most difficult part of the MSC technique in the writing of the case is that many of the less often told stories were excluded in the process of the methodological 'machine' (Law, 2006), relegated unwillingly to a position of 'insignificance' in their omission. In working with and within the limits of the methodological assemblage, I have endeavoured to provide a small sense of the richness, depth and nuance of the data in its

fullness, but acknowledge that there are many important but invisible stories woven within the thesis too.

Chapter Summary

While the limits of the methodological assemblage include that the data and findings from the case are not generalisable, are entwined with my researcher subjectivities, and are constrained by the deterministic structure of the MSC technique, there are many strengths to the research design. The strongly theoretical approach addresses an area identified repetitively as a gap in the current literature base; the onto-epistemology of being and knowing as social and situated permeate and align throughout each aspect of the research design and the pedagogic intent of the space. Taking a multifaceted and mixed-methods approach to data collection provides both breadth and depth in considering the association between national, institutional and architectural intent, alongside the physical space and its in-practice function. In particular, the collaborative and participatory nature of the MSC technique, which allowed the development of a sustained and longitudinal empirical understanding, co-created with staff and students in an active sociomaterial process, is a unique advantage in the design, embodying a priority to position students as partners in research in university contexts (Kahu & Nelson, 2018). This aligns easily with the overarching interpretive paradigm, representing a collective re/construction of knowledge, with and within the social consensus and contextual environment (Lincoln, Lynham & Guba, 2011).

While the case is by no means representative of either the full cohort of students or all staff perspectives or of other spatial transitions, it does however offer a distinctive insight into enacted and affective space *with* pedagogy. It is unique in its presentation of viewpoints from participants cognizant of Educational professional practices and Education disciplinary theories and discourse. The co-constructed narratives represent a shared understanding and therefore they serve to illuminate the way intent-physicality-pedagogy coalesce in practice. The study aims to investigate spaces for and of learning through illuminating the relations between perception-pedagogic practice-place, considering textual perceptions, physical places, and social practices as inherently entwined. Grounded in an interpretive post-structural approach, knowing is viewed as social, situated and co-created, where boundaries are blurred, and messiness assumed.

The methodological assemblage considers space as *enacted*, and this works to illustrate that if innovating pedagogy and assuring quality learning is the intent in constructing new

physical learning environments, then people-place-practice-process must be considered as assemblage, simultaneous and relational. A sociomaterial theoretical approach aligns with this: social and material facets of life are understood to exist inseparably in practice. A critical element of understanding spatial change within the research design is to allow staff and students to weave and examine their own co-created narratives of spatial practice, reflecting on transitions associated with changed infrastructure. To this end, I aim to foreground staff and student voices as capable teacher-learner selves who exist with (and as) ideological, material and social worlds. In the following chapter, I explore further the rhetorical construction of these sociomaterial worlds in national, institutional and architectural documents.

Section 2 Perception

> The building itself is lovely. It has a lovely aesthetic to it and that values the work we're doing and legitimises Education as a worthwhile discipline. Over at the previous campus, it was a dustbowl – old and musty. Here, it's new, light, professional. It feels modern and exciting. Students feel a bit special too being in such a nice new building. It's lovely to be in the centre of things, it feels like we're no longer on the fringes of the university.
>
> Staff 2013 MSC Narrative

> It's a beautiful building. It's bright and colourful and welcoming – and things work! The previous campus was dull, boring, concrete, and nothing worked. I think here it's a positive, supportive environment and people are more enthusiastic. If you're more enthusiastic you devote more time to your work. It's kind of a flow on effect. Space really affects your mentality and it's a beautiful positive place. I want to go to uni just to be in the building! Serious! We're very lucky.
>
> Student 2013 MSC Narrative

As key technologies for innovating higher education, built spaces are understood to be transformative to practice. Considering how these conceptualisations are momentarily caught in textual representations, including national and institutional policy, architectural design intentions and university promotional material, and extending further to the space itself as a text that speaks to staff and students, is the focus of this section. As part of a triad of perception-practice-place, this section presents *Perception* as an analysis of the *textualities* of university learning spaces, those discursive meaning-making practices that work to constitute built form (Mulcahy, 2013; Mulcahy et al, 2015). Dovey (1999) similarly emphasises textual analysis as a vital consideration in understanding the operations of power in spatial enactments.

Aesthetic Form

The exploration in this section makes use of a key guiding concept of aesthetics. This principle works with an understanding of the complementary combination of both form and function to tease out the nuances of *textualities* as they anticipate sociospatial change. Aesthetics as an element of spaces for learning is not often an explicit focus in educational research. That said however, aesthetics has been identified as an essential organising principle

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in learning space design that supports a socio-constructivist approach, helpful in assuring learning that is student-centred, collaborative, and experiential. It refers to "pleasure which includes the recognition of symmetry, harmony, simplicity and fitness for purpose" (Souter et al, 2011, p. 22). Known as one of the founding theorists of constructivist education, Dewey (1934) posited aesthetic experience as the pleasure felt in *everyday* (in addition to intensive) experiences. According to Dewey (1934), ordinary doings done with affection, grace, poetry, delight or absorption all reflect an embodied and experienced aesthetic appreciation. Recalling Dewey's (1934) work, Dimitriadis and Kamberelis (2006, p. 8) further surmise that that when a person "experiences a qualitative unity of meanings and values drawn from previous experience and present circumstances, one's experience has a distinct aesthetic quality." This indicates that orientation to and appreciation for a spatialised aesthetic of form, function, feeling, and value is tangled within the diverse experiences of staff and students.

While the individual experience of aesthetics may be highly personal, in a broader sense the aesthetic of built form contributes to the value of a space and actively works to enhance (or detract from) its symbolic capital (Dovey, 1992). The approach in this section simultaneously considers the meanings assembled in texts relating to Knowledge Hub (Chapter Three), and staff and student affection (feelings of pleasure, or otherwise) in response to perceived beauty, physicalities and functionings of the built spaces, and the experience of aesthetics from the perspectives of the occupiers (Chapter Four). Staff and student stories reflect an overarching narrative that connects experienced aesthetic beauty in the attention to the purposeful and efficient operation of learning spaces as tangible evidence of the university's care for the users of the space, their work, and their discipline area. For these participants, the space speaks to their position within the organisation as one of visible worth and signifies value to people outside the immediate institution. Beauty also is perceived to enhance the working environment, and bring pleasure in small moments. Tes felt:

> I love the building. I love how it feels, particularly in the early morning or the afternoon. I just find myself going, 'That's a lovely little peaceful angle,' like either when I'm walking to the building or away from the building, or even just walking downstairs and upstairs, looking at the big sort of public spaces (Staff Interview #5, 2015)

Similarly Sal commented that, "the building is beautiful … there are certain times of the day where there's sunlight and shadow that forms beautiful patterns downstairs. So that's lovely" (Staff Interview #3, 2013). This section explores and synthesises how this spatial aesthetic is textually constructed and experienced in relation to teaching and learning practice.

Chapter 3 Textually Creating Space

Introduction

This chapter explores the role of governmental, institutional and architectural rhetoric in constructing university learning spaces. I consider the textual representations and perceptions of space, the meanings attributed to it, and its place in the assemblage of enacted pedagogic process. Focused attention to textual practices relating to space gives insight into spatial intent and the way change is assumed, anticipated, and constructed. The analysis presented here is guided by a singular research question, significant in understanding anticipated change in relation to built space:

- How is space perceived and represented discursively as contributing to teaching and learning?

With an aim to illuminate how spatial intent entwines with enacted pedagogic practice, I begin with an analysis of several documents integral to the development and functioning of Knowledge Hub. This assemblage of texts suggests that rhetorically the entangled aesthetic form and function envisaged for the space is perceived as valuable as a tool for securing a particular, globally-valued image, which then acts as a marketable commodity and establishes a branded identity for the university. Space is written as having a certain agency to enhance the status of the university, improve performance and productivity, and ensure a scholarly community in alignment with national and global competitors. This suite of projected impacts assumes an improvement in the university's competitive edge in attracting and retaining students, with space acting as "an iconic signature statement" (Regional University, 2013, p. 16).

Within institutional and architectural documents, there is the sense that an active, student-centred and technology-enhanced approach to teaching and learning is a vital part of the development of a dynamic and engaged scholarly community. This assemblage of material and symbolic space, and the ideology of connected and connective social and academic practice becomes a marketing technology that aims to draw students to, keep them at, and ensure they succeed within the university. In this way, educational infrastructure is imagined to act as symbolic capital for the institution, the community and the nation, but also to situate and align the institution with competitors in the global market. This sociomaterial aesthetic becomes a marketable commodity by contributing to an institutional identity, where the

strategic assemblage of built space and social practice is an asset for university promotion and to sanction particular behaviours and outcomes.

Perceptions and Placemaking: Scripting the Play of Form and Function

Documents illuminate the rhetorical perceptions of spaces, imagining the impacts of new aesthetic form and envisaging the aesthetic function of learning spaces. Several key documents (see, Table 7) provide insight into the ways textualities invent the future (Dovey, 1999) and entwine with the design process, construction and in-practice function of Knowledge Hub. In these documents anticipated changes are premised around three areas that work in conjunction with each other to enhance the status of the institution in a competitive international environment: the creation of a marketable brand; a scholarly teaching and learning culture aligned with global leaders; and the construction of a community of learners. These will each be discussed.

Table 7: *Summary of Knowledge Hub Documents*

Document Title	Referred to as:	Rationale for Case Inclusion
Education Investment Fund	EIF (Aust. Gov., 2008)	Australian Government policy document and funding initiative. A bid was made in 2009. While ultimately unsuccessful, this focus shaped the initial design conceptions.
University Plan 2013-2017	the Plan (Regional University, 2013)	Overarching institutional policy document that informs teaching practice, and locates physical infrastructure as an enabler to learning, teaching, research and engagement.
Learning & Teaching Blueprint 2014-2016	the Blueprint (Regional University, 2014)	Institutional policy document informs teaching and learning practice and priorities during occupation
Business Case	the Case (Regional University Facilities Office, 2011)	Institutional design document integral to securing internal funding for a specialist teaching space
Designing the Future of Education: Universities of the Future	Future Universities (Hub Architects, n.d.a)	Architect publication that outlines the design rationale of Knowledge Hub
Designing the Future of Education: Social Learning Spaces	Social Learning Spaces (Hub Architects, n.d.b)	Architect publication that outlines the design intent of the social learning lounge in Knowledge Hub
Knowledge Hub	Knowledge Hub (Regional University, 2017)	University webpage that showcases the building's affordances

The assemblage of documents relating to Knowledge Hub suggests that, rhetorically, the aesthetic form and function of learning space is valuable as a tool for securing a particular,

globally-recognised image, which acts as a marketable commodity. From this understanding, space is assumed and written as able to causally (and simplistically) enhance the status of the university, improve performance and productivity, ensure a scholarly community in alignment with national and global leaders, and assure the university's competitive edge in attracting and retaining students. Rather than being framed as a direct benefit for students (or staff) these sociospatial practices are more often discursively viewed as a marketing technology where investments in innovative educational spaces are a strategic way to assure the economic longevity of the institution by attracting and retaining students.

Building an Image worth Marketing

Financial investments in infrastructure are prioritised and valued for imagined economic, social and symbolic returns that are assumed to enhance the institution. Underpinning spending and design choices, the politics of space is recognisable. While there is agreement that universities are increasing their spending on capital works with embedded technologies (Brown, 2005; Oblinger, 2005; JISC, 2006; Steel & Andrews, 2012), the infrastructure an institution funds acts as a marker of institutional status and power and signifies implicit values (Dovey, 1999; Fisher, 2004). In times of reduced and increasingly competitive higher education funding, often tied to accountability demands, performativity measures, and reform agendas, investing wisely into infrastructure becomes imperative. Dovey (1999) argues that there has been a shift towards the appreciation of architecture as symbolic capital (Bourdieu, 1977) with a growing institutional awareness of the power of aesthetics. Increasingly, universities are recognising their ability to manipulate their aesthetic image as a way to gain economic value. In this environment, architectural style becomes both a form of currency and a pivotal political component of university education contexts.

The Australian Government has had iterative policies focused on educational infrastructure. Relevant to Knowledge Hub, the *Education Investment Fund* (EIF) (Australian Government, 2008) was premised on the presumption that tactically funding higher education learning spaces would assure Australia's future economy in increasingly globalised higher education markets. Investments were allocated through a competitive process, directed strategically on buildings able to "transform Australian tertiary education" (Aust. Gov., 2008, para. 5). Although these kinds of causal and uncomplicated claims remain largely unsubstantiated (Acton, 2017; Blackmore et al, 2011) they contribute to a policy discourse that innovative buildings are unproblematic necessities in realising educational reform

(Mulcahy & Morrison, 2017; Mulcahy et al, 2015). The language and approach inherent in the EIF implies an underpinning neoliberal ideology to the policy, using terms such as 'modern', 'productive' and 'internationally competitive' to describe the projected impacts on the economy of Australia. The language markets a message that buildings represent future opportunities and innovative modernity, acting to secure Australia's economic future in an uncertain world.

Neoliberalism privileges market-driven practices, and is often characterised by ethics of performance, managerialism, notions of choice, accountability and efficiency (Acton & Glasgow, 2015; Apple, 2006; Ball, 2003; Doecke, Kostogriz, & Illesca, 2010; Keddie, Mills, & Pendergast, 2011). Ball (2003) argues that in neoliberal times, education institutions required to be accountable may work to strategically fabricate identities of compliance with governmental agendas, particularly when this is tied to funding (see further, Keddie, Mills, & Pendergast, 2011). Further, Fisher (2004) suggests that buildings can act as tools that formalise power relations and ensure performance as demanded by authority. This orientation can be identified in the university policy identifying how the effectiveness of the institution's infrastructure will be measured:

> The Tertiary Education Quality and Standards Agency (TEQSA) is the regulatory body that ensures quality in the Australian higher education system. Our compliance with the TEQSA Threshold Standards is testimony to a quality education for our students, and to an effective organisation that is compliant, robust, and that has financial surety … The effective management of physical spaces plays an important part in balancing our growth, financial resources, future directions in pedagogy, our power of place, and our social spaces. The effective management of our spaces … will directly support future directions in student learning, teaching and research, and deliver a greater return on our physical infrastructure assets (the Plan, Regional University, 2013, p. 16)

This reflects an amplified discourse of 'compliant' institutional positioning in response to economic and social uncertainty. The policy rhetorically imagines built form as a technology for sanctioning teachers' and students' performativity and delivering on a promise of a 'greater return'. These productive performances assumed to be enabled by space are perceived to assure desired measureable outputs that guarantee economic certainty into the future, including increased growth in the student body, positive space utilisation survey results, improved student satisfaction rates and the cultivation of a reputation of success demonstrated in international university rankings (Regional University, 2013). This exemplifies a neoliberal rationality "that deploys the techniques of investment, business

innovation and performance management as methods for the re-culturation and re-form of public education" (Ball, 2016, p. 5). This technicist position is perhaps juxtaposed with the broader ideal for education noted by Keppell and Riddle (2012) that universities are founded on a deeper purpose to enhance society by developing graduates who are professionally capable and actively contribute to society. Reconciling neoliberal policy regimes with richer aims and understandings of education is difficult in light of the divergent ideologies; to value and support people's academic, professional *and* social wellness is difficult in climates that emphasise and value narrow quantitative accountability measures (Acton & Glasgow, 2015).

The framing of competition as opportunity is also consistent with neoliberal ideology. The EIF employed a competitive process to dictate that universities must compete against each other for limited funds, offering "institutions the opportunity to compete for funds for their priority infrastructure projects" (Aust. Gov., 2008, para. 6). A primary aspect of a neoliberal approach is to embrace competition and choice. This policy directive is common in neoliberal reform agendas and operates strategically in practice to fragment and atomise institutions and individuals, pitting them against each other while systematically reducing collective power (Apple, 2006). In environments that value competition it becomes necessary to secure a competitive edge. Tangled in the manufacturing of this competitive edge is symbolic capital (Bourdieu, 1977) as it is theorised to convert to economic gain. In architecture, symbolic capital relates to "that portion of the value of a building that is attributable to symbolic, aesthetic or mythological 'aura' " (Dovey, 1992, p. 173). The aim is to construct a valuable quality, operating beyond the space itself but tied to it. In policy, this aesthetic of anticipated spaces is written as modern, efficient, productive and 'transformative' – for the student experience, for teaching, and the economy. The spaces themselves are then framed as integral to competing for the choice of highly mobile students able to select their university destinations.

Although discontinued in 2015, the EIF has ongoing impacts on both the ideological and material landscape of Australian universities. As previously alluded to, similar political rhetoric is echoed in localised institution-level policy: "We are committed to building an environment that makes excellence possible, that promotes performance and productivity" (the Plan, Regional University, 2013, p. 5). In this environment "learning facilities … and communication technologies will encourage productivity and excellence among staff and students" (the Plan, Regional University, 2013, p. 14). Textually, the policies suggest that buildings are causally able to facilitate the establishment of a particular culture that values and

assures productivity, performance and the pursuit of excellence. This exemplifies Dovey's (1999) assertion that "[p]lacemaking is an inherently elite practice … places are necessarily programmed and designed in accord with certain interests – primarily the pursuit of amenity, profit, status and political power" (p. 1). The meaning made in the texts considers space as significant in determining a culture of excellence, performance and productivity without considering explicitly the role or agencies of students or staff as in-practice place-makers. Instead, space is written as contributing to an institutional identity or brand that can be marketed for economic protection. This 'politics of the image' attends to the aesthetic surface of spaces to subsume matters of substance, including impacts on social lives (Dovey, 1992).

Foundational to the development of a competitive image or a 'university brand' is a symbolic association with other high-profile competitors. This can be identified in the university's explicit goal to locate itself within an international context, aiming "[t]o match our physical and virtual infrastructure to the needs of a scholarly institution of international renown" (the Plan, Regional University, 2013, p. 14). Informed by this overarching policy directive, the *Business Case* (Regional University Facilities Office, 2011) for Knowledge Hub explicitly foregrounds this ideology, stating that "the Architecture installs credibility and quality to the University clientele as physical evidence, and reflects the University's standing as a leading … research University" (the Case, Regional University, 2011, p. 13). In this document, the design was aligned discursively with Massachusetts Institute of Technology (MIT) and the University of Queensland (UQ), referred to as learning space 'leaders' in the field. This strategic positioning of the institution among national and world leaders in education is part of dialogically constructing a marketable image and of symbolically assuring the worth and importance of the financial investment into university infrastructure. It serves to justify the spending on buildings as a future asset to the university, reiterating the position that innovative, modern spaces are integral markers of world educational leaders.

The understanding of the economic importance of aesthetics, the 'politics of the image' (Dovey, 1992) is critical in the institution's construction of a marketable identity able to compete in an international field. Ball (2003) suggests that fabricating an institutional identity of compliance with policy technologies of the market and performativity is a way institutions survive neoliberal educational reform. In deploying the language used in the EIF, the institution aligns itself with national policy imperatives that privilege 'productivity' and 'performativity', with compliance integral to attracting increasingly scarce funds. In this environment learning spaces become a tactical representation that the institution is engaging

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in the work of educational transformation in ways that reflect the "priorities, constraints and climate set by the policy environment" (Ball, 2003, p. 224). It is the careful cultivation of this image that allows higher education institutions to construct a metaphorical connection to an internationally recognised academic community, establish their distinctiveness within that community and then compete to be the destination students choose for their studies.

The *Business Case* (Regional University Facilities Office, 2011) explicitly recognised the potential of Knowledge Hub to contribute to the University's persona and appeal to students: "The building will be an education destination … It will become a [university] marketing tool - a centre for excellence in teaching and research" (p. 16). Architectural statements reiterate this market-driven focus: "The education market is more competitive than ever but the drivers remain the same — how can tertiary institutions attract and retain students?" (Hub Architects, n.d.a, p. 2). To attract students, since its completion and occupation in 2013, the persona of Knowledge Hub has been written on the university website as a "ground breaking education … building [that] has won three major architectural awards, including a top international award" (Knowledge Hub, Regional University, 2017, para. 1). This contributes to a sense of 'excellence' in the construction of the building's internationally relevant and recognised 'aura' – in Dovey's (1992) sense. This image can then be leveraged for marketing purposes. While the conclusion that universities must deploy this language to strategically align with national policy to compete for funds and students appears logical in the political climate, the cultivation of an entrepreneurial image of 'excellent' education also represents a narrow, profit-driven imaginary of universities' purposes (Barnett, 2013). This constitutes an 'impoverished' understanding of the university, and would benefit from elaboration (Barnett, 2013).

Much of the proposed risk of not building Knowledge Hub, a space explicitly linked to both international spatial archetypes and pedagogic approaches, is framed in neoliberal economic discourse in the *Business Case* (Regional University Facilities Office, 2011). The identified risks of not proceeding included that the university will "continue to fall behind other Universities in the delivery of active learning modalities thereby losing competitive edge and market share" (Regional University Facilities Office, 2011, p. 15), "will fail to capitalise on knowledge about the relatedness of multiple modalities of learning opportunities and enhanced learning outcomes" (p. 15) and,

> will fail to provide a tertiary experience that keeps pace with the changes in current
> primary and secondary school experience resulting in loss of competency amongst

student teachers who will be required to teach in new collaborative spaces and employ new pedagogical practices

<div align="center">(the Case, Regional University Facilities Office, 2011, p. 15)</div>

This again constructs the imperative that universities must 'keep up' with other institutions and industry expectations, lest they compromise their competitive edge and with it their share of the student market.

National and university documents on infrastructure for learning describe and construct space as able to causally effect a change in image and market share, but they are also complicit in designing a future where universities 'must' use innovative spaces to market themselves internationally lest they fail to compete. Primarily the envisioned change is premised in terms of what new and modern spaces offer to benefit national and institutional economies. The rhetoric appears to understand infrastructure implementation as a political exercise that aims to generate and accumulate power, prestige, reputation and success in order to assure financial stability and certainty in a changing international market and limited governmental funding. Barnett (2013) argues that the entrepreneurial university is expected to "fend for itself, and attend to its potential impact on particular segments of the economy, and become distinctive" (p. 2). While the longevity of universities depends on attracting and retaining students, and the university brand influences student choice (Hobsons, 2017; Bhardwa, 2017), the current policy imaginary, focused on income generation and profit (see, Barnett, 2013) is limited and limiting. This vision positions space as a technology, students as 'customers' within the market, and largely silences staff involvement. In recognising this positioning, there is the potential to reimagine the idea of the university begin constructed in this policy rhetoric and in doing so "glimpse new possibilities" for *flourishing* rather than surviving (Barnett, 2013, p. 136). For the nation and the university, it seems that the worth of built spaces are largely attributed to the aesthetic 'aura' they project of modernity, excellence, and alignment with global and national 'innovators'. This aura is constructed carefully with intent to secure economic benefit. This marketable image includes both the spaces and their projected function to enact performances that constitute a particular vision of scholarly excellence.

Leveraging an Image of Scholarship

A sense of alignment with a global education community is discursively assembled in institutional policy through a focus on spaces' capacities to foster the development of a

modern and vibrant scholarly practice and identity. The university aims to "[d]eliver safe and contemporary learning spaces that make our campuses places of destination" as a part of building an academic identity of "international renown" (the Plan, Regional University, 2013, p. 14). The assertion that teaching should "deliver high quality learning environments and programs that are inclusive, relevant and engaging" (the Plan, Regional University, 2013, p. 7) in spaces that are "fit-for-purpose" (p. 14) alludes to a student-centric focus common in contemporary teaching approaches. This is specified further in the online rhetoric of the space specifically: "The building … supports modern methods of teaching and learning" (Knowledge Hub, Regional University, 2017, para. 2) with facilities that provide "large-scale active learning spaces that support technology-enabled active learning" (para. 3). This again refers to the perceived necessity of a 'modern' aesthetic and 'active' space in university learning environments, which then causally enacts technology-enhanced, engaging teaching and learning practice.

These texts also imply a particular type of scholarly student for modern educational space. This student is highly mobile, often across international boundaries; digitally literate; and seeking high quality, student-centred learning experiences in comfortable modern places. To this student, the successful reputation of the university matters in making their educational choices. Students here are subtly constructed as consumers of the superficial image of education, seeking to tactically accumulate capital in their own self-interest. Space, it seems, is seen a strategic university investment into attracting rational technicist students. This position marginalises the understanding that students frequently demonstrate professional orientations and emotive motivations (including dedication to a career and desire for intellectual challenge and stimulation) when choosing degree destinations (see, Hobsons, 2017; Bhardwa, 2017). There is, however, an inherent tension in the university's desire to construct spaces of continual comfort for students. Deep learning requires students to engage in cognitive processes that are often uncomfortable, especially when encountering a disjuncture between what they know and what they are coming to know (Biggs, 2003; Kalantzis & Cope, 2008; Savin-Baden et al, 2008). This is challenged when public policy constructs a performative student "as an acting being rather than a cognitive being" and the process of developing knowledge "recedes from view" (Barnett, 2009, p. 430). Spaces as comfortable places aim to create a foundation of physical and social wellbeing, but the awareness that this meets the purpose of allowing intellectual risk-taking, mistake-making

and coming-to-know (of processes knowledge development and learning) in a safe environment is absent in policy.

Within the policy suite there is also little explicit understanding of the role of academic teaching staff in creating a learning environment of student-centred engagement, student satisfaction, and institutional excellence. Dane (2010) warns of the problematic nature of the term 'student-centred learning' in that it silences the active role of teaching staff in designing and implementing learning activities that encourage students to engage actively in conceptual tasks in ways that take full advantage of spatial and technological affordances. Within this understanding of modern spaces as facilitating modern teaching, there is a hidden understanding that traditional spaces cannot support modern teaching methods, and no consideration of the ways that quality student-centred teaching might happen regardless of the space, depending on staff competencies (see further, Boys, 2011). As Mulcahy and Morrison (2017) assert, "[w]hile spatial metaphors lead in the 'official' literature, they are glossed in such a way as to have the concept and practice of space appear singular, neutral and apolitical (p. 757). This omission works to minimise the agencies of staff, who may enact a range of spatial practices in different spaces.

Informed by the overarching policies, the *Business Case* (Regional University Facilities Office, 2011) similarly suggests space has agency to causally assure university teaching practice without explicit consideration of staff involvement in its enactment. The Case asserts that "through construction of new active learning spaces" the building will "[a]lign [the university] with pedagogical delivery methods employed in Schools and Other Universities to ensure a continued relevant curriculum" (Regional University Facilities Office, 2011, p. 6). In this way the text constructs built space as a physical symbol of belonging to and within a broader community of universities employing active pedagogic methods in modern infrastructure and that the infrastructure 'creates' the teaching. Since these spatial typologies began emerging (MIT's TEAL space design began in the late 1990s (MIT, n.d.)) other universities have sought to emulate this approach to space design as way of enhancing student engagement, attendance and retention. However, MIT combined the implementation of its TEAL spaces with complete course redesign to foster a teaching approach centred on short lecture periods "interspersed with discussion questions, visualizations, and pencil-and-paper exercises" along with animated simulations, concept questions, experiments in groups, and electronic polling (MIT, n.d., para. 5). To imply that changes in space alone will shift teaching practice is to prioritise the image of the space as 'active' and as a representational

link to other institutions' practices ahead of the pedagogic practices or the staff leading the in-practice implementation.

The new spaces aim to allow multiple teaching modes that elaborate and innovate from traditional didactic teaching. The *Business Case* (Regional University Facilities Office, 2011) described that the "project will focus on spaces that offer varying degrees of Didactic, Active, Discursive and Reflective teaching. There will be no facilities built that cater solely for Didactic teaching" (p. 10). This suggests that the intent behind the physical structure is to shape practice and reflects an educational reform focus to use space as a technology that will "change what people, as educators, scholars and researchers do" (Ball, 2003, p. 215). While familiar spaces such as lecture theatres may result in people falling into "standard assumptions about their 'place'" (Boys, 2011, p. 46) they are not definitive and can be re/appropriated according to the individual's needs, knowledges and purposes (Lefebvre, 1991). There is a distinct silence and the Knowledge Hub documents regarding the idea that teaching academics with a sense of pedagogic agency and spatial literacy (Fisher, 2004) may work with available spaces to enact active, discursive and reflective teaching even in spaces that materialise didactic approaches. Equally, the acknowledgement that in active spaces teachers may employ didactic approaches is absent.

The intent of the space to restrict didactic teaching spaces and therefore reduce lecturing, illustrates the way space acts as a material sign of the university's pedagogic focus, and is perceived to be a determinate of it. A primary focus in "rolling out active learning spaces" is that it "creates the new classroom in which teachers engage with, rather than lecture to, students" (the Case, Regional University Facilities Office, 2011, p. 9). This causal understanding of spaces as directly effecting spatial, pedagogic and social change reflects a realist or entity approach to space (Mulcahy et al, 2015), where "space is taken to be given in advance and appropriated by social actors. It is not taken to come into existence or 'become' with these actors" (Mulcahy et al, 2015, p. 579). This approach is partial, without yet understanding spatial pedagogic practice as entwined with beliefs, purposes, content and relationships in an evolving process, where teaching practice does not always align with the design intent (for example, see, Dane, 2010). The *Business Case* (Regional University Facilities Office, 2011) argues that the university "needs to embrace new pedagogy and create a wide variety of active learning spaces" (p. 9). Rather than 'innovating' spatially or pedagogically, there is a sense that universities are aiming to 'catch up' with or adopt the approaches of institutions and countries that led the way forward with new designs. Perhaps

paradoxically, the competitive discourse potentially overrides the possibilities for true innovation by defaulting to market norms. Each document implicitly takes up the understanding that space facilitates or inhibits social behaviours and interactions (Cleveland & Fisher, 2014; Dovey, 1999; Fisher, 2004; Oblinger, 2005; Pouler, 1994) with rhetoric normalising a particular imaginary of active scholarship that can be leveraged as part of a modern university 'brand' for marketisation purposes.

The *Business Case* (Regional University Facilities Office, 2011) projected that Knowledge Hub spaces would open new possibilities for enacting spatial and technological literacies in pedagogy. The document proposed that the spaces would allow "staff [to] engage with new technologies including the technologies of space, where students actively engage in learning" (the Case, Regional University Facilities Office, 2011, p. 16). Aspects of the 'new' pedagogy to be enabled by the space included lectorials, peer learning, and active and collaborative problem solving. The rhetoric does not make explicit whether these socio-spatial pedagogic strategies are consistent with current staff capacities and knowledges nor is it clear what the university will do to enable course redesign or support staff development in the area. The pedagogic strategies listed, characterised by active student engagement, exemplify an implicit social-constructivist approach to learning and teaching. Borrowing from Barnett (2011), Keppell and Riddle (2012) view this pedagogy as a key part of fostering an 'ideal' university, oriented towards academic, professional, emotional, and social wellness, interconnectedness, and simultaneous care for the physical university environment, social relations and knowledge development. Barnett (2011) identifies that "[t]hrough [pedagogic] interest in promoting understanding through learning and inquiry, [the ideal university] seeks to contribute what it can so as to advance the wellbeing of each aspect of the world upon which it might have an effect" (p. 142 cited in Keppell & Riddle, 2012, p. 3). Rather than an 'image' of active scholarship, a scholarly culture of inquiry, understanding and wellness requires a more-than-technicist commitment from both staff and students.

Through the discursive cultivation and leveraging of an image of modern, 'new' student-centred scholarship the university seeks to define itself as situated within – yet distinct among – a global educational market. This marketable brand of scholarship imagines pedagogic actions that embrace technology, foster active and discursive student learning in contrast to passive didactic lecturing, and ensure student engagement. The enactment of this however seems to depend upon the space alone, without consciousness of the agencies or capacities of staff or the professionalism of students. In this way, while the discussion reflects a focus on

student development and teaching, "the narratives move at a stratospherical level, rarely engaging with particular changes or pedagogical possibilities" (Barnett, 2017, p. 80). Although the focus is ostensibly on 'transforming' education, it appears this vision of vibrant scholarship aims to attract highly-mobile and tech-savvy students, whose ability to choose their education destination brings economic benefit to the university, rather than to enhance learning, develop students' ways of knowing, or contribute to their professionalism. The market-driven policy discourse positions students as technicist consumers of education, which potentially undermines the development of student orientations and dispositions necessary for engaging in collaborative community learning. Building a collective of learners is another facet of the design imaginary of Knowledge Hub.

Constructing a Cohesive Community

The image of vibrant scholarship written in the Knowledge Hub documents foregrounds a collaborative approach to learning. Social interactions are prioritised and space is imagined as facilitating the creation of an active scholarly community of learners. While there is emphasis on fostering social connections and enhancing the student experience, implicit is the understanding that these relationships are learning-centred, with an aim to enhance measureable student outcomes. Several institutional policy statements illustrate the importance accorded to the development of 'community' with an explicit institutional aim to build "an environment that … values equity and diversity, and *fosters community spirit* and personal wellbeing" (the Plan, Regional University, 2013, p. 5, added emphasis). These are the central tenets that "position students at the heart of the university experience and lead to excellent outcomes for graduates" (the Plan, Regional University, 2013, p. 7). The provision of suitable infrastructure is written as essential to this policy initiative as it enables "a robust virtual and physical environment that … *builds a sense of community*" (the Plan, Regional University, p. 14, added emphasis). Further reinforcing this priority, the *Teaching & Learning Blueprint (2014-2016)* (Regional University, 2014) elaborates that learning spaces are essential "to support cohort identity building" (p. 6) often through "collaborative, peer-to-peer and personalised, self directed learning opportunities [that] are also vital to engage our diverse student cohorts" (p. 5).

In these overarching institutional policies, there is again a distinct silence in relation to the role of teaching staff within these communities. Staff who actively care for students through their pedagogic action and mentoring role enhance learner identities, place-based

belonging and social interactions that support learning (Carter, Hollinsworth, Raciti, & Gilbey, 2018). Notions of 'student-centred learning' can discursively marginalise the involvement of the teaching academics in a collective learning community in practice (Dane, 2010). While relegating staff investment in learning communities invisible, the silence also implicitly assumes that staff are cognizant of student-centred approaches, in-practice collaborative and active teaching strategies, and spatial and digital literacies for enacting socio-constructivist learning in the new spaces. As vital human participants who enable learning in university contexts, staff and their relationships with students are integral to enacting this policy agenda, and yet they are not tangibly present within much of the policy rhetoric.

While these overarching institutional policies may neglect staff participation and competencies in the realisation of an active scholarly community, the design intent for Knowledge Hub did specifically attend to both staff and student collaboration. The *Business Case* (Regional University Facilities Office, 2011), reiterating the institutional policy focus, suggested that the building would become "a place in which community is formed and fostered. The building will facilitate a vibrant learning and social community and increase the sense of identity and place of [the university]" (p. 13). However, it further extended that this would be realised through the provision of space "dedicated to the cross fertilisation of ideas, and information sharing between *staff, students, and staff & students*" (p. 14, added emphasis). The envisaged benefits of this were that the space would enable:

> students [to] actively engage in learning and cohere as a learning community … Students will be less likely to disappear from campus after class; rather they will contribute to the vibrancy of the [university] campus in dedicated social learning spaces … The proposal to build [Knowledge Hub] will do the following in relation to enhancing teaching, learning and research … [It will] [s]hape communities of learners – *staff and students* – who engage in scholarly activities together because the pedagogical spaces enable, and invite, cohesion
> (Regional University Facilities Office, 2011, p. 16, emphasis added)

The design intent here imagines that the spaces will be able to expedite interconnection and cohesion between staff and students. Establishing a learning community characterised by activity, engagement, communication and content was a key goal of the space, and part of an approach to attract, grow, retain and assure a dynamic, high-achieving student cohort. This reflects a commitment to materially manifest a stated core institutional value – to place students at the 'heart' of the university (the Plan, Regional University, 2013). This alignment

between policy, space and practice is ideal in effective learning space design and intent (Oblinger, 2005).

Architectural documents similarly aligned with this position and viewed the establishment of a 'community' as central to the design intent of Knowledge Hub. An online text promoting the design of the space recounts how building a community of learners that reduced student attrition was a founding concern to the design. The document describes the findings of pre-design student consultation, which revealed that:

> students want to feel part of a community. They felt disconnected and they couldn't identify with the places they were learning in. So, we looked at [the university's] identity and created places that connect students to it, and help them feel part of their community … spaces where students can find others learning the same things
>
> (Hub Architects, n.d.a, p. 8)

The *Universities of the Future* (Hub Architects, n.d.a) document states that "Students want to feel connected to their peers, to their academics and teachers, and to the place where they learn. A strong community of learners needs a variety of spaces to encourage interaction and a sense of belonging" (p. 4). Allowing learners to connect, to place, to others, and to learning, was at the centre of the intent to construct a space that fostered a learning community. This sense of belonging, to people, place and discipline are critical elements in enabling deep learning to occur (Kalantzis & Cope, 2008).

The types of learning communities alluded to in Knowledge Hub documents have been theorised as a process of "absorbing and being absorbed by – the culture and operations of a group and/or specialism, that is, joining a *community of practice*" (Lave & Wenger, 1991, cited in Boys, 2011, p. 39, emphasis added). An effective learning community simultaneously develops knowledge, performs pedagogical processes of coming-to-know and supports personalised *knowing* (see, Barnett, 2009). Kalantzis and Cope (2008) similarly describe belonging to a community of learning as consisting of meaningful engagement with others, with content knowledge and with the *ways* of learning. All participants in the community learn better through engaging in "ongoing specialist activity with others who have varying degrees of expertise" (Boys, 2011, p. 70). Within post-compulsory education, members are engaged in a "community of practice of knowledge creation and development" (Boys, 2011, p. 70). Ideally, this community practice will blur the boundaries between 'formal' and 'informal' education, supporting and valuing both learning for later professional application and "learning for its own sake, for the development of knowledge itself" (Boys, 2011, p. 70), despite this 'inward-oriented learning' being currently under attack in universities (Barnett,

2005; 2007a; 2007b and Savin-Baden, 2008, all cited in Boys, 2011). In this way, the design imagines and anticipates the development of a climate and culture of socially-engaged scholarship, which is part of the perceived aesthetic function of the spaces.

Central to fostering a new student-student and student-staff community dynamic was the proposal to include a dedicated unstructured peer learning space for students. Places that facilitated unscheduled student study and spontaneous staff-student interconnection were limited in the previous Education disciplinary space (as described in Chapter Two). The application for Knowledge Hub articulated that an informal student learning lounge:

> can be an entirely student driven or a facilitated space. Peer to peer learning centres excel at student retention rates as they provide a community learning space for a known cohort group. For example, [an Education discipline-specific] space for its students encourages interaction between the students even if they are unknown to each other. If they are pursuing reflective study in this space and aren't sure of something, it is easier for them to ask a question of someone they do not know, as all students in the area will be studying the same course providing a commonality for increased communication. The area … allows for social learning (active, discursive, reflective modalities) in an environment that is owned and can be manipulated by the student group (*the Case*, Regional University Facilities Office, 2011, p. 11)

The social learning lounge aimed to bring together the Education disciplinary cohort to improve social interaction between students and with staff, enhancing communication and learning: "The design co-locates academic office suites with social learning spaces, which makes it easier for students to seek academic support" (Hub Architects, n.d.b, p. 5). The intent reflected a perception that the peer spaces would enable disciplinary community members to turn to each other as human resources in times of cognitive dissonance, problematic knowledge or 'disjuncture' (Savin-Baden et al, 2008).

The social space "reinforced a peer network, where teachers can drop-in" and provided a place where "extended learning can take place in an environment that replicates the classroom and provides a range of study formats" (Hub Architects, n.d.b, p. 5). The design materially "focuses on collaborative learning: 'student hubs' encourage active learning and build partnerships between teachers and students" (Hub Architects, n.d.b, p. 5). The rhetoric imagined that physical inclusions in the student lounge would lend themselves to active student-directed learning and learning 'partnerships.' Material fixtures included digital technologies such as "LCD screens and wireless internet [to] enable students to study anywhere, any time and extend contact time on campus" and also "[n]oticeboards and whiteboards [to] allow students to brainstorm projects" (Hub Architects, n.d.b, p. 5). Boys

(2011) describes university education as 'post-compulsory' learning, which is characterised by "the creative and constructive importance of the 'unstable' space between what the individual already knows and what they are learning about, as the place where new forms of thinking and doing take hold" (Boys, 2011, p. 72). The intent of the physical space and technologies anticipated that the material and human aspects of the lounge would entwine to allow students to work within this metaphorical space between knowing and not-knowing.

As previously outlined however, there is a tension in the ways students are positioned as consumers, seeking comfort in learning environments, and the ways that their learning may require them to move into uncomfortable cognitive spaces that push them into new ways of knowing, being and doing (Grellier, 2013; Kalantzis & Cope, 2008). The active student behaviours perceived as possible in the Case rhetoric contrasts with the technicist-strategic identities imagined in both national and institutional level policy discourse that positions students as consumers. Within the social learning space, minimising intellectual discomfort was indicated as part of an aim to retain students, with retention "further enhanced if the space has a facilitator (Academic presence to answer questions)" (the Case, Regional University Facilities Office, 2011, p. 11). This speaks to an economically calculated and rationalist intention in the design considerations. The maintenance of a staff presence in the space was perceived as being about retention rather than explicitly focused on enhancing the student experience, enacting unstructured active pedagogies, or supporting student-centred deep learning. Consumer positioning implies an expectation that academic needs will be comfortably met by others (human and non-human) with little effort from students themselves. This potentially contradicts and undermines the development of robust dispositions for learning – those necessary human tendencies to engage with the world through processes of 'coming-to-know' (Barnett, 2009). These dispositions include a will to learn and engage, a preparedness to listen and explore, and a certain determination to keep going forward when the terrain becomes unfamiliar (Barnett, 2009).

The articulation and physical manifestation of a value for student-directed scholarship was suggested in architectural documentation that the peer learning space was an area where learning could be made visible, reducing the risk of students feeling disenfranchised within the university. Technology was identified as a key 'enabler' of this visible learning community rather than being a 'driver' of the design, with active consideration given to:

> how to extend contact time on campus, using social learning spaces with embedded technology like LCD screens and wireless internet so students can study anywhere,

anytime, and support each other. Our research also showed that campuses can be like silos where learning happens invisibly. We brought learning out into the open and technology plays a big role in that (Hub Architects, n.d.a, p. 8)

This indicates an intent to support students' active learning process through the provision of space, technologies and peers, but also to make this learning visible. When seen, it is anticipated that these learning behaviours will become a recognisable scholarship within the learning community, shared disciplinary processes of *doing* learning and *being* educators – beginning or expert. This is entwined with the development of student professional identities and disciplinary value.

A strong disciplinary learning community requires value for the knowledges, shared learning practices, and the members that constitute the group, but also is supported by recognition beyond the bounds of the community. In a climate of disciplinary hierarchical power relations in higher education, infrastructure becomes symbolic capital able to challenge and negotiate disciplinary status within the academy. The *Business Case* (Regional University Facilities Office, 2011) constructs the building as capable of engaging in sociomaterial political action, with a voice to speak "to the community about the value of teacher education, raising the status of the profession, and attracting high achieving students to [a place] … where the scholarship of teaching and learning is valued" (the Case, Regional University Facilities Office, 2011, p. 21). The anticipated economic gains from this are described as 'unquantifiable'. This reflects a perception of the building's capacity to perform as symbolic capital for the institution and its inhabitants, circulating prestige through an aesthetic discourse that merges with practice to communicate a sense of significance, allure, and appreciation (Bourdieu, 2000 cited in Dovey, 2005). The building is therefore envisaged to stand as a material sign of worthiness, ascribing a status of significance to Education as discipline, to the community members who belong to and take up this area of study, and to the wider institution. It is clear that "[a]s an invention of the future, practices of placemaking are inherently political" (Dovey, 1999, p. 5). Space, as a sign of deeply held cultural logics, carries out its own pedagogic work to educate people about who they are and who they can be (Hickey, 2012). Space here is written as a future-creating tool for establishing and communicating a new logic where studying and carrying out the work of Education as a discipline is actively (re)positioned in the academy as valuable and worthwhile academic work.

Chapter Summary

The rhetoric of space represents fluid sociomaterial processes of meaning-making, which become seemingly fixed in text (Ball, 2016). While documents intend to deliberately shape buildings and related social practices, they often consider these as discrete entities with space causally transforming practice. It seems that what is being discursively constructed is not necessarily the physical forms or functions of spaces themselves, but the aesthetic identity and image of the institution through materialising a set of values and ideologies including modernity, productivity, competition, perceived to ensure economic viability in uncertain global markets. These values are materialised in spaces that will become marketing tools and competitive assets to the university as signs of distinction.

Broad national and institutional policy work to position space as a neoliberal technology for establishing a reputation, direct performances of 'excellent' scholarship and appeal to students who represent future economic capital. While the initial business case for the building and architectural articulations reiterated these, they also further detailed space and technologies as tools for supporting key desired behaviours, but without attention to the specific ways of thinking required for these, or the student or staff dispositions or capacities necessary for their enactment. Indeed, staff, their presence, contribution and investment into spaces, pedagogy and learning communities, were quieted in the document suite. The discursive perceptions of teaching and learning practice were simplified and homogenous 'actions' rather than sociomaterial encounters where thought, belief, ideas, technologies, action, knowledge, materials, disposition and purpose combined in multiple or shifting ways. Space therefore is rhetorically imagined as a fixed, unchanging container for learner identities which are already determined, rather than relationally responsive, "dynamic, emergent and participatory … where outcomes are not pre-determined, but open to change" (Mulcahy & Morrison, 2017, p. 751).

A critical appraisal of spatial policies and texts reveals that governments, administrators and managers, designers, and financiers - people who have institutional power - are not just assembling material spaces, but attempting to construct and sanction particular social relationships and practices within it. Benade (2017) asserts that flexible higher education spaces are "a product of a neoliberal concern with ensuring that education is relevant to the realities of the twenty-first century workplace" where "educational institutions must reflect the imaginary of '21st-century learning', which conceptualises a 'smart' worker, flexible and agile, able to make a critical and creative contribution to the workplace" (pp. 804-805; c.f.

Barnett, 2009). However, this imagined rational-technicist worker is juxtaposed with and marginalises the emotion work of the teaching profession (Acton & Glasgow, 2015) and the understanding of teaching as an ethical act (Benade, 2017). The next chapter turns to staff and student perceptions of the space, and in particular engages with spatial teaching-learning practice as 'affective encounter' (Boys, 2011; Mulcahy & Morrison, 2017), multifaceted aspects of space that are silenced in the discursive perceptions of Knowledge Hub. Connections to university spaces as places of engaged and active learning depends upon inhabitants' repertoires of feeling, and yet this domain is absent in policy rhetoric. Understandings of 'excellent' scholarship should not preclude affective elements that make learning excellence meaningful – productive enjoyment, emotional wellbeing, cognitive satisfaction, and social interaction.

Chapter 4 Speaking Space

Introduction

Following the previous chapter's examination of the rhetorical representations of space and its impacts in policy and text, I now further explore *perceptions* of space, considering Knowledge Hub's aesthetic identity from staff and student viewpoints. As the last chapter discussed, spatial policy often takes a neoliberal technical-rational approach to educational reform, which works to marginalise and subjugate personal emotions in teaching-learning contexts (Acton & Glasgow, 2015; Mockler, 2011). However, in initial interviews with both staff and students the aesthetic of the spaces entwined with scholarly processes to inspire inhabitants' emotions, demonstrated through stories that articulated a series of 'affective encounters' (Boys, 2011; Mulcahy & Morrison, 2017). The representative stories that encompass Section Two of this thesis (p. 67) suggest that in the enactment of Knowledge Hub staff and students read and interpret space itself as a text in personal, complex and emotive sociomaterial processes.

This chapter presents staff and student responses to those narratives, which conceptualise aesthetics as encompassing both the built form and its enacted educational function. Themes that emerged in the data were an entwined assemblage of emotion-space-aesthetic-interaction-professionalism-beauty-technology-worth-value. As part of an intent to respond to an omission in discursive perceptions of spatial practice, I firstly foreground the ways inhabitants prioritised emotions in recounting their responses to the new spaces, their spatialised knowledge practices and their situated collaborative relationships. Secondly, the theme of a new enacted scholarly community aesthetic, beyond the imaginings of the Knowledge Hub rhetoric, provides a sense of the changing dynamic in teaching and learning relationships within the spaces. Finally, I discuss how the aesthetic form and function of Knowledge Hub acted as symbolic capital for both staff and students, which communicated a new sense of professional worth and value for the space's occupants.

MSC Responses: Aesthetic Form and Function

The story of the significance of aesthetics in changing educational practice emerged from Phase One (2013) data in relation to both staff and student occupants. Eight of the ten staff participants referred to the beauty of the environment and its symbolic legitimation of the

discipline. These were merged to form a unified narrative about the look, feel, location, and enacted function of the spaces in relation to their work (see, p. 67). When the representative stories were presented back to participants in Phase Two (2015) this was the third most frequently chosen staff MSC, with six of the ten teaching participants nominating the narrative as a significant story of change. Three participants felt this was the overall most significant transformation from their transition to Knowledge Hub from the 'dull' buildings they had previously occupied. Recurring sub-themes in the data were identified relating to aesthetics: legitimation and value (as symbolic capital), embodied function (social interaction), proximity (which enabled productivity), and affection.

For students, connections between aesthetics, presence, motivation, work and affection were similarly common across many of the Phase One student stories. Twenty-seven student comments, collected from 17 of the 35 participants, were again entwined to synthesise a representative narrative focused on the motivating impact of the 'beautiful' and 'supportive' space for learning. When re-presented to students in 2015, the illustrative narrative of aesthetics was the fourth most commonly selected out of twelve student stories of change, selected by four of the eleven participants as being meaningful to them. Student responses to the impact of aesthetics united the look and feel of the space with transformed student presence and practice in an impossible to unravel mangle. Student stories of new attendance patterns were interwoven with emotion, relationships, the effective functioning of the space for learning and a new sense of scholarly professionalism. In this way, staff and student comments reflect the ways space is read as text, and this reading entwines with and emerges through enacted social practices. The common themes from both staff and student are assembled and presented in three areas: situated emotions, collaborative professional scholarship and space as legitimating their disciplinary work.

Emotive Aesthetic Encounters: Learner Identities beyond a Technical-Rational Self

Evident in participants' perceptions of space was the primacy of material form and function to invoke feeling in both staff and student users of Knowledge Hub. Boys (2011) highlights spatial occupation as affective encounter, central to learning and the development of personal understandings and identity. In the enactment of teaching work as 'affective practice' in innovative learning environments, staff "are caught up in intensities of feeling" in relation to their spatial practices (Mulcahy & Morrison, 2017, p. 753). The capacity of the space to inspire feelings of pleasure, pride or enjoyment was recounted as one of the reasons why the

stories of aesthetics were important signifiers of sustained change. Affection for the building due to its aesthetic qualities was often tangible through descriptions of love and appreciation for the space. As a staff member, Nel felt that the story of aesthetics "is very pertinent. I think students really appreciate the building. I think we [staff] appreciate the building as well" (Staff Interview #6, 2015). In agreement, Nay stated, "it's great to be in this lovely new building" (Staff Interview #10, 2015).

In Hal's words, who compared the new space to work places he had experienced in other universities, over the two and a half years of occupation the building had become:

> the best place I've worked. By far. And a lot of that has to do with the aesthetic of the place. I like aesthetics … and it makes me happy to come to work … so the aesthetic part of it is - I just can't get that out of my mind. I like the openness (Staff Interview #7, 2015)

The 'openness' of the space was similarly a feature in Cal's selection of this narrative of change, inseparable from how this enabled positive interactions and affected people's emotions. She stated:

> that sense of light, the sense of space … it has got something to do with interpersonal relationships, because if you look at the lecture theatre … You can see everybody, you can get up close to everybody, and there's not people sitting in the dark. You know – because it's got that lightness about it? I think it does – it puts people in a good mood and I think it does promote interaction … the aesthetic thing is important (Staff Interview #9, 2015)

Four participants repeated the phrase "it feels modern and exciting" in a variety of versions, from Tia stating "it does feel modern and exciting" (Staff Interview #1, 2015) to "yeah, it does feel professional, modern, exciting. I tend to agree with that one" from Tes (Staff Interview #5, 2015). Hal agreed that "it just feels modern and exciting" (Staff Interview #7, 2015) as did Nay: "it is exciting" (Staff Interview #10, 2015). The enacted sense of 'modern' educational architecture ascribed in the EIF (Aust. Gov., 2008) was more emotive than technicist. Rather, the aesthetic sense of being in a contemporary and vibrant space contributed to enjoyment of professional work.

Feelings, and consciousness of affective responses, are particularly important in pedagogic work. Teaching is an emotional labour with emotions, emotional responses and emotional intelligence inseparable from teachers' working relationships, whether with students, colleagues or leadership (Acton & Glasgow, 2015). Indeed, emotion work is a fundamental element of effective educational practice (Ball, 2003; Boys, 2011; Connell,

2009; Hebson, Earnshaw, & Marchington, 2007; Mockler, 2011) inextricably connected to understandings of teaching as a caring profession, however it had traditionally been marginalised in education contexts (Boys, 2011; Kenway & Youdell, 2011). Relational work that supports, invigorates, and encourages positive emotions is foundational in establishing and sustaining professional flourishing in teaching and learning (Acton, & Glasgow, 2015). Staff noted the connection between learning spaces, relationships, staff and students and positive emotions as an enabler to greater enjoyment of professional work.

A relationship between spaces, emotion, personal interactions and mentality was correspondingly clear in student responses to their narrative on aesthetics. Finding pleasure in the space was not uncommon in explanations of why the story was significant. Kat, who "hated going" to the previous campus, commented, "I love, love, love our lecture room that we got built. It's my favourite thing. That and the [tutorial] room" (Student Focus Group #4, 2015). Rae said, "I'm more likely to turn up at uni if it's going to be [Knowledge Hub] … It's like, I really love that space" (Student Focus Group #4, 2015). In a separate interview, Mel stated:

> I don't study at home because I like this space so much … It's neutral enough that I can sort of gather my thoughts and hear them. But it's interesting enough with the colours. But the symmetry of everything, it also helps my mind because there's symmetry on the wall, there's symmetry on the ground, so there's symmetry in my mind. It's a nice space to be in. What is it? Tidy space, tidy mind? That type of thing
> (Student Focus Group #3, 2015)

The influence of aesthetic beauty, harmony and symmetry as creating a positive affective response in students was evident (as also noted in Souter et al., 2011), and reflects an "immediacy of embodiment and experience as fully integrated and situated corporeal and cerebral engagement with the world" (Boys, 2011, p. 34). Reminiscent of Dewey's (1934) conceptualisation of aesthetic encounters as appreciation in everyday experiences, the space manifests this absorbed embodied learning state *with* the student. While policy spoke of the space's potential to attract and retain students, experiences like Mel's give insight into the intricacies of why and how this is manifest.

Aesthetic enjoyment of the social learning lounge and a new ability to be and work on campus beyond structured class time was strongly entwined with affective enjoyment of study. Kat felt that the peer space "changes your mentality and makes you feel – I would agree with that. Like I feel safe when I come here … If this was [accessible] 24 hours I would be here" (Student Focus Group #4, 2015). The interactions that the space facilitated were

often explicitly linked with feelings of affection toward the spaces; as Tan later commented, "I think that for my personal experience it has changed my mentality to come and actually interact with other people, and it is a very supportive environment as well compared to [our previous] campus" (Student Focus Group #4, 2015). Rae's thoughts were similar, "I love interacting particularly when it's only Ed. students, but I love that feeling to be at a table and going, 'You know what, I want a break. Oh my friend's over there' " (Student Focus Group #4, 2015). These affective encounters contributed to an increased student presence, demonstrated in Kat's sense that "we practically live here … because it's a good place to be. It's a good place to work. I feel supported when I'm here" (Student Focus Group #4, 2015). Similarly, Mel, in a separate focus group, recounted that:

> I never study at home … [a friend] and I spent three weeks straight here in that end room doing four assignments and we will be here all next week because I prefer being at uni to being at home for studying … I found since I've been doing assignments here, like, I've always enjoyed assignments. I've always enjoyed, you know, being enrolled in Education because I enjoy it Student Focus Group #3, 2015)

Taken collectively, these comments suggest that aesthetic considerations can support a 'flow' in student learning, ensuring that, when spaces are satisfying in both form and function, students are able to be absorbed in learning activities, physically and mentally (Boys, 2011; Souter et al., 2011). This presence and enjoyment of the learning process as well as the disciplinary content knowledge demonstrates active and embodied dispositions for learning, including a will to learn and a will to engage (see, Barnett, 2009).

While emotive aspects may be "implicit, vague and often un-acknowledged" in considerations of space and its occupation, they are also essential to learning as "high-level cognitive abilities, which monitor, interpret and guide us through our encounters with ideas, objects and spaces as well as others" (Boys, 2011, p. 34). Boys (2011) further stipulates that affect is evident in thinking/reflecting and doing/practising, conceptualised as twin, merged processes that are present when a student is in a state of flow. These "affective engagements are vital to learning, because they are a form of thinking through doing; part of our ongoing creative processes of intersecting what is known with what is not, so as to investigate what might be" (Boys, 2011, p. 34). As Mulcahy and Morrison (2017) state, "space and learning are made *with* practice and *through* negotiations of various kinds (social, material, affective)" (pp. 756-757). These aesthetic encounters as emotion moments are woven throughout staff and student discussion of each space, often tangible in response to the enacted function of the learning spaces. This pleasure in, from and for the space, deeply connected to enjoyment of

the work and social interaction with colleagues was further entwined with the emergence of a new sense of scholarly professionalism in students.

A Cohesive Scholarly Community: Enactment Beyond Aesthetic Image

Students' explanations of why the story of aesthetic change was important to them, reinforced by staff comments, primarily focused on the experience of changes within fundamental relationships within and to their learning spaces. These were described not only in terms of social relationships with peers and staff members, but also their relationships to their work, their chosen discipline, their understandings of embodied scholarship and professionalism, and, in one case, the institution itself. I discuss each of these in turn in the following section. A professional scholarly community aesthetic is understood here to be founded on 'belonging' and 'transformation' as two fundamental conditions for a paradigm of learning that "allows you to be yourself. But … also creates conditions in which you can become more than yourself" (Kalantzis & Cope, 2008, p. 233). This aligns with Kincheloe's (2003) assertion of a necessary critical ontology for teachers with an orientation to an ongoing process of reflective 'becoming' and Barnett's (2009) understanding that:

> the process of coming to know has person-forming properties … knowing has implications for becoming … [and] those implications may be understood in terms of the formation of the dispositions and qualities of the practices in the different fields of knowledge (p. 435)

According to Kalantzis and Cope (2008), belonging to learning is founded on participation and inclusion across three areas: the learning ways (or the *processes* of *doing* learning (Boys, 2011) and coming-to-know (Barnett, 2009)), the learning content (disciplinary knowledge) and the learning community. The processes and practices of teaching and learning reflect embodied ways of knowing, belonging and becoming and these are affective, collaborative and discursive. These practices of belonging to learning are established here and are elaborated further in Chapters Seven and Eight.

Changing peer relationships. The function of the space to foster effective peer learning relationships was highly valued by student participants. After the spatial transition to Knowledge Hub, Mel described herself as engaging frequently in collaborative study for long periods on campus. She particularly valued the space's ability to gather people with a shared purpose. This was pivotal in enacting positive learning relationships:

I like the space because there is nothing else to do here. You're here to do one thing. There's other like-minded people here – as much as there are dickheads – they're doing the same thing. Yeah, there's like-minded people. Especially in the past few years when there's people in the higher grades and if I knew them I could ask them, because they were there, they're accessible as well, and I think that's probably the thing that I like about the space, it's purposeful and it achieves its purpose. I wish there was more of it, I wish there were more individual rooms (Student Focus Group #3, 2015)

This narrative remembered key themes from the initial focus groups that spaces dedicated to a collaborative disciplinary community were appreciated. This shared sense of purpose enabled relationships between peers studying at the same level, but also with peers in 'higher grades' who could help to clarify concepts as experienced 'more capable others' in the field (Dimitriadis & Kamberelis, 2006; Kalantzis & Cope, 2008; Vygotsky, 1978). It also exemplified the rhetorical intent of the *Business Case* (Regional University Facilities Office, 2011) and architectural documents outlined in Chapter Three that the space aimed to bring together a cohesive scholarly student-staff community and extend opportunities for interaction, questioning and support due to their common discipline. The experience of this communal purpose and collective interest in learning had flow on effects to others' emotions and achievement. As Mel recounted, a friend she frequently studied with "said she's never, ever done as well at uni until she met me because she realised how excited I get about things and now it's exciting her about things … then we all do well, yay" (Student Focus Group #3, 2015).

The importance of peer relationships as essential to meaningful, situated learning was also highlighted in Rae's comments. In an extended narrative, he captured the entangled nature of self, social relationships, space, materialities, learning, motivation, embodiment, retention of information, care for others and collaborative achievement. He reflected:

I don't know about other people but with me surprisingly socialisation is part of my identity. I feel like it's very important to make friends and connections in order to motivate me. If somebody says 'I'm doing this sum now, you should come and help me', I'm much more likely to turn up, than I am going, 'I'm just going to do it myself in my own time when I can.' If somebody says 'We're in this together', I'll remember that till the end of uni. I'll remember more the group work and the working together than I will at home in my underwear trying to get something done, and I think it's because of the space. *Why the space is important to me is because it allows the socialisation to happen, and the socialisation then makes me feel intrinsically motivated to turn up* because without my friends I'll just go, 'Well nobody likes me. I'm done. See you later. I'm going for a nap.' Whereas here it's kind of like, no, we all care about each other and you notice if someone's behind. *We make the weakest*

player as strong as the strongest player ... So the space is really important. I think why it's important is for collaboration (Student Focus Group #4, 2015, added emphasis)

The notion of belonging to a community where '[w]e make the weakest player as strong as the strongest player' was reminiscent of Vygotsky's (1978) pedagogic theorisation of the social nature of learning. The statement exemplified the understanding that social relationships are integral to learning within the Zone of Proximal Development (ZPD), where, collaboratively, learners are able to extend beyond what they currently know, and achieve more than they could individually thanks to 'more capable others' (Dimitriadis, & Kamberelis, 2006; Kalantzis, & Cope, 2008; Vygotsky, 1978). As Kalantzis and Cope (2008) argue, if cognition is understood as a social and situated act, then "the most powerful learning is social rather than individual" (p. 154). The affective domain of learning is again implied here; its power seems to rest on an emotional-ethical care for others in the community and their learning. This enhanced sense of caring between peers within a scholarly community was present in Kat's comments as well:

> you notice when people aren't here and you go check up on them too … Because it's made it that you're aware who's in your degree more so. Like even when you go to the lectures and that, but you sit up here and study and you'll be like, "Gee I haven't seen [Lea] in a couple of weeks. I wonder where she is" and you just go out of your way to see if they're okay. Like you just send them a message or something. Just you know, "Haven't seen you in a bit. You struggling? Do you need some help?" Yeah, "Are you dead?" That's the common phrase. "Did you die?" (Student Focus Group #4, 2015)

This relational belonging, and sense of shared accountability to and responsibility for each other as co-learners in a social learning environment (Wenger, 2011), motivated students in terms of both attendance and learning, and contributed to strong sense of connecting to their place of learning. Distinct from the prior iterations of peer learning relationships experienced in their previous learning spaces, this shared disciplinary community now also included staff. This community created a strong basis for purposeful collaborative learning, as will be explored further in Chapter Seven.

Staff-student relationships. Relationships between students and academic staff members in the traditional 'spread out' and 'hidden' spaces of the previous campus were described as superficial, distanced and regimented. Remembering her previous encounters with staff, Tan said,

I don't recall ever seeing my lecturer out and about … I recall them coming, doing the class and then going back to – I think the Law building – wherever their office was … I feel that [now] we can just come to one place, everything's here. Like, hand our assignments in here. If we have any questions – they're here. Our professional experience coordinators – they're here (Student Focus Group #4, 2015)

Of note is the fact that staff offices were not situated in the Law building, but were co-located above many of the formal teaching spaces students formerly attended. This story is repetitive of similar versions recounted by a number of students in the first phase of data collection who similarly had no awareness of where staff offices were on the previous campus. Staff were hidden by physical distance and multilevel buildings with no signage. This rendered them invisible to students and functioned as a barrier to spontaneous question asking, or to personal interactions with staff outside of scheduled and structured classroom time. Traditional spaces in universities divide teachers' and students' areas in a way that "typifies an authority structure and power relation that undermines the creation of the more collaborative learning communities" (Jamieson et al, 2000, p. 224). The materiality of the prior campus functioned in ways that maintained hierarchical and distant power relations between staff and students and which discouraged attendance outside structured learning sessions.

Comments regarding changed attendance patterns, also hinted at the earlier relationship between lecturers and students. Kat thought that the new space:

definitely changed my drive towards uni because I didn't want to come here [before]. I would skip classes. Sometimes you'd wake up for class and you just wouldn't even go. You'd go, 'Oh I have to go see this lecturer. I'm going to this class' … I used to not want to be there that much. I used to turn up for attendance and say 'I have to go to work' and I used to leave. I hated going to [the previous campus] that much but you needed attendance in [one subject] … That's what I used to do and if you look at me now you're like, she wouldn't do that. I come now and we're here all the time
(Student Focus Group #4, 2015)

While noticing the way the new spaces had contributed to transforming her attendance patterns, Kat's narrative also indicated the previously existing formal and detached relationship between students and teachers. This was based on the selective performance of perfunctory actions to meet sanctioned requirements set by teaching staff (taking attendance), rather than meaningful or deep engagement with teachers, or learning. Biggs and Tang (2011) note that students may carry out superficial 'studying' behaviours without actually engaging in deep reflective learning. Neoliberal ideologies foreground these technicist accountability metrics above notions of professionalism (Ball, 2003). Kat describes both her presence and

engagement as changed over the course of her studies, that nearing the end of the degree she has travelled far from the first year student who would skip class and only attend to be marked as present on the roll. In Barnett's (2009) sense that knowing and becoming are related, through her studies she has both come-to-know more about education, and come to *be* a new professional self, who 'wouldn't do that.'

Both mirroring and elaborating this interpretation, Rae reflected on the previous distance between staff and students and the way he felt it informed staff perceptions of students. He surmised that:

> I think it's because it's very easy when you're not around something to make it more of a negative image for yourself. So if you're not around students all the time you're going to go, 'Oh students, they're awful. I don't want to interact with them. I just want to stick to my research' … I'm not saying they're wrong to think that or anything like that, but I think that [previously] the space allowed them to be so isolated - like Azkaban-esque … it allowed them to have their own opinions. It's hard to explain, but when I went there [to the previous campus] people were not as approachable … they're always there in their own space talking to their own staff. That's all they talk to all day. They don't talk to students. I think they look at [the prior] campus as a little bit of kind of *looking at students as case studies rather than people*, and that still happens with some lecturers here but at least here there's more encouragement for them to go, 'well hang on. They're in your face every hour of every day' (Student Focus Group #4, 2015, added emphasis)

In Rae's mind, it seemed that the previous spatial separation of staff and students was pivotal in authorising a de-personalised, and perhaps de-humanised, learning relationship. An insular staff community was able to perpetuate and maintain an unchallenged and false image of students as 'awful', and this in turn potentially fostered a commitment to further avoid them. Unseen students, it appeared, did not need to be prioritised in their workload. Rae interpreted that it was previously easier for staff to ascribe negative stereotypes and labels to invisible students; in contrast the new spaces provided an opportunity for these to be challenged by prolonged student presence. This new 'every hour of every day' on-campus existence in Knowledge Hub's social learning lounge acted as visible demonstrations of a dispositional willingness to engage in learning beyond scheduled teaching sessions and provided an insight into their enacted scholarly efforts, therefore allowing more nuanced understandings of students and their scholarship among the community.

Hattie (2011) found that the *visibility* of student learning to teachers was a key factor in enhancing student learning. While Hattie's work focuses on a school context, Ellis & Goodyear (2016) assert that there are ample parallels between teaching in both environments

to make comparisons useful in spatial investigations. The best strategies to enhance student achievement noted by Hattie (2009) were the provision of clear learning intentions and goals for success, and the use of multiple strategies to emphasise student perspectives, particularly those that allow students to demonstrate metacognition and engage in student-regulated learning. While Hattie's meta-analyses focused on synthesising empirical evidence of formal in-class learning gains, it seemed that within Knowledge Hub the social spaces offered unique opportunities for students to make visible to teachers their scholarly work, their self-regulated learning and their thinking about thinking (metacognitive work) to meet set learning intentions and goals.

As a staff member, Nel also commented on the previous professional isolation. Responding to the aesthetic MSC narrative she described the new closeness to others, particularly to students and other sections of the university, as important:

> I think having a nicer building, where you are close to everyone and close to the students, I think that's nice. Having the [eatery] or that café down there is also good. Being able to walk to the library quickly if you want to, being able to go just around really quickly, that's also good. So I guess for me personally, that's probably been the most significant effect … Because you are less isolated as an academic, and I think this job of an academic is a very insular one (Staff Interview #6, 2015)

Being co-located with students and other elements of the university permitted connectedness with others and other's spaces, combined with a previously unfamiliar ease of movement. For Nel, it seemed this proximity contributed to supportive collaborative interactions, which reflected a new, connected professionalism. This relational professionalism was similarly valued by Hal, who commented that "I think the building is lovely … I feel that the building we're in is a very positive environment … the building itself, physically and aesthetically contributes to professional, informal professional interactions" (Staff Interview #7, 2015). Extending beyond 'insular' and formal professional orientations is particularly important in an era where the skills required for work in a post-industrial, and often automated, context are deeply interpersonal (Kalantzis & Cope, 2008). In this context, the capacity to collaborate with colleagues who have different skills and experiences in a simultaneously teaching-learning relationship is essential (Kalantzis & Cope, 2008).

Engaged scholarship as professional practice. For students, the described improvements in attendance, with increased motivation, visible engagement in peer learning outside class hours, and more meaningful relationships with teaching staff demonstrated a transformed

scholarly approach to learning in the new spaces. This signalled a new relationship with learning and with their chosen profession, a 'belonging to learning' that embraced the ways, content and community of their discipline (Kalantzis & Cope, 2008). Considering his previous experience, Rae described that "with [the former] campus I felt that it was very tokenistic in terms of you show up to get it done. To put a tick in the box … You show up, get it done, go home" (Student Focus Group #4, 2015). In contrast to this technicist-strategic approach, he described himself as now having a new and professional 'job' mentality, inseparable from Knowledge Hub, where:

> I feel like when I turn up to this space I treat it like a job. I turn up. I distract many people sure, but I turn up and I do the work … It's the mentality of being able to sit down, pull open your laptop and feel like you're at a job, because the way the environment has been set up is 'we want you to do the best you can do'. You feel like you're in a job. You've got the option between having anti-social spaces and social spaces because it's like 'We will accommodate for you. What do you want to do? Do you want to treat this like a job? Do you just want to go home?' I think it's a lot easier at [the former] campus to go, 'I'm going home. I'm not going to socialise.'
>
> (Rae, Student Focus Group #4, 2015)

There were tangled ideas inherent in this narrative of why the aesthetic of the new spaces were important to Rae. The space became a material semiotic sign that spoke of underlying institutional support and encouragement for success (an invisible but tangible 'we' who wanted him to 'do the best you can do').

The implicit voice of the university was further evident in the elaborated personification of space, with space demonstrating an embodied capacity to ask questions, invite action (and, equally, inaction and avoidance) and offer particular learning choices. These affordances encouraged him to be personally responsible for his own learning in the way the space offered, and *inherently valued at the institutional level,* possibilities for enacting scholarly processes aligned with his own learning preferences and dispositional willingness to engage in learning at that moment. This signalled an interconnected revision of his relationships both with professional work and the institution. Hickey (2012) considers that built environments exist in two senses: artefacts that materialise purposeful intent and aesthetic characteristics, and symbolic transmitters of value, ideologies and practices. In this way, spaces work pedagogically, concurrently teaching us who we are and who we can be in a responsive process. There is an "extraordinary and intimate relationship between knowing and becoming" and through embodied and reflective engagement in processes of coming to know students may "become a new self" (Barnett, 2009, p. 435). As Rae took up the space's

discursive invitation to certain professional behaviours, he not only learnt disciplinary knowledge but also became a new professional self, with a new mentality willing to engage in prolonged scholarly practice.

The new visibility of student scholarship as evidence of student professionalism was also a focus for staff. In a narrated an example of why the story of aesthetics was important to her work, Tes described students' feelings about and within the space as inextricable from the aesthetic of the space. These were similarly perceived as affecting students' mood, presence and work. She recounted that:

> with the space and technology, it is how learners feel in that space as well. So, do they want to be there? So, for an example, last semester, [the room I taught in] was an aesthetically pleasing place, it's a comfortable place, the temperature was right – they'd ironed out those issues. So, the students just actually used to go in there. They knew it was free an hour before, so they would just – they would frequently appear, about a handful in there, for the whole hour before, just discussing. Because *I'd see what they were doing, they were actually working on the readings or the preparations* for what we were going to do just following. So I guess they wanted to be there; it felt good to be in that room. At [the previous campus], you had no notion that they would have come an hour before and hung out. That wouldn't have happened (Tes, Staff Interview #5, 2015, added emphasis)

Her experience connected the students' feelings of comfort and aesthetic appreciation to an increased presence on campus. Further, they represented another example of students' collaborative engagement with learning materials outside of formally structured class time that was now made visible to teaching staff. This suggested an alignment between the design, furniture, and fittings of the space with the purposes of the students, but also further demonstrated an explicit student professionalism through embodying dispositions of preparedness to explore, and willingness to engage (Barnett, 2009).

These spontaneous encounters with learners and student learning challenged the previously imposed academic and student isolation. It changed the way lecturers saw students as scholarly, transformed the ways students thought about themselves as professionals, and allowed both to come together and become an active, cohesive collaborative disciplinary community. Making visible the professional learning behaviours and orientations of students *outside of scheduled time* was supported by providing spaces that transverse the traditional physical barriers and divisions between teaching academics and students. Affective politics exists in the interactions between bodies (Mulcahy & Morrison, 2017). In these examples, where students, staff, learning, classrooms, and content knowledge came together, traditional hierarchical patterns of teacher-student interaction were able to be challenged and power

dispersed through the visibility and recognition of certain students' engaged professional behaviours.

Similarly demonstrating scholarly behaviours appropriate as both learner and teacher, Tan described her experience of a new understanding of embodied professionalism. She reflected on the differences in her professional behaviours, interrelated with the space, her knowing and coming-to-know, and with her lecturers to state:

> Yeah, and I think it made me a better professional as well. How I engage with other professionals and academics – because that's what we have to do in our profession [as teachers] as well. We have to engage with them professionally and I think that also makes an impression on your lecturers, because I know when I walk up to [my lecturer, Lee] if I'm not being professional then okay so we're just talking, but if I go up to him and ask, "I need help with this. How do you suggest I work around it?" Then he will talk to me in a different manner. *Like I'm an equal as well. So I feel that's the most significant* (Student Focus Group #4, 2015, added emphasis)

In practice, the social learning lounge had fostered multiple types of discursive interactions with staff (from 'just talking' to 'professional' conversations). This had led to an explicit consciousness of the ways that speaking about subject content, sharing cognitive disjuncture, and working together on coming-to-know demonstrated 'equal' belonging to the scholarly community of practice, where students and staff were joint professionals collaboratively clarifying understanding of a concept.

Rafferty (2012) found that staff-student conversations in outdoor learning spaces had similar effects on discursive interactions. Once learners were beyond the rigid bounds of traditional formal classrooms, with their familiar and historically constructed conversational patterns, learners more readily asked questions and directed their own learning experiences. Rather than being confined to structured classroom spaces, what learners know and what they can do (and who they are becoming) seemed to often be made visible outside of formal learning areas, where students demonstrated engagement and collaborative scholarship as valued professional behaviours. This new sense of a strong and valued collaborative professionalism, performed spatially, justified why the aesthetics of the space was important to students and staff.

Legitimation, Worth and Value: Aesthetic as symbolic capital

Pleasure in and appreciation for the aesthetic form and function of the spaces contributed to an experienced understanding of Knowledge Hub as a symbolic capital that legitimated

disciplinary work. For Bourdieu (1986), 'capital' refers to all resources that can confer and reveal status, and while these may include economic or material assets can also relate to social and cultural resources (see also, Dimitriadis & Kamberelis, 2006). Particularly for staff, the more centralised physical place of Knowledge Hub also represented a new metaphorical place in the landscape of the university that reflected an improved status. Location was identified as a resource. A more connected, centralised location that was in proximity to the rest of the university was integral to feeling valued as members of the institution. Staff member Nay suggested that two storied statements best surmised the substantial effects of the transition to a 'lovely' new space and a central location:

> 'students feel a bit special too being in such a nice, new building' and I think 'legitimising education as a worthwhile discipline.' I think it's those two ideas in that we aren't relegated to the fringes. *We've got a building that values us and values our students, so I think that's what it's about* (Staff Interview #10, 2015, emphasis added)

Dovey (1992) found that location and distinctiveness in built spaces are pivotal contributors to a building's symbolic capital, with the assertion that "[l]ocation generates symbolic capital; places embody power" (p. 179). The new centralised location, no longer on the periphery of the institution, in tandem with the unique design of the space, combined powerfully to signify a new, more valued position for Education students, staff and discipline within the institutional hierarchy.

This inherent worth seemed reinforced by external recognition of the building, which further contributed to a sense of pride and feeling fortunate. Tia said, "this building, when you tell people where you work, they're like, 'You're so lucky to have that lovely building' " (Staff Interview #1, 2015). Nay also highlighted the acknowledgement and appreciation their workspace had garnered from people outside the institution, saying "we've had a few academics visiting [from other universities] and they've all come through this space and have said how amazing it is to be working in such a beautiful space" (Staff Interview #10, 2015). The space as symbolic capital (Bourdieu, 1986) communicated a new value for disciplinary community members and for the work of teaching-learning within and beyond the bounds of the institution. This in particular exemplified the intent of the *Business Case* (Regional University Facilities Office, 2011) that the building would act to communicate the value of teacher education, raise the status of the profession, and value the scholarship of teaching and learning. In effect, the space, its enactment, its aesthetic and others' perceptions functioned to legitimate the discipline of Education and spoke to a position of status within the academy.

The aesthetic of the spaces contributed to similar feelings of worth for students. Kas stated, "the environment just looks nicer. I think that makes all the difference. It's amazing what colour can do, hey? It can make you feel nice or valued" (Student Focus Group #2, 2015), while Shi added, "I think it's like we feel, like, you feel more included in the university not like as a separate learning part over there" (Student Focus Group #2, 2015). In its function as an indicator of symbolic value, the importance of sustained attention to the aesthetic dimension of the building was noted in comments that considered the ongoing maintenance of the spaces. Cal questioned,

> Sometimes I go into [a space] and it's all messy. I think, 'How long is this building going to stay in this condition? How long is it going to stay this lovely 'new' building?' And you know … I would have asked about how they were ensuring that the building does stay as a showpiece. Because you can see little cracks here and there (Staff Interview #9, 2015)

Similarly, Tia noted,

> It's sad when it doesn't feel like it's been completely maintained. It's like letting down the new building space. Such as, like if things get dusty or if a light blows in a space where it's too hard to change, it doesn't get changed. So those sort of things make it [the building] sad (Staff Interview #1, 2015)

These comments reflect an overarching narrative that connects attention to, and care for, aesthetic beauty and the efficient and effective function of space as demonstrations of the university's care for the users of the space, their work, and their discipline area. As Hickey (2012) posits, space acts as a semiotic sign that educates regarding our place in the world. It speaks to the position of occupiers within the broader organisation as one of visible worth and signifies value to people outside the immediate institution. While the Business Case (Regional University Facilities Office, 2011) positioned space as politically agentic and able to value Education as a worthwhile discipline, staff read the space in a way that indicated this required continued investment to ensure the cleanliness and maintained 'new' aesthetic of the space. While documentary rhetoric conceived of the building's aesthetic as a marketing tool and technology of reform, staff and students read and valued the spaces as complex enactments of aesthetic-space-beauty-function-people-practice-emotion-worth.

Chapter Summary

In the case of Knowledge Hub, staff and students discursively interpreted spaces for learning in multifaceted ways. While national and institutional policy often assumed causal impact and perceived space, technologies, staff and students as discrete entities, inhabitants' interpretations and experiences suggest that innovative learning spaces exist and function in the relations between organic and non-organic participants. Understandings of embodied emotion, scholarly community connection, and disciplinary legitimacy and worth demonstrated the perception that for staff and student respondents practice-space-students-affect-affection-community-staff existed as an inseparable assemblage. Pedagogic work was not solely the domain of teaching academics. Students became educators of other students and were repositioned as teachers who (perhaps unconsciously) educated teaching staff about their professional capabilities. In addition, space itself became an educator. Knowledge Hub communicated several of the intended values and ideologies contained within institutional and architectural documents, particularly in relation to inviting social professional practice and in terms of the worth of the discipline.

The space functioned aesthetically in-practice with staff and students to enact community connections, professional scholarly orientations, and to teach them about their position and value within and beyond the institution. The perceptions of these Knowledge Hub staff and students invite an understanding of the aesthetic of space beyond that of a superficial, marketable image for technical-rational workers. It moves instead to a knowing that perceives space in terms of its embodied aesthetic function, which in the relations-between (Massey, 2005) becomes able to invoke emotive belonging to place, people, learning practices and a sense of professional worthiness. Space is infused with symbolic meaning and is neither neutral nor apolitical. From this perspective, institutional attention to aesthetic beauty, to detail, to the meaningful combination of spatial form and function operates to symbolically signify value for a constellation of people, professional work, their relationships and their happiness.

Section 3 Pedagogic Practice

> Teaching in the new building gave me a chance to rethink some things around space and technology, especially the collaborative tutorial room and the lecture theatre because they're very different spaces and offer different opportunities. I'm more aware of 'Is there something I can do within the space that's going to be beneficial?' But I think it's less of a transformation or change in my approach, it's more of an adjustment in my teaching. So even though I always tried to focus on facilitating student learning with discussion and active learning rather than standing out the front and delivering material, I do think the new spaces help shift you out of complacency and out of the same mode of teaching all the time.
>
> Staff MSC 2013

> A big change is the facilities encourage technology use. I actually bring my laptop from home more now because everyone's got a power point now and Wi-Fi. I guess with the classroom technologies too, we're supposed to use them in our future teaching and here we get to see how it can all be used. I'm really grateful for that. I feel more comfortable now going in a classroom and using any type of technology because I can see it getting used in here and so you know how to do it. My technology skills have improved using the computers or the big screens, calibrating the pens in the tutorial room and presenting using the technology. That would probably be a big positive.
>
> Student MSC 2013

As discussed in Section Two, the learning spaces of *Knowledge Hub* are textually constructed as 'transformative' to teaching practice and the student experience, enabling productivity, performance and excellence. In light of these representations, this section considers the physicality of the 'innovative' spaces assumed to impact teaching and learning, paying particular attention to aesthetic function. *Pedagogic Practice* here, as an entangled part of the perception-practice-place triad, refers to built space and its function, thinking about the *materialities* of infrastructure to deliberately foreground the spaces and things that are involved in the knowledge practices of teaching and learning (Mulcahy, 2013). Dovey (1999) also considers spatial syntax in thinking through the physicality of learning spaces. While this does not reflect or imply a 'neat' or contained category, it does orient thinking in a way that acknowledges teaching and learning as spatialised material practices. A focus on *materialities* also reflects on spatial dynamics, including embodied knowings, and the bodily capacities of inhabitants to wander, learn with others, and move to find a suitable space for learning

(Mulcahy et al, 2015). The strength of thinking through the enacted materialities of educational practice with a sociomaterial awareness is to simultaneously consider the relations between space and its enactment, illuminating the connections between intent, agency, materialisation and enactment. This speaks to an omission identified in the literature on learning spaces (see, Blackmore et al., 2011; Cleveland & Fisher, 2014; Lee & Tan, 2011).

The section is divided into two chapters that consider different elements of pedagogic practice. Chapter Five presents an exploration of teaching practice and learning experiences in the formal lecture theatre and tutorial room of Knowledge Hub using quantitative and qualitative data. Chapter Six follows with an exploration of student and staff experiences of the materiality of teaching and learning through responses to the MSC stories of pedagogic continuity and technology use. While staff and students describe 'adjustments' and a new ability to learn and collaborate through technologies, the thread of continuity flows as an undercurrent in these discussions. It seemed that the new space enabled practices that were imagined but remained dormant in the previous spaces due to the spatial and technological limitations. In effect, Knowledge Hub materialised and 'caught up' with staff pedagogic philosophies and student desire for user-friendly and professional technology support.

Aesthetic Function

This section works with an understanding of 'aesthetic function', conceptualised as the ways staff and students acknowledge space as functioning to support pedagogic practice. Aesthetic appreciation, as part of everyday experience (Dewey, 1934; Dimitriadis & Kamberelis, 2006) encompasses recognising and taking pleasure in the ways space demonstrates 'fitness for purpose' (Souter et al., 2011). Appreciation for the ways space and technologies performed in alignment with teaching and learning ideals and goals (and frustration for the ways it did not) was frequently evident in staff and student comments. These illustrate that the functional aesthetic of learning space, as part of assuring student-centred, collaborative and active learning (Souter et al., 2011) and as broader than the superficial or constructed image of a space, is essential in considerations of the nuances of spatial teaching and learning practice.

Chapter 5 Spaces for Learning

Introduction

With a focus on the *materialities* of pedagogic practice, this chapter considers the performance of two of the formal teaching areas in Knowledge Hub: the interactive lecture theatre and the collaborative tutorial room. The guiding question for this chapter contributes to the overall intent of the research to illuminate the intersections and subtleties of enacted space:

- What pedagogies are being performed in Knowledge Hub?

As an introduction to the entwined presentation and analysis of the data, I begin the chapter with a summary of descriptions of 'innovative' physical spaces for university learning in the literature, synthesising commonly espoused principles for design. These understandings then guide my consideration of the material specificities of the lecture theatre and the tutorial room. A mix of observational, interview and focus group data illustrates the in-practice pedagogic functioning of the two structured formal learning areas, which divert from the traditional learning designs experienced in the previous 'aged' and 'obsolete' spaces.

Physical University Spaces: A summary of principles for learning

On-campus learning spaces in contemporary university landscapes, as plural and defined by the "entire student experience" (Keppell & Riddle, 2012, p. 1), range from formal to informal learning environments. Formal, structured learning spaces might include lecture halls, seminar and discussion rooms, laboratories or studios (Oblinger, 2005). In an 'innovative' space, these rooms are likely to have movable seating, reconfigurable or rounded tables to allow for peer discussion and movement, and access to the Internet to afford opportunities to readily access information, and support blended educative methods. Technology is often embedded in these structured learning spaces to support and enhance a student-centric approach, while also allowing for traditional modes of teacher-directed lecturing and instruction (Dane, 2010; Radcliff, Wilson, Powell, & Tibbetts, 2008).

Informal spaces include (but are not limited to) deliberately designed innovative, flexible and comfortable areas for unstructured student study, which "act as a medium through which the social and the academic aspects of university life can coincide" (Matthews, Andrews, &

Adams, 2011, p. 107). These are likely to be fitted with couches, large screens to enable collaborative peer work, movable tables and chairs, access to power, Wi-Fi and writable walls (large whiteboards or coloured glass panels). These social spaces have been found to have a considerable influence on student learning, retention and the development of learning communities (Matthews, Andrews, & Adams, 2011; Radloff, 1998, cited in Jamieson et al., 2000; Wilson, & Randall, 2012). In addition, outdoor learning space has been identified as particularly useful for encouraging diverse interactions between teachers and student colleagues, challenging traditional discursive patterns that may occur in the classroom (Rafferty, 2012). Each space provides different opportunities to teach, learn and engage with others.

While specific configurations may vary from space to space, growing recognition of pedagogy, space and technology as interconnected in higher education contexts has led to the development of numerous models of generalised design principles that aim to support pedagogically effective construction. Several studies propose ideal design elements to underpin physical spaces and these suggest that spatial design can support aesthetic function and assure the alignment of spaces and pedagogic purposes, although this has been contested (see, Boys, 2011). I synthesise these into four interconnected principles of learning space design that reflect commonalities identified in the literature: spaces should be *learner-centric*, foster *connectivity*, allow *flexibility* and provide appropriate digital *affordances* that enhance learning. It is important to note, a sociomaterial consideration of spatial design takes in built structure, its function and its significations, but also extends to "the full registers of [human] thought, including affect and sensation. This is particularly relevant to learning at post-compulsory level, which tends to prioritise intellectual thought and self-reflection" (Boys, 2011, p. 34). Rather than being discrete categories, these areas connect and overlap, working in tandem to develop spaces that support teachers and learners. The entwined design principles include:

> *Learner-centric* – spaces that are student-centred are designed to motivate students (Keppell & Riddle, 2012) by maximising student access to and ownership of learning environments (Jamieson et al., 2000). They are designed around people (Oblinger, 2005) with comfort and ease of use explicit priorities, ensuring both physical and mental wellbeing is supported (Souter et al., 2011). Spaces focused on learners embrace creativity to energise and inspire learners and tutors (JISC, 2006) but ensure that technology is intuitive and user-friendly (Radcliffe, 2009 cited in Reushle, 2012).

> *Connective* – spaces promote and enhance authentic learning connections, including interactions, social collaboration and interaction (Keppell, & Riddle, 2012;

MCEETYA, 2008; Oblinger, 2005; Radcliffe, 2009 cited in Reushle, 2012). In addition, connection to the learning is paramount, and spaces that support a 'flow', that "state of mind when the learner is totally involved in the learning experience" (Souter et al., 2011), are underpinned by the principle of connectivity. Open areas which allow student and staff movement, shared social spaces and informal learning areas are exemplary elements of the connective principle.

Flexible – spaces should be flexible in supporting multiple teaching and learning approaches, (Jamieson et al., 2000; Keppell & Riddle, 2012; Oblinger, 2005; Radcliffe, 2009 cited in Reushle, 2012). Ideally, spaces will be able to be repurposed to meet multiple uses (Souter et al., 2011). Flexibility is frequently offered by the provision of movable/adaptable furniture and fittings to allow for different teaching/learning purposes (such as writable walls, movable walls and chairs or tables on wheels).

Affordances – ideal spaces for learning embed digital technologies or potential for Bring Your Own Device (BYOD) to allow for a range of 'action possibilities' (Keppell & Riddle, 2012; Souter et al, 2011). These provide opportunities for student control (Jamieson et al., 2000), multiple possibilities for a blend of face-to-face and technology-enhanced learning activities (Oblinger, 2005; Souter et al., 2011), and enable technological and pedagogical exploration (JISC, 2006; Radcliffe, 2009 cited in Reushle, 2012). Technologies support diverse action possibilities, including lecturing and teacher-led pedagogies, with the ability to foster group work, and individual or group reflection.

Although these design principles are useful to guide the creative development and construction of spaces, the focus on spatial design has not often been informed by an empirical understanding of the sustained impacts of changed learning spaces on practice, social relationships, and student outcomes (Blackmore, et al, 2011; Cleveland & Fisher, 2014; Ellis & Goodyear, 2016; Hall-van den Elsen & Palaskas, 2010; Lee & Tan, 2011). Here, they are used as an evaluative tool in order to combine attention to the arrangement and design of spaces in relation with the enacted range and subtleties of sociospatial practices and functions.

Pedagogic Practice: Presenting the Data

I use the design principles to investigate the enacted syntax of spaces, exploring the ways space participates in learning and teaching. These act as an organising tool for the presentation of descriptions and data relating to the aesthetic function of two of Knowledge Hub's 'innovative' structured learning spaces: an interactive lecture theatre and a collaborative tutorial room. I describe each typology below and complement these with inhabitants' comments relating to their experiences of materiality in teaching-learning processes and observations of teaching practice data. Many comments come from the initial

Phase One (2013) interviews and focus groups, and as such reflect keenly the differences staff and students experienced between their previous 'broken' learning spaces and 'modern' Knowledge Hub. At times, I supplement these with comments from Phase Two, conducted in 2015. These serve to illuminate the ways changes may (and may not) have been sustained over time. Staff and student insights combined with observations indicate how these materialised principles entwined with and functioned in pedagogic practice.

Interactive Lecture Theatre

The possibilities for practice are imagined in particular ways in a lecture theatre design. Traditionally, universities have pragmatically provided learning spaces that ensure cost efficiency by providing lecture space for one-to-many delivery of information (Radcliff et al, 2008). This spatial archetype embodies a pedagogic approach founded on the transmission of knowledge (Ellis & Goodyear, 2016) where teachers instruct and students are positioned as passive receivers, although the assumption that this automatically constrains practice has been problematised (see, Boys, 2011). The tension is that traditional lecture halls subtly endorse didactic lecturing as the 'default' mode of teaching: "lecture theatres can, quite simply, limit active learning by encouraging forward-facing passive engagement" (Carnell, 2017, p. 7). The dominance of this spatial archetype has been challenged as technology has expanded, with students able to access content whenever and wherever is comfortable, convenient and connected with efficient Wi-Fi (Dane, 2015a). Despite growing awareness that they may be increasingly redundant due to their alignment with a transmission approach to teaching (Dane, 2015a; Ellis & Goodyear, 2016; Palmer, 2012), lecture theatres remain a persistent fixture of university landscapes.

Traditional lecture spaces constrain opportunities for students to interact with information in personal ways, with each other, or with teachers, factors that have been identified as contributing to student attrition and limited student outcomes (Dane, 2015a; Radcliffe et al., 2008). Implementing student-centric lecture theatres, which encourage collaborative learning, active engagement with content, and interaction among staff and peers, reflects social changes in the way learning processes are understood, particularly acknowledging that effective learning requires a teaching approach that goes beyond the 'transmission' of knowledge (Biggs, 2003; Biggs & Tang, 2011; Hattie, 2011; Kalantzis, & Cope, 2008; Mulcahy, 2013). Further, an innovative lecture theatre aesthetic imagines and seeks to construct a future that redistributes power to students as architects of their own learning experiences in university

contexts, consistent with recent shifts to position students as active partners in higher education (Kahu & Nelson, 2018).

The design of Knowledge Hub's interactive lecture theatre is aligned with other 'innovative' versions of the archetype, intended to support a range of teaching modes in a modified adaptation of the one-to-many didactic spatial archetype. As Cal, a teacher who had transitioned from the previous traditional lecturing space to Knowledge Hub's new lecture theatre commented,

> I really love the lecture theatre. It's just light. It's just light and it feels airy – not breezy – but airy. And it's aesthetic … I think that's one of the really good things about moving here. You know, there's a sense of aesthetics around the place. There's sort of light, all those little windows that you can see trees out of (Staff Interview #4, 2013)

Seating up to 150 students in a gradual tiered configuration with two rows of desks to each level, the four principles of innovative spaces are evident in the layout of the design (see Figure 1). Data relating to the learner-centricity, connectivity, flexibility and affordances of the interactive lecture theatre are presented in turn below.
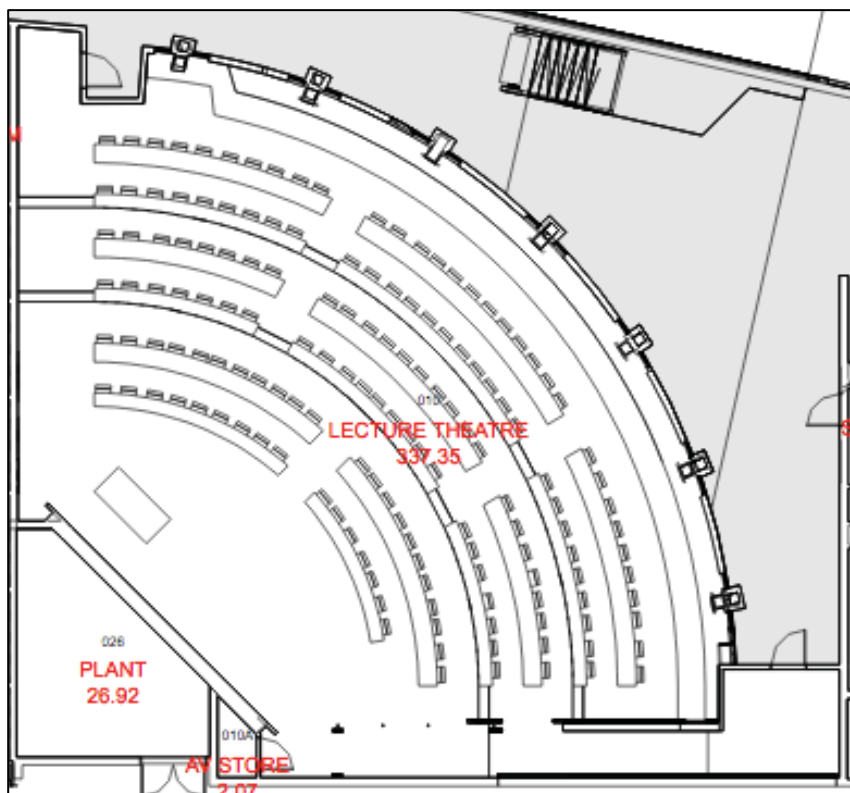
Figure 1: Interactive Lecture Theatre, Knowledge Hub

Learner-centric lecturing: 'We're not just being talked at'

Interview and focus group data spoke to the *learner-centred* focus of the lecture hall design, with comments relating to the ways the physical repositioning of students in relation to the teacher functioned in practice. The long collaborative tables in the space are on a gradual tiered ascent, in comparison to the individual fold-out desks and steep incline of their traditional lecturing spaces. Tes, reflecting on her teaching experience in the space six months after the transition, felt that:

> The interactive lecture theatre's been a really good space to teach in … just having a space that is more conducive to dialogue, that's not a traditional, tiered lecture theatre has been really good. It feels a lot more intimate. It's easier to have discussion in there (Staff Interview #3, 2013)

Separately, in a student focus group, Lem recounted that:

> a lot of that [collaboration] comes from the fact that there's like, they have that, two rows [of tables] then a layer, then two rows then a layer. You can turn around and talk to the table behind you. Rather than … in [a traditional lecture space] and it was just like *steep* … Whereas [now] we're all on the same level … It really works well like that (Student Focus Group #5, 2013)

For students, this physical repositioning also resulted in a perceived relational shift in student interactions with the lecturer. Teaching practice became more personal and 'intimate', where lecturers and students were (both physically and metaphorically) on the 'same level'.

As Shi, a student in Focus Group Five, explained, the layout of the lecture theatre meant that "you're not looking down on them [lecturers]. You're looking at them. At eye level almost" (Student Focus Group #5, 2013). Also in Focus Group Five, Lea felt "for the lecturer, it's not like, I can imagine in like, [our previous traditional lecture theatres], it's just like this wall of people in front of you. I think it's more, not inti-, I don't know if 'intimate' is the right word, but it's sort of [like that]" (Student Focus Group #5, 2013). Ron commented twice on the impact of the lecture theatre levels in practice, stating, "the room feels smaller. It's not like a big, steep lecture theatre" and extending that:

> You feel like you know your lecturer, and you feel that the lecturer knows you, as such. Before, they were at the front and you were a fair way away from them, looking down on them. Now, it's sort of – you feel, like, level, and it's sort of more of a personal approach. So that, I think, is the advantage of that [in the lecture room]
>
> (Student Focus Group #9, 2013)

Similar sentiments were raised separately, with Joh feeling that "It's more student-focused [the pedagogy teachers are using now]. Like, we're not just being talked at. When you're on the same level, you can actually hear what the tutors – the lecturers are saying" (Student Focus Group #8, 2013). Kas similarly suggested "it's more a classroom environment, I would say. Not like, you're the boss and we're the student" (Student Focus Group #2, 2013).

This shift in the pedagogic relationship seemed to align with a student-centred view of learning as socially negotiated in conjunction with 'more capable' others, where teachers are (re)positioned as facilitators or coaches (Adedokun et al, 2017; Dimitriadis, & Kemberelis, 2006; Kalanztis, & Cope, 2008; Vygotsky, 1978). From this location, teachers work with students in a responsive teaching-learning process, rather than act as a 'boss' who directs learning and transmits already constructed knowledge. The responses aligned with the university's policy commitment to "position students at the heart of the university experience" (Regional University, 2013, p. 7). Academic spaces must increasingly offer students "an intimate experience to our pedagogic environment" (Neary & Beetham, 2015, cited in Carnell, 2017, p. 1); more 'level' relationships with staff appeared pivotal in realising this within the learning landscape. The aesthetic of the room was experienced through an appreciation of the 'fit for purpose' (Souter et al., 2011) way it functioned to support and ease this learner-centric pedagogic relationship.

Enabling connected lecturing: Untethered Teaching

The provision of ample space between rows in the lecture theatre embodies the principle of *connectivity,* as it allows lecturers (and students) possibilities for embodied and fluid movement around the space during group activities and enables comfort and authenticity in interactions among groups. The function of the room to allow lecturer movement within the theatre was a focus in Lee's comments,

> I love in the new lecture theatre, that when I give them a task, that I can walk around the room in five minutes and have a chat and come back and we're done you know. So that's wonderful. Whereas you can't do that in the [previous theatre]. I tried it. It takes ten minutes to go up one side and have a yarn to people and come back down the other. You know, so, it's a better space for that kind of activity or that connection with others (Staff Interview #6, 2013)

While his practice (to assign an active student task and move around the room conversing with students) remained consistent, the openness of the spatial design allowed a new ease in

his enactment of the pedagogy. Cal also felt that the ease of movement around the room supported connectivity between students and her as the teacher:

> I really love the lecture theatre … it's more to do with the architecture than with the technology … the fact that you can really walk around … There isn't that student in the middle of the row that you never [interact with – as in the previous space]. I think, just the way it is, the opportunities that it gives students, so it really does encourage you to get them to engage with each other more (Staff Interview #4, 2013)

Mit, a student, felt that "I think that's what the lecturers do really well now in the lecture room. Because [previously] they had to stand at their computer … now they can walk up and walk around … So it's a lot more, yeah, interactive" (Student Focus Group #5, 2013). Another student participant, Esh, commented:

> that lecture room is just amazing, the way the lecturers can move around as well. Like, up and down those walls, talking to people … they can move around a lot more than they could before as well. I think it makes it a lot easier for them … They feel more freedom, I think (Student Focus Group #9, 2013)

Simultaneously, it seemed that free spaces supported staff-student interaction, provided possibilities for conferencing, and allowed teacher involvement in peer-to-peer cooperative work. This enacts an ideal vision of learning and learning spaces, where teachers act as consultants and guides to learning (Hunkins, 1994 cited in Childs & Wagner, 2012). This cultural shift is essential to the enactment of learner-centred connections (Adedokun et al, 2017).

Flexible lecturing approaches

Quantitative data collected during room observations suggested the flexibility of the interactive lecture theatre in performing across a range of *didactic*, *active*, *discursive*, and *reflective* teaching modes as detailed in Chapter Two. Three teaching academics were observed during four enacted learning situations. Observations revealed that while a didactic approach to teaching remained dominant in the lecture theatre with 48.6% of teaching time recorded in this mode (see Table 8), this was interspersed regularly with active, discursive and, less frequently, reflective modes. Although a small sample, the data is indicative that the spatial typology, technologies and material elements flexibly participate in the enactment of student-centred teaching modes in addition to enabling traditional teacher-led practices (see, Figure 2).

In the collaborative lecture theatre, a space traditionally designed to function in the didactic teaching mode, around half of the time was spent on activities that were *active, discursive* or *reflective*. Perhaps in contrast with a view of *didactic* teaching as a 'passive' activity for students, teaching in this mode aimed to engage students in conceptual explanations and applications, with teacher questioning, visual representations, modelling and demonstrations recorded as examples of the strategies employed in the didactic mode in the room. In the *active* mode, examples of enacted strategies included collaborative brainstorming based on a scenario, viewing multimodal texts and engaging with an expert panel discussion.

Table 8: Teaching modes performed in the Lecture Theatre

	Minutes Observed	Didactic	Active	Discursive	Reflective
Teaching Situation 1, Teacher 1	48 min	22 min (45.8%)	18 min (37.5%)	5 min (10.4%)	3 min (6.3%)
Teaching Situation 2, Teacher 2	184 min	72 min (39%)	62 min (34%)	50 min (27%)	0 min (0%)
Teaching Situation 3, Teacher 2	67 min	49 min (73%)	0 min (0%)	18 min (27%)	0 min (0%)
Teaching Situation 4, Teacher 3	115 min	58 min (50.4%)	1 min (0.8%)	52 min (45.4%)	4 min (3.4%)
Total	414 min	201 min (48.6%)	81 min (19.5%)	125 min (30.2%)	7 min (1.7%)

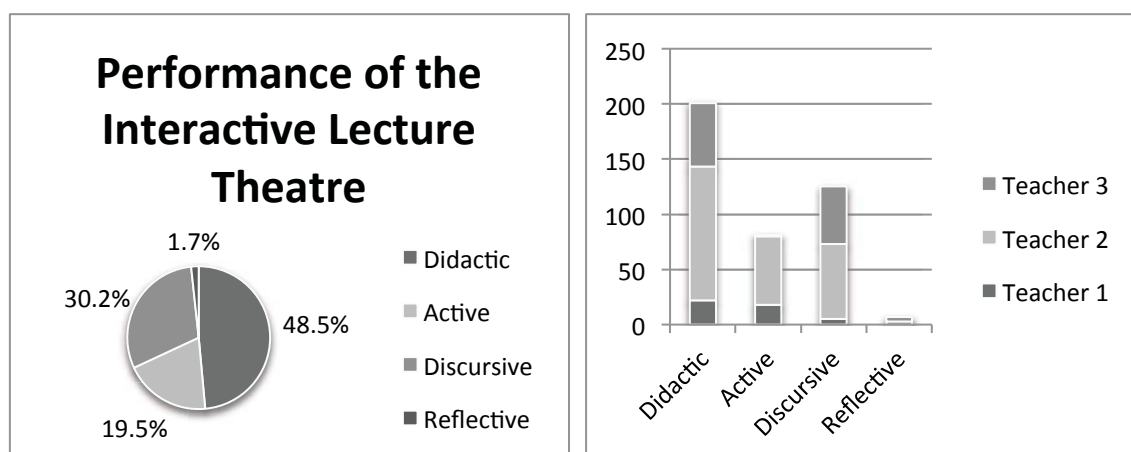*Figure 2: Performance of the Interactive Lecture Theatre*

Students were required to match concepts with exemplar descriptions with an explicit emphasis on the verbal justification of their choices with peers, develop a collaborative case study to demonstrate knowledge of the main impacts of a concept, and complete a WWWH – What, When, Where, How – graphic organiser to structure information in some of learning

situations observed in the *discursive* mode of teaching. One observed *reflective* strategy provided students with time to compile a personal KWL Chart – what do I *Know*, what do I *Want* to know, what did I *Learn*. This chart then became a reflective 'touchstone' that was returned to throughout the session to encourage deep, personal reflection on learning. Another teacher asked students to create a personal representation of an idea learnt in class, either drawing, concept mapping, or describing in their own words, as a reflective activity to summarise their learning for that session.

The enacted pedagogic repertoires of these staff became visible in their range of observed pedagogic strategies, and this served to demonstrate that while the "discourse of innovation being popularised presently by governments in Australia strives to singularise the way that learning environments work … [this] can mask the multiplicity of these environments as enacted phenomena" (Mulcahy & Morrison, 2017, p. 756). The idea of uniform pedagogic 'transformation' as indicated in the Education Investment Fund policy (Aust. Gov., 2008) is also countered in the variety evident in the different ratios of teaching modes performed by different staff members within the space. While a comparison cannot be made to pedagogic modes performed on the previous campus, 21 of the 36 student participants in 2013 indicated that learning was more collaborative and interactive in class since the transition to Knowledge Hub. Although this was consolidated into a MSC narrative, it was selected by only four of the eleven 2015 participants, with three others choosing the narrative on the continuity of PowerPoint dominance, indicating its significance may not have been shared or sustained from a student perspective. This further complicates the assumption that spaces are automatically 'revolutionary' to practice. In contrast, it reflects the understanding that changes in action are more likely to be iterative and ongoing, with practices modified, adapted, and renewed, often with previous and new practice co-existing (Souter et al, 2011).

Technological affordances for 'innovative' lecturing

Multiple 'action possibilities' or *affordances* (Keppell & Riddle 2012; Souter et al., 2011; Steel, & Andrews 2012) were identifiable in the blend of technological infrastructure incorporated in the lecture space in Knowledge Hub. A lectern with a personal computer, document camera and central, double-screen display complemented by microphone facilities supported visual presentations that enabled teaching across a range of modalities. In observations, the lectern computer and projected display screens were the most consistently used technological affordances in the room, with a total of 399 of the 414 minutes of recorded

teaching time using these display capabilities, although these were not always actively referred to. All episodes made use of PowerPoint presentations to visually (and didactically) present key concepts, clarify expectations and present requirements of tasks, but also to share video clips, transcripts, and interactive website displays. In comparison, the document camera was used for six of the 414 observed minutes to display a diagram from a textbook, aiding the explanation of a concept. This complicated Laurillard et al.'s (2009, cited in Keppell, Suddaby, & Hard, 2011) view that digital media has an 'inherent' educational value. As argued by other authors, technology alone does not automatically enhance learning; to be most effective, its use must move beyond the replication of traditional activities (JISC, 2006; Kirkwood & Price, 2013; Wesch, 2011).

Fittings in the space ensure access to power is available at each table for each student, affording the option to 'Bring Your Own Device' (BYOD) to class, a rapidly increasing tendency among students (Dane, 2015b). The intention was to enhance and increase student participation in classes through access to Wi-Fi and an application that allows up to four students to ask their teacher questions electronically. A student participant, Bes, appreciated this affordance, stating:

> I find I do bring my laptop a lot more. Especially to lectures and things, 'cause you do have the power points. Like everyone's got a power point now. And so it's kind of like, there's the facilities there to be able to, and they encourage technology use
> (Student Focus Group #1, 2013)

Another student said the Wi-Fi capabilities and power affordances to support BYOD in the building had enabled him to be "virtually paperless" (Student Focus Group #5, 2013) in his studies. However, the assumption that this extends to the incorporation of technologies in innovative and participatory teaching situations was problematised in staff comments.

As Tes recounted, while "quite a few of them bring laptops" many students did not, and this meant "you've got this disparity then and it'd be good to plan for using the technology [pedagogically] not just them use it as a personal learning tool" (Staff Interview #3, 2013). Rod was emphatic that not just the inequity that BYOD created but also the assumption that devices could increase participation that was problematic, particularly given the discipline area was one that required effective verbal communication:

> I think it's unethical to be differentiating between students on a basis of what technology they actually have. And if this [incorporation of devices in teaching] is to foster interaction, I want to talk to them! I want them to talk to each other. I mean we're talking about *teaching* (Staff Interview #9, 2013)

Rod's comments demonstrate the way that teachers' beliefs, philosophies and theories of teaching are often intangible players within an assemblage of spatial pedagogy, and yet they deeply inform teaching practice (Biggs, 2003; Steel & Andrews, 2012). Rather than representing a deficit in pedagogic or technological knowledge or skills, this resistance to technology use was founded on a desire to ensure students developed essential dispositions required for success in their profession (the willingness to interact, talk, engage with others and listen actively).

Similarly reflecting a teaching philosophy that valued equity, Tes felt that because access to and uptake of the affordance to BYOD was not uniform, combined with "the fact that students still have to … engage with the technology in sometimes clumsy ways. Like you know, getting [students] onto the Wi-Fi can be a problem sometimes" (Staff Interview #3, 2013) that this affordance had little impact on her teaching practice. The ethical orientation to equity and the teaching desire (as affect) was instrumental in deciding whether or not the material and institutional expectation that technology would be incorporated into interactive learning was enacted in practice (reinforcing findings put forward in Mulcahy & Morrison, 2017). Tes further described that for her, in relation to her teaching purposes "in an ideal world" every student would have a device in front of them so "you didn't have to rely on the B.Y.O." (Staff Interview #3, 2013). Observations in Phase Two in 2015 showed that uptake of this affordance remained sporadic, with between 34% and 60% of students (with an average of 50%) who brought either a laptop or tablet device to lectures.

The understanding that technology use should not be given priority over verbal discourse in teaching and learning contexts was not unique to staff. In Phase One, Bes commented that:

> we'd be working in groups for tutes and [staff would] say "Type your responses on your laptop and then we'll put them on the screen. So they'd just switch it to your computer so everyone could see it. Yeah, but sometimes, I think, "Oh, we could've just discussed this. We don't have to type them." Like sometimes I think they're kind of like, "Oh, the technology's there we'll just use it," even though there might have been a better way, verbally to do it (Student Focus Group #1, 2013)

Two years later, Mel's statement also reflected that 'better' ways did not necessarily justify technology use to communicate or share ideas in classes: "We're teachers, we need to be able to talk to people. I feel like [using technology to ask silent questions] really defeats the purpose of being a teacher – not sharing ideas, not verbalising things" (Student Focus Group

#4, 2015). As a staff member, Lee's comments also suggested that BYOD did not automatically equate with enhanced participation or in-class engagement:

> Students can bring their devices into the space, and for good or bad, use them to connect *or disconnect* … that's evident when you have a squiz on any of their windows as you walk past a lecture room – they're not looking at the lecture notes. But that's the freedom that we give them, and that's essential for their own growth and their own decision-making (emphasis added, Staff Interview #8, 2015)

While technologies are often written by policy makers as effective tools to leverage and assure innovative practice, it seems that for this group of staff and students, there is great diversity in how these affordances are enacted in practice, a finding consistent with Kennedy et al. (2009). Staff may resist using technologies in practice if it does not match their professional orientations, while technology and BYOD affordances can equally invite students to 'disconnect' from learning experiences. It appears enactment of technologies, irrevocably entwined in knowledge making practices, reflects the underlying values, purposes and beliefs of operators, but also the taken-for-granted agencies of the technologies themselves.

The Collaborative Tutorial Room
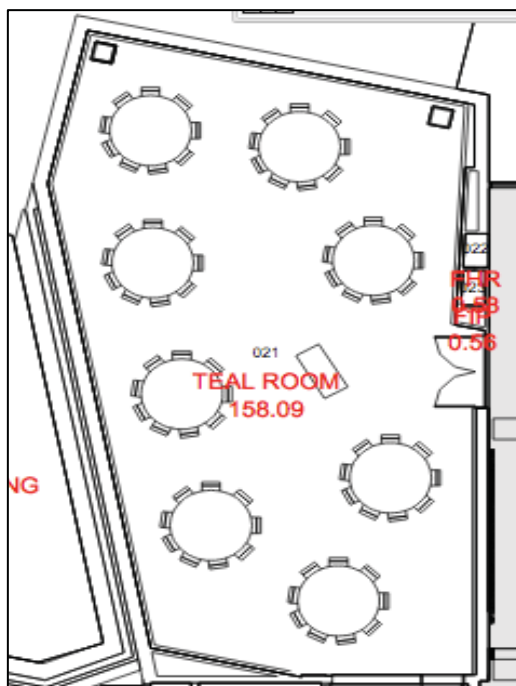
Figure 3: Collaborative Tutorial Room, Knowledge Hub

Modelled on the Massachusetts Institute of Technology's TEAL room design (Technology Enabled Active Learning), Knowledge Hub's collaborative tutorial room is intended to facilitate multiple versions of peer group collaboration around shared computers. The room is furnished with eight rounded tables, seating students in three groups of three, with the intent to provide a blend of lectures, simulations and experiments and foster a learning experience that is rich and collaborative (MIT, n.d.). Seating up to 72 students, the room applies the overarching principles of innovative space design differently to again facilitate a range of teaching options (see Figure 3).

Student-centric tutorials: Peer Collaboration

The principle of *student-centricity* is materialised through an emphasis on peer collaboration in a learning community which aims to support students' social wellbeing. Enabling learner-focused collaboration, the writable walls (continuous whiteboards surrounding the learning space) were the second most commonly used material element of Knowledge Hub's tutorial room, allowing flexibility in teaching modes and often playing an active role in embodied student learning (in 120 of the 370 observed minutes). The walls and their function were key changes appreciated by students in their sociomaterial learning practice. "[T]he whiteboards around the room are amazing", said Ela (Student Focus Group #1, 2013), while Kas felt that collaborative, student-centred activities "probably were enhanced better because of the resources we had, like we could use those big whiteboards … that was good" (Student Focus Group #2, 2013). Another student, Joh, commented that "the [tutorial] room as well helps, because of the whiteboard all around the room" (Student Focus Group #8, 2013). In a separate focus group, Ron found that this was a key part of repositioning students as active participants in the classroom, stating:

> they've got all the whiteboards on there [in the tutorial room], so you can write on them and use the old, traditional method of a whiteboard. Even we [as students] can use it, where before, we couldn't, with an easel type whiteboard … So, I think that's the advantage of it (Student Focus Group #9, 2013)

This suggested a shift in the control of an 'old, traditional' material resource for knowledge generation out of the singular direction of teachers and into the hands of students, again challenging the hierarchical power relations of traditional classrooms.

Ria, who commented on her love of the whiteboards multiple times, said "it's more collaborative [in the tutorial room]. It's like 'Hey, you guys discuss this' and 'You guys discuss this' and you've got chairs and you've got whiteboards [to support that]" (Student Focus Group #4, 2013). It seemed that in terms of supporting 21st Century learners, while active and collaborative learning was valued, the use of digital technologies were not always the most appropriate or favoured approach in allowing collaborative exploration. In practice, whiteboards were quicker, easier, more flexible, and less likely to interrupt valuable learning time. They also seemed to represent an equitable technology, where each student had access to and familiarity with whiteboard use. In the enactment of learner-centric tutorial activities,

writable walls were identified repetitively as 'fit for purpose' (Souter et al, 2011) in functioning effectively *with* students to facilitate discussion, allow equitable access and participation, and support collaborative thinking. Knowing and responding to students' preferences for and capabilities with technological inclusions to ensure ease of engagement with concepts are important teaching considerations for enacting collaborative learning spaces in practice (Kennedy et al. 2009; Steel & Andrews, 2012).

Fostering tutorial connections: Multiplicity in enactments

One of the assumed material enablers of *connectivity* was the rounded table design and the way this was imagined to function to foster peer learning between groups of three, nine and the whole class. In practice, several students appreciated the functioning of the room, with Ela stating:

> Group sharing's really good too. Like in the tutorials it's a lot easier to do group work, like and share between the groups … to be able to like, have a topic and discuss it within your table and then either put it up on the screens or have it on the whiteboards (Student Focus Group #1, 2013)

Another student, Nee, mirrored these comments, saying that one of the most significant changes after six months in the new space was "for me, it's the group interaction … here, you've got the round tables and swivel chairs, so you can move around and go talk to people, regroup, that sort of thing" (Student Focus Group #6, 2013). Esh also related the table design with enhanced collaboration and emotion, reflecting that "here, yes, you're in a group, but it's round. I think that makes the difference to how you feel and how you can interact with people" (Student Focus Group #9, 2013).

While the design of the tables aimed to foster connectivity among peers, Lem felt the physicality of the three large touchscreen computers on each table acted as a barrier to this. She described that:

> it's easy to hide behind … the computer screen comes up to here [eye level] almost, so you sort of like have to peep over the top of that sort of thing. If you're the one person that likes to contribute in that group and the rest are just like [hiding], your discussion's going nowhere (Student Focus Group #5, 2013)

Another student participant, Nia, commented that the materiality of the room actively hindered her ability to connect with other students, ideas as they were communicated, or with content knowledge:

> I found the arrangements for tutorials to be more problematic. Personally, I find it difficult to concentrate on the content in the room used for tutorials. There was just an overwhelming amount of stimuli, specifically the way the tables were oriented as many people were constantly talking and I struggled to hear what was being said. Also, because the class was quite large I felt it almost inhibited class discussion
>
> (Student Focus Group #3, 2013)

This was a perception that emerged again two years later, with Mel commenting specifically on the limited connectivity she had experienced in practice in the room:

> with the [tutorial] room being more collaborative … I found quite the opposite. So we're all sitting in a circle and we've got these gigantic black screens in front of us and I can't see the person across the circle. I can get the idea that I should be able to, but I can't. And even if I am trying to talk to them there's just so much junk in the way. There's cords and there's little boxes open and stuff … I don't find the [tutorial] room to be particularly collaborative (Student Focus Group #3, 2015)

The comments hinted that enacting spaces in the collaborative ways intended in the design did not always occur. Fenwick (2015) argues that, "material things are performative. They act, together with other kinds of things or forces, to exclude, invite or regulate particular forms of participation" (p. 85). Physical technologies and spatial arrangements are able to work with students to enable either avoidance or participation in group conversations (both active student behaviours) reflecting a multiplicity of practice often 'glossed' over in 'official literature' (Mulcahy & Morrison, 2017). The comments suggest that some students felt an aesthetic frustration and *dis*-pleasure with the materiality of the room as *un*-fit-for-purpose when it came to connecting students and allowing discussion (Souter et al, 2011).

While the policy and rhetoric explored in Chapter Three imagined embedded digital technologies as synonymous with innovation and innovative student-centred teaching practice, when incorporating technologies into learning design, the question must be asked if they are fit for learning purposes, and more importantly, *whose purposes* are they serving? It seemed here the national and institutional intent to craft an image of 'modernity' and innovation through the incorporation of digital technology actively worked against student learning, and undermined the commitment to putting them at the 'heart' of the university (Regional University, 2013).

Fenwick (2015) argues that materials come to permit and prevent certain actions, conveying particular knowledges and holding power within these relationships. In this view, everyday things "are indeed political locations where values and interests are negotiated and ultimately inscribed into the very materiality of the things themselves – thereby rendering

these values and interests more or less permanent" (p. 85). From this perspective, the design and negotiation of learning spaces is a political act, cultivating, materialising and endorsing a specific range of pedagogic actions, staff-student relations and institutional values. In embedding ephemeral technologies for the purposes of establishing an internationally marketable 'modern' institutional image, the university needs to remain conscious of how these function in practice. If technologies work to restrict connectivity between students and staff in learning situations then the corporatisation of the university may perhaps compromise its overarching educational vision to enhance students' social learning experiences. Positioning students as partners in spatial design and evaluation procedures may ensure technological inclusions meet the joint purposes of occupants and administrators and marketers in ways that enhance learning.

Flexible tutorial engagement

The tutorial room features chairs with wheels on a flat floor to allow for smooth movement around and between fixed tables and to the writable walls. Demonstrating the principle of *flexibility*, these material allowances support multiple teaching and learning purposes to be enacted. Four academic teachers consented to observations over six sociomaterial performances (see, Table 9).

Table 9: *Teaching modes performed in the Tutorial Room*

	Minutes Observed	Didactic	Active	Discursive	Reflective
Teaching Situation 1, Teacher 1	107 min	58 min (54%)	37 min (35%)	12 min (11%)	0 min (0%)
Teaching Situation 2, Teacher 2	60 min	23 min (38.3%)	23 min (38.3%)	14 min (23.3%)	0 min (0%)
Teaching Situation 3, Teacher 3	48 min	13 min (27%)	0 min (0%)	35 min (73%)	0 min (0%)
Teaching Situation 4, Teacher 4	54 min	13 min (24%)	41 min (76%)	0 min (0%)	0 min (0%)
Teaching Situation 5, Teacher 4	51 min	14 min (27.4%)	37 min (72.6%)	0 min (0%)	0 min (0%)
Teaching Situation 6, Teacher 4	50 min	28 min (56%)	22 min (44%)	0 min (0%)	0 min (0%)
Total	370 min	149 min (40.3%)	160 min (43.2%)	61 min (16.5%)	0 min (0%)
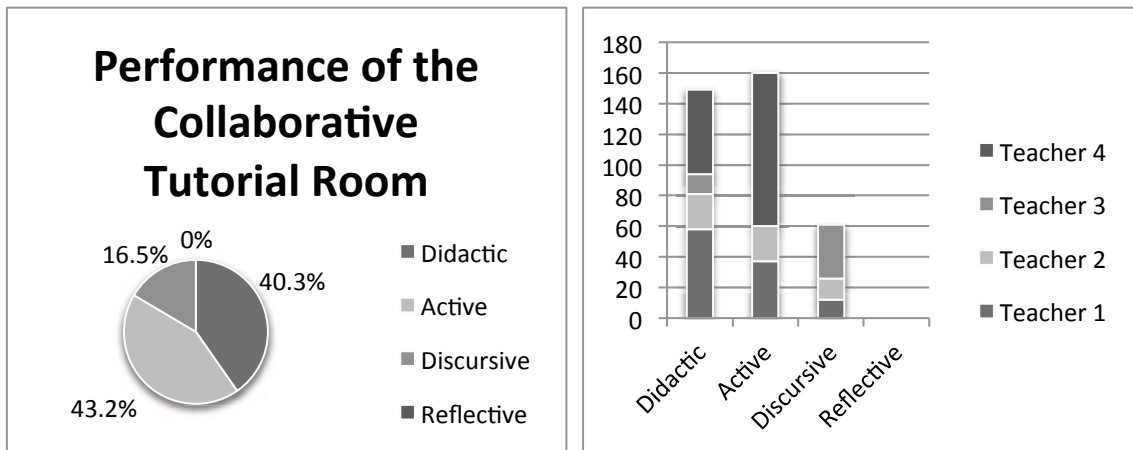
Figure 4: The Performance of the Collaborative Tutorial Room

Data indicated that the room was primarily used in the active teaching mode (43.2%), holding only a narrow margin ahead of the didactic mode. In a room intentionally designed to limit lecturing, 40.3% of time consisted of teacher-led instruction (see, Figure 4). Discursive teaching was also evident but only 16.5% of the total was recorded in this mode, with no reflective strategies observed in practice. While this small sample cannot be generalised it indicates the design did enable a significant element of teaching time to be dedicated to active learner-focused pedagogies (59.7%).

Didactic, active and discursive modes of teaching were enacted, demonstrating the room worked flexibly across a range of teaching modes. Examples of didactic teaching strategies used in the space included teacher modelling of a problem-solving task using a 'think aloud' strategy (aided by the document camera), a demonstration of statistical analysis, and explicit teaching. *Active* learning was enacted through Problem-Based Learning (PBL) episodes (with scenarios for set tasks displayed on the screens), experimental construction (with a thinking framework to be applied displayed on-screen for reference), and viewing a television segment on a key concept as a stimulus for discussion. Learning in the *discursive* mode included dialogue (or yarning) circles, small group discussion with questions displayed as a scaffold, and a modified '1:4:Publish:Circle:Refine' strategy (see, Frangenheim, 2005) that involved groups 'publishing' their application of a concept on the whiteboard, and then each group circling around the room to add feedback on other groups' ideas. The lectern computer and screen displays, mostly using PowerPoint software, supported the majority of learning situations.

Affording participation in tutorials: "a mind of its own"

The tutorial room's technological *affordances* materially provide a range of action possibilities for learning. The lectern computer, combined with eight large screens positioned around the room in correspondence with the eight tables, was the most commonly used affordance of the room (with the screen displayed for 346 minutes of the 370 minutes of observed teaching time). These effectively functioned to afford enactments of didactic, active and discursive modes of teaching in conjunction with staff and students. Although more frequently employed to support teacher designed and led episodes (262 minutes), the lectern computer and screen displays demonstrated flexibility in Teacher One's observed session, where they became student-directed in peer-teaching situations for assessment purposes (84 minutes). The document camera was used briefly in four of the six observed sessions for a total of 20 minutes (including seven student-directed minutes). The document camera participated in didactic teacher modelling and active and discursive student 'think aloud' demonstrations.

Although they represented a tension in supporting student connectivity, the fixed student computers (three per table, one per three students) offer touchscreen capabilities and are a prominent technological feature of the room. Staff and student participants again identified the enactment of this technological affordance as problematic. Performances (and resistances) entwined with the personal teaching philosophies of staff members and the difficulties incoporating the technology effectively into learning practices; in-practice realities often did not easily match the rhetorical expectations or intended affordances with ease. Although staff member Hal reflected a student-centric philosophy of teaching, enacting technology was not his focus. He described how "I think the technology is always secondary to the actual interpersonal stuff. So I think knowing students, and working well with students is more important than how I use the technology" (Staff Interview #8, 2013). For Tia, considering her own experience of enacting spatialised teaching practice in the tutorial room, she commented,

> I could tell [students] weren't really interested in using the stylus and the computers, they just wanted to take out their books and work … I wasn't too worried about the pretty computers, when I knew that they just wanted to engage with the concepts and the content and get down to just doing what we do. So I think you still have to be aware of 'What do the students need?' 'What do they want?' and 'How are you going to provide it?' Yeah, within the space, but even if you didn't have the space, the same outcomes … I think regardless of the space, you try to be reflective, you try to be, 'What do these students need of me?' (Staff Interview #1, 2013).

For Rod, another staff member teaching in the space, he described that:

> in our workshops … [t]here were often opportunities for people to share their ideas. Almost invariably, [students] did not want to use the technology to put their stuff up on everybody's screen so that they could use it there. They preferred to talk it … and when I talked about [it] – with them particularly, and when I shared with some other people who were teaching in that room, their feedback was, 'It [the technology] just takes so long' (Staff Interview #9, 2013).

For each teacher, meaningful interpersonal interaction; a focus on engagement with the ideas, concepts and content; and a critically responsive approach to student engagement with technologies were the essential priorities in their teaching in the room. Reminiscent of Mulcahy and Morrison's (2017) findings, the teaching desire (as affect) 'trumped' absolute ideas about how space (and teaching) should be 'done' with digital technologies in the room. In these examples, the teachers' practices (led by their perceptions of students' preferences) challenged the institutional and material expectation that digital technologies are essential in student-centred knowledge practices.

Student data reinforced staff perceptions and listed similar frustrations in using the fixed computers. Bes said "these touch screen computers … they're hardly ever calibrated, like, it's just, 'Ugh!' So we often find that where you click is not – or touch – is not where it is" (Student Focus Group #1, 2013). Echoing this sentiment, Lei responded that, "It [tutorial room computer] can be kind of annoying, like if it's not calibrated. It's like, 'I just want to press that!'" (Student Focus Group #4, 2013). Kas said, "I couldn't really use them [the touchscreen computers] to tell the truth. I tried … but they didn't work a lot … Sometimes they never worked" (Student Focus Group #2, 2013). Dot's comment demonstrated the variety of students' abilities with technologies when she said, "I'm technologically challenged sometimes," (Student Focus Group #1, 2013) to which the whole group, including Dot, laughed. Recognition of the diversity in capabilities and preferences for using technologies, even within student groups often referred to as 'digital natives', is important for teaching academics (Kennedy et al, 2009; Steel & Andrews, 2012).

Although the technology was intended to afford particular actions, in practice it did not function as anticipated, exerting its own agency beyond both institutional intent and user purpose. Kas reflected that although a particular practice had worked well for one teacher, with a slide projected that allowed multiple students to annotate it anonymously, "that was probably the only class that, it worked well, like really well, I would say. Because like, we tried, but it just, it wouldn't work. It had a mind of its own" (Student Focus Group #2, 2013).

In observations held two years later, it seemed the initial difficulties in enacting the fixed touchscreens computers had resulted in a lack of sustained use. Although they represented a substantial financial investment and intended to offer a range of affordances in teaching and learning practice, not one of the six observed teaching episodes (over six hours of practice) made use of them.

Rae, a Phase Two student participant identified the tension in the financial outlay and sustained lack of use, indicating the role staff play in enacting technology for learning. He surmised that:

> It's all good and well saying we're going to pump all this money into all this amazing technology, but if [our lecturer, Lee] is the only one who knows how to use it then that might be a problem. And you don't need to use it. I'm not saying that all the other lecturers are rubbish because they don't use it. I'm just saying that I don't know if the space has made that much of a difference in terms of technology pedagogy
>
> (Student Focus Group #4, 2015)

While rhetorically imagined as transformative for teaching and learning, the fixed computers had not led to notable sustained changes in pedagogic practices. Rather, it seemed that as 'renters' of timetabled classroom spaces on campuses (De Certeau, 1984 cited in Grellier, 2013) these teachers worked responsively with material and technological agencies and "*with students tactically* to appropriate spaces *for their learning purposes*" (emphasis added, p. 92). This in-practice (re)appropriation, in Lefebvre's (1991) terms, quieted the materialised institutional and design intent that active and student-centred pedagogies should incorporate digital technology, often specifically excluding the computers in order to enact a student-centric philosophy of teaching. This didn't however subvert or override technological agency, and instead needed to respond to the agentic 'minds' and physical presence of the computers when enacting the room. While university institutions may seek to 'write', create and operate spaces strategically, often for marketing purposes, teachers and students seemed to engage these material affordances only when they were purposeful, meaningful and easily enacted to enhance learning experiences.

Chapter Summary

This chapter considered the pedagogic performance of the formal learning rooms. While formal innovative spaces such as the interactive lecture theatre or the collaborative tutorial room did fluidly meet a range of teaching and learning purposes, this was rarely performed in

the ways anticipated and imagined in rhetoric or design. Contrary to the discursive assumption that space will causally innovate teaching practice, didactic strategies remained dominant in the lecturing space, although these were regularly interspersed with active, discursive and reflective modes. The collaborative tutorial room predominantly reflected an active teaching approach, but with a significant amount of time dedicated to didactic teaching. Discursive activities were less common in this space, and reflective strategies not recorded at all. Rather than being directed by the space or affordances, it seemed that staff practice was led by pedagogic purposes and student preferences, supported by a repertoire of student-centred teaching strategies. It seemed that instead of staff aligning themselves with the preferred pedagogic practices materialised in the rooms of Knowledge Hub, they were selective, reflective, and often critical in participatory spatial enactments.

As has been argued elsewhere, space is never entirely or neatly aligned with its intended design purposes (Boys, 2011) and users are able to work with material capabilities, knowledge practices, personal orientations and others to 'appropriate' spaces in ways that reflect their philosophies, purposes and requirements (LeFebvre, 1991; Grellier, 2013). However, these purposeful performances never entirely subsume the hidden will of the technologies and spaces themselves. Teaching and learning performance is an interconnected entanglement where spaces, technologies, people, embodied ontologies and epistemologies, purpose and intent coalesce, rather than a simple causal relationship flowing unilaterally (in either direction). It seems that *space works with* participants to invite, allow and condone both compliance with and subversions of institutional intent, reflective of personal preferences, needs, and capabilities. In the next chapter I continue to explore the *materialities* of pedagogic practice, assembling staff and student responses to the MSC stories of technology-enhanced teaching and learning.

Chapter 6 Change and Continuities in Pedagogic Practice

Introduction

Extending from the last chapter's consideration of the material performance of the formal teaching rooms of *Knowledge Hub*, I now continue to explore pedagogic practice through aesthetic function. In this chapter I work with qualitative data from Phase Two interviews and focus groups, presenting staff and student responses to the MSC stories presented at the start of the section (p. 105). The chapter considers the contributing research question:

- How do staff and students perceive space functioning in teaching and learning practice?

The responses provide insight into how occupants perceive *Knowledge Hub* in relation to their knowledge practices. While the stories – on the continuity of pedagogic orientation for staff and the benefits of technologies for learning for students respectively – seem disparate, they are both founded on the continuity of affective desires and understandings that pre-existed Knowledge Hub, but were eased in enactment in its spaces. Students had often attempted BYOD in the previous spaces, but were disappointed by the sporadic Wi-Fi connectivity and lack of access to power. The new spaces supported the incorporation of their personal technologies. Staff already ascribed to student-centred beliefs before these were supported by material spaces; the new alignment between beliefs and materiality in Knowledge Hub provided new opportunities to put these beliefs into practice. As such, the responses give clues as to how the space functions with, and in relation to, the people who inhabit it.

The themes that emerged from participants' comments reflect an entanglement of professional sociomaterial apprenticeship, encompassing (but not limited to) philosophical beliefs-reflection-embodied knowing and doing-collaboration-content-belonging-learning. The analysis situates staff beliefs about and spatial literacies for learning and teaching as essential enablers to spatial practice. Student responses detail the importance of technologies within and beyond the classroom environment for supporting personalised and collegial learning environments where students become self-regulated directors of their own learning. Ultimately, the narratives illustrate how teaching and learning affects, beliefs, desires, physical spaces and material technologies are entwined in the materialities of knowledge practice from the perspectives of staff and student users of the spaces.

Staff MSC Responses: 'Less of a transformation and more of an adjustment'

Further to the investigation of the functioning of the formal learning spaces in practice, I turn now to staff responses to the MSC story regarding the opportunities the formal teaching rooms of *Knowledge Hub* offered to 'rethink' things around space and technology use in their teaching. Eight staff participants from 2013 made comments that reflected this theme, which were consolidated into a singular representative story of change. Out of the ten staff participants in 2015, eight chose this story as demonstrative of sustained (non-) transformation in relation to the new learning spaces, making this the most frequently selected story. For Ida, this was her MSC overall, while for Tia, Ali, Tes, Lia, Lee, Hal and Cal it was a supplementary, but important, narrative of continued 'change'. Staff responses highlighted the ways the formal teaching spaces functioned in a way that encouraged conscious thinking about their use of space and technology in supporting student learning. The affordances became invitations for particular practices, but their in-practice enactment was firmly situated within purposeful teaching and learning goals.

Continuity in philosophy of teaching

While the previous chapter explored through observations how the new formal spaces demonstrated flexibility in supporting a range of teaching purposes, staff comments indicated that enacting a blend of modes or approaches was not a consequence of changes in their teaching spaces. Rather, this was indicative of their previously established teaching philosophies that valued and prioritised learning experiences that were active, engaging and student-centred. Biggs and Tang (2011), drawing on Trigwell and Prosser (1991) and Gow and Kember (1993), argue that all teachers have a theory of teaching, implicit or explicit, which will "deeply affect the kind of learning environment they create in their classrooms" (p. 16). Staff orientations to teaching and learning and the environments they aimed to achieve were marked in their responses.

The connection between beliefs about learning and enacted teaching was consistently identified in staff comments. Reflective of an ongoing student-centred approach, Ali felt that the story aligned with her pedagogic beliefs and her experience of sustained practice rather than change, stating that within the story,

the focus is on facilitating student learning. So that's why we're here … I guess my philosophy has always been to promote learning for those for whom I'm commissioned to teach. How I do the teaching is impacted by these aspects. So I don't think my philosophy has changed all that much. Elements of my enactment of it has changed, but not the underlying ideological kind of philosophy (Staff Interview #2, 2015)

Tes also described continuity in her practices: "the formal teaching spaces, they are a significant change in terms of what they enable. But the teaching practices existed in some form. You tried to do it, like I said, in the older spaces" (Staff Interview #5, 2015). Lee stated that "certainly within the [tutorial] space, in some subjects, it's very much conducive to being experimental and trialling different types of approaches, but I don't think that changes the way sometimes that we plan and teach" (Staff Interview #8, 2015). Lia reinforced this position, stating that "it's enhanced a lot of the practices that we might have already had" (Staff Interview #4, 2015). This indicated continuity of both beliefs and related practices, and demonstrated the ways that teaching philosophies inform spatial practice within both traditional designs and contemporary spaces.

Hal argued that the story was significant because it illustrated what he believed about teaching:

you're not going to see a transformation or change in your approach unless there's a fundamental change in your view of students as learners, and a view of learning. Anything else will just bring about cosmetic change … People just fail to realise that you can't change teaching unless you change people's fundamental beliefs about learning. I would say that here [in Knowledge Hub] too (Staff Interview #7, 2015)

This aligns with Blackmore et al.'s (2011) assertion that to assure deep and lasting pedagogic change, "buildings alone are not enough; it is about relationships and changing cultures and practices" (p. 37). Hal went further to elaborate:

The pedagogy is certainly reconsidered, based on what's available. But the pedagogy is grounded in our epistemological beliefs … My beliefs then shape the pedagogy I use, and the space and technology lastly, contributes or disables what I'm trying to achieve pedagogically. That's what I would say. So my professional beliefs - my beliefs about my role as an educator, and my personal beliefs about how learning occurs impacts on my pedagogical approach. So what I want to achieve will then be promoted through my pedagogy. The space and technology, I'll be giving consideration to how the space and technology can contribute to that or not (Staff Interview #7, 2015)

This careful consideration to ensure that the incorporation of space and technologies aligned with the achievement of meaningful pedagogic goals was similarly a consideration for other

staff members, and exemplified a reflective consciousness that guided practice. This seemed an in-practice representation of Kincheloe's (2003) critical ontology for teachers, exemplifying the call for teachers to "develop a critical ontological agency to act on self and the world in a just and intelligent manner" (p. 47). Lia felt that, "it is just like that reminder when you walk into the room and go, 'That's right, am I really using this room to its full capability?' But then you've also got to remember that you're not just in there to play with the technology; that it's got to be meaningful as well" (Staff Interview #4, 2015). Purposeful use of the affordances in pedagogical enactment was an explicit concern of Cal's as well: "it's re-thinking some of the things. But you've got to make sure that it is – you're not just doing it because it's there" (Staff Interview #10, 2015). The spaces and their capabilities provided clear opportunities to imagine new enactments that met meaningful pedagogic purposes. A reflective orientation is often a priority in higher education learning environments (Boys, 2011), with teachers who engage in this practice better able to entwine pedagogy and space successfully and demonstrate this relational practice to students as an embodied spatial literacy, an important factor in co-creating effective learning environments (Fisher, 2004).

These descriptions align with and exemplify Kirkwood and Price's (2013) assertion that enhanced learning with technology requires explicit and reflective links to authentic learning and teaching goals to ensure opportunities for increased educational value in technologies are realised. The position of this group of teaching academics seems to embody the understanding that "[m]oving from classrooms to learning spaces involves a conceptual shift as well as a *commitment to putting learning ahead of technology*" (emphasis added, Oblinger, 2005, p. 18). From staff comments, it appeared that this commitment, to put students and their learning ahead of 'ephemeral technologies' (as advocated by Long, & Ehrman, 2005 cited in Reushle, 2012), existed well prior to the spatial transition, even when access to 'innovative' technologies and arrangements were limited. What the new spaces and technologies offered, however, were aesthetic invitations to become conscious of the materiality of pedagogic actions, ensuring spatial considerations and their purposeful enactment were explicit considerations in teaching episodes.

A sociomaterial apprenticeship for teaching

Meaningful and conscious spatial and technological enactments for student learning reflected a critical spatial literacy (Fisher, 2004) employed by teachers to apprentice students into *embodied* teaching and learning practices. This remembered Rod's experience, described in

2013, and spoke to a sustained staff agency to work *with* materials, professional beliefs and students to enact learning goals. His narrative of practice explains an approach where he deliberately aimed to provoke student thought about the materiality of teaching, using the open space at the front of the lecture theatre (as he had in previous lecture halls). The description demonstrated plural and complementary teaching purposes to both exemplify the use of, and apprentice students into, an explicit pedagogic-spatial literacy:

> I've always moved around a lot in my lectures. I often would, for instance, go and stand at the side, facing the screen *with the students*. Sometimes I would say to them, 'Why am I standing here?' to give them the idea that, by doing that, it was sort of like us discussing that idea, rather than me at the front saying, 'Tell me, respond to me' … [S]o it's easier [in the new lecture theatre] to move around in that kind of way
> (emphasis added, Staff Interview #13, 2013)

While this modelling of metacognitive practice is narrated as 'easier' in the new space, Rod recounts this as a strategy he had employed in traditional lecturing spaces in the past, reflecting what LeFebvre (1991) may interpret as a strategic (re)appropriation of space beyond the didactic and behaviourist practices implied in traditional lecture theatre design. In addition, it represents an embodied sense of a 'power literacy' that "alerts individuals to their placement in the web of reality", providing an illustrative exemplar of a critical ontology in practice (Kincheloe, 2003, p. 48). Through this entangled narrative of people-space-question-screen-position, Rod makes transparent to students how his location in the room reflects an embodied intent to redistribute power in the class and manifest a student-centred philosophy. In repositioning himself as thinking 'with' students he illustrates how they too can meaningfully enact spatial practice to communicate-respond-react-reposition-resist sociomaterial teacher-student positioning in their future teaching practice.

This was not an isolated demonstration of spatial literacies in teaching enactments, nor of teachers acting as 'more capable others' (Dimitriadis, & Kamberelis, 2006; Kalanztis, & Cope, 2008; Vygotsky, 1978) to mentor students into an embodied understanding of the spatialised nature of pedagogic practice. Ida recalled that in Knowledge Hub, she often encouraged students to think spatially: "when they do their teaching demonstrations I really encourage them to [ask themselves] – 'Where do you want people?' Yes. 'Where will you be?' 'Where will the students be?'" (Staff Interview #3, 2015). A similar position was evident in Nay's statement that,

> what I'm rethinking is how I'm modelling approaches that can be translated to school settings. It's not just about me teaching there and then in that moment for those

students because they're watching me not only to learn conceptual information about their practice but they're also looking at me as a model of [embodied] teaching practice in that setting. So, that's what I have to think about … the constructivist approach to my pedagogy hasn't really shifted (Staff Interview #10, 2015)

These reflect sociomaterial assemblages of space, purpose, learners, technologies, strategies, embodied knowing, and content, entangled with each teacher's personal pedagogic philosophy to apprentice students into an explicit awareness of their profession *as* a spatial, embodied practice in addition to an intellectual and social endeavour. Fenwick (2015) suggests that:

> Educators working from sociomaterial approaches are encouraging learners to attend to these quotidian material details that stitch together their practice, knowledge and environments – not just to attune very closely to the connections, but also to *tinker* and improvise, to interrupt, and to seize emerging possibilities (p. 84).

These comments suggest that teachers' philosophies often included the recognition of, and appreciation for, explicit spatial literacies (as advocated by Fisher, 2004). Further, these teachers' sociomaterial reflections enabled them to interrupt and work beyond the intended pedagogic positioning of learning spaces. Their actions exemplify a reflective metacognition in teaching moments, an essential element of evidence-based teaching for student learning (Biggs & Tang, 2011; Hattie, 2011), therefore giving students strategies to become aware of their own spatialised thinking processes.

A consciousness of personal agency to work with spaces beyond design intent was again present in Cal's statement. She identified that "space and technology do make some things easier … [but] you've got to be careful yourself that you don't use a lack of appropriate space and technology as an excuse for not doing things. I think that's a really important thing" (Staff Interview #10, 2015). Cal was a staff member that had often enacted active and collaborative pedagogies in the previous spaces, indicating an ongoing commitment to orienting students to particular valued 'learning ways' (Kalantzis & Cope, 2008) of the disciplinary community. The continuity of student-centric philosophies for learning challenges the causal notions of transformative change assumed in policy and literature. Further, the conscious and critical use of active spatial literacies, and embodied apprenticeship of students into spatial understandings, also demonstrates that staff are crucial in enacting learning spaces. While the Business Case (Regional University Facilities Office, 2011) imagined the design and fittings of the spaces would serve to familiarise students with the aligned technologies they would find in their future professional settings, staff further encouraged students to develop their

own agency and self-efficacy to enact this in critically reflective ways. This position is often marginalised or silenced in considerations of spatial operations that foreground student-centred learning within a place-based community. Student participants identified appreciation for the building's capacities to support technology for personalised learning and professional development as one of the most significant functions of Knowledge Hub. While the ability to bring and use technology was new, the desire for these options had existed in the previous space, reflecting a sustained belief that technology is integral to contemporary university knowledge practices. It is to this that the chapter now turns.

Student MSC Responses: 'The facilities encourage technology use'

Appreciation for the different technological affordances Knowledge Hub offered and the way they functioned in practice was a significant theme in initial student descriptions of change. In 2013 in Phase One, 25 students made 49 comments on their perceptions and use of technologies in the new spaces. This story of change (see, p. 105) was then selected by two of the Phase Two focus groups, with seven students negotiating this as a meaningful story of sustained change. Although positioned among the most frequently selected student MSCs (jointly with two other stories), neither of the groups nominated this as their overarching most significant difference. In synthesising students' evaluations of why this story was important, three key themes were identified: the appreciation of BYOD, the use of individual devices for collaborative learning purposes, and students' applications of spatial literacies. Working with technologies and spaces, students demonstrated self-regulated learning, showcasing their own spatial and technological competences for both learning and teaching.

BYOD: 'you use your laptop for everything'

The ways the space functioned to support students to 'Bring Your Own' personal learning Devices (BYOD) was particularly valued by students. Identified as a change sustained over two and a half years of occupation, appreciation for BYOD capabilities extended beyond the initial use of Knowledge Hub. Kas appreciated bringing her laptop to university, "Because, well, over [on the previous campus] you were lucky to get Internet. But here like you can connect your laptop, whatever, so that's a massive thing I find" (Student Focus Group #1, 2015). It was this new ease of digital technology use that Ira appreciated, stating, "It's convenient … now because that's just what happens, you use your laptop for everything … That would be a big thing for me, it's just so easy" (Student Focus Group #1, 2015). A critical

part of enabling this ease of BYOD for students was the "internet capabilities" (Student Focus Group #2, 2015) along with a "really important thing is access to just a power point" (Student Focus Group #2, 2015). Similarly, Tim felt that "I actually bring my laptop from home now because everyone's got a power point and Wi-Fi" (Student Focus Group #2, 2015). The comments reinforce the assertion that these physical inclusions in learning spaces are emerging as necessities in higher education contexts as BYOD tendencies in students continue to increase (Dane, 2015b).

The new convenience to BYOD eased learning within (and beyond) the formal learning areas, an element identified as important for participants. Mobile technologies now available make it efficient and easy for students to choose to download content in their preferred places and times for learning (Dane, 2015a). Shi commented that "you don't have to print out everything, you can just read it on your laptop so if [teaching staff] refer to it you can just, yeah, have a look in the lecture slides. So, I think that's good for me" (Student Focus Group #1, 2015). Ira's comment also reflected this significance, stating,

> I think it's more time efficient because if [teaching staff] needed [us to have] access to a file, they can just quickly upload it and we can just access it straight away and be on the same page as what the lecturer's talking about. And I think that's really good as well that we're all not trying to see from a long distance (Student Focus Group #1, 2015)

The appreciation of BYOD related to efficiencies in connectivity to information but also of equity in easy access to required learning resources. Staff became facilitators who modelled technology-enabled information sharing. Connecting to learning materials on portable devices, including lecture notes, readings, or in-process assessment pieces, combined with Internet access to further clarify information, allowed efficient retrieval of information and seemed to ease learning demands.

Learning collaboratively and technologically

The appreciation of the ease of BYOD was tied closely to the ways the material affordances functioned to ensure that the use of individual devices could support and enable collaborative work. Ira commented that, "it's easy to share even if you are using your own technology, you can still share it with others through the screens and things like that" (Student Focus Group #1, 2015). Tim similarly elaborated that:

And then if everyone's got their laptops there and we're all sitting at this table and [Mit] has a question about a program we're doing or, "Hey, how can I modify this or format that?" or whatnot, then we're all collaboratively learning because we're all sitting there with our laptops because there's a power point for us to do it. And it's that flow on effect … I can sit here and have everyone here in this space and I can plug my laptop into it [the big screen]. And rather than everyone huddle around the laptop on this desk, I can put it straight on the wall and they can all sit around a big table and look at it (Student Focus Group #2, 2015)

This reflected that equitable access to technologies meant that information was readily shared between community members, which provided further possibilities for belonging to the learning ways, learning content, and learning community (Kalantzis & Cope, 2008) rather than being isolated from it. But also, it highlighted the way that within the unstructured social learning spaces students engaged in dynamic pedagogic work, teaching each other in sociomaterial peer learning enactments about both the content and the use of technologies. Mulcahy (2013) notes the relational unity of learners-teachers, that they only exist together as one, where assumed gaps and separations are effects of processes that do not recognise that the "categories … do not self-evidently exist" (p. 1279). Students here were actively engaged in student-directed learning (Hattie, 2011) with students within this learning community operating as both learners and 'more capable others' (Dimitriadis & Kamberelis, 2006; Kalanztis, & Cope, 2008; Vygotsky, 1978) at different times.

Professional Spatial Literacies

While staff intentionally apprenticed students into spatial literacies for teaching, student responses similarly indicated that they appreciated the materialities of professional practice. For Kas, staff modelling of the use of technologies was appreciated. She commented, "I like some things I've been shown in classes like I've used in the classroom … sharing files and stuff. Like, I didn't really know how to do that … I'd never used it until here" (Student Focus Group #1, 2015). Shi felt that the material alignment between future professional practice spaces and the new university spaces was beneficial for learning the expected capabilities for material fixtures: "Yeah … that's the way that classrooms are going now and coming more involved [with] technology, like way more involved. I think that's a good thing [that we can practice how to use it]" (Student Focus Group #1, 2015). This reflects a realisation of one of the key intents for the spaces identified in the *Business Case* (Regional University Facilities Office, 2011). However it was not space or technologies alone that actively apprenticed students into necessary material competences of their future profession; staff, students and

materials entwined to enact meaningfully model effective processes of technology-enhanced learning.

Students valued the opportunities provided to practice their professional skills in spatial and material ways. This was identified in the second focus group, when Bel commented, "[Here] you can actually use technology. There's so many different things … And imagine if we had to do our [assessment] presentations the other day [in the old spaces]" (Student Focus Group #2, 2015). Nic explained, "we did them [the presentations to peers] for [a] subject … imagine having to do that around the place, like, you couldn't because you'd have to have everything on paper" (Student Focus Group #2, 2015). The requirement for these students to teach their peers their understandings in the new spaces, actively using the technologies such as the lectern computer, writable walls and the screens in the collaborative tutorial room, allowed them to apply their own burgeoning pedagogic spatial awareness. Through pedagogic action they became aware of the fusion of technology-work-social-organisation as 'mutually-dependent ensemble' where imagining possibilities for practice cannot be done without attention to the materials and materiality of those processes (Orlikowski & Scott, 2008). The descriptions revealed students' embodied capacities to incorporate movement into their practice (Mulcahy et al, 2015), enacting strategies 'around the place' that would need to be translated ('on paper') if particular material affordances were not available. This reflected applied spatial literacies (Fisher, 2004) that mirrored those demonstrated by teaching staff.

Chapter Summary

The narratives illustrate the functional aesthetic of Knowledge Hub as a place of active student-centred learning. The ways this is manifest, however, are more complex and nuanced than those imagined in the rhetorical intent. Underestimated or ignored in policy, teachers' pedagogic philosophies were vital participants in teaching and learning enactments that aimed to reposition students as active partners in learning and apprentice them into their profession. These teachers, already oriented to active, collaborative and discursive pedagogies, found the spaces enabled a new ease in the sustained purposeful enactment of collaborative class activities and learning conversations. Enactments of the learning spaces reflect the purposes, beliefs and capacities of the inhabitants, but these too are in flux, becoming and evolving in a dynamic process of apprenticeship with space and technologies as active participants. Students appreciated the ways technological affordances of the space functioned to support personalised learning and equitable access to information. In particular, technology enabled

collegial sharing of ideas and the development of professional technological skills through an active apprenticeship involving staff, students, space and technologies. For staff and students, the space was appreciated aesthetically for the ways it functioned to enable learning relationships that were collaborative, discursive, and meaningful, and therefore reflected their valued ways of doing learning.

Understanding these relationships as they work with learning spaces is essential in understanding the intricacies of spatilised pedagogic practice (Blackmore et al, 2011; Boys, 2011). More than simply offering flexible spaces which 'afford' particular types of teaching and learning options, staff and student practices and perceptions provide insight into the necessity of simultaneously considering the spatial and pedagogic literacies embodied-in-use by occupiers of educational spaces. It is in the functioning relations of space as an assemblage of built form-people-content-technology-things-movement-time-purpose, that students and staff alike experience aesthetic moments of affection, appreciation, connection and belonging. Educational places exist as mélange, and it is to the sense of Knowledge Hub as a *place* of and for learning that is the focus of the next section.

Section 4 Place

> At the previous campus, you would see students formally – for their lecture, for their tute, for a scheduled appointment in an office – and then they would go. They didn't hang around, not even for an hour between classes, or if they did, I didn't see them. Here, they've occupied the peer social spaces, I see them around, and they see me. They ask questions and we can talk in that shared space, both informally just to say hello and spontaneously about learning questions they're engaging with. Seeing my students energetically engaged together in real life learning with each other, off each other, helping each other and debating the ideas and exploring, that has been such a highlight. It must feel good for students to feel part of a community of learning that includes staff and students.
>
> Staff MSC Narrative 2013

> A significant change is the social learning space – the group discussion and exploring things with fellow peers. That makes it a lot easier to interact with your ideas and your learning. You can study better with your friends – you can use the whiteboards and big computer screens and have people all focusing on one thing. It's just so much easier. For exams or assignments we can sit up here and bounce off each other. And it was good having lecturers and tutors come out and just go "I need your help!" We got to help each other right then because we were all here whereas before you wouldn't have done that. It's good to be able to clarify ideas and concepts in a collaborative way.
>
> Student MSC Narrative 2013

While Section Three considered *pedagogic practice* in terms of the enacted function of structured spaces for teaching, this section focuses specifically on informal and social pedagogic relations occurring in the unstructured peer-learning lounge. Inseparable within a perception-place-practice assemblage, *place* looks carefully at *socialities*, the social arrangements and interactions evident in the experienced spatial practices of staff and students – including processes of belonging and the achievement of a sense of place (Mulcahy et al, 2015; Mulcahy, 2013). Informal teaching-learning instances are performed in conjunction with the physical spaces:

> learning and knowing in sociomaterial perspectives are enactments, not simply mental activity or received knowledge. Mind, after all, is a dynamic of continuous neurological connections with myriad matter of environments. Sociomaterial perspectives join those which focus not on the individual learning subject but on the larger sociomaterial collective (Fenwick, 2015, pp. 90-91)

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In this section I elaborate on the enactment and experience of Knowledge Hub as a social learning community, first explored in Section One as one of the key rhetorical intents of the space. Staff and students identified this as one of the most significant aspects of change between their previous 'spread out' spaces and Knowledge Hub. This section explores how students and staff perceive and experience the learning community as being woven with the new social learning lounge in Chapter Seven. Then in Chapter Eight I draw together the study to consider the enacted learning community as sociomaterial assemblage and synthesise the key findings from the case of Knowledge Hub.

An Aesthetic of Collaborative Professionalism

This section is focused on staff and student appreciation for a spatial aesthetic that embodies a sense of collaborative professionalism. Cunningham and Tabur (2012 cited in Strange & Banning, 2015) attend to functional aesthetics in listing 'Comfort and Image' as encompassing both 'ambience' and a 'sense of scholarship' as defining attributes of ideal educational spaces. I conceptualise this as the pleasure experienced in the situated and social professional interactions between place-learning-space-Education-staff-clarity-technologies-disjuncture-students-content. In particular, many student and staff participants recounted appreciation of and pleasure in the fit-for-purpose function (Souter et al, 2011) of the social learning lounge to support dynamic and collective professional learning. Understanding the value in appreciating everyday experiences as emotive aesthetic encounters (Dewey, 1943) and 'aesthetic' as encompassing more than the superficial image of a space expands the possibilities for thinking around the ways spaces and technologies participate in student-centred, collaborative and embodied learning.

Chapter 7 Doing Learning

Introduction

This chapter focuses on Knowledge Hub's informal social learning lounge as dynamic in creating a new sense of a *place* of and for learning with Education disciplinary members. With an emphasis on *socialities* (Mulcahy et al, 2015; Mulcahy, 2013), *place* here is conceptualised as encompassing both the physical spaces and "what people make of the spaces they inhabit" (Temple, 2011, p. 137). The data in this chapter responds to two of the key research questions that focus on the lived experiences of learning spaces from the perspectives of students and staff inhabitants:

- What do staff and students report as the most significant changes in their teaching and learning experiences after transitioning to Knowledge Hub?

- How do students and staff describe their sustained teaching and learning practices in working with an innovative learning space over time?

In the first part of this chapter, I synthesise understandings of learning, specifically outlining the social-constructivist orientation to learning that underpins the design of Knowledge Hub as an 'innovative' higher education space. While a socio-constructivist approach may perhaps appear anthropocentric in its focus on human knowledge construction and therefore counter to sociomaterial explorations, this approach to learning represents part of the assemblage of higher educational spaces, rather than subsuming them. I use this to explore how the approach is enacted spatially, materially and socially in practice and consider the student and staff dispositions and characteristics that enable the social negotiation of personally meaningful professional knowledge. This encompasses the learning *ways,* those collaborative meaning-making processes where students engage with the learning *content* and the learning *community*, and ultimately come to feel deeply that they belong (Kalantzis & Cope, 2008). I then describe the physicalities of the social learning lounge, the place deeply entwined with staff and student narratives of socio-constructivist learning.

In the second section of the chapter I turn to student and staff responses to the representative stories of pedagogic change in relation to the social learning lounge. This is thematically organised, with student and staff comments entangled within related elements: friendly foundations; negotiated knowings; visible scholarly practice; and the blurred

boundaries in staff-student relationships. These new patterns act to significantly (re)position both staff and students in ways that challenge the traditional hierarchical strata of higher education. Ultimately, it is in this space of shared professionalism and collective engagement that students develop key dispositions for learning within and beyond the university environment and come to belong to learning and place. This deep relational practice-based belonging allows students a safe foundational place from which to explore and share uncomfortable spaces of cognitive disjuncture (Boys, 2011; Kalantzis & Cope, 2008; Savin-Badin, et al, 2008) and travel together towards more robust understandings of the content and practices of their profession, and themselves as burgeoning professionals.

Doing Learning: A *Place* for knowledge construction

The pedagogical approaches that underpin Knowledge Hub's new learning spaces are characteristic of social-constructivist theories of learning. These broadly conceive that all individual learning is the result of social and environmental interaction. Understanding learning as collective and experiential was formalised in the theoretical work of Vygotsky (1978) who posited that learning occurred in and through relational interactions with others and the world. This is not to say that knowledge and knowing is simply 'transferred' from one to another, but rather that learners and learning transition through encounters with human and beyond-human participants (see, Mulcahy, 2013). Vygotsky (1978) premised that all "cognitive activities have social foundations" (Dimitriadis & Kamberelis, 2006, p. 193) and what could be achieved collaboratively exceeded what could be demonstrated individually, with cooperative achievement a precursor to internalised autonomous understandings (Vygotsky, 1978). Elaborating on Vygosky's (1978) work, Kalantzis and Cope (2008) surmise that people "learn in a social context, in which meanings are first framed interpersonally in social interaction. Only later is the full depth of these meanings realized intrapersonally or within the individual mind" (p. 151). Thus, activities that allow collaborative and discursive work between both peers and teachers are able to "shape, elaborate and deepen understanding" (Biggs, 2003, p. 13). Social interaction and engagement in and with the world is vital to enable deep learning.

Learning, thinking, doing, spaces, concepts, things, and worlds are therefore entwined and co-created in practice. As Boys (2011) argues "in learning activities thinking *and* doing are integral, not separate; … learning involves not just cerebral knowledge but is also always embodied; and … is an on-going process which is centrally about social meaning-making in

the world" (p. 77, emphasis added). A relational view of learning and teaching that considers the materiality of learning and works with an understanding that "human beings and 'more than human' beings (objects, economies, environments) collectively constitute worlds. In association, they also constitute knowledge" (Mulcahy, 2013, p. 1279). In the enactment of socio-constructivist learning approaches, technologies, students, materials, ideas, teachers, agendas and places come together in communion.

Engagement in active social learning is compelling for community members. It provides opportunities to collegially interpret meaning and better understand the constructed nature of knowledge (Kalantzis & Cope, 2008; Savin-Baden, McFarland, & Savin-Badin, 2008). These collaborations make manifest the Zone of Proximal Development (ZPD), as students (and teaching academics) journey together through disciplinary content and work to extend and enhance each other's knowledge. Vygotsky (1978) conceptualises the ZPD as the space of potential between the 'actual' individual understanding and the possible achievement capabilities with 'more capable others'. In relation to knowledge communities, Kalantzis and Cope (2008) draw on both the ZPD (Vygotsky, 1978) and 'communities of practice' (Lave & Wenger, 1991) to state:

> the most powerful learning is social rather than individual. It exercises an individual's capacity to learn in and with the people and the knowledge and the resources around them. 'Situated learning' in a 'community of practice' is a conception of learning, which is not an individualized, psychological-cognitive thing, rather [it is] *a relationship with others* in a knowledge or learning community (emphasis added, p. 154)

Savin-Baden, Mcfarland and Savin-Badin (2008) similarly work with Lave and Wenger's (1991) work to define 'communities of practice' as "the process of social learning that occurs when people who have a common interest in some subject or problem collaborate over an extended period to share ideas, find solutions, and build innovations" (p. 224). From a sociomaterial perspective, these learning communities include relations with materials, technologies and things.

A ZPD learning community includes capable others who are non-human participants. As Kalantzis and Cope (2008) argue, "the stuff [learners] encounter in their environment – objects, people, language – teach them a lot" (p. 144). This is articulated in another way in Mulcahy's (2013) experimental understanding that "knowing and learning are not exclusively human accomplishments … materials participate in knowledge practice and produce particular effects" (p. 1278). In the processes of doing learning, non-human beings may also

become more capable others, facilitating learners' growth and development. Each acts as a co-collaborator in bringing about and generating new understandings *with* human participants. The learning environment works with learners in a responsive process, with the recognition that "the environmental conditions for learning (objects, people, symbols and their relationships) are much more influential than we've previously thought" (Trilling & Hood, 2001, cited in Melhuish, 2011, p. 22). Learning then is theorised and understood (and, as in the construction of this thesis, done) as an ongoing process of sociomaterial meaning-making, developing and refining understandings in negotiation with and in relation to self, others, and material, environmental and social worlds.

Social relations create a foundational sense of safety, security and belonging, along with differing points of view that extend the learner beyond their current 'actual' level of understanding. This approach emphasises a student-centred learning environment where a motivational and supportive learning community is founded upon positive, caring relationships (Adedokun et al, 2017). A positive and intellectually safe atmosphere, which allows students to make mistakes, and collaboratively confront, eradicate and learn from these misconceptions, is essential for deep, meaningful learning (Biggs, 2003). Active participation in learning processes is a core component of a socio-constructivist approach and can be understood as engagement in and belonging to the *ways* of learning (Kalantzis & Cope, 2008) or the actions of *doing learning* (Boys, 2011). When the ZPD is used to facilitate active student learning, teachers may model or demonstrate multiple modes of working with ideas, initiate solutions, or ask leading questions to support and scaffold student thinking and achievement in ways that help them to realise their potential (Vygotsky, 1978), exemplified in the pedagogies and sociomaterial apprenticeship practices explored in Chapter Six. These pedagogic acts have educational effects since the processes of coming-to-know affect the development of human qualities, including integrity, carefulness, respect for others and openness (Barnett, 2009). This openness to new ideas and to change is the foundation of coming-to-know differently.

However, students who are comfortable with traditional, passive lecture-based teaching and inexperienced with social and active pedagogies may not always be open to or accepting of these unfamiliar ways of learning. Although "knowledge creation and development as a community of practice *demands* explicit movements of contestation and patterns of constructive difference over ideas and methods" (Boys, 2011, p. 77), students who experience cognitive disjuncture and discomfort may resist being 'pushed' into new understandings and

approaches that contradict or counter their own beliefs, experiences and values (Savin-Baden et al (2008). Grellier (2013) in recounting Giroux (2011) also demonstrates the potential difficulty of challenging students' understandings, particularly when they are positioned as technicist consumers in a market-based industry. These student identities represent those who expect to be comfortable and have their educational needs met without being personally challenged. Instead, meaningful learning as a process implies the need for students to develop a willingness to engage in intellectual risk-taking – question prior assumptions and understandings, untangle misinterpretations, and listen to other perspectives (Kalantzis & Cope, 2008). Willingness to learn, to participate, and listen is required in learning encounters that can transform students' selves with these dispositions necessary precursors to investing *effort to engage* with the world around them (Barnett, 2009). Also implied is a tendency to "hold oneself out to new experiences" (Barnett, 2009, p. 433) especially in the face of resistance and challenge, and a willingness to explore differing beliefs and worldviews: students (and teachers) must be willing to transform, to become a new self.

In bringing together both the theoretical and materialised understandings of learning that underpin Knowledge Hub, learning can be conceptualised as an active, personal and relational process of making meaning, identifying and clarifying gaps and misconceptions, and extending knowledge within and in response to a sociomaterial learning assemblage. This occurs best when learners are able to shift into uncomfortable and uncertain new terrain with appropriate environmental support (human and beyond) to successfully navigate and reconcile these moments of cognitive disjuncture through a synergy of technology-content-effort-students-spaces-teachers-openness-interaction. Of significance when considering university spaces for learning is that socio-constructivist university learning is not limited to formal learning spaces or structured pedagogic experiences or even to disciplinary content. It is to the spontaneous and situated learning practices of doing learning in the unstructured learning lounge that the chapter now turns.

The Student Learning Lounge

The peer-to-peer area is characteristic of emerging university spaces that aim to cater to perceived student needs for comfort, flexibility and social connection. These exemplify student-centred learning approaches and allow for unstructured collaborative learning to occur on campus. Dane (2015b) suggests that social student spaces are necessities for future universities. Knowledge Hub's lounge is furnished with high-backed couches for privacy and

comfort, large screens for group sharing from mobile devices, movable whiteboard and pin-board walls, and tables and chairs on wheels to facilitate movement. As a student learning area, it is designed to support active, discursive and reflective modes of learning. The informal student lounge in Knowledge Hub also incorporates seven separate enclosed meeting rooms for students that are adjacent to the peer learning area. As identified in Chapter Three, the institutional and architectural intent for the area is for it to provide a comfortable space for collaborative student study and to foster a sense of community between Education disciplinary members. One of the distinctive elements of Knowledge Hub's student learning lounge in is its co-location alongside staff offices, meaning Education students and staff regularly cross paths in unscheduled ways.

Student and staff evaluations of the Most Significant Change (MSC) stories revealed that the most marked and sustained changes in educational practice between their prior spaces and *Knowledge Hub* related to the student learning lounge. No corresponding space had been available to students previously, and they repetitively identified the alignment between the functionality of the new space and their educational needs, embodying an aesthetic of friendly professional collaboration. The affordances – those 'action possibilities' (Souter et al, 2011) – of the spatial typology, furniture, and fittings allowed students to meet multifaceted learning and personal needs, for socialisation, for accomplishing necessary tasks, for discussing concepts with other students or staff, and for working individually and collaboratively. Indicative of other comments, Kat reflected that:

> The space opens it up so that if you want to work on a big table you move more tables up. If you want to work by yourself you move the couch over in the corner. You get to do that. You have that opportunity (Student Focus Group #4, 2015)

Rae asserted that the functionality allowed for "being able to sit down, pull open your laptop and feel like you're at a job" (Student Focus Group #4, 2015), but also to permit a social break when needed (reiterated by Tim and Mit in Focus Group #2, 2015 who at times used the space for a sleep and the hi-speed internet to watch a movie). Mel felt that the space offered limited distractions, functioning with a specific purpose that aligned with her study needs:

> There's nothing else to do here than study. When I'm here, I'm here for a purpose and I like being here so I liked my purpose … But, yeah, I like the space because there is nothing else to do here. You're here to do one thing (Student Focus Group #3, 2015)

The combined comments reflected the ways the space functioned *with* students responsively to meet their needs in way that had been absent in their previous traditional campus area. This was highly valued.

Student Social Lounge MSC Responses: A Community of Learners

When the stories of the social learning lounge were subsequently presented back to staff and students in 2015 the staff story of the community occupation of the peer learning lounge was selected by Ali, Lia, Tes and Lee as the overarching most important change in their experience. Ida and Nel also selected the narrative as among their top three MSCs. With the endorsement of six staff members, the transition story of the social learning lounge was ranked as the second most frequently chosen MSC. Common themes that were found in staff data included the appreciation for the vibrancy and visibility of student-directed peer learning and the opportunities to spontaneously clarify student misunderstandings, which aligned with, and as such are presented entwined among, student responses.

For students, thirty-eight 2013 student comments relating to this area were coded, with twenty students across seven of the focus groups contributing to the MSC narrative. Then in 2015, the story of the social learning lounge was ranked second of the twelve student MSCs after re-presenting the stories to students. It was selected as particularly meaningful to seven of the eleven participants, and was the overall MSC for Focus Group One, consisting of three students, Shi, Kas and Ira. For Tim, Mit, Bel and Nic this was among their three most important stories of sustained change. The recurring reasons students gave across interviews of why the story (and the space) was meaningful include the importance of friends, the ability to socially negotiate learning, and that the space enabled them to work with others, in-process learnings and material resources to make meaning. These sociomaterial practices concurrently acted as visible demonstrations of scholarly engagement to staff. Working with each theme led to the growing awareness that each was a subtheme of a broader area, that of actively and visibly *doing* learning: students and staff were engaged together in the practices of knowledge creation (Boys, 2011).

Friendship as a foundation for learning: 'it's an adult struggle'

While social relationships are often understood as essential to the student experience, contributing to the retention of students and enhancement of learning in university contexts

(Carter et al, 2018; Boys, 2011; Farr-Wharton, Charles, Keast, Woolcott, & Chamberlain, 2018; Kift, 2009; Melhuish, 2011), student responses reinforced their importance. When asked why she had selected this story as meaningful, Bel answered with a single word: "Friends" (Student Focus Group #2, 2015). This resonated with Mel's responses to the student MSC story of community, asserting in a separate interview that the struggle to make friends was not limited to primary and secondary schooling, but extended into adult life. She remembered how:

> I didn't have any friends here for the first year or so … I found it very difficult to talk to people [on the previous campus] because it was a really sort of, well, I want to say 'insular', but that's not the word I'm looking for, 'clinical' … And I always sound so wanky whenever I talk about making friends, but *it's an adult struggle that all adults have* - it really is. It's like I put it like number two as of all adult struggles, the first one is getting money; the other one is making friends (Student Focus Group #3, 2015, emphasis added)

In describing the lounge space further, Bel said, "I think it's socially pretty cool" particularly because it was "good for like just collaborating, like just with friends or even tutoring [with staff] like when we came into these [meeting] rooms. That was really good" (Student Focus Group #2, 2015). As Nic explained further, "now there's places to hang out … you can study with other people, so [that is] maybe keeping people at uni" (Student Focus Group #2, 2015).

It seemed the fused spaces-friends-discipline-learning was integral in successfully allowing some students to remain at university for prolonged periods, with Tim stating, "I lived here. I've been here ten and 12, 16 hours a day sometimes" (Student Focus Group #2, 2015). However his spatial encounters did not always reflect the rhetorical intent for continued 'active learning': "you could sit there and study and you'd also go and lie on the couches and stretch on the floor and sleep" (Tim, Student Focus Group #2, 2015). The social space, as a comfortable and student-centred area, welcomed student attendance beyond the bounds of scheduled classes and invited practices that were not 'active' learning. Grellier (2013) draws on Casey (2005) to note the importance of physically 'existing with' places, where students can experience transient connections with others and "feel themselves into specific learning spaces" (p. 88). It is these interactions that create a shift where a 'site' becomes a 'place' of learning – a 'home base' where students belong (Casey, 2007 cited in Grellier, 2013). For Tim (and Mit, who agreed that he had slept in the social spaces) it seemed that breaks between focused learning actions, while not part of the explicit intent, allowed longer stays on campus, which fostered social networks, learning and belonging.

This ongoing presence and the 'random' opportunities for interaction with staff and students that this generated allowed spontaneous engagement with each other and with learning. The spaces represented:

> a chance for positive engagement whether it's with someone you know, a really good friend, a lecturer that's walking past, someone that you see in your class that you might have to ask a question to or whatnot, and you're just sitting there and you're eating your lunch, rather than being dispersed into smaller pockets where you don't have the ability to randomly connect with those people (Mit, Student Focus Group #2, 2015)

A dedicated space fostered a sense of a united learning community, where students – and staff – belonged. This belonging allowed a sense of bodily and social comfort, with Ira stating, "I think there [on the previous campus] as well like we were more isolated [from each other] … Whereas here … it's the social sort of – reassurance as well, I guess" (Student Focus Group #1, 2015). Personal connection and 'social reassurance' then leant safety for deeper intellectual risk-taking: "you can just talk through things and have that more in depth [conversation]" (Shi, Student Focus Group #1, 2015). Tim stated that the story was significant for him "Because that's all about peer interaction and then the fact that tutors would also come in and around this space" (Student Focus Group #2, 2015). These comments align with the aims stated in the Business Case (Regional University, 2011) that the space would contribute to a disciplinary learning community and reinforce similar findings that informal teaching areas have been shown to impact on the student learning experience, motivation and belonging (Sheahan, 2017; Jamieson, 2003; Keppell & Riddle, 2012; Matthews et al, 2011; Rafferty, 2012). This safe and supportive social environment in turn provided a foundation for negotiating understanding and moving into uncomfortable cognitive spaces.

Negotiating Understanding: Staff, Students, Spaces

Staff, who made a concerted effort to engage with students in the social learning lounge, similarly appreciated this new sense of community. Hal enjoyed:

> the fact that we have these spaces just means you're always walking up to students and just having a yarn with them … [Previously] there didn't seem to be a meaningful place to engage. That's why I like it here. I like the open space … This is what it should be like (Staff Interview #7, 2015)

The new regular engagement among staff and students allowed for ongoing clarification of requirements and concepts in a spontaneous way. Kas appreciated the way the space enabled her opportunities to "Get answers to your questions, especially I think, if you can talk to someone face to face" (Student Focus Group #1, 2015). She described her prior difficulty in articulating moments of intellectual dissonance in written text compared with the new ease she felt in being able to talk over issues personally with staff:

> It's just really like the personal factor [now], so [previously] you would just email lecturers you know, like, it's not really personal. Like, it's just you have the question [in your head] and then sometimes it's hard to get even out what you're trying to say over email and like through that (Student Focus Group #1, 2015)

Tes, a staff participant, from a different perspective reiterated this concern through an awareness that:

> having those peer learning spaces, having more generally a building that students want to take ownership over and occupy, and yeah, the way *it promotes that sense of interaction*. So, I think *there are students who ask me questions who wouldn't bother otherwise*. What it would take for them to previously email me and arrange a time to come see me – and they're getting this spontaneous interaction, which is, I think, much more a fluid part of the learning process (emphasis added, Staff Interview #5, 2015)

Student-lecturer interactions are pivotal factors in student engagement and retention in university contexts (Carter et al, 2018; Farr-Wharton et al, 2018). Shi similarly valued them as additional opportunities to get impromptu "Feedback [from staff]. [The story is important] Because you get feedback" (Student Focus Group #1, 2015). These new chances for in-person feedback enabled her to develop a metacognitive awareness of her learning, an element important in becoming an Education professional (Kincheloe, 2003):

> I know it was so much better being in this building than the other one … Because *that's who I am as a learner*, just seeking feedback off people all the time and it was really good for me. That's why I think [MSC story] number eight was really a significant factor for me (Student Focus Group #1, 2015, emphasis added)

This showed that Shi valued the building for its alignment with her learning preferences and its ability to meet her learning needs. Consistent and personalised formative feedback, combined with engagement in monitoring and reflecting on one's own learning is central to effective, deep learning (Biggs & Tang, 2011, p. 58). Similarly, Hattie (2009) concluded that both teacher feedback and metacognitive strategies were among the most highly effective

aspects of quality teaching. The social spaces allowed this to be a 'fluid' process (Tes, Staff Interview #5, 2015), rather than a scheduled requirement of a technicist approach to teaching practice.

The social lounge became a space for students and staff to seek and receive personalised feedback on learning progress. The findings mirror those in Matthews, Andrews and Adams' (2011) study, with students in the learning lounge becoming highly capable others, "acting as student teachers and participating in group discussions" with the result being that they "feel that they have gained a more in-depth and critical understanding of course material and … [are] better able to conceptualise and consolidate information" (p. 112). Mit illustrated this applied process in extended prose, stating:

> Seriously, it increases your, you could say like your professionalism almost in the fact that I sit there, especially my maths side, if I'm struggling with what equation I'm working on in my book, it's easier for me, I can just turn around now and grab a whiteboard marker and scribble the equation out on the board, and then everybody can sit there [with that shared focus] … and then it's up to me then to try and, not teach the group, but try and explain to the group, "Okay, this is where I'm going wrong. What am I doing wrong?" And then they can instruct me and it's almost like it's kind of a teaching program. Not a teaching program, but sort of like, you know, it bounces back and forth off everyone and then I'm writing in red marker, and well then [a peer colleague], when she was studying with me, she'd get up and grab the blue marker and then correct me on my mathematics and say, "No, you've got to do it this way, blah, blah, blah, blah, blah." And that, to me, worked out a lot better
>
> (Student Focus Group #2, 2015)

This represented an embodied student-directed example of 'doing learning' (Boys, 2011) through active and collaborative peer teaching and learning work with capable peer colleagues, content, books, whiteboards, markers, space, furniture – and a growing idea of what it meant to be professional. Mit purposefully, deliberately, and reflectively exposed his erroneous thinking with a trusted peer. In the example, he demonstrated metacognitive control and reflective learning through effective self-monitoring – actively considering his mistakes, sharing the patterns in his errors, and collaboratively negotiating how these could be effectively resolved in future (Biggs & Tang, 2011, p. 61). These practices reflected a synergy between the pedagogic practices observed in the formal spaces (modelling, think-alouds, and collaborative problem solving as identified in Chapter Five) and the student-led encounters in the learning lounge. Particularly important in supporting this peer teaching-learning practice were the writable walls, seemingly 'simple' whiteboards as material technologies, whose ephemeral and 'messy' nature (Law, 2006) allowed students to safely demonstrate these in-

progress understandings, knowing the representations could be erased, added to, edited, worked with, negotiated and re-negotiated, in response to other community members' input and wisdom.

The narrative indicated a sustained change, as it was reminiscent of Phase One data, where Ria stated that for her the most important transformation was "Whiteboards. No seriously, we did, like, all our exam revision on whiteboards … we had like ten people, and the meeting rooms, and the whiteboards … and you just like write everything up. Yeah, they were good" (Student Focus Group #4, 2013). In a separate interview, Spa commented that:

> We did a lot of whiteboard stuff with exam prep. Like we would all just put it all up on there, and then you'd come in the next day and someone would have added to what you'd written [everyone laughs] and you're like, "Ah, I didn't know that!" It's like you're adding more" (Student Focus Group #5, 2013)

The stories highlight the importance of friendly social connections and flexibly equitable physical technologies as integral to the creation of safe intellectual spaces. This provides a foundation to allow students to actively negotiate and reconcile cognitive disjuncture and extend learning meaningfully (Boys, 2011; Kalantzis & Cope, 2008) at times through asynchronous learning encounters with unknown others.

Intellectual vulnerability of this type, where students safely communicate phases of partial or *not*-knowing in a supportive learning environment, was frequently recounted. These acted as necessary moments in a journey towards improved knowing and understanding. Situated, collective problem solving and knowledge negotiation was again evident in Mel's comment that she had worked in a group who had:

> used the whiteboard to put our poster together. We did big planning and mind maps and stuff and even [Rae] mentioned, "Oh, I've never used a whiteboard like this. I've never studied with other people like this before." So that was really good, just to get together with other people in the space and there were the facilities available to do that if we needed to (Student Focus Group #3, 2015)

It is uncomfortable, mentally and emotionally, to embrace a space of not knowing, to stretch, change and grow, but it is in this place that the best learning happens, when knowledge gaps and misunderstandings are identified and confronted (Biggs, 2003; Biggs & Tang, 2011; Boys, 2011; Hattie, 2009; Savin-Baden, et al, 2008). As Kalantzis and Cope (2008, pp. 234 - 235) argue,

> Staying where you are is not education … Effective learning takes the learner on a journey into new and unfamiliar terrains. However, in order for learning to occur, the journey into the unfamiliar needs to remain within a zone of intelligibility and safety

A supportive social learning community seemed to enable this journey to progress safely into spaces of cognitive discomfort (Kalantzis & Cope, 2008) or 'disjuncture' (Savin-Baden et al, 2008) because there were human and technological resources available that allowed disequilibrium to be reconciled with immediacy. Tim highlighted that for him, the story of developing shared, community-based understanding extended to multiple domains, stating:

> relating to that technology, too … working together to figure [things] out whether it's a question in an exam revision or something, or it's how to open a certain PowerPoint or listening to an audio lecture or whatnot, that area [the peer learning lounge], it allows you to do it. And I think that's good (Student Focus Group #2, 2015)

The above teaching-learning moments exemplified collaborative knowledge negotiation entwined with the learning lounge space, materials and technologies. This reinforced similar findings in relation to student perceptions of the impact of a discipline-specific social learning space: "students view each other as academic resources and seek each other out to discuss assignment ideas and get clarification around difficult concepts" (Matthews et al, 2011, p. 111). It seemed that the unstructured, collegial design and student ownership of the space ensured it was uninhibited by the bounds of teacher-dominated traditional discursive patterns of formal education (similar to Rafferty, 2012). In the peer lounge area these student-directed learning activities and scholarly engagement, which perhaps happened in dispersed ways previously, were centralised and made visible.

These demonstrations reflect students' willingness to actively 'lean in' to uncomfortable cognitive and emotional spaces in order to engage with material and learn. It must be remembered that this sense of *not* knowing, of consciously and purposefully making mistakes and misunderstandings public, is distinctly uncomfortable, and perhaps counter-intuitive to common discursive patterns in education where the aim has been to seek the 'right' answer. In contrast, it seemed that these students embodied certain dispositions for learning, including the willingness to sit in this space of not-knowing as they came to know the world differently. In particular, this shows a preparedness to explore new understandings and the determination to keep going forward (Barnett, 2009). Biggs and Tang (2011) suggest that learning from misconceptions or misunderstandings requires an environment that allows students to be vulnerable and admit errors safely without fearing ridicule, judgement or sarcasm, with a culture that understands mistakes and collective thinking as integral to learning. It is for this

reason that "the 'situated' and 'socially embedded' dimensions of learning are fundamental to the learning process" (Melhuish, 2011, p. 22) as they provide both physical comfort and intellectual and emotional safety to move into unfamiliar new conceptual terrain.

In the social learning lounge, these collaborative learning practices were visible to staff, who actively participated in students' processes of doing learning. Students frequently invited staff into their knowledge-creation practices, valuing them as human resources who could extend their understanding:

> So because I'm able to talk to them [staff] in this space, discussing things like prac. and asking them to justify why they think a teacher did a certain thing helps me understand why my prac. was successful or unsuccessful … having their knowledge right there and having their experiences, I suppose, right there in the space with me. I like to gravitate towards people that have the information that I need, and they have the information that I need, and they're able to answer a lot of my questions with a theoretical background. When I talk to my friends, when I talk to whoever, they're like, "Oh, maybe they just did it because they're a bitch" (Mel, Student Focus Group #3, 2015)

Unscheduled interactions with staff within the social lounge were seen to allow Mel access to expertise from more capable others with experience and knowledge beyond that of her peers, who could collegially expand her capacity to reflect on professional situations. These theoretical interpretations were valued and sought as a counter to the simplistic dismissal from particular peers, showing an orientation to and openness in learning beyond what is currently known. This extension beyond current lifeworlds and understandings is a fundamental aim of education (Kalantzis & Cope, 2008).

Staff reciprocally valued the opportunities to work spontaneously with students in ways that allowed them to guide students in their reconciliation of moments of (individual and collective) disjuncture in their learning. Ida commented:

> that social learning space makes a difference … Because [in the previous space] we were scattered – so [here] you just see each other … and that has to strengthen your relationship a little bit with them [students], which is always going to make for better classroom relationships … It's seeing students more often. I really like that, and I think they benefit from it too, because you can sit in that sofa space for 15 minutes and reteach something to three people, and by the end … there's seven more students who've walked past and joined in. So all of a sudden you've sorted out a problem for a whole lot of students in a short amount of time in an informal environment. So that's a real strength … I guess you have to have the time and be prepared to do it, but I would have done it at [the previous space] and it never happened. But I can do it here, so that's the strength of the building. We're all in one building and even on one floor, really, so we're in one little area (Staff Interview # 3, 2015)

Through the provision of a shared disciplinary social space teaching staff became additional human resources for clarifying concepts outside of scheduled class time, within a safe and comfortable environment. These narratives of spatial practice reflect a conceptualisation of learning "as a collective practice towards shared social meanings. Crucially such a practice is *situated*, and involves thinking, doing and affective encounters" (Austerlitz, 2008; Savin-Baden, 2008 cited in Boys, 2011, p. 6). Staff commitment to engaging in this kind of spontaneous pedagogic work with students (demonstrating an embodied and place-based 'pedagogic care' (Carter et al, 2018)) was not isolated to Ida. Lee similarly felt that this Most Significant Change narrative best represented the principal change between the two learning environments, and stated that the new social community in the learning lounge was:

> the most positive [aspect] of moving from there to here. It's a much more shared learning space, and that we [staff and students] can have a better and more valued relationship in the space, both professionally and, yeah, pedagogically, I suppose. I can, like, grab a room – this [meeting] room in particular – and know that no one can come into it, and we [students and I] can sit down and work on something (Staff Interview #8, 2015)

This suggested a shared student-staff community engagement in formative learning processes, with unplanned sociomaterial interactions "providing both parties with contemporary information about how well learning is progressing" (Biggs & Tang, 2011, p. 64). It also demonstrated the way the pedagogical relationship actively worked to support students as they develop the dispositions and qualities that allow them to "appropriate the curriculum in ways meaningful to her (or him)" (Barnett, 2009, p. 438). In ways like this, the collective space worked with students and staff to create a cohesive community of learners, engaging in processes of coming to know and through them becoming transformed (see, Barnett, 2009).

While these positive responses to change were frequent and are significant, they were not universal among respondents. For one staff member, commenting on the story without selecting it among her three sustained changes, she stated that although she agreed that the space had increased interaction and warmth between staff and students, she questioned the quality of the questions being asked by students and noted that the learning community present in the social lounge was a small proportion of the disciplinary cohort. Cal explained,

> Well, it's interesting because the peer learning spaces, I think they're lovely, and it gives you a warm glow when you walk through, and you see everybody, and especially the ones – I mean it's really nice, the ones that you taught previously, and

you're still seeing and everything, and they'll ask you something, it's really great. But I'm not sure whether that's just making us feel good, rather than actually contributing to a great deal of learning. Because, for me anyway, the number of students who actually ask you a really significant question that extends their learning, is really quite limited. Because there's certainly only a small number of students proportionally to the cohort there. So it's really – it's nice and affirming, and makes you feel good, but [I'm not sure] whether it has a real contribution to what you do (Staff Interview #9, 2015)

While the experience shows that there can be variability in the way teachers perceive interaction in the spaces, for student participants it seemed that each small moment of disjuncture and misunderstanding that is reconciled with immediacy is significant and appreciated. Regular friendly conversations with staff helped to demonstrate 'pedagogic care' (Carter et al, 2018) in an environment characterised by warmth, safety, and a commitment to personalised learning. Student participants felt they belonged across a community of students and staff, engaging actively in the learning ways of higher education, and the learning content of their Education discipline (Kalantzis & Cope, 2008). Reiterating findings in a similar study, students were active in "problem solving, sharing and building upon ideas" (Matthews et al 2011, p. 112) and formed social networks that were an "essential aspect of creating a sense of belonging" (Matthews et al, 2011, p. 113). As Carter et al (2018) argue, "the emotional reinforcement of one's identity as a learner who *belongs* in the university place is *made*, not found or given"– and it is made through the "social relationships that create student attachment to the university place" (p. 156, emphasis added). It is the combination of learning practices over shared content with friendly social interaction that jointly contributed to an embodied aesthetic of professional collaboration and place-based belonging.

Visible Displays of Learning: "It feels more like an institution of learning"

Students *doing* learning in the unstructured learning lounge, with new patterns of increased student presence between scheduled class time, created a new visibility to student learning undirected by teaching staff. It was this that staff described as 'vibrant', 'professional', 'energetic' and 'collegial'. An aesthetic that embodies a 'sense of scholarship' is an attribute of ideal learning spaces (Cunningham & Tabur, 2012 cited in Strange & Banning, 2015). Statements from teachers allude to the satisfaction they gained from seeing, and participating in, the processes of students' learning. Lia commented that:

to see [students], like when they are on the whiteboards out there and there's stuff all over the whiteboards, that's really exciting. They are all having chats. A couple of the fourth-years were in yesterday, because they feel that they work better here than they do at their school. So, they are on prac., but they came back to the space to work together … I think, too, part of that community of learning … it is that professional community, so it is more – like some of those interactions out there [in the learning lounge], it's more like a one-on-one professional relationship. So, we're both teachers talking about education stuff, it shifts those relationships (Staff Interview #4, 2015)

Visible demonstrations of students' active engagement in knowledge practices created a dynamic and 'exciting' learning environment. This provided a basis for shifting the staff-student hierarchical relationship towards a more collegial, equal relationship based on shared engagement in disciplinary knowledge and pedagogic work. Melhuish (2011) notes that attending to the ways infrastructure can participate in redefining teacher-student interactions, enabling "multivalent, non-hierarchical and non-segregating" relationships (p. 22) is increasingly a focus for spatial designers. This aligns comfortably with an approach that values students as partners in higher education contexts.

One the things this new visibility offered was the chance to reframe and challenge stereotypical notions of students that may arise when their professional practices are rendered hidden and invisible when completed off campus, or out of sight of teaching staff. Cal's thoughts captured this shift concisely. She felt that seeing students in the social learning space:

> … it is nice, and I think one of the things that may be useful is it does create – the [MSC] stories where they talk about the students [previously] not hanging about, [now] you get a better sense of the students as students, you know? So it may avoid people thinking that the students aren't engaged, just because I can't see them (Staff Interview #9, 2015)

Seeing students as engaged, present, professional and active in constructing learning was crucial in renegotiating and transforming staff-student relationships. Biggs and Tang (2011) recount Hattie's (2009a) description of 'visible learning', where teacher and learner identities shift and become blurred:

> the biggest effects on student learning occur when *teachers become learners* of their own teaching, and when *students become their teachers*. When students become their own teachers they exhibit the self-regulatory attributes that seem desirable for most learners (self-monitoring, self-evaluation, self-assessment, self-teaching). Thus, it is visible teaching and learning by teachers *and* students that makes the difference
> (emphasis added, p. 271, in Biggs & Tang, 2011, p. 60)

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When student learning became visible it challenged an inherent stereotype of students as disengaged, making evident the pedagogic work of those who engaged in the processes of coming to know outside of scheduled class hours.

This visibility allowed a staff-student relationship that was described as more 'equal.' Here, staff and students were both positioned as capable professionals engaging in disciplinary practices, the only differences being the levels of expertise and experience within a collegial disciplinary community of teacher-learners. For Lia, the narrative about the learning lounge was particularly significant as it reflected the way that the different spatiality had allowed the enactment of a new relationship between staff and students, one that challenged the traditional teacher-dominant interactions of formal class spaces:

> I think it is that community of learning, and it is that blurring of boundaries of those contact hours … no matter how hard you try, I still sometimes feel there's that undercurrent when you walk into a lecture, of this expectation that you sit out the front and they sit there. Sometimes you have to try really hard to challenge that. But it's just being able to engage in that different context … it's more their space or a shared space, where you're kind of on an even floor. I guess there's less of that power relationship stuff. They're not – you know, and that would still be scary for them, to sit in your office and you watch them, and they're just nervous. So you feel like you're talking to them, but you don't know if they are quite taking all of that in. But yeah, out there, I just think it's a different context (Staff Interview #4, 2015)

Mutually-supportive and collegial professional relationships are essential in the creation of a positive learning community that contributes to a sense of wellness (Acton & Glasgow, 2015). This kind of community depends on "workplace relationships based on collegiality and trust rather than hierarchy" (Retallick & Butt, 2004, p. 85). Community leaders are pivotal in creating this positive climate, with a willingness to engage in open, two-way communication instrumental. This reflects a 'horizontal' rather than 'vertical' approach to professional relationships, "where power and expertise are shared" (Butt & Retallick, 2002, p. 23). Wenger (2011) similarly suggests these horizontal accountabilities to each other as ethical group members are necessary to foster a sense of learning citizenship in social spaces.

Unstructured spaces seem to open new possibilities for this kind of collegial dialogue to occur between staff and students. Ali's narrative exemplified the ways students directed their own learning through asking questions:

> it's that collegiality with the students because I say to them, 'We're all teachers now. The minute that you step into here you are becoming a teacher. So you're my colleagues.' They relate to each other because there's a space to do it, which they didn't have [before]. That you can see them working in study groups. You can see

them in a study group and you happen to wander down past the student area all up there, and they want to ask clarifying questions. Which is good because instead of mulling away at home or somewhere else as they did [with the prior campus] because they weren't there, they can clarify it almost immediately. That came out for me where I'd seen my students *energetically engage together* in real life learning. Learning off each other or from each other, and helping each other (Staff Interview #2, 2015)

Ali's comments align with Boys' (2011) assertion that university learning *is* real life learning. In particular, for Education disciplinary students, engaging in the practices of education as a simultaneous student-teacher is perhaps unique, in that students are engaging simultaneously in the knowings and doings of plural positions (teacher *and* learner) within their future professional practice.

As Nel explained, the learning lounge story represented a positive change for her because it captured the way that within the new peer space "you can see [students] milling around, and it feels more like a university. It *feels more like an institution of learning* … so that's good" (Staff Interview #5, 2015). An 'institution of learning' here was one where dynamic, student-directed learning action – engagement in the processes of *doing learning* – was visible, tangible, to both staff and students. Tes asserted that the story was important for her because it represented an 'extreme' shift in her learning practices and relationships with students. While the formal spaces represented continuity in her teaching practice, the practices made possible in the informal spaces epitomised changes that were inconceivable in the previous spaces:

I think it's like I was saying before – just how vibrant it now feels because of the occupied space, and that's changed a whole feeling of, yeah, having the interaction with students, *feeling like the learning is happening*; you're not just having a one-off [scheduled] interaction during the week … Yeah, so the students say to me, 'Look, I saw your shoes [through the glass of the study rooms], so I came out'. Or as soon as I come out of the office suite, they see me so they call me over … there was no capacity for it before, so there was no element of it whatsoever. It's not like it's just being able to be done better here, there was just none of it. So to me, it's the most dramatic kind of – we've gone from no occupation of the space, because the facilities, the sense of being removed from the centre – all of that stuff meant students come and go … you didn't want to be there. So, now you do. It's gone from one extreme to the other, for me. I think that the pedagogical spaces, the formal teaching spaces, they are a significant change in terms of what they enable. But the teaching practices existed in some form. You tried to do it, like I said, in the older spaces, whereas this is just completely new to this space; the fact that they [students] want to be here, and yeah, they just have more sense of ownership and belonging and value. I think I'm the same. I feel more valued, and part of a bigger institution now, [rather] than on the

periphery. So yeah, just the drastic nature of going from no occupation and [no] interaction to occupation and interaction (Staff Interview #5, 2015)

Ida similarly asserted that this story was significant as it depicted:

> The less formal professional interactions, which is not a bad thing. That we're all people, not just teachers and students. I like that. Because we will be colleagues … So this idea that I'm your teacher and I know everything and you're a student and you know nothing – that's really a very unhealthy relationship for a fourth year Bachelor of Ed. student. They need to be talking to me as a teacher and a colleague, not as a student, and that [lounge space and interaction] helps. I think that really helps them that we're all in this together. That the times we talk is not necessarily when I'm their teacher. We're just in the building with some educational people (Staff Interview #3, 2015)

This again illustrates the ways that as students engage with colleagues in the disciplinary knowledge of teacher education and the processes of doing learning they are simultaneously in a process of becoming teachers. Subtly, it shows that knowing and ways of knowing are inextricably linked with being and becoming, and that the pedagogical relationship can work to actively nourish this professional (and human) development (Barnett, 2009).

Unscheduled staff participation in these practices demonstrated ethical professional qualities, including care, generosity, respect for others, and integrity (see, Barnett, 2009). The enactment of these exemplify a climate of 'pedagogic care,' which can be challenged in institutional contexts that do not recognise this in staff workload allocations (Carter et al, 2018). While the space design aimed to encourage more frequent interaction between staff and students, individual staff could resist this position. As Rae suggested, "I agree … that [the space] really narrows the gap between … staff and the students, but in saying that staff sometimes go actively out of their way to put a barrier between themselves" (Student Focus Group #4, 2015). Kas confirmed her experience where she felt a lecturer had deliberately avoided her at exam time: "he looked at me and turned around and walked the other way … Not because he was trying to be rude or anything … because everyone's been stressing him out so much I think" (Student Focus Group #4, 2015). Rather than being detrimental to the staff-student relationship the group then discussed that it was reasonable for staff to put some limits on their availability to students.

Social learning spaces that contribute to well-functioning communities of practice are founded on "a mutual commitment to collective learning" (Wenger, 2011, p. 206). This shared commitment can be identified in participants' collegial professional learning in the informal space. Ida's statements reiterated others' understandings that the strength in the

social lounge space was in bringing students and staff together in friendly ways over shared disciplinary content, with a communal focus on extending and enhancing learning. The space provided a safe space, where students were able to invite staff to participate in reconciling cognitive disjuncture, creating a place of deep learning, vibrant engagement and an embodied aesthetic of visible collaborative professionalism not evident in their previous experiences of a traditional higher education environment.

Chapter Summary

University spaces beyond the structured classroom are valuable in terms of facilitating effective learning relationships between students as peers and with staff. The experienced spatial practices of staff and students in the social learning lounge reflected *socialities* (Mulcahy et al, 2015; Mulcahy, 2013) that enabled deep belonging to, and sociomaterial constitution of, *Knowledge Hub* as a vibrant, community-based *place* of learning. The narratives demonstrate that when informal student peer spaces are co-located with staff spaces, beneficial opportunities for spontaneous interaction are maximised. These unstructured spaces and interactions challenged entrenched teacher-led educational discursive patterns, (re)positioning students as active professional learners and teachers as facilitating colleagues. These therefore were perceived to enact more equal relationships and collaborative learning communities. While students were repositioned as capable knowers, unfinished and in-development knowledge was similarly repositioned as a valuable part of a learning journey towards more complex and robust collaboratively-negotiated knowings. In the process, as a student engages in the learning community they also engage in *coming-to-be* a new professional self. Space that promotes intersection between students and staff counters traditional relational hierarchies and allows new ways of being a learner (and teacher) and doing learning to emerge.

The biggest transformations in teaching-learning practices were reported to be within the social learning lounge. With no corresponding space on the previous campus, the provision of an informal, unstructured peer space designed to enable and support peer group learning, combined with regular impromptu interactions with staff, was strongly appreciated by students. Staff too valued new opportunities to interact over learning and to extend student thinking in spontaneous and collegial ways. The strength of the space was its shared nature, which allowed students to engage with staff in ways that moved towards collegial relationships that allowed for knowledge negotiation and extension. Staff, students and

technologies acted as powerful resources for clarifying disjuncture with immediacy, in a safe and supportive learning environment in which students belonged. This shared space acted with students and staff to blur the boundaries between learners and knowers, positioning all community members as capable and active participants in the social and situated processes of doing learning. This combination of people-process-participation came together in a vibrant and dynamic aesthetic of collaborative professionalism. In the next chapter, I bring together the case of Knowledge Hub and discuss the key findings, particularly in relation to the materialities of doing learning in a situated and supportive community.

Chapter 8 A Learning Community

Introduction

This chapter consolidates and discusses the data suite, bringing together the case of Knowledge Hub, and illustrating the overarching most significant change, the establishment of a flourishing place-based community of learning. This enacted community worked in material, active, generative, and collaborative ways to meaningfully negotiate knowledge. Ultimately, what Knowledge Hub offers to the field is a distinctive evaluation of the entangled alignments, tensions and complexities between perception-pedagogy-place, which may inform future iterations of university spaces that seek to enact student-centred teaching and learning in practice. With a focus on spatial transition, this thesis, as a theoretically-grounded analysis of spatial occupation and sustained use, has been guided by an overarching research question:

- How do 'innovative' learning spaces, discursive representations of space and lived experiences unite in teaching and learning practice?

As an artefact of my consideration of the alignment between design intent, the functioning of the material infrastructure and the experiences of the inhabitants of the spaces, this thesis argues that rather than intersecting, these three elements exist as *assemblage* – the boundaries between them imagined for research purposes. The question itself draws on sociomaterial theoretical understandings of space as more than physical infrastructure alone. Woven into the question is both Mulcahy's (2013) and Mulcahy et al.'s (2015) conceptualisation of space as the entwined and enacted *textualities*, *materialites,* and *socialities*, and Dovey's (1999) triad of discursive textual representations, physical space and lived experience as necessary complements for understanding space and its impacts.

In harmony, I worked with these understandings to consider the *Perceptions* of Knowledge Hub's learning spaces through articulated policy and documentary representations, *Pedagogic Practice* through the functioning of the formal physical spaces, and the sense of *Place* through the enacted teaching-learning interactions in the social space. With Boddington and Boys (2011), I understand space as a mangle of "socio-spatial practice, designed places and individual perceptions of both practices and actual places and their place alongside institutional processes/relationships and societal ideas" (p. xx). My investigation and the subsequent representations of the case of *Knowledge Hub* show the ways in which

teaching and learning work is spatial, emotional and embodied, performed as an assemblage of perceptions-practices-places-peoples.

Knowledge Hub

As a case, Knowledge Hub offers critical insight into the role of staff and student beliefs, purposes, and pedagogic orientations in enacting educational spaces for meaningful learning. While generalisations from the project may not be possible given the case being bound by the building, its regional Australian location, the Education disciplinary field, and the small scale of the project, the study provides rich illustrations of embodied teaching and learning processes, sustained beyond the initial occupation phase. Narratives of change and observations of pedagogic practice illustrated that active and collaborative pedagogies were enacted within and with Knowledge Hub. After a sustained period of occupation and use however there were few 'transformational' changes (as assumed in policy such the *Education Investment Fund* (Australian Government, 2008)) in pedagogic practice identified by participants. Rather than space being a catalyst that indisputably altered behaviour, staff and students *worked with* their new learning spaces in symbiosis to create patterns of interaction that reflected their philosophies, values, and teaching and learning purposes. Staff understood alterations in formal teaching practice as modifications or adaptations to well-established pedagogic practices, which entwined with a willingness to 'experiment' and 'play' with new material possibilities. These spatial and technological affordances worked to ease pre-existing student-centred approaches that had been implemented with difficulty in traditional teaching spaces, rather than sparking revolutions to practice that could be attributed to the new classroom design. This finding works to confirm the understanding that pedagogic change is iterative and generative (Keppell & Riddle, 2012) and cannot be simplistically or causally attributed to spatial agencies alone.

Knowledge Hub is perhaps distinctive in the innovative spaces landscape being purposely envisaged and designed for the discipline of Education. This is unusual in the field where cases of learning spaces in the literature are often trans-disciplinary or reflect mathematics, sciences and engineering foci, disciplines arguably assigned a higher status in a hierarchy of knowledge where positivist ways of knowing and doing outrank the social sciences' socio-constructivist approaches. However, the disciplinary background of Knowledge Hub case participants enables the staff *and students* to speak with pedagogically informed understandings of and reflections on their experiences of spatialised teaching and learning. As

participatory co-evaluators of narratives, student involvement in particular reflects a unique approach that positions students as active partners in higher education research (Kahu & Nelson, 2018).

Staff reported a pre-existing commitment to the ontologies and epistemologies of socio-constructivist learning, describing their enactment of active, collaborative and discursive pedagogies as continued with the shift to Knowledge Hub. This philosophy further supported their participation in student-directed social learning communities beyond the formal spaces, where they acted as guides in student-driven knowledge-generation performances. This reinforces the perspective that innovative spaces are perhaps 'catching up' with long established understandings of the social and learner-centred nature of teaching and learning, rather than being drivers of change (Adedokun et al, 2017). Instead of being separate from socialities, space is caught up in and reflective of fluid social processes.

Assembling a Disciplinary Community of Learners: Summary of Key Findings

Here I begin with a revision of the ways discursive representations of space (attempt to) arrange the ways we come to know space and place, although spatial participants may take up or resist and reshape those imagined knowledge practices and power relationships in their actions. For both students and staff, as the most significant change stories illustrate, these intentions, practices, and relationships coalesce in a nexus of embodied becoming and belonging – the sense of connecting within and to an active community of learning. The narratives of *Knowledge Hub* woven throughout the thesis give insight into student and staff professional practices, dispositions and identities richer than those perceived in rhetoric. Through story the sustained impacts of the innovative spaces on teaching and learning practice and relationships are demonstrated.

In Section Two on *Perception,* I focused on spatial *texualities*, in particular considering how policy and institutional spatial discourse work to construct space as an unambiguous catalyst for assuring 'transformed' pedagogic practice. As detailed in Chapter Three, the rationale underpinning the design and construction of *Knowledge Hub* was to contribute to the economic viability of the institution through the production of a distinctive, internationally competitive image. The building was intended to become symbolic capital that could act as a marketing tool to attract and retain highly mobile students. This capital rested on a sociomaterial assemblage of 'modern' built form, digital technologies, socio-constructivist pedagogies, collaborative scholarly practice, and the development of a professional

community within the discipline of Education. The rhetoric positioned students as strategic and technicist consumers while overlooking staff in the implementation of both structured and unstructured student-centred pedagogies.

Neoliberal ideologies of economy, competition, choice and the market implicitly preclude and marginalise emotion, which is a foundational component of learning and teaching work (Acton & Glasgow, 2015; Boys, 2011; Connell, 2009; Mockler, 2011). However, as Chapter Four demonstrated, staff and student narratives and perceptions of the spatial aesthetic of Knowledge Hub were deeply emotive rather than strategic. Emotion has often been rationalised and subjugated in the traditions of education (Kenway & Youdell, 2011). Feelings of 'love' and appreciation for Knowledge Hub entwined inseparably with the aesthetic of the built form, the collaborative professional relationships established and the knowledge practices enacted with/in the spaces. These emotional states, while resisting measurement and accountability regimes, are integral to the enactment of the key aims of the building – to facilitate a connected community of learners who belong to place, to disciplinary knowledge and practice, and to each other.

In addition, built space worked to communicate the worth of the discipline and of disciplinary members in a pedagogic transaction between space and inhabitants, invoking the feeling that the institution valued their profession and their professional work. Policy that excludes this affect by positioning students as future clients who are rational and strategic decision makers fosters a reductive view of 'Net Gen' students and ignores the professional commitments and ethical dispositions needed to engage deeply in learning processes. Staff also reflected on the importance of sustained maintenance and care of the spaces in order for the building to continue to speak as symbolic capital for themselves and the institution.

The ways these textual constructions, aims and expectations informed the pedagogic function of the infrastructure was the subject of Section Three, *Pedagogic Practice*. Looking at the *materialities* of teaching, Chapters Five and Six asserted that the enactment of formal learning spaces is entwined inherently with the pedagogic values and purposes of the inhabitants; even when they are conscious of the design intent they may deliberately resist this in practice according to their philosophies, beliefs and needs. Rather than a human centric (re)appropriation (and implicit subjugation) of space, technologies and affordances to human purposes, from a sociomaterial understanding these materials work with participants equally to invite and enable a spectrum of performances beyond design imaginaries. In particular, data suggests technologies especially often defy human demands, negating both the envisaged

intent and participants' immediate purposes for enacting devices in teaching and learning performances (examples include the 'clumsy' technology and Wi-Fi, screens that block conversation, and applications that did not work as intended).

Data illuminated the way that physically 'levelling' the lecture theatre space contributed to perceived changes in more 'intimate' discursive patterns where students felt less like staff were 'talking at' them. Movement was enabled, and students and staff appreciated the opportunities this untethered teaching allowed for connecting with students throughout the space in personal ways. While a range of enacted teaching modes were observed in both the interactive lecture theatre and the collaborative tutorial room, with active and discursive modes operationalised around 50% of the time in both areas, staff suggested this was not a change in their practice. Rather, this represented their sustained commitment to socio-constructivist pedagogies and the enactment of pre-existing student-centred philosophies of learning. These were manifested through a process of professionally apprenticing students into the spatial nature of teaching and learning, embodying, modelling and making explicit the spatial literacies necessary for enacting material affordances within university spaces and in their future educational careers.

Policy and design rhetoric constructs digital technologies as central to an 'innovative' aesthetic and institutional identity of active learning and modern scholarship. However, in practice staff often resisted the material expectation and invitation that teaching 'should' embed technologies, instead forgoing digital affordances in a responsive desire to foreground students' preferences and professional capacities. This reflects a tension in the alignment between policy and the materiality of formal spaces, where student-centred learning is rhetorically prioritised, but technological affordances may work subvert that aim. Technologies in practice may hinder communication and take up learning time when they do not work as anticipated. The affordances of the structured learning spaces supported students to bring their own devices. Observations suggested this was enacted by around 50% of students in 2015, which staff reported as a challenge when it came to incorporating technologies equitably into learning experiences. Simultaneously, fixed computer screens in the collaborative tutorial room aimed for connectivity, but in practice these acted as dividers, allowing students to 'hide' and avoid participation.

The discussion illustrated keenly the central role of staff philosophies and purposes in enacting learning spaces and technologies. While teaching philosophies did not transform in or due to the changed spaces, space was understood to enhance the enactment of pre-existing

student-centred orientations by aligning with valued active and collaborative approaches. Staff were however more conscious of the invitations space and technology communicated to include technology purposefully, be 'experimental' in technology use, and enact different modes of teaching. Staff and students often worked with space to meaningfully (re)appropriate the affordances for their own learning purposes and agendas, in ways that demonstrated a richness of practice not evident in the 'neat' documents of Knowledge Hub.

With a focus on the peer social learning space Chapter Seven considered *Place,* the unstructured material spaces of Knowledge Hub and "what people make of the space they inhabit" (Temple, 2011, p. 137). This demonstrated that knowledge negotiation processes are not restricted to formal learning areas, with synergies evident between formal pedagogic strategies and student-directed knowledge practices in the informal lounge. Both staff and students acted with hybrid teacher-student identities to *do* learning and come to know differently. Unstructured peer learning areas are often a key inclusion of 'innovative' new learning spaces, and from the data it was apparent that the active and collaborative teaching-learning practices imagined as possible in the *Business Case* (Regional University Facilities Office, 2011) were visible with these spaces. Narratives relating to the peer social learning lounge best illustrated the enactment of the key principles of socio-constructivist pedagogies (learning as active, student-directed and collaborative). Collegial learning relationships between staff and students were noted as the most significant changes in teaching and learning practice since the occupation of Knowledge Hub. Key comments exemplified the Zone of Proximal Development (Vygotsky, 1978) in practice, suggesting a dynamic community of learners where students and staff alike acted as facilitators to student-directed learning, with staff, materials and technologies invited into moments of cognitive disjuncture.

Working through and reconciling instances of not-knowing in collaborative ways represented scholarly behaviours of knowledge generation and negotiation, professional interaction and personally meaningful knowledge construction. The visibility of these behaviours worked to shift some staff members' conceptions of students, seeing them anew as beginning professionals engaging in educational professional work. This flow of actions-orientations-spaces-technologies-feelings-conversations contributed to a more equal and collegial learning community, where successful participation resulted in a sense of belonging to the learning practices, the content knowledge, and the situated social community of Education – belonging to Knowledge Hub as a shared place of learning. With recognition that the most significant change identified in Knowledge Hub was the sense of belonging to the

learning community, I bring the processes-dispositions-emotions-interactions together as a suite of embodied belonging, summarised in Figure 5.
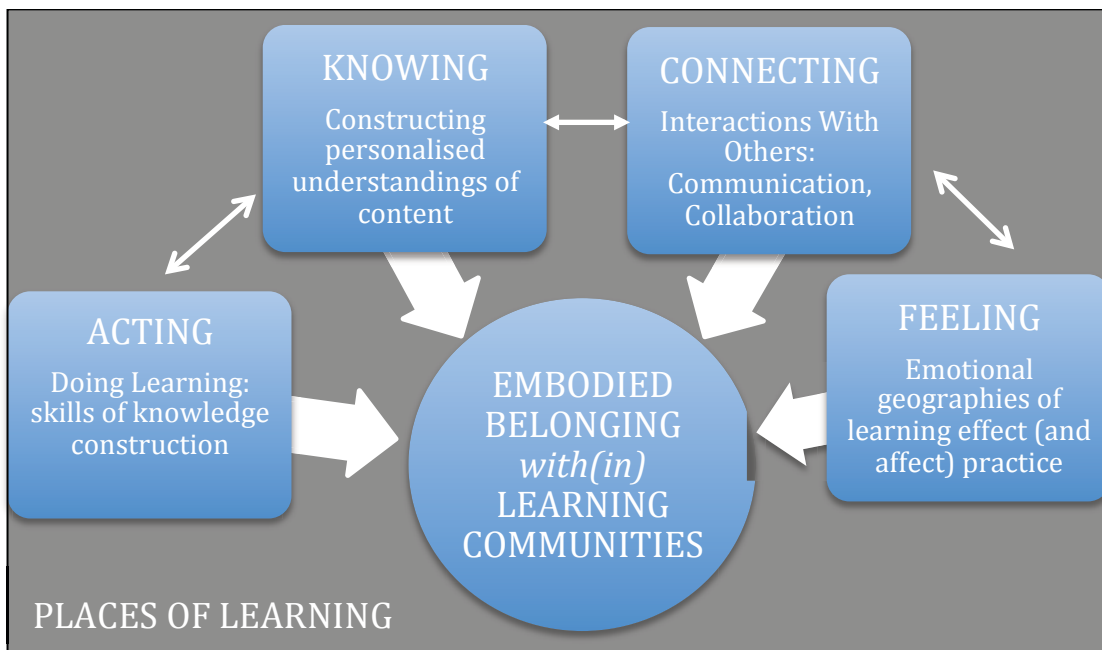
Figure 4: Embodied Belonging to Learning

Certain dispositions and learner identities (ways of being-becoming) underpin this sense of belonging; these include the willingness to take action, to invest effort, to come to know differently (in Davies' (2014) sense), to connect with others, and the preparedness to engage emotionally. These embody and elaborate Barnett's (2009) dispositions for learning, and further involve the willingness to learn and engage with the knowledges and practices of their profession; the preparedness to listen to more capable others and explore different knowings; and the determination to persevere through cognitive disjuncture in their coming-to-know. Wenger (2011) poses the reminder that participation in social learning communities rests on ethically-minded citizenship, with a shared commitment to (and joint responsibility for) learning. These orientations reflect a way of being (and becoming) that develops through the processes (acting, knowing, connecting, feeling) of coming to know. Embodied belonging to Knowledge Hub as an evolving place of learning allows for both active being in the spaces and professional becoming as part of a learning journey that will not end when formal studies do. Embodied knowings, beings and doings are aligned with an onto-epistemology of co-created learning and learning spaces, where knowledge generation, dissemination and representation is inherently sociomaterial.

The above graphic refers to the plural and simultaneous aspects of community belonging narrated by students and staff, and implied (although veiled) in spatial documents, which are inseparable from the place of learning itself. Students and staff participated willingly in the processes of *doing* learning, ACTING in ways that supported coming-to-know and knowledge generation. The embodied process of ACTING as learner-teachers entwined with the fit-for-purpose materiality of the spaces to invite students to recognise, sit with, and collaboratively reconcile instances of *not*-knowing. The modelled teaching-learning strategies in formal spaces as pedagogic actions for doing learning effectively became synergistic, with these sociomaterial ways of learning mobilised effectively to shift between formal and unstructured learning areas (thinking aloud, collaborative knowledge negotiation, whiteboard-centred problem solving, staff-student conferencing). Students exhibited an agentic dispositional willingness to engage with cognitive disjuncture and confusion and 'mess' in order to refine and develop their understandings and professional competences. It is in moments that disrupt regular routines and easy knowing, and instead allow the 'messiness' of life to enter and transform the commonplace into something more meaningful, that learning on a broader and deeper scale occurs (Todd, 2014).

Effective KNOWING reflected a shared community commitment to meaningful learning. While the built spaces 'knew' and communicated an institutional assurance of worth, value, and support, staff participated in the development of knowledge through actively and purposefully apprenticing students into the spatiality of their future profession. They explicitly and critically articulated the materiality of their professional practice, and demonstrated themselves as expert 'knowers' within the community. Through interactions, students came-to-know and position themselves as burgeoning professionals, seeking knowledge from others in ways that went beyond a mandated requirement to meet externally imposed hierarchical accountabilities, reflecting a dispositional preparedness to take personal responsibility for learning. With the human participants, entwined in a KNOWING mélange are disciplinary content, spatial literacies, critical reflection as a disciplinary way of knowing oneself as a professional, philosophies about learning and learners, materials for knowledge negotiation and dissemination (such as whiteboards), knowing learners personally and students' mutual sense of being known. KNOWING also encompasses the ways knowledge is represented and communicated – materially, technologically, discursively. For students, in this new space of situated professionalism and collaborative scholarship, demonstrations of not-knowing became publically permissible as part of a culture of safe academic and

intellectual risk taking. This culminated in collective resolution, understanding, and achievement and a powerful and emotive sense of embodied belonging to knowing and the community of knowers (and coming to know-ers).

Within the learning community, CONNECTING with others and learning content was a vital and appreciated aspect of place-based, spatial knowledge practices. Spontaneous informal interactions were particularly valued, and the willingness to engage in these outside of scheduled contact hours represented a manifestation of 'horizontal accountabilities' (Wenger, 2011) or 'collective responsibilities' (Mulcahy, 2012) to the discipline, self as professional, and learning. These reflect dispositional willingness to engage with others, to seek and listen to others' understandings, and to care for others' learning and wellbeing through friendly professional social interactions. These relational connections between students as individuals and peer groups, staff, materials and technologies, beliefs, theories and content, and institutional expectations for practice worked to soften the boundaries and hierarchies that had previously separated staff and students in the previous segregated and tiered learning spaces. This connection existed also with Knowledge Hub itself, with staff and students connected to the place of learning with a sense of ownership and care for their spaces. As students connected to and within the disciplinary community, they continued their learning journeys, practising the ways of knowing, being and doing their profession.

The affective relational nature of teaching-learning work was central in manifesting *Knowledge Hub* as a FEELING learning community. Emotional geographies are often marginalised or ignored in education contexts (Kenway & Youdell, 2011), despite quality teaching, meaningful learning and place-based belonging depending on them. In emotive responses to the aesthetic of the space, in the appreciation of friends and friendliness, in frustrations with technologies, in the desire to 'be known', in the 'love' expressed for Knowledge Hub and the learning happening within it, staff and students demonstrated that the co-realisation of spaces as learning *places* depends upon a beyond-human ethic of 'pedagogic care' (Carter et al, 2018). It is perhaps this embodied and emotive relationship between people-place-practice that is most silenced in neoliberal perceptions of space with their reductive attention to easily measurable outcomes. Kat, in describing her previous lack of attendance and motivation in the traditional spaces, said, "It's not so much that I didn't care, but it felt like uni didn't care about me" (Student Focus Group #4, 2015). The new spaces combined with collegial disciplinary members to communicate an institutional-academic-

personal sense of pedagogic care for students and staff, their work, and their discipline. These entwined in an embodied and experienced sense of belonging.

While these areas are presented as domains, they are inherently enmeshed. ACTING in ways that are consistent with the disciplinary community reflects a KNOWING (or a coming to know) of valued professional practices. CONNECTING with others, spaces, and disciplinary knowledge is entwined with FEELING a sense of belonging with/in the community. KNOWING, as a shared socio-constructivist endeavour, requires a willingness to engage in CONNECTING. Each aspect is also co-created with the physical materials that constitute the teaching-learning spaces, technologies, and fixtures. Further, student and staff dispositions are integral participants in this community development, with these able to manifest as worthwhile professional qualities (including respect for others, self-discipline, authenticity, and openness) (Barnett, 2009). When members live these ontologies, they support the development of a community climate that embodies a shared commitment to learning. Rather than being stagnant, each continues in a process of becoming in relation to the other – dispositions evolve with and through the actions of doing learning, the development of new knowledge, connections with others, and feeling respected and valued as professionals; space becomes new in a responsive process with human action, knowing, and feeling. Students and staff transform through purposeful situated efforts of coming to know the world differently, with the epistemologies of their profession and entwined with the development of professional ontologies in ways that are only beginning to be explored (Barnett, 2009).

Chapter Summary

The enactments of pedagogic practice that realised policy aims and design intent rested on staff and student willingness to work with spatial affordances and each other in ways that met their own purposes. In terms of pedagogy, staff reported that rather than revolutionising their teaching practice due to the new affordances the space provided they instead adjusted, adapted and modified their actions according to their existing beliefs about teaching and learning. Since their philosophies were already socio-constructivist in orientation, the building aligned with and corroborated their pre-existing values and beliefs around effective teaching, making the practice of student-centred teaching easier to implement than it had been previously. Although students have potentially always engaged in knowledge disjuncture reconciliation, what the social learning spaces achieved was to publically endorse these

behaviours, centring them within the disciplinary group, and rendering them visible – no longer hidden. This communicated their value to students, but also challenged staff perceptions of students, seeing them more frequently as burgeoning professionals, already engaging in the learning ways of their discipline. While singular, the case of *Knowledge Hub* offers unique insight for intuitional policy makers at various levels that in seeking to enact pedagogic transformation and a sense of place-based belonging to a learning community, there needs to be cognizance regarding the alignment beyond design intent and infrastructure to also include explicit attention to staff pedagogical philosophies, spatial literacies and student identities. The findings suggest a suite of implications in relation to policy, institutional management, design, and pedagogic practice. These are the focus of the next and concluding chapter.

Conclusion: Knowledge Hub

> Here, rather than just talking to my lecturers in class, I see them during the week. That everyday interaction and that everyone in the social learning space says 'Hi' to passing lecturers – it's not rigid or really, really formal. You can just have more friendly relationships. I can ask questions. Lecturers and tutors who haven't taught me for ages say 'Hi'. They know me, and I know them, and we can catch up about what's happening, how I am, what prac's like. *It's a supportive kind of atmosphere and I really appreciate that. I like feeling known.* Personally, I think the building is better in terms of learning achievement too because you can really talk to the lecturers and build that relationship.
>
> Student MSC Narrative 2013

> I think the technology is secondary to the interpersonal stuff. Regardless of the space or technology available, I focus on meeting the needs of my students and making the learning relevant. That didn't change from the previous spaces to here. *I still believe that pedagogy is that relationship you have with the learners.* Often I knew the students felt the technology was a hindrance, it took a long time, or didn't work and students just wanted to engage with the concepts. So while there are computers with the stylus and tools like applications for online connections available, you still have to make sure using them is contributing to better learning for students. You have to know your students, work well with students and achieve the outcomes.
>
> Staff MSC Narrative 2013

The above *Knowledge Hub* narratives of practice are symbolic of the most significant and sustained changes and continuities valued by staff and students in their spatial transition: the enactment of valued and valuable professional learning relationships, new possibilities for open and spontaneous communication, and a strong sense of a grounded community. In this final chapter I bring together the stories of the case of *Knowledge Hub*, with a brief review of the findings and then present the subsequent implications they raise for spatial policy development, institutional intent and design, and pedagogic practice. In doing so, I weave with participants a narrative of spatial, pedagogical, and social transition at one regional Australian university. The findings, which consolidate the initial transitions and prolonged occupation, problematise a view of space as inherently revolutionary to pedagogic practice to instead highlight spaces as active co-participants in teaching-learning processes that are realised only in the interactions between intent-students-staff-spaces-practise. A focus on the spatial and material, often taken-for-granted aspects of educational practice, illuminates the power relations that are constructed and mediated through spaces for learning.

A Case of Space: Situating the Implications

The overarching research question of the study sought to facilitate exploration of the ways perception-pedagogic practice-place came together in one example of 'innovative' new spatial design. This allowed consideration of innovative learning spaces in relation to their imagined potential to revolutionise pedagogic change in practice, a common assumption in policy and literature within the field. The sociomaterial theoretical orientation taken in the thesis worked with the questions to demonstrate that in the case of *Knowledge Hub* the changing spatial landscape of the university was responsive to and occurred in conjunction with shifting understandings of learning and teaching, and with/in changing socioeconomic contexts that seek to marketise knowledge and knowledge practices. These changing 'innovative' spaces materialise socio-constructivist theoretical understandings of learning as active, social, and evolutionary. While staff and students worked with material affordances, instead of simplistically enacting 'revolutionary' pedagogic change the community realised simultaneously the modification *and* continuity of practice, intent *and* resistance to the expectations they were institutionally and spatially assigned. The parallel practices existed together within a scholarly learning community that shared a relational commitment to learning, each other (as people and professionals), their place, and their disciplinary identities.

The most significant change in the case of Knowledge Hub, as discussed in detail in the Chapter Eight, was a sense of embodied belonging that arose through participation in an active scholarly community. This place-based belonging was conceptualised as encompassing four sociomaterial processes: ACTING, KNOWING, CONNECTING and FEELING. To briefly recap the foci of each element:

- ACTING: refers to competences for *doing* teaching-learning and is related to embodied and enacted spatial and digital literacies, learned in a process of spatial apprenticeship. Students who actively construct knowledge engage deeply in processes of coming-to-know. These acts both demonstrate and develop professional dispositions, which include the willingness to engage in reconciling problematic knowledge in collaboration with others, a willingness to recognise and share in-process understandings as valuable learning opportunities, and the willingness to seek others' input and/or further information to gain conceptual clarity.
- KNOWING: consolidates personalised meaning-making where individual understandings of disciplinary content are enhanced through engagement with human

and non-human others. These experiences allow the construction of new knowledge through intentionally, but supportively, pushing beyond what is currently known by recognising instances of *not*-knowing. Knowledge development of self as professional is enhanced through a critically-reflective ontology (Kincheloe, 2003). This requires a dispositional willingness to lean into cognitive disjuncture, to take intellectual risks, and to explore and persevere through challenging encounters.

- CONNECTING: signifies the professional connections with others and place, as necessary for coming to know in a safe learning environment. These are enhanced through shifts in discursive patterns and hierarchical power relations between staff and students, which allow students to direct their own learning journeys, and peers and staff to act as facilitators to and enablers of knowledge construction. These new relationships facilitate connections with others, materials, and ideas as resources to reconcile not-knowing with immediacy and require a dispositional willingness to engage with, listen to and care for human and non-human others.

- FEELING: recognises that emotion work and pedagogic care is at the heart of situated teaching and learning processes, and place-based belonging. Feeling safe and supported in learning environments, particularly in instances of cognitive disjuncture, is essential to new knowledge construction. This attends to physical comfort, ease of enactment, and feeling valued, as well as being seen, recognised and appreciated as and by other community members. This requires a dispositional preparedness to reflectively and reflexively explore the internal self and hold oneself out to new emotional experiences.

Interwoven throughout these strands of belonging are worthwhile ways of being a professional, which centre upon a shared responsibility to the community and learning (Wenger, 2011) and an ethic of pedagogic care (Carter et al, 2018). Across each component, lecturers and tutors, as experts in the field who engage meaningfully with students with(in) participatory learning communities, are crucial in enacting student-centred pedagogies which maximise sociomaterial affordances for learning. Although inherently entwined, the areas have specific implications in terms of textualities, materialities and socialities.

Knowledge Hub: Sociospatial Implications

In terms of *textualities* the implications of the case of Knowledge Hub suggest that more robust conceptions of occupiers and their relations to and within spaces need to be explicit in policy and intent. Rather than positioning staff and students as pliant subjects to spatial innovations and space as a technology for ensuring performativity, the research indicates that

there is benefit in textually recognising staff and students as spatial co-creators and enactors. This reinforces earlier assertions that *people* need to be explicit in considerations of space-technology-pedagogy (Rueshle, 2012). While many of the implications for university *materialities* are reassertions of already known design principles (to ensure comfort, functional ease of enactment, and physical affordances that support connectivity), Knowledge Hub is distinctive in showcasing that discipline-centric spaces which co-locate staff and students have valuable impacts for learning relationships. The overarching implication is that the implementation of shared disciplinary spaces that are oriented towards non-hierarchical collegiality contribute to enacting practices of negotiated knowing and community belonging that are highly valued by both staff and students. These support the manifestation of a common design intent for new spaces to support active learning. But perhaps what Knowledge Hub most clearly offers is an understanding of the importance of *socialities* in enacting innovative pedagogy, and that lasting pedagogic change requires universities' plural attention to space *with* socio-cultural teaching-learning practices. To concisely consolidate these implications, I highlight the intersections between spatial understandings and embodied belonging (see, Table 10). I then elaborate these, dissolving the illusion of distinct categories to reunify what has been unravelled in the interpretation.

Table 10: Sociospatial Implications for Enacting Pedagogy for Meaningful Learning

	Textualities	Materialites	Socialities
ACTING	• rhetorically elaborate student identities as more-than-technicist-consumers of education	• peer learning lounges with writable walls, sharing screens, and BYOD affordances are imperative aspects of new university landscapes	• foster cultural change in the academy to reposition disjuncture as an integral and valuable part of a successful learning journey
KNOWING	• reposition staff as enactors of student-centred spaces, with their expert participation visibly recognised, especially in peer lounges	• create discipline-centric social spaces to facilitate community-based belonging inclusive of multiple student cohorts and staff	• provide institutional mentoring for teaching academics to articulate and examine their philosophies of teaching and learning
CONNECTING	• attend to spatial aesthetics (form and function) to nurture connections between place, people, and the institution	• co-locate staff and student spaces to maximise incidental interaction, make scholarship visible, and facilitate a sense of community	• augment staff pedagogic repertoires of practice – collate, and disseminate multi-modal purposeful in-practice teaching strategies
FEELING	• acknowledge sociospatial pedagogic relationships as emotive in order to foster place-based belonging	• ensure maintenance of aesthetic comfort and functionality to communicate value for students, staff, and disciplinary work	• consider academic workload recognition of staff participation in peer learning spaces to facilitate a supportive learning environment

Rather than again considering *textualities*, *materialities* and *socialities* as distinct elements, I elaborate the entwined implications for *Place*, *Pedagogic Practice*, and *Place* across policy, university campus management, design, and pedagogy. Suggestions are synthesised and presented here in four areas: the necessity of discursively elaborating, recognising, and repositioning students, staff, and space in relation to each other; the benefits of pedagogically repositioning not-knowing; investing in staff as spatial enactors; and enabling flourishing of relational professional identities. It must be noted that this synthesis privileges student participants who were active and made themselves visible within the spaces, and therefore does not represent the remainder of the cohort or the various ways of *being* a learner that students may enact – both on and off campus. Knowledge Hub represents a particular situated case and as learning becomes more placeless and digitised it highlights the on campus experience for a small group of students and staff.

Repositioning Space-Students-Staff: Policy and Institutional Intent

The first implication relates to elaborating the imaginary of space-staff-students-teaching-learning as they are discursively represented in policy and publication rhetoric. As this research has illustrated, there is benefit in viewing space as more than an impartial 'container' that unilaterally shapes practice in a predetermined direction. These participants exist in relation to each other and to teaching-learning practice. Textual reconceptualisation of space as participatory rather than revolutionary may aid institutions in taking an approach that values space-staff-students-practice as assemblage. A consciousness of the limits of space on beliefs and behaviours understands that infrastructure alone cannot materialise innovative teaching-learning solutions and enriched student experiences in practice (Boddington & Boys, 2011); what learning spaces can provide however are optimal conditions that work with staff and students to realise engaged, active, and collaborative teaching-learning.

To enact a rhetorical shift that conceptualises spaces as entwined with academic existence and scholarly identities further suggests a necessary reconsideration of students as more than institutional capital. Part of the current neoliberal policy rhetoric constructs space as a marketing tool able to 'win' student choice in a competitive process. These entrepreneurial and corporate imaginaries of the university (Barnett, 2017) limit how and who staff and students are able to be and are counter to new understandings that seek to involve students as

participatory partners in higher education (Kahu & Nelson, 2018). This discursive position perhaps overestimates infrastructure, while it simultaneously underestimates students' already in development professional orientations (including passion for a disciplinary field, dedication to a career path, and desire for intellectual challenge and stimulation) and desire for quality teaching when choosing degree destinations (see, Hobsons, 2017; Bhardwa, 2017). Current texts reinforce the idea of a homogenous student that is a strategic, confident and mobile consumer of education. This ignores the complexities identified in the narratives that learning is socially situated, requires significant effort, that 'making friends' is important, and that students can critically reflect upon learning as a *process* and not only as an end product and qualification.

It is paradoxical that spatial texts with neoliberal underpinnings imagine spaces, working as symbolic capital, as an incentive to attract the choices of rational-technicist students, while spatial designs conceive active, spatially-literate and socially-connected student identities. Giroux (2011, cited in Grellier, 2013) strongly critiques such market-driven, consumerist educational approaches, arguing that this climate undermines the understanding that meaningful educational journeys require hard work, personal effort, uncomfortable introspection, critical thought and ethical imagination. As Ellis and Goodyear (2016) suggest, technicist students may complete mandatory superficial study behaviours without deep or meaningful understanding, behaviours that can be common without the provision of quality teaching (Biggs & Tang, 2011). Consumers do not expect to be challenged or made uncomfortable, however these processes are necessary for deep learning, for the enactment of learning spaces as envisaged, and for the development of professional community-minded graduates that will "make a difference in their fields of endeavour and in their communities" (Regional University, 2018, p. 4).

In contrast, Knowledge Hub's students enacted their learning spaces and entangled teaching-learning practices beyond the narrow consumerist positioning constructed in policy. Rather, they spoke of themselves as burgeoning professionals who appreciated the ways Knowledge Hub participated in the realisation of new collegial learning relationships and practices, particularly those that involved staff experts. This suggests that an elaborated understanding in spatial policy to include scholarly student identities and their 'intensities of feeling' (Mulcahy & Morrison, 2017, p. 753) as situated spatial selves would further support engaged learning practice. A policy elaboration that clarifies innovative spaces as aligned with reflective, affective, and 'messy' learning journeys that require engagement with others,

ideas, practices, and environment, would pre-empt student engagement in learning process that develop core graduate attributes of critical thinking and collaborative knowledge negotiation, essential characteristics of 21st Century professionals. Explicit discursive attention to the embodied practices, relations, dispositions, and emotions entangled in the development of student orientations for ongoing professional learning may be of benefit in ensuring students are conscious of deep learning processes (and the 'hard work' involved (Giroux, 2011, cited in Grellier, 2013)) when selecting their institutions for learning.

Reconceptualising Learning Journeys

Implied at the heart of Knowledge Hub's sociospatial scholarly enactments is the necessity for an academic cultural recognition that doing learning successfully, in the academy and beyond, requires valuing and sharing in-process *not*-knowings as indispensable elements of meaningful educational journeys. Synergies were evident in the pedagogic performativity of formal learning spaces to practice safe sharing and refinement of difficult knowledge (modelled think-alouds, yarning circles, problem-based scenarios) with the mirrored enactment of those strategies to reconcile in-process knowledge among peers (and sometimes with staff) in the social learning lounge in student-led encounters. Human and non-human participants wove together in embodied enactments of doing learning to clarify disjuncture purposefully: the social learning lounge, writable walls, peers, staff members, BYOD, Wi-Fi, access to online learning artefacts, couches. Working in union, people-practices-beliefs-things-information-spaces created a safe learning environment where students felt physically, socially and emotionally comfortable to sit with, speak through, and settle intellectual discomfort.

Enacting such a cultural shift requires a shared commitment to meaningful learning, and a collective willingness to move beyond a view of world that is singular, coherent and common-sense realist, often fixtures of academic work (Law, 2006). Writable walls (whiteboards, although these may also be glass) in particular were noted to act as technologies for supporting process-based learning, where students collaboratively worked through ephemeral understandings rather than presenting finished versions of 'real' truths. The mode allows easy addition, erasure, and adaptation, materially supporting in-development problematising and problem-solving. This enacts a textuality that is not dominated by the academic conventions of standard writing in that it does not depend on singularity and is allowed to be partial, plural, and 'imaginary' (Law, 2006). For this reason, writable walls are

essential inclusions in spatial designs that support learning through a sociomaterial knowledge construction process. The implication here is that successful learning journeys, in which one becomes a professional and an ongoing professional learner, that successfully negotiate 'mess', require spaces *and* sociocultural practices that simultaneously invite and support intellectual risk taking.

Safe, comfortable spaces for students are not juxtaposed with cognitive disjuncture. The tension is that comfortable spaces suggest ease and relaxation and this may be spatially prioritised over dynamic learning. The case data found that these practices can, and do, co-exist. Students who slept, watched movies and socialised did so to enable prolonged engagements with learning. Findings from this research suggest that the recommendation to provide safe student spaces, such as disciplinary social lounges, needs to be coupled with attention to teaching practices and social interactions that accept and embrace the twin epistemological-ontological processes of coming to know and professional becoming. This understands that knowing (and not-knowing) is never final or finished. Comfortable spaces need to be conceptualised as part of a broader supportive learning environment that creates a safe foundation for stepping into the cognitive discomfort. This shift will support innovative spaces to better become (with student and staff participants) enacted places of contestation, complexity, challenge, and questioning, processes vital to reinvigorating the intellectual health of academia (Boys, 2011).

Spatial Enactors

Implicated in the research is the understanding that universities would benefit from rhetorically and organisationally foregrounding staff as vital spatial enactors and expert facilitators in student-centred learning experiences. As the case of Knowledge Hub has shown, staff are crucial in the enactment of spatialised pedagogic work which aligns with (or purposefully resists) the aesthetic function envisaged for the innovative spaces and embedded technologies. Their underlying beliefs about teaching and learning are currently covert participants in spatial realisation. Staff are often invited participants in spontaneous student knowledge generation practices in their capacity as expert 'knowers' in the profession. These practices are essential in manifesting a dynamic and connected learning community (often an aim of innovative infrastructure). This raises three interconnected implications: the need to ensure staff are made visible within discourses of student-centred teaching in innovative spaces; the benefit in providing meaningful, personally responsive professional development

opportunities; and the need for institutional consideration of workload recognition for staff participation in 'unscheduled' student learning.

In current policy and design, staff involvement in ensuring student-centred learning approaches is textually rendered invisible. This silence assumes that students and space alone do pedagogic work to realise the vision of a vibrant learning community. In contrast, students (and staff) valued interactions where staff acted as expert colleagues participating in joint knowledge construction, especially in student-directed spaces such as the learning lounge. Students were also able to replicate and expand student-centred teaching-learning practices in social areas that had been introduced and trialled in teacher-guided formal classroom practice. Highlighting the shared responsibility for supporting effective pedagogic relations, Mulcahy (2012) untangles the understanding that thinking about spatialised pedagogy as affective assemblage:

> affords a sense of *collective responsibility*. Pedagogic relations are not the exclusive concern of the teacher. They are embedded in distributed, heterogeneous and specific practices, so responsibilities for developing and maintaining them are similarly distributed and heterogeneous. This opens up a range of processes that form possibilities for a variety of elements to participate and create effects. The workings of bodies, technologies, texts and teaching desire come into view
>
> (p. 22, original emphasis)

Textual recognition of staff as central to the realisation of socio-constructivist learning practices, community belonging and learning relationships based on 'pedagogic care' (Carter et al, 2018) would enable attention to staff development to ensure change procedures support staff and benefit learners.

With recognition of staff, their underlying teaching philosophies and beliefs and pedagogic competencies as participatory in spatial enactments, universities can then support staff to enact learning relationships that purposefully apprentice students into professional spatial logics, technologies, disciplinary conceptual understandings, and learning practices. Any spatial transformation would be enhanced when accompanied by parallel investment into staff as the enactors of spaces and student-centred pedagogies. Support for teaching academics in transitioning to new spaces may include Professional Development to elaborate their existing pedagogic repertoires of *purposeful* sociospatial teaching strategies in formal learning areas (rather than implement abstract instruction on how to use technologies) (aligning with Steel & Andrews' (2012) earlier assertions). These can be locally-responsive for different disciplines and institutions and could include 'Just in time, Just for me'

Professional Development or the establishment of mentoring programmes between staff members (Roberts & Pepper, 2014). This provides opportunities to reflect on teaching philosophies, engage with embodied and purposeful spatial literacies, and provide guidance on teaching strategies for enacting active, collaborative and reflective pedagogies. In particular, the necessity for collating a suite of reflective strategies (as the least used pedagogic approach) to share with staff is indicated as one aspect necessary to enhance the balance of enacted pedagogic modes. Nurturing opportunities for pedagogical reflection and the articulation of a philosophy of teaching that includes attention to cognitive disjuncture and reflective critical ontologies (Kincheloe, 2003) as part of successful learning processes may also be beneficial in spatial implementation and transition.

In addition, flexible workload recognition for staff participation in social learning spaces would benefit staff, students, and the institution. As identified in the Section 4 narrative and discussed in Chapter 7, staff involvement in spontaneous conversations in the social learning lounge reflects an investment of their time. This is explicit in Rod's comment in Chapter 2, that he spent 'about ten hours' in exam week consulting with students in the space. Active and fluid social learning communities that enact meaningful learning through scholarly engagement require accountability structures that are implemented horizontally and collaboratively rather than vertically (Wenger, 2011). The challenge for administrators is that responsive student-centred encounters function beyond narrow neoliberal accountabilities and measurement regimes. As found in Carter et al's (2018) study, workload demands can undermine a culture of place-based 'pedagogic care.' Instead, an administrative approach that recognises and endorses staff participation in unscheduled student learning would be founded on a shared commitment to learning, a mutual accountability to each other. This would be characterised by an enacted ethic of pedagogic care oriented to the support each other's process of professional becoming as disciplinary co-members.

While authentic unscheduled participation in these types of connected learning communities may not be able to be mandated or prescribed (Wenger, 2011), involvement can be encouraged and supported by allocating time within academic workloads. Institutional structures that acknowledge, recognise, and value spontaneous staff contributions within informal social learning communities would support a cultural shift to allow staff and student community members to work together as ethical and mutually responsible 'learning citizens' (Wenger, 2011). Institutional investment in this area is worthwhile. Pedagogic care and staff-student relationships are foundational to retention of diverse students (Carter et al, 2018; Farr-

Wharton et al, 2018). It is the combination of spontaneous knowledge-based interaction, friendliness, and shared commitment to professional becoming that makes 'spaces' into connected *places* of and for meaningful student learning.

Relational Spaces: Coming-to-Know the Self as Professional

The final implication raised from the research findings relates to the benefits to students, staff and universities when communal discipline-centric social spaces are available to support professional learning communities, embodied belonging, and identity development. These spaces are integral aspects of new university landscapes. The peer-learning lounge provided unique opportunities for synchronous and participatory knowledge generation. Being co-located with disciplinary staff offices worked to create a safe, shared and interactive 'home', which challenged traditional relational hierarchies and led to an improved teacher-learner community. In this study, this space-interaction-practice-knowledge-care combination was fundamental to ensuring engagement in and belonging to the disciplinary ways of learning, but also in scaffolding broad dispositions for learning, important beyond the bounds of the discipline. Spaces and staff performed with students in the development of professional work identities. Wenger (2011) suggests that participants in social learning space require an 'accountability to identity', where engagement in practice depends on the ability to find meaning and engage competently with others. These encounters involve students with issues that include "efficacy, legitimacy, values, connections and power, typical of engagement in the human world" (Wenger, 2011, p. 196). Through doing learning relationally in these spaces, students come to know themselves differently as professionals.

Spaces that are discipline-focused are sometimes thought of as limiting and potentially counter to multi-disciplinary thinking (Barnett, 2011). However, in this case the social disciplinary space demonstrated itself to be pivotal to the development of trans-disciplinary dispositions for, orientations to, and practices of *doing* learning, including critically reflectivity, self-driven engagement, collective negotiation of knowledge, and the willingness to take intellectual risks. Increasingly, the transferable capabilities participants described of communication, presentation of ideas, and analytical skills allow graduates to function effectively within and across 'clusters' of employment in future work environments, which aids mobility and job success (FYA, 2016). Creating graduates with knowledge, skill sets, and an ability to continue learning aligns with the purpose universities have as institutions of higher education to:

focus on enhancing society and influencing students to become fully functioning members of their professional community … universities seek to develop graduates who will continue to develop intellectually, professionally and socially beyond the bounds of formal education (Keppell & Riddle, 2012, p. 3)

Social learning spaces can prepare students for professional work identities that are participatory, experiential, mutually beneficial (advantageous for both self and society), highly ethical, capable of negotiating 'messy' practice and resolving dissonance using applied professional judgements (Wenger, 2011). Increasingly, these are the capacities and dispositions required in a dynamic knowledge economy, and for an engaged and active learning citizenry, who ask pertinent questions, discuss ideas, and challenge assumptions (Wenger, 2011). In addition to the benefits for learning, positive and non-hierarchical collegial relationships support professional flourishing and emotional intelligence, crucial components of educational wellness (Acton & Glasgow, 2015).

Student and staff comments indicated that coming to know oneself as professional was an entwined process of acting professionally, demonstrating knowledge of the field (or active engagement in coming to know), being positioned as 'equal' colleagues, and self-reflection as a learner and professional. To further support identity development through relational-spatial apprenticeship into professional practice, teaching academics and students may benefit from opportunities to participate in reflective, introspective and situated strategies to develop a critical ontology for practice as advocated by Kincheloe (2003). Supporting consciousness of embodied spatial literacies will aid university educators to maximise the affordances of space and to mentor students into the effective use of reflective knowledge practices in their future professional work. As Barnett (2009) points out, "Knowing and being (and becoming) are linked – but in ways that we have barely begun to comprehend … for working out the connection between knowing and being/becoming requires thinking through the kinds of human being we want our students to become" (p. 440). If the purpose of universities is to ensure students graduate as professionals capable of ongoing intellectual, social, and professional development, an ethic of community engagement, conscious self-awareness, care, and a sense of personal and social responsibility are values that can augment and enrich their disciplinary knowledge and skills.

Limitations and Opportunities for Future Research

Critically, with a small number of self-selecting participants, who likely represent discipline members who used and valued the space, the case may be representative of staff and students who had positive experiences of and responses to the spatial transition. As such, the findings of the case cannot be assumed to be indicative of the entirety of the cohort. Worth noting is that the thesis focuses on on-campus spaces and what they can offer students and staff, and as such cannot comment on the digital 'placeless' learning practices that are increasingly a focus for higher education institutions. Further, while the case offers several strategic recommendations that arise from the findings that may be of benefit to other institutions, with a localised, discipline of Education focus, generalisations cannot be made. The research design also precluded exploration of why people may not use the space. The more I worked with the data, the more aware I became that the voices of invisible students – those who may *not* feel a sense of belonging with the space, others in the community or the learning – are absent from the case findings. These silences however offer rich possibilities for further research in the field.

While the student respondents felt a sense of belonging to a community, this raised a question of exclusion. As Cal indicated, "there's certainly only a small number of students proportionally to the cohort" (Staff Interview #9, 2015) who frequently used the social space. Exploration into who does not use the space and the factors that inform this may benefit institutions in the establishment of situated learning communities that are inclusive of different learning needs. In analysing the data I had wondered too if these students were individually reflective learners whose practices and ways of being a learner did not align with the socially-interactive function of the spaces, or first-in-family university students unfamiliar with a socio-constructivist repertoire of scholarly practice. Perhaps Indigenous students did not feel a sense of place, belonging or identity (see, Carter et al, 2018), or maybe technicist students, focused on gaining a qualification rather than meeting a vocational aspiration were less likely to engage in social spaces and extended learning practices. These are areas that require further attention.

Arising from the story of Knowledge Hub is the urgent need for further research into spatialised teaching practices – *doing teaching*. In particular, the compilation of a suite of purposeful learning strategies that enact the spaces and technologies of formal innovative spaces in ways that support meaningful learning could be used as a resource in academic teaching staff Professional Development and mentoring programmes. This would support the

development of a repertoire of pedagogic practices across teaching modes, build familiarity with the strategies and benefits of the under utilised Reflective mode, and potentially support the enactment of student-centred learning in both formal and unstructured innovative spaces.

Researcher Reflections

"Knowing others is wisdom, knowing yourself is enlightenment" ~ Lao Tzu

With a view of knowledge as co-constructed, co-represented and co-disseminated in an evolutionary process of infinite being-becoming, I remember Wenger's (2011) description of social learning spaces as sites where, ideally, the messiness of improvised sociomaterial practice can be shared with candour. This requires vulnerability, knowing that academic identities may be at stake, and it requires trust, that the capable others in the community will welcome and then nurture the partial and in-process knowings of a (beginning) co-practitioner. It is only in this (shared) space, "when practitioners become less guarded with one another, when they recognise each other as co-practitioners, [that] candor becomes almost a relief. There is a *comfortable discomfort in the shared refuge of authenticity*. Candor can then become a mutual aspiration" (Wenger, 2011, p. 197, emphasis added). It is from this space, with an aim to embody Kincheloe's (2003) critical ontology for teachers, that I share my reflections, to situate the disjuncture I experienced within the research process as meaningful to effective learning practice.

While Wenger (2011) suggests that theory and policy (and, I will add, research) artefacts *appear* clean, the process of *doing* sociomaterial theory-policy-practice-learning-teaching-research is far from tidy, easy, or neat. I have felt often vulnerable in my not-knowing-enough, not knowing it 'right' or not even knowing 'it' at all. I too, along with my student participants, have had to reconcile my imprecision and confusion and disconcertment to present findings which are only ever partial. I have felt uncomfortable that the written, published outputs suggest finished, immaculate knowings, while I know them to be incomplete representations of an understanding that shifts with each new encounter with literature, person, theory, place, event, object, and animal. Offering guidance, I found refuge in the works of authors with candour, and their playful, beautiful ideas: Davies' (2014) diffractive experimental encounters with data as a way of coming to know differently, St. Pierre's (2011) theoretically-inspired 'shattering' of self, and Grellier's (2013) understanding,

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drawn from Deleuze and Guattari, that knowledge is always additive, unfinished, and infinite – an eternal process of *and … and … and …* Much like me.

Considering method as machine (Law, 2006), and particularly the Most Significant Change (MSC) technique (Davies & Dart, 2005; Dart & Davies, 2003) as potentially deterministic and 'neat' in its findings, I realised that although I used seemingly categorical but complementary organising aspects of space, the strands of *Perception*, *Pedagogic Practice* and *Place* – shifting across teaching-learning-research practice – were difficult to untangle. Rather than singularly directing the research, the MSC method was affected by the sociomaterial mélange in which it was enmeshed. Each method, each organising device, each theoretical understanding evolved through, with, and in each entangled encounter between human and non-human participants. I have aimed in this thesis to present a sense of the complex chaos of space-as-practice. I make this attempt while working within and actively resisting the traditions of social science research, methodologies and knowledge dissemination practices, including writing, that often silence the commotion of worlds and the infinite evolutionary process of a piece of scholarly work (Law, 2006; Thomson & Kamler, 2013). In the sociomaterial enactment of method-data-institutional requirements-software-researcher-analysis-computer-research-thesis, I am aware that it is not always my human intent or agenda that guides the process. It exists and becomes only in the relations *between*, the interactions *with*. As Kincheloe (2003) appreciates, "viewing the universe as a well-oiled machine …subvert[s] an appreciation of the amazing life force that inhabits both the universe and human beings" (p. 49). Methods exist entwined in this more-than-machine, more-than-human universe.

Reflecting further on the sociomaterial research process, as Orlikowski and Scott (2008) similarly note, I am acutely conscious of the limitations of the English language for representing the assemblage of space, at once a cluster of practice, rather than the seemingly distinct *Perception*, *Pedagogic Practice*, and *Place* and that I have worked with for understanding. But also, I am aware of the inadequacy of language for capturing the experienced aesthetic sense of what exists as embodied sensation, in the liminal spaces between mind-body-spirit (Todd, 2014). I am aware, with Thomson & Kamler (2013), of the connection between text and scholarly identity, and that academic writing is also an act of writing myself, and of becoming, bringing my scholarly self into existence, particularly in times dominated by neoliberal audit cultures. As such, the thesis itself is an artefact of sociomaterial encounters, of places-data-self-laptop-participants-concepts-theories-mentors-

readings-and-and-and… While this becomes seemingly 'fixed' in print, it only continues to exist through interactions, in the textually-mediated relations between myself, non-human and human participants, the ideas, and the readers in a process of co-creation that will continue after the last word is written.

Conclusion: Perception-Pedagogic Practice-Place as Constellation

With staff and student research participants, I have conceptualised spatial, situated and material teaching-learning as a galaxy of belonging-becoming, where perception, pedagogic practice and place inseparably orbit. Knowledge Hub illustrates the mélange of policy-pedagogy-people-place-philosophy-perception that must be considered in any attempts to improve university teaching and learning practice in sustained ways. Through narrating and selecting stories of change, Knowledge Hub's staff and students evaluated the most significant impacts a spatial transformation had on their teaching and learning. This inclusive approach, equally valuing students as research partners (and thus enacting a current priority in higher education contexts, see, Kahu & Nelson, 2018), represents a unique strength of design. The sustained changes in practice most valued by staff and students reflect an assemblage of embodied belonging within a learning community, with mutual processes of Acting, Knowing, Connecting, and Feeling working in conjunction. Rather than the simplistic causal effect often perceived in policy rhetoric of 'innovative' learning spaces, spatial enactments reflected a co-creation where the realities of spatial and technological affordances were dependent on student learning needs, staff philosophies, commitments to meaningful learning, equity, ethical participation, mutual responsibility, time, and pedagogic care.

The design intent of the spaces sought to assure technology-enhanced scholarship, but this was realised sporadically, in parallel with active resistances to material invitations and their functions, to meet purposes beyond those imagined in policy rhetoric. With Boddington and Boys (2011), I argue that space and its occupation are not separate entities, and that space itself cannot catalyse solutions, but can enable optimal conditions for learning. It is the sociospatial relational practices of education that need to be understood and enriched along with material infrastructure in order to effectively innovate university pedagogies (see also, Blackmore et al, 2011; Boddington & Boys, 2011). Transforming institutional learning landscapes, then, is only one dimension in the educational relations-between (Massey, 2005); staff and student capacities for using those spaces in ways that optimise learning through

active, collaborative, participatory, and reflective modes must be equally recognised and supported.

New patterns of practice, interaction, and emotion certainly came into existence with the transition to Knowledge Hub, just as Knowledge Hub came into existence as a place of and for learning through the processes of its occupation. Many of these enacted practices aligned with the policy and design intent to enact a sense of community, support collaborative interactions, and enable socio-constructivist scholarly practices for negotiating knowledge. However, these scholarly and professional behaviours, dispositions, and characteristics existed simultaneously with the resistant behaviours that Knowledge Hub more subtly invited and endorsed. Equally evident in the data were practices of not using the technology, sleeping on the comfortable couches, and avoiding students during exam period. With Mulcahy and Morrison (2017) I argue that it is perhaps this multifaceted spatial performativity that is most simplified in notions of space as a causal technology for directing and sanctioning changes in teaching and learning. And yet, it was this very freedom of choice that was central to ensuring a scholarly community that was student-centred and ethically responsive to learning and teaching needs. It was in the full range of spatial expression that staff and students in this study experienced being and becoming a professional learning community, ownership beyond 'renting' space, and a rich sociospatial student experience worthy of their choice and active participation.

What the case of Knowledge Hub demonstrates is that university learning spaces are more than marketable destinations, fixed concrete locations to and from which students and staff transition. Rather than containers that direct practice in pre-determined ways, they are changing and changeable places of learning that participate responsively in an ongoing journey of professional becoming. Inhabitants who work with spatial and technological affordances purposefully and meaningfully and who claim the spaces as their own are those who 'make' academic spaces friendly, inclusive, intellectually challenging and safe *places* of learning and professional citizenship. Staff and students who resist the managerial corporatisation and marketisation of their roles to act as ethical and affective professionals are essential to enacting a richer version of university scholarship and the processes of knowing, being-becoming, and doing critically reflective teaching-learning within and beyond university landscapes. It is in the enacted entanglement of perception-people-pedagogy-practice-place that Knowledge Hub came to exist and evolve as a dynamic, vibrant and embodied sociomaterial constellation of affective educational practice.

References

Acton, R. (2017). Place-people-practice-process: Using sociomateriality in university physical spaces research, *Educational Philosophy and Theory*, 49(14), 1441-1451.

Acton, R. & Glasgow, P. (2015). Teacher wellbeing in neoliberal contexts: A review of the literature. *Australian Journal of Teacher Education*, 40(8). Available online: http://ro.ecu.edu.au/ajte/vol40/iss8/6

Adedokun, O., Carleton Parker, L., Henke, J. & Burgess, W. (2017). Student perceptions of a 21st Century learning space. *Journal of Learning Spaces,* 6(1). Available online: http://libjournal.uncg.edu/jls/article/view/1339/1029

Angrosino, M. & Rosenberg, J. (2011). Observations on observation: Continuities and challenges. In N. Denzin & Y. Lincoln (Eds.) *The SAGE Handbook of Qualitative Research* (4th ed.). 467-478. Thousand Oaks: SAGE Publications.

Apple, M. (2006). *Educating the "right" way: Markets, standards, god and inequality*. New York: Routledge.

Australian Government. (2008). *Education Investment Fund*. Accessed 13 Jan 2014: http://www.innovation.gov.au/highereducation/Funding/EducationInvestmentFund/Pages/default.aspx

Ball, S. (2003). The teacher's soul and the terrors of performativity. *Journal of Educational Policy*, 18(2), 215-228.

Ball, S. (2016). Following policy: networks, network ethnography and education policy mobilities. *Journal of Education Policy*, 31(5), 549-566.

Barad, K. (2003). Posthumanist performativity: Toward an understanding of how matter comes to matter. Signs: Journal of Women in Culture and Society, 28(3), 801-831.

Barnett, R. (2009). Knowing and becoming in the higher education curriculum. *Studies in Higher Education*, 34(4), 429-440.

Barnett, R. (2011). Configuring Learning Spaces: Noticing the Invisible. In: A. Boddington and J. Boys (Eds.), *Re-shaping learning: A Critical Reader.* 167-178. Rotterdam: Sense Publishers.

Barnett, R. (2013). *Imagining the university*. Abingdon, Oxon: Routledge.

Barnett, R. (2017). Constructing the university: Towards a social philosophy of higher education. *Educational Philosophy and Theory*, 49:1, 78-88, DOI: 10.1080/00131857.2016.1183472

Benade, L. (2017). Is the classroom obsolete in the twenty-first century? *Educational Philosophy and Theory*, 49(8), 796-807.

Bhardwa, S. (2017, June 6). Why do students go to university and how do they choose which one? *Times Higher Education*. Available online: https://www.timeshighereducation.com/student/news/why-do-students-go-university-and-how-do-they-choose-which-one

Biggs, J. (2003). *Teaching for quality learning at university: What the student doe*s (2nd ed.). Maidenhead, Berkshire: McGraw-Hill Education.

Biggs, J. & Tang, K. (2011). *Teaching for quality learning at university* (4th ed.). Maidenhead: Oxford University Press.

Blackmore, J., Bateman, D., Loughlin, J., O'Mara, J. & Aranda G. (2011). *Research into the connection between built learning spaces and student outcomes: Literature Review*. Melbourne, VIC: State of Victoria (Dept of Education & Early Childhood Development). Available online: https://www.deakin.edu.au/arts-ed/efi/pubs/deecd-reports-blackmore-learning-spaces.pdf

Boddington, A. & Boys, J. (Eds.) (2011). *Re-shaping learning: A critical reader. The future of learning spaces in post-compulsory education*. Rotterdam: Sense Publishers.

Bourdieu, P. (1977). Outline of a theory of practice (R. Nice, Trans.). Cambridge, U.K: Cambridge University Press. (Original work published 1972).

Bourdieu, P. (1986). The forms of capital (R. Nice, Trans.). In J. Richardson (Ed.), *Handbook of Theory of Research for the Sociology of Education*. New York, New York: Greenwood Press. (Original work published 1983).

Bourdieu, P. (2005). Habitus. In J. Hillier and E. Rooksby (Eds.) *Habitus: A sense of place*, 44-49. Hants, England: Ashgate Publishing Limited.

Bowen, G. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27-40. Available online:
http://www.emeraldinsight.com/doi/pdfplus/10.3316/QRJ0902027

Boys, J. (2011). *Towards creative learning spaces: Re-thinking the architecture of post-compulsory education.* London: Routledge.

Brooks, D. (2012). Space and consequences: The impact of different formal learning spaces on instructor and student behavior, in *Journal of Learning Spaces*, 1(2).

Brown, M., (2005). Learning spaces, in D. Oblinger and J. Oblinger (Eds.) *Educating the Net Generation*. Boulder: EDUCAUSE. Available from:
http://digitalcommons.brockport.edu/bookshelf/272/# Accessed 02 May 2013.

Butt, R. & Retallick, J. (2002). Professional well-being and learning: A study of administrator-teacher workplace relationships. *The Journal of Educational Enquiry*, 3(1), 17-34.

Carnell, B. (2017). Connecting physical university spaces with research-based education strategy. *Journal of Learning Spaces*, 6(2). Available online:
http://libjournal.uncg.edu/jls/article/view/1398/1096

Carter, J., Hollinsworth, D., Racti, M., & Gilbey, K. (2018). Academic 'place-making: Fostering attachment, belonging and identity for Indigenous students in Australian universities. *Teaching in Higher Education*, 23(2), 243-260.

Charteris J., Smardon, D., & Nelson, E. (2017). Innovative learning environments and new materialism: A conjunctural analysis of pedagogic spaces. *Educational Philosophy and Theory*, 49(8), 808-821.

Chase, S. (2011). Narrative inquiry: Still a field in the making. In N. Denzin & Y. Lincoln (Eds.) *The SAGE Handbook of Qualitative Research* (4th ed.). 611-625. Thousand Oaks: SAGE Publications.

Cheers, C., Swee Eng, C. & Postle, G. (2012). Experiential space. In: M. Keppell, K. Souter and M. Riddle (Eds) *Physical and Virtual Learning Spaces in Higher Education* (266-277). Hershey, PA: Information Science Reference.

Childs, M. & Wagner, R. (2012). Beyond the look: Viral learning spaces as contemporary learning environments, in M. Keppell, K. Souter and M. Riddle (Eds.), *Physical and Virtual Learning Spaces in Higher Education* (33-50). Hershey, PA: Information Science Reference.

Cleveland, B. & Fisher, K. (2014). The evaluation of physical learning environments: A critical review of the literature. *Learning Environments Research,* 17(1), 1-28.

Connell, R. (2006). *Southern Theory: Social science and the global dynamics of knowledge*. Cambridge: Polity Press.

Connell, R. (2009). Good teachers on dangerous ground: Towards a new view of teacher quality and professionalism. *Critical Studies in Education*, 50(3), 213-229.

Dane, J. (2010). Teaching in student-centred learning environments. In M. Devlin, J. Nagy and A. Lichtenberg (Eds.) *Research and Development in Higher Education: Reshaping Higher Education*, 33 (pp.191-202). Melbourne, 6-9 July, 2010.

Dane, J. (2015a). *Time to stop building lecture theatres*. Melbourne, Vic: Woods Bagot. Retrieved 20 March 2016, from:

https://issuu.com/woods_bagot/docs/time_to_stop_building_lecture_theat

Dane, J. (2015b). *Learning Space Forecast: Spatial Impact of the 2015 Horizon Report.* Southbank, VIC: Woods Bagot Research Press. Available online from: https://issuu.com/woods_bagot/docs/learning_space_forecast_-_jo_dane_m. Accessed 11 November 2015.

Dart, J. & Davies, R. (2003). A Dialogical, Story-Based Evaluation Tool: The Most Significant Change Technique. *American Journal of Evaluation*, 24(2), 137–155

Davies, B. (2014). Reading Anger in Early Childhood Intra-Actions: A Diffractive Analysis. *Qualitative Inquiry*, 20(6), 734–741. DOI: 10.1177/1077800414530256

Davies, R. & Dart, J. (2005*). The 'Most Significant Change' (MSC) technique: A guide to its use*. Available from: https://www.kepa.fi/tiedostot/most-significant-change-guide.pdf

de la Harpe, B., Mason, T., McPherson, M, Koethe, E, & Faulkner, N. (2014). *Not a waste of space – professional development for staff teaching in new generation learning spaces*. Final Report for the Office for Learning and Teaching. Available from: http://www.olt.gov.au/project-not-waste-space-professional-development-staff-teaching-new-generation-learning-spaces-2011

de la Harpe, B. McPherson, M. & Mason, T. (2012). Not a Waste of Space: Professional Development for Staff Teaching in New Generation Learning Spaces. *HERDSA News*, 34(2), 24-25.

Denscombe, M. (2007). *The good research guide: For small-scale research projects* (3rd ed.). Maidenhead, Berkshire: Open University Press.

Denzin, N. & Lincoln, Y. (2011). Introduction: The discipline and practice of qualitative research. In N. Denzin and Y. Lincoln (Eds.), *The SAGE Handbook of Qualitative Research* (4th ed.), 1-20. Thousand Oaks: SAGE Publications Inc.

Dewey, J. (1934). *Art as experience*. New York: Penguin Group.

Dimitriadis, G. & Kamberelis, G. (2006). *Theory for Education.* London: Routledge.

Doecke, B., Kostogriz, A. & Illesca, B. (2010). Seeing "things" differently: Recognition, ethics, praxis. *English Teaching: Practice and Critique, 9*(2), 81-98.

Dovey, K. (1992). Corporate towers and symbolic capital. *Environment and Planning B: Planning by Design*, 19, 173-188.

Dovey, K. (1999). *Framing places: Mediating power in built form*. London: Routledge.

Dovey, K. (2005). The silent complicity of architecture. In J. Hillier and E. Rooksby (Eds.) *Habitus: A sense of place*, 283-296. Hants, England: Ashgate Publishing Limited.

Dovey, K. & Fisher, K. (2014). Designing for adaptation: The school as socio-spatial assemblage. *The Journal of Architecture*, 19(1), 43-63. DOI: 10.1080/13602365.2014.882376

Ellis, R. & Goodyear, P. (2016). Models of learning space: Integrating research on space, place & learning in higher education. *Review of Education*, 4(2), 149-191.

Farr-Wharton, B., Charles, M., Keast, R., Woolcott, G., & Chamberlain, D. (2018). Why lecturers still matter: the impact of lecturer-student exchange on student engagement and intention to leave university prematurely. *Higher Education*, 75(1), 167-185.

Fenwick, T. (2011). Reading educational reform with Actor Network Theory: Fluid spaces, otherings, and ambivalences. *Educational Philosophy and Theory*, 43(1), 114-134.

Fenwick, T. (2015). Sociomateriality and learning: A critical approach. In D. Scott and E. Hargreaves (Ed.s) *The SAGE Handbook of Learning*. London: SAGE Publications Ltd: 83-93.

Fisher, K. (2004). Revoicing classrooms: A spatial manifesto. *FORUM* 46(1): 36-38.

Flyvbjerg, B. (2011). Case study in N. Denzin & Y. Lincoln (Eds.) *The SAGE Handbook of Qualitative Research* (4th ed.). 301-316. Thousand Oaks: SAGE Publications.

Fox, R. & Lam, P. (2012). Balancing context, pedagogy and technology on learning space designs: Opportunities amidst infrastructural developments in Hong Kong, in M. Keppell, K. Souter and M. Riddle (Eds.), *Physical and Virtual Learning Spaces in Higher Education* (72-85). Hershey, PA: Information Science Reference.

Frangenheim, E. (2005). Reflections on classroom thinking strategies: Practical strategies to encourage thinking in your classroom (6th ed.). London: SAGE Publications.

Graham, C. (2012). Transforming spaces and identities: The contributions of professional staff to learning spaces in higher education, *Journal of Higher Education policy and Management*, 34(4), 437-452.

Grellier, J. (2013) Rhizomatic mapping: Spaces for learning in higher education, *Higher Education Research and Development*, 32(1), 83-95.

Hall-van den Elsen, C. & Palaskas, T. (2012). Transition to new learning spaces: A change management approach. In *ICERI2012 Proceedings*. Paper presented at the Proceedings of the 5th international Conference of Education, Research and Innovations (Spain), Madrid, Spain (pp. 2202-2211). Madrid, Spain: IATED.

Harwell, M. (2011). Research design in qualitative/quanitative/mixed methods. In C. Conrad & R. Serlin (Eds.), *The SAGE Handbook for Research in Education* (2nd ed., pp. 147-164). Thousand Oaks: SAGE Publications.

Hattie, J. (2011). Which strategies best enhance teaching and learning in higher education? In D. Mashek & E. Hammer (Eds.), *Empirical research in teaching and learning: Contributions from social psychology,* 130-142. Chichester, West Sussex, UK: Wiley-Blackwell.

Hattie, J. (2009). *Visible learning: A synthesis of 800+ meta-analyses on achievement.* Oxford, UK: Routledge.

Hebson, G., Earnshaw, J., & Marchington, L. (2007). Too emotional to be capable? the changing nature of emotion work in definitions of 'capable teaching'. *Journal of Education Policy*, 22(6), 675-694. DOI: 10.1080/02680930701625312

Heck, R. (2011). Conceptualizing and conducting meaningful research studies, in C. Conrad and R. Serlin (Eds.), *The SAGE Handbook for Research in Education: Pursuing ideas as the keystone of exemplary inquiry* (2nd ed., 199-218). Thousand Oaks: SAGE Publications Inc.

Henshaw, B., Moore, J., & Moy, C. (2016, January). *Transforming the Lecture Hall: Toward a Comprehensive Classroom Design.* Presented at EDUCAUSE Learning Initiative Annual Meeting, San Antonio, TX. Accessed 5 September 2017 from: https://cfe.unc.edu/files/2016/02/UNC_ELI_presentation_shared.pdf

Hickey, A. (2012). *Cities of signs: Learning the logic of urban spaces*. Minding the Media: Critical Issues for Learning and Teaching, 5 . New York, NY: Peter Lang. ISBN 978-1-4331-1120-4

Hobsons (2017). Global international student survey 2017: The changing dynamics of international student recruitment. Melbourne: Author. Available online: https://www.internationalstudentsurvey.com/international-student-survey-2017/

Hub Architects. (n.d.a). *Designing the future of education: Universities of the future*. Accessed June 6, 2014 online.

Hub Architects. (n.d.b). *Designing the future of education: Social learning spaces.* Accessed November 30, 2014 online.

Hunt, L., Huijser, H., Sankey, M. (2012). Learning spaces for the digital age: Blending space with pedagogy. In M. Keppell, K. Souter and M. Riddle (Eds.), *Physical and Virtual Learning Spaces in Higher Education* (182-197). Hershey, PA: Information Science Reference.

Jamieson, P. (2003). Designing more effective on-campus teaching and learning spaces: a role

for academic developers. *International Journal for Academic Development*. 8(1-2). 119-133. **DOI:**10.1080/1360144042000277991

Jamieson, P., Fisher, K., Gilding, T., Taylor, P., Trevitt, A. (2000). Place and space in the design of new learning environments. *Higher Education Research and Development*. 19(2). 221-236.

JISC. (2006). *Designing spaces for effective learning: A guide to 21*st* century learning space design.* Retrieved 12th May 2013 from http://www.jisc.ac.uk/publications/programmerelated/2006/pub_spaces.aspx

Kahu & Nelson (2018). Student engagement in the educational interface: understanding the mechanisms of student success. Higher Education Research and Development, 37(1), 58-71.

Kalantzis, M. & Cope, B. (2008). *New learning: Elements of a science of education*. Port Melbourne: Cambridge University Press.

Kamberelis, G., & Dimitriadis, G. (2011). Focus groups: Contingent articulations of pedagogy, politics, and inquiry. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (4th ed.), 545-561. Thousand Oaks, CA: Sage Publications.

Keddie, A. Mills, & Pendergast, (2011). Fabricating an identity in neo-liberal times: performing schooling as 'number one'. *Oxford Review of Education*, 37(1), 75-92.

Kennedy, G., Delgarno, B., Bennett, S., Gray, K., Judd, T., Waycott, J.,… Krause, K. (2009) Educating the net generation: Implications for learning and teaching in Australian universities. Australian Learning and Teaching Council Ltd.

Kenway, J. & Youdell, D. (2011). The emotional geographies of education: Beginning a conversation. *Emotion, Space and Society*, 4(3), 131-136.

Keppell, M. & Riddle, M. (2012). Distributed learning spaces: Physical, blended and virtual learning spaces in higher education. In M. Keppell, K. Souter and M. Riddle, *Physical and Virtual Learning Spaces in Higher Education* (1-20). Hershey, PA: Information Science Reference.

Keppell, M., Suddaby, G. & Hard, N. (2011). *Good practice report: Technology-enhanced learning and teaching*. Australian Learning and Teaching Council Limited.

Kift, S. (2009). *Articulating a transition pedagogy to scaffold and to enhance the first year student learning experience in Australian higher education*. ALTC Final Report. Available online from: http://fyhe.com.au/wp-content/uploads/2012/10/Kift-Sally-ALTC-Senior-Fellowship-Report-Sep-092.pdf

Kincheloe, J. (2003). Critical ontology: Visions of selfhood and curriculum. *JCT: Journal of Curriculum Theorizing*. 19(1), 47-64.

Kirkup, G. & Kirkwood, A. (2005). Information and communications technologies (ICT) in higher education teaching — a tale of gradualism rather than revolution. *Learning, Media and Technology*, 30(2), 185-199.

Kirkwood, A. & Price, L. (2013). Technology-enhanced learning and teaching in higher education: What is 'enhanced' and how do we know? A critical literature review. Learning, Media and Technology. DOI:10.1080/17439884.2013.770404

Kvale, S. (1983). The qualitative research interview. *Journal of Phenomenological Psychology, 14*(2), 171-196.

Law, J. (2004). After method: Mess in social science research. Abingdon, Oxon: Routledge.

Law, J. (2006). *Making a mess with method.* Accessed 24 November 2016 online from: http://www.heterogeneities.net/publications/Law2006MakingaMesswithMethod.pdf

Lee, N. & Tan, S. (2011). *A comprehensive learning space evaluation model*. Strawberry Hills: Australian Learning and Teaching Council Ltd.

Lefebvre, H. (1991). *The production of space*. (D. Nicholson-Smith, Trans.). Oxford, U.K.: Wiley-Blackwell

Lincoln, Y., Lynham, S. & Guba, E. (2011). Paradigmatic controversies, contradictions, and emerging confluences revisited in N. Denzin & Y. Lincoln (Eds.) *The SAGE Handbook of Qualitative Researc*h (4th ed.). 97-128. Thousand Oaks: SAGE Publications.

Massachusetts Institute of Technology (MIT) (n.d.). *TEAL: Technology-enhanced active learning*. [Webpage] Accessed October 18, 2016 from http://web.mit.edu/edtech/casestudies/teal.html

Massey, D. (2005). *For space*. Thousand Oaks: SAGE Publications.

Matthews, D. (2017, July 4). Academics 'fail to change teaching due to fear of looking stupid'. Accessed 5 July 2017: https://www.timeshighereducation.com/news/academics-fail-change-teaching-due-fear-looking-stupid

Matthews, K., Andrews, V. & Adams, P. (2011). Social learning spaces and student engagement, *Higher Education Research and Development*, 30(2), 105-120.

McGregor, J. (2004). Space, power and the classroom, *Forum*, 46(1), 13-18.

Melhuish, C. (2011). What matters about space for learning: Exploring perceptions. In: A. Boddington and J. Boys (Eds.), *Re-shaping learning: A Critical Reader.* Rotterdam: Sense Publishers: 81-92

Ministerial Council on Education, Employment, Training and Youth Affairs [MCEETYA]. (2008). *Learning spaces framework: Learning in an online world*. Accessed from: http://files.eric.ed.gov/fulltext/ED534388.pdf

Mockler, N. (2011). Beyond 'what works': Understanding teacher identity as a practical and political tool. *Teachers and Teaching: Theory and Practice*, 17(5), 517-528.

Mulcahy, D. (2012) Affective assemblages: body matters in the pedagogic practices of contemporary school classrooms. *Pedagogy, Culture & Society*, 20(1), 9-27.

Mulcahy, D. & Morrison, C. (2017). Re/assembling 'innovative' learning environments: Affective practice and its politics. *Educational Philosophy and Theory*, 49(8), 749-758.

Mulcahy, D., Cleveland, B., & Aberton, H. (2015). Learning spaces and pedagogic change: Envisioned, enacted and experienced. *Pedagogy, Culture & Society*, 23(4), 575-595.

Mulcahy, M.D. (2013). Turning around the question of 'transfer' in education: Tracing the sociomaterial. *Educational Philosophy and Theory*, 45(12), 1276-1289.

Oblinger, D. (2005). Leading the transition from classrooms to learning spaces, *EDUCAUSE Quarterly*, 1, 14-18. Retrieved from: http://www.educause.edu/ero/article/leading-transition-classrooms-learning-spaces

Organisation for Economic Co-operation and Development (OECD). (2013). *Innovative Learning Environments*. OECD Publishing. Available online from: http://www.oecd.org/education/ceri/innovativelearningenvironmentspublication.htm (accessed 15 Aug 2017)

Orlikowski, W. & Scott, S. (2008). Sociomateriality: Challenging the separation of technology, work and organization. *The Academy of Management Annals*, 2(1), 433-474.

Palmer, C. (2012, October 1). Lecture theatres to go the way of the dodo. *The Conversation*. Accessed September 5 2017: https://theconversation.com/lecture-theatres-to-go-the-way-of-the-dodo-9893

Payne, G. & Payne, J. (2004). Key concepts in social research. London: SAGE Publications Ltd.

Payton, S. (2012). *Developing digital literacies*. JISC Briefing Paper: http://www.jisc.ac.uk/media/documents/publications/briefingpaper/2012/Developing_Digital_Literacies.pdf

Peräkylä, A. & Ruusuvuori, J. (2011). Analyzing talk and text. In N. Denzin and Y. Lincoln (Eds.), *The SAGE Handbook of Qualitative Research* (4th ed.), 529-543. Thousand Oaks: SAGE Publications Inc.

Peshkin, A. (2000). The nature of interpretation in qualitative research. *Educational Researcher*, 29(9), 5-9.

Pouler, P. (1994). Disciplinary society and the myth of aesthetic justice. In B. Scheer & W. Preiser (Eds.) *Design Review: Challenging Urban Aesthetic Control* (175- 186). London: Chapman and Hall.

Radcliffe, D., Wilson, H., Powell, D. & Tibbetts, B. (2008). *Designing next generation places of learning: Collaboration at the pedagogy-space-technology nexus.* Australian Learning and Teaching Council Limited.

Rafferty, J. (2012). Design of outdoor and environmentally integrated learning spaces. In: Kepple M, Souter K and Riddle M (eds) *Physical and Virtual Learning Spaces in Higher Education* (1-20). Hershey, PA: Information Science Reference.

Regional University. (2018). *University plan (2018-2022).* Author.

Regional University. (2017). *Knowledge Hub*. [Website]. Available online.

Regional University. (2014). *Learning and teaching blueprint (2014-2016).* Queensland: Author.

Regional University. (2013). *University plan (2013 – 2017*). Queensland: Author.

Regional University Facilities Office. (2011). Specialist teaching & student services precinct: Business Case. Queensland: Author.

Retallick, J. & Butt, R. (2004). Professional well-being and learning: A study of teacher-peer workplace relationships. *The Journal of Educational Enquiry*, 5(1), 85-99.

Reushle, S. (2012). Designing and evaluating learning spaces: PaSsPorT and Design-based research. In M. Keppell, K. Souter and M. Riddle (Eds.) *Physical and Virtual Learning Spaces in Higher Education* (87-101). Hershey, PA: Information Science Reference.

Riddle, M. & Souter, K. (2012). Designing informal learning spaces using student perspectives. *Journal of Learning Spaces*, 1(2). Available online: http://libjournal.uncg.edu/jls/article/view/282/277

Roberts, S. & Pepper, C. (2014). *'Just-in-time; just-for-me' narrative support for unit coordinators.* Office for Learning and Teaching Final Report. Accessed 6 June 2015 from: file:///C:/Users/jc237015/Documents/PhD%20PAST/Readings/LE10_1736_Roberts_Report_2014.pdf

Savin-Baden, M., Macfarlane, L. & Savin-Baden, J. (2008). Learning spaces, agency and notions of improvement: What influences thinking and practices about teaching and learning in higher education. An interpretive meta-ethnography. *London Review of Education* 6(3): 211-229

Scott-Webber, L., Strickland, A., & Kapitula, L. (2013). Built Environments Impact Behaviors: Results of an Active Learning Post-Occupancy Evaluation. *Planning for Higher Education*, 42(1) 28-39.

Sheahan, M. (2017). *Not lazing, learning! How informal spaces power student learning in universities*. Melbourne: HASSELL Studio. Available online from: https://www.hassellstudio.com/docs/not-lazing,-learning-.pdf

Smyth, D. (1994). *Understanding Country. The importance of land and sea in Aboriginal and Torres Strait Islander societies.* Key Issue Paper No.1. Council for Aboriginal Reconciliation, Commonwealth of Australia, Canberra, 1994. Accessed 08 August 2016 from: http://www.austlii.edu.au/cgi-bin/sinodisp/au/other/IndigLRes/car/1993/1/5.html?stem=0&synonyms=0&query=understanding%20country

Soja, E. (1980). The socio-spatial dialectic. *Annals of the Association of American Geographers*, 70(2), 207-225. DOI: 10.1111/j.1467-8306.1980.tb01308.x

Souter, K., Riddle, M., Sellers, W. & Keppell, M. (2011). *Spaces for knowledge generation.* ALTC Final Report. Available online from: http://www.olt.gov.au/resource-spaces-knowledge-generation-framework-designing-student-learning-environments-future-2011

St.Pierre, E.A. (2011). Post qualitative research: The critique and the coming after. In N. Denzin & Y. Lincoln (Eds.) *The SAGE Handbook of Qualitative Researc*h (4th ed.). 611-625. Thousand Oaks: SAGE Publications.

Stake, R. (2003). Case Studies, (134-164) in Denzin, N.K. & Lincoln, Y. (eds) (2003). *Strategies of Qualitative Inquiry* (2nd ed). London: Sage

Steel, C. & Andrews, T. (2012). Re-imagining teaching for technology-enriched learning spaces: An academic development model. In M. Keppell, K. Souter and M. Riddle (Eds.) *Physical and Virtual Learning Spaces in Higher Education* (242-265). Hershey, PA: Information Science Reference.

Stewart, D., Shamdasani, P. & Rook, D. (2007). *Focus Groups: Theory and Practice,* (2nd ed.). Thousand Oaks: SAGE Publications, Inc.

Stewart, M. (2012). Understanding learning: Theories and critique in L. Hunt and D. Chalmers (Eds.) *University Teaching in Focus: A Learner-Centred Approach.* 3-20. Camberwell, Vic.: ACER Press.

Strange, C. & Banning, J. (2015). *Designing for Learning: Creating Campus Environments for Student Success.* San Francisco: Jossey-Bass

Temple, P. (2011). Learning spaces as social capital. In: A. Boddington and J. Boys (Ed.s). *Re-shaping learning: A Critical Reader.* Rotterdam: Sense Publishers: 137-146

Thomson, P. & Kamler, B. (2013). *Writing for peer-reviewed journals: Strategies for getting published*. Abingdon, Oxon: Routlege.

Todd, S. (2014). Between body and spirit: The liminality of pedagogical relationships. *Journal of Philosophy of Education*, 48(2), 231-245.

Trowler, P. (2011). *Researching your own institution.* British Educational Research Association on-line resource. Accessed 22 June 2018 from: http://paul-trowler.weebly.com/uploads/4/2/4/3/42439197/researching-your-own-institution-higher-education.pdf

Vygotsky, L. (1978). Interaction between learning and development. In M. Gauvain and M. Cole (Ed.s). *Readings on the Development of Children*. New York: Scientific American Books: 34-40.

Wenger, E. (2011) Social learning capacity: Four essays on innovation and learning in social systems. In A Boddington and J Boys (Eds) *Re-shaping learning: A Critical Reader.* Rotterdam: Sense Publishers:193-210

Wesch, M. (2011). The art of loving and learning: Erich Fromm and the learning (of) transformation in I. Hay (Ed.) *Inspiring Academics: Learning with the World's Great University Teachers*, 23-28, Maidenhead, Berkshire: McGraw-Hill.

Whitehouse, H., Watkin Lui, F., Sellwood, J., Barrett, M. & Chigeza, P. (2014). Sea Country: Navigating Indigenous and colonial ontologies in Australian environmental education. *Environmental Educational Research*, 20(1), 56-69.

Whiteside, A. Brooks, D.C. & Walker, J. (2010). Making the Case for Space: Three Years of Empirical Research on Learning Environments. *EDUCAUSE Review*. Accessed 13 March 2014 from: http://er.educause.edu/articles/2010/9/making-the-case-for-space-three-years-of-empirical-research-on-learning-environments

Wilder, L. & Walpole, M. (2008). Measuring social impacts in conservation: Experience of using the Most Significant Change method. *Oryx*, 42(4), 1–10.

Willetts, J. & Crawford, P. (2007). The most significant lessons about the Most Significant Change technique. *Development in Practice*, 17(3), 367-379, DOI: 10.1080/09614520701336907

Wilson, G. & Randall, M. (2012). The implementation and evaluation of a new learning space: A pilot study. *Research in Learning Technology*, 20(0). doi:10.3402/rlt.v20i0.14431

Wilson, H., Lukin, P., McGavin, K., Eagle M. & Sutton, P. (n.d.a). *A design approach to pedagogical modes in university classrooms*. Brisbane: Wilson Architects. Available online: https://static1.squarespace.com/static/55d3f590e4b0d60074069c3d/t/560a29c1e4b0460b9b28c5ad/1443506625555/Axon+Research.pdf

Yin, R. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks: SAGE Publications.

Appendices

Appendix i: Ethics Phase 1

Appendix ii: Ethics Phase 2

Appendix iii: Observation Template

Appendix iv: Interview Question Schedule, Phase 1

Appendix v: Staff MSCs

Appendix vi: Student MSCs

Appendix vii: Staff Interview Question Schedule, Phase 2

Appendix viii: Student Interview Question Schedule, Phase 2

Appendix ix: Staff table of MSC responses

Appendix x: Student table of MSC responses

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Appendix iii: Observation Template

Teaching Methods				
	5 minutes	10 minutes	15 minutes	20 minutes
Didactic				
Active				
Discursive				
Reflective				
Lecturer Tools:				
Lectern PC				
Laptop				
Doc Cam				
Room Cam				
Other				
Student Tools:				
Laptop				
Tablet PC				
LCD Screen				
Whiteboard				
Other				

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Appendix iv: Interview Question Schedule, Phase 1

Staff Questions

Overarching Research Question	MSC Question	Supporting Questions
2. How do staff and students perceive the available physical spaces and technologies informing their professionalism and interactions with others?	Thinking back over the last months, from working and teaching at the Western campus, to here, what do you feel has been the most significant change in the way you use space and technology?	• Which space that you work in has most affected your professional practice (office, lecture theatre, tutorial room)? • If there was one thing you could change about any of the new working spaces, what would it be? • Do you think there are new possibilities to interact with other staff members and students in the communal workspace, or the open student learning area? • Have the differences in the way the offices are set out affected your work? • Can you think of an experience or story that would capture this?
	In your interactions with staff or students, over the last twelve months what has been the most significant difference you've experienced?	• Do you feel that the layout of the building supports or hinders interactions with others? Why? • Could you share an experience or story that demonstrates as an example? • Do you feel like the change in your interactions has enhanced or hindered your professional work?
3. From staff and student perspectives, what elements of change have resulted in enhanced pedagogical practices? Why?	Over the last twelve months, what has been the most significant shift for you in your pedagogical practice?	• What would you say has been the biggest change in your pedagogy from Western campus to Education Central? • Has there been a change in the way you plan, deliver and teach due to the different spaces and technologies available? • Which room in the building do you think is most effective in supporting your pedagogical practice? Can you think of a story or experience to exemplify that? • Do you feel like this shift has had a positive or negative impact on the overall quality of your teaching? • Have the different layouts, fittings, and technologies available in the lecture theatre or TEAL room changed the way you approach teaching in any way?

Student Questions

Overarching Research Question	MSC Question	Supporting Questions
2. How do students and staff perceive the available physical spaces and technologies informing their professionalism and interactions with others?	Thinking back over the last months, from working and teaching at the Western campus, to here, what do you feel has been the most significant change in the way you use space and technology?	• Do you think the different layouts, fittings and technologies available in the lecture theatre or TEAL room have changed the way lecturers or tutors approach teaching in any way? Do you feel this has this had an impact on your learning? • Have you experienced any difference in pedagogy used between Western campus teaching and Education Central teaching? Can you think of examples to show the change? • Which space do you think is most effective in supportive your learning (lecture theatre, TEAL room, wet lab, open student area, study rooms)? What opportunities does this space give you? How does it compare with your experience on Western campus? • If there was one thing could change about any of the new working spaces, what would it be? Can you think of an experience or story that would capture this? • What's been the biggest change in the way you use technology?
	In your interactions with staff or students, over the last twelve months what has been the most significant difference you've experienced?	• Do you feel that the layout of the building supports or hinders your interactions with others? Why? • Do you feel like there's been more opportunity for learning through interacting, both formally (in lectures and tutes) and informally (in student spaces)? Has this had any benefit on your learning? • Has there been any change in your experienced interactions with staff members? How? • Could you share an experience or story that demonstrates as an example? • Do you feel like changes in your interactions have enhanced or hindered your learning?
3. From stakeholders' perspectives, what elements of change have resulted in enhanced pedagogical practices? Why?	Over the last twelve months, what has been the most significant shift for you in your learning?	• Do you feel like lecturers and tutors have shifted their teaching practices to take advantage of the new spaces and technologies? • What would you say has been the biggest change in your lecturers' and tutors' pedagogy from Western campus to Education Central? Has this had an effect on your learning? • Do you feel like this shift has had a positive or negative impact on the overall quality of your learning?

Appendix v: Staff MSCs

<u>Staff Stories of Change - 2013</u>

Story 1

At the prior campus, you would see them formally – for their lecture, for their tute, for a scheduled appointment in an office – and then they would go. Students didn't hang around, not even for an hour between classes, or if they did, I didn't see them. Here, they've occupied the peer social spaces, I see them around, and they see me. They ask questions and we can talk in that shared space, both informally just to say hello and spontaneously about learning questions they're engaging with. Seeing my students energetically engaged together in real life learning with each other, off each other, helping each other and debating the ideas and exploring, that has been such a highlight. It must feel good for students to feel part of a community of learning that includes staff and students.

Story 2

Over on the previous campus staff were all hidden away and we were spread out over several buildings and levels and more isolated – from each other and from the rest of the university. Here, there are more incidental interactions with other staff members because we're more visible. It's led to better working relationships. It feels more collegial and more like a team environment.

Story 3

I think the technology is secondary to the interpersonal stuff. Regardless of the space or technology available, I focus on meeting the needs of my students and making the learning relevant. That didn't change from the previous spaces to here. I still believe that pedagogy is that relationship you have with the learners. Often I knew the students felt the technology was a hindrance, it took a long time, or didn't work and students just wanted to engage with the concepts. So while there are computers with the stylus and tools like Collaborate available, you still have to make sure using them is contributing to better learning for students. You have to know your students, work well with students and achieve the outcomes.

Story 4

Personally, although the building aims for collegiality, I feel more separate from my colleagues than I did at Western. At Western, there were shared lunch spaces just for each group of offices and noise wasn't such an issue so we could interact more. The suite structure here means I don't feel like I belong to the suites I'm not working in.

Story 5

I think having the peer-to-peer social learning space has transformed teacher-student and student-student interactions here. It's a communal area that allows for informal conversation and a continuity of care for students. You can smile and wave as you walk past and maintain contact with students, even if you taught them the year before. It's an active social space and it's so nice seeing students, it really enhances both my teaching and their learning. I can ask about how they're going outside the classroom and learn about their experiences. It's lovely to watch them actually using the technology and putting things up and sharing their stuff and interacting with learning and they grab me and ask questions as I'm walking by. I don't really have 'office time' anymore, they just come and see me. You're much more approachable.

Story 6
The building itself is lovely. It has a lovely aesthetic to it and that values the work we're doing and legitimises Education as a worthwhile discipline. Over at Western, it was a dustbowl – old and musty. Here, it's new, light, professional. It feels modern and exciting. Students felt a bit special too being in such a nice new building. It's lovely to be in the centre of the university, it feels like we're no longer on the fringes of JCU.

Story 7
The focus of my teaching and my approach hasn't really changed. But you do have to rethink things, with the TEAL room and the technology, but I've always tried to keep interested in doing things differently. I like to think that I've been teaching long enough to know what is good teaching and what works for learners. I think the things I was doing – such as discussions, collaboration, interactive teaching, active learning, lectorials – those things are more possible in this building.

"Teaching in the new building gave me a chance to rethink some things around space and technology, especially the TEAL room and the lecture theatre because they're very different spaces and offer different opportunities. I'm more aware of 'Is there something I can do within the space that's going to be beneficial?' But I think it's less of a transformation or change in my approach, it's more of an adjustment in my teaching. So even though I always tried to focus on facilitating student learning with discussion and active learning rather than standing out the front and delivering material, I do think the new spaces help shift you out of complacency and out of the same mode of teaching all the time."

Appendix vi: Student MSCs

Student Stories of Change - 2013

Story 1

I think the lecturers and tutors still have the same teaching style, but the space and technology has enhanced what they do. We did do group stuff at Western. But it was probably enhanced here because of the resources we had, like those big whiteboards. Here lecturers are interacting with you a lot more in lectures and tutes. They're asking you a lot more questions now and not just talking at you. They're walking around, so you have more discussion with them.

Story 2

One change has been that lectures and tutorials have been more collaborative. It's a lot easier to do group work and share between the groups with the chairs on wheels, whiteboards, the round tables in TEAL room, the levels of the rows in the Collaborative Lecture Theatre and big computer screens to support that collaboration. In group learning, if I don't understand something someone will explain it in a different way, or I can explain something to someone that's having a bit of trouble and that helps me to understand it better. You can move around and get people's ideas. I think that's an advantage of it. It's more student-focused. It makes it more engaging.

Story 3

I think lecturers are still just, you know, using PowerPoint slides, which they did before. I think it really comes back to each individual lecturer though. Some lecturers and tutors utilise the space and technology better than others. There's so much available now and some people would kind of avoid it if they aren't sure how to use it. I guess it depends on the teacher's confidence with the technology and all that, too. Here, they have been doing or trying to do it; sometimes it doesn't work. As they adapt to the new technology it's getting better. It's going to take time.

Story 4

One of the most significant changes is the accessibility to the lecturers outside of class. There's better communication and it's a lot easier to find the teachers and ask a quick question. If you have a problem, you see them or pick up the phone or wait for them to walk past and they're there. Whereas, before that just wasn't possible. You had to send an email and by the time you got the reply you'd sort of forgotten what your question was or why it was important. Now it's instantaneous. That immediate clarification has made a difference to my results.

Story 5

Here, rather than just talking to my lecturers in class, I see them during the week. That everyday interaction and that everyone in the social learning space says 'Hi' to passing lecturers - it's not rigid or really, really formal. You can just have more friendly relationships. I can ask questions. Lecturers and tutors who haven't taught me for ages say 'Hi'. They know me, and I know them, and we can catch up about what's happening, how I am, what prac's like. It's a supportive kind of atmosphere and I really appreciate that. I like feeling known. Personally, I think the building is better in terms of learning achievement too because you can really talk to the lecturers and build that relationship.

Story 6

A significant change is that people hang around between classes, which means you see people and can share ideas and collaborate with peers and *across* the years. All of our Education people are together. That's the beauty of the social space with the tables and the big screens. At Western, after a lecture or tutorial over there, everyone would just leave, there were only hard tables out in the sun - it was like, "Let's go!" It was like a ghost town. Here, everyone's here. The chairs are comfortable, there are whiteboards, computers and wi-fi, plus there are better options for food and coffee. It's comfortable and I'm happier to stay and study.

Story 7

A big change has been that it's got like a supportive community feel to it over here. It's not so broken and it's a lot more united, I think. I actually talk to people in my cohort now because we're all closer. I think having the whole of the Education cohort in one building - you see everyone all the time, because we're going to the same place. We're all crossing paths. I just find that you do know more people and talk to them. Even if they're not in your year I'll see them and go, "Hey, how are you going?" and chat about assignments. It's nice to know everyone's together.

Story 8

A significant change is the social learning space – the group discussion and exploring things with fellow peers. That makes it a lot easier to interact with your ideas and your learning. You can study better with your friends - you can use the whiteboards and big computer screens and have people all focusing on one thing. It's just so much easier. For exams or assignments we can sit up here and bounce off each other. And it was good having lecturers and tutors come out and just go "I need your help!" We got to help each other right then because we were all here whereas before you wouldn't have done that. It's good to be able to clarify ideas and concepts in a collaborative way.

Story 9

It's such a positive change to feel like Education is valued. We're important here, where before we were disregarded, not worthy of having a nice building or nice gardens. There's a sense of ownership here and we're proud of the building. We're Ed. students. This is the Ed. Building. We're part of the uni with everyone else now. It's *our* space.

Story 10

It's a beautiful building. It's bright and colourful and welcoming - and things work! Western was dull, boring, concrete, and nothing worked. I think here it's a positive, supportive environment and people are more enthusiastic. If you're more enthusiastic you devote more time to your work. It's kind of a flow on effect. Space really affects your mentality and it's a beautiful positive place. I want to go to uni just to be in the building! Serious! We're very lucky.

Story 11

One of the most important transformations would be access to everything is easier. The library, the refectory - you can actually get food and coffee. I felt isolated over there, because there was no food, there was nothing over there. And as a student, not having the travelling time or the rushing or moving my car makes a huge difference, because we've got so much more time now between going from lectures to tutorials, or even just coming to class at all. It just takes away so much of the travel time and stress we had to be so central and have everything so convenient.

Story 12

A big change is the facilities encourage technology use. I actually bring my laptop from home more now because everyone's got a power point now and wi-fi. I guess with the classroom technologies too, we're supposed to use them in our future teaching and here we get to see how it can all be used. I'm really grateful for that. I feel more comfortable now going in a classroom and using any type of technology because I can see it getting used in here and so you know how to do it. My technology skills have improved using the computers or the big screens, calibrating the pens in the TEAL room and presenting using the technology. That would probably be a big positive.

Appendix vii: Staff Interview Question Schedule, Phase 2

<u>Phase Two – Interview Schedule and Questions</u>

1. Introduction and signing of consent form

2. Staff Stories – participant read through (5 min)

   - "What comes to mind as you read the stories?"

3. Questions:

   - "From among these significant changes, which do you feel captures the most significant change of all for you? Why?"

   - "How does this story compare with your current experiences?"

   - "Is your most significant change captured in these stories?"

4. Provide Domains of change – Pedagogy, Professional Interactions & Space and Technology.

   - "Which change story do you feel is the most significant for each domain area? Why?"

   - "How do they relate to your current experiences or practice?"

   - "Is there an alternative story of sustained change that you'd add instead?"

5. Summarising question:

   - "Do you feel that the building and technologies has had any impact on your teaching philosophy and approach?"

   - "Is there an example story to illustrate that?"

6. Thank you and end.

<u>Phase Two – Interview Schedule and Questions</u>

1. Introduction and signing of consent form

2. Student Stories – participant read through (5 min)

    • "What comes to mind as you read the stories?"

3. Questions:

    • "From among these significant changes, which do you feel captures the most significant change of all for you? Why?"

    • "How does this story compare with your current experiences?"

    • "Is your most significant change captured in these stories?"

4. Provide Domains of change – Pedagogy, Professional Interactions & Space and Technology.

    • "Which change story do you feel is the most significant for each domain area? Why?"

    • "How do they relate to your current experiences or practice?"

    • "Is there an alternative story of sustained change that you'd add instead?"

5. Summarising question:

    • "Do you feel that the building and technologies has had any impact on your philosophy or approach to learning?"

    • "Is there an example story to illustrate that?"

6. Thank you and end.

Appendix ix: Staff table of MSC responses

Staff Evaluation of Sustained Stories of Change – Phase 2

	Story #1 Formal interaction ⇨ student presence in the social space	Story #2 Staff hidden & isolated ⇨ collegial	Story #3 Technology secondary to meeting needs of students (unchanged)	Story #4 More connected ⇨ more separate	Story #5 Peer-to peer social space enhances teaching and learning	Story #6 The building aesthetic is lovely	Story #7 Focus of teaching hasn't changed – building supports this	Story #8 Affordances gives chance to rethink teaching around space & technology
Tia					P.I. (MSC)	S&T		Ped.⇔S&T
Ali	P.I. (MSC)		Ped.⇔S&T (MSC)	P.I.				S&T ⇔ Ped
Ida	P.I.⇔S&T				P.I.⇔S&T		S(Ŧ)⇔Ped.	S(Ŧ)⇔Ped. (MSC)
Lia	P.I (MSC)		S&T		Ped.			S&T
Tes	P.I.⇔Ped. (MSC)					enabler of Ped.⇔S&T ⇔P.I.		Ped.⇔S&T
Nel	P.I.		Ped.			S&T (MSC)		
Hal						MSC - enabler of Ped.⇔S&T ⇔P.I.	Ped⇨P.I.⇨ S&T	Ped.⇨P.I.⇨ S&T
Lee	P.I. (MSC)		S&T					Ped.
Cal			(MSC) P.I.⇔Ped. (S&T)			S&T - enabler of Ped.⇔ P.I.	P.I.⇔Ped. (S&T)	P.I.⇔Ped. (S&T)
Nay				(MSC) (S&T) P.I.⇔Ped.		(MSC) (S&T) P.I.⇔Ped.	(S&T) P.I.⇔Ped.	
	6 selected (4 MSC)		5 selected (2MSC)	2 selected (1MSC)	3 selected	6 selected (1MSC)	4 selected	8 selected (1MSC)

Domains:
- P.I = Professional Interaction
- S&T = Use of Space and Technology
- Ped. = Pedagogy

Appendix x: Student table of MSC responses

Student Evaluation of Sustained Stories of Change – Phase 2

	Story #1 Teaching same but enhanced	Story #2 More collaboration in class	Story #3 Still using PPT	Story #4 Access to lecturers	Story #5 Seeing staff more – being known	Story #6 People hang around between classes	Story #7 Supportive community	Story #8 Social learning space & interaction	Story #9 Education is valued	Story #10 Beautiful building	Story #11 Ease of access to everything	Story #12 Facilities for technology use
FG#1 3 participants		MSC Ped.				MSC S&T		Overall MSC MSC P.I				
FG#2 4 participants					Overall MSC MSC P.I			MSC S&T				MSC Ped
FG #3 1 participants		MSC Ped		Overall MSC MSC P.I						MSC S&T		
FG#4 3 participants			MSC S&T		MSC Ped + P.I					Overall MSC S&T + P.I		
		4 selected			7 selected (4MSC)			7 selected (3MSC)		5 selected (3MSC)		

Every story of overall most significant change is about enhanced professional interactions with others.

Domains:
- P.I = Professional Interaction
- S&T = Use of Space and Technology
- Ped. = Pedagogy