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Pedagogy and Partnerships in Innovative Learning Environments

Case Studies from New Zealand Contexts

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Introduction

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Abstract This chapter outlines background information about the policy context in Aotearoa New Zealand as it relates to ILEs. It also introduces all chapters and explains how chapters are arranged and organised.

Keywords Background · Partnerships · Pedagogy · ILE

Introduction

Aotearoa New Zealand's current policy regarding school buildings for state schools, is consistent with international trends and changing priorities in political, social, economic and technological developments influencing conceptions of schooling and what it means to learn. The OECD (2013, 2018) for example, has consistently tracked such changes and their potential effects on education. The growing ubiquity of mobile devices and wireless connections has prompted researchers to examine their impact on educational provision and how learners behave when using them. Regular OECD reports resulting from such research, influence how governments plan for educational change, often beginning with curriculum documents and how they express Key Competencies (OECD, 2019). As Brett Bligh argues in Chap. 17 of this book, 'it is explicitly acknowledged, within OECD reports, that the "vision" of the ILE is something that stakeholders are supposed to engage with, own and further develop as part of the process of change (OECD, 2013)'.

In the light of international evidence syntheses, various countries have used that evidence to foster different types of school buildings that have certain characteristics in common: the spaces are open, contain moveable furniture and shared zones and are usually provided with the most up-to-date broadband access. A common label for

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such spaces has evolved from 'modern learning environments' (MLEs) to 'innovative learning environments' (ILEs). This underpins an agenda of integrating physical and digital resources to support diverse learning needs through more personalised, collaborative and engaging learning experiences across cognitive, social and affective domains. The most common intention is that such developments will privilege lifelong learning and metacognitive capabilities.

Within Aotearoa New Zealand, a similar move had been mandated via the Ministry of Education's property strategy under previous governments. The espoused aim was to develop flexible learning spaces, regarded as being more conducive to the evolving educational practices. Recently, with a new government, these have evolved again. There is an important distinction in terminology made in the Ministry of Education documentation, with a clear differentiation between the concepts of flexible learning spaces (FLS) and innovative learning environments (ILE). A flexible learning space comprises the physical environment which includes design elements such as large common spaces with moveable partitions, smaller breakout spaces and a wide variety of furniture and soft furnishings. The term innovative learning environment encompasses not only the physical species, but also the social and pedagogical spaces in which learning occurs. Mahat et al. (2018) assert that, contrary to public perceptions, an innovative learning environment is not synonymous with open plan, thus emphasising that it is more than just the physical environment which is intended to be innovative. The most recent strategy from Aotearoa New Zealand's Ministry of Education states that 'this Government has a target of all state schools having quality learning environments by 2030' See National School Redevelopment Programme for more details).

Aotearoa New Zealand has an open approach to its national curriculum. It encourages schools to interpret the curriculum in response to local conditions, and this view is demonstrated overtly. For example, the English language version of the *New Zealand Curriculum's* (NZC) vision, is for learners to be 'confident, connected, actively involved, life-long learners' (Ministry of Education, 2007, p. 7), and it also declares that 'The curriculum offers all students a broad education that makes links within and across learning areas, provides for coherent transitions, and opens up pathways to further learning' (Ministry of Education, 2007, p. 9). Together, these quotes indicate a long-term strategic policy direction for education. This long-term policy direction links closely to what constitutes quality learning spaces. The attention on the quality, size and possibilities of learning spaces has seldom occupied educators' thinking before. It may be that the regulations around the size, structure and purposes of new and refurbished classrooms have had this effect. The ability of schools to make local decisions about how curriculum is enacted, coupled with the expectations of a detailed set of regulations about new learning spaces, makes for diverse interpretations of what schools can look like.

In the past, schools were built according to the single model available at the time. Now, school buildings in Aotearoa New Zealand can look like apartment blocks, warehouses or airport terminals from the outside, as they reflect and refer to their local context.

Given the complexities and tensions that teachers now face straddling traditional and future-focused expectations, misunderstandings about what it means to teach in open, flexible spaces have arisen. However, in taking advantage of new types of learning spaces, the fundamentals of reading, writing, thinking, creating and problem-solving remain important to learning. However, they can get lost when the focus is on the nature of the spaces themselves. The greatest change rests with not only *how* learning fundamentals are facilitated, but also *what* types of resources will help learners make meaning as teachers get used to differently organised learning spaces.

Without support that helps teachers rethink how they might take advantage of differently shaped learning spaces and adapt their practices; it is therefore unsurprising that teachers insert existing pedagogical practices into new spaces. When there has been little support to rethink pedagogical design, strategies and purposes for new types of learning spaces (because these changes are so new), reverting to known practice is a typical response. Emerging research about practices in such spaces suggests that more open pedagogical spaces might result in responses on the continuum of teacher anxiety about how to cope, through to igniting learning passions.

How school leaders and teachers understand open learning spaces and their teaching and learning affordances and purposes, may now depend on whether the school is brand new, or undergoing refurbishment. When schools transition from single cell classroom spaces to more open flexible spaces, the pedagogical load on teachers can be enormous as they work out how to take advantage of the new spaces, and learn how to work in teams rather than alone. Some teachers can feel increased anxiety in unfamiliar, open and exposed surroundings. Their sense of being watched and judged by others may be felt keenly. They may feel destabilised and experience pedagogical discomfort.

In open and larger spaces, teachers are learning to navigate establishing and fostering partnerships with other staff so that they can teach together and manage larger numbers (e.g. 60–120 students) at once. When very experienced teachers—especially so for those in the secondary sector—are from different disciplines, such collaboration is relatively uncommon. For many teachers facing such circumstances, it may be the first time they have had to think about their own subject discipline in tandem with another: they are in unfamiliar territory. To collaborate with teachers of other subjects and design new kinds of learning, the skills of negotiation, compromise, teamwork and creativity come to the fore. These skills test teachers' understanding of who a teacher is, what their subject is and what it means to teach. At the same time, all of these teachers undertake their pedagogical practices with much more visible scrutiny than in the past. This visibility not only changes the nature of the possibilities available to teachers and how they organise learning, but also challenges teachers to review their tried-and-true pedagogical moves It is therefore possible that teachers become hyper-aware of a potentially constant and unfamiliar, peer gaze.

Students, as well as their wider school community, may also have misgivings about the changes new spaces might bring when a school undergoes refurbishments, or is replaced with a new one (such as occurred after the Christchurch earthquakes). Teachers and students may end up straddling both open, large learning spaces and

single cell classrooms when a school has stages of refurbishment. And schools experiencing considerable change to the nature of classroom spaces and how the curriculum works, find that some students cannot settle and end up changing schools. At least now there are different types of schools and different types of schooling ethos, students and parents have different types of schools to choose from. Public media at times has reported on those who question the viability of different learning spaces, emphasising perceived deficiencies, even when they may not fully comprehend potential or actual advantages (for student perspectives see Wright, 2018). These reactions may mask a yearning for the 'tried and true'.

This book therefore examines contexts and possibilities in Aotearoa New Zealand education contexts arising from the international trend for open, flexible, innovative learning environments. Chapters highlight a diversity of responses to the regulatory framework regarding learning spaces, through the eyes of those deeply involved: teachers, school leaders and students, as well as initial teacher education (ITE) providers. By focusing on developments in this one country, the chapters offer insights into a range of aspects that teachers, school leaders and other educators and researchers may find valuable and applicable to their own circumstances as teachers and students learn and adapt to new learning spaces.

We also offer insights into how different teaching and learning partnerships may be conceived and flourish. From an historical look at the nature of learning spaces, views of transition from one kind of learning space to another, teacher disposition and change and how teachers *make do* with what they have available to them, the book offers numerous perspectives. Chapters offer examples of how teaching in new spaces can be an exciting challenge for teachers and students trying new ideas and practices as well as rethinking the purposes of learning and what the school values. On the other hand, some educators, leaders, students and local communities may view new types of learning spaces as trampling on the tried, true and trusted and staunchly uphold very different values, often cemented in twentieth century or earlier contexts.

The Book's Focus

This first chapter foreshadows the contributions of the rest of the book to the overall themes. Together, chapters focus attention squarely on teaching and learning in ILEs across a wide variety of educational contexts. Few books, theses or articles about ILEs specifically consider the pedagogical load on teachers, the kinds of efforts they make to adapt their practices, or ideas of partnerships across, for example, teaching domains or diverse groups of students. Some texts, however, address similar ideas, but tangentially (Benade & Jackson, 2018; Wright, 2018). Our attempt to redress this imbalance responds to questions such as: *What does it mean to teach, learn, or lead in an ILE? And, what happens when teachers and students move from single cell learning spaces to open, collaborative ones?*

A defining feature of the chapters is that they are written by authors affiliated in some way with the University of Waikato's School of Education, as either current

or past staff members, or as graduates of masters or doctoral programmes. Our intent is that the book contributes a resource for others wishing to understand the effects on teachers and students of policies regarding teaching and learning spaces. This includes policymakers, practitioners, researchers and learners, any of whom might embark on similar initiatives pivotal to productive and effective ILE design, development and implementation.

Chapters draw on a range of Aotearoa New Zealand-based funding initiatives, such as the Teaching Learning Research Initiative (TLRI) and the Ministry of Education. The Wilf Malcolm Institute of Educational Research (WMIER) at the University of Waikato has been an important supportive presence in many of these endeavours, and in relation to writing this book.

Across chapters, a range of educational contexts in Aotearoa New Zealand become sites for inquiry as they respond to national policy directions prompted by the international trend for open, flexible, innovative learning environments (ILEs). The chapters highlight the diversity of responses to MOE regulatory frameworks precipitating schools into becoming ILEs through the eyes of those deeply involved: teachers, school leaders, students, initial teacher education (ITE) providers and their students. Contexts for various studies include pre-service teachers working in primary and secondary schools, and in-service teachers developing professional expertise or shifting from one kind of teaching space to another.

Our book examines ideas of partnership and pedagogy as they influence, and are influenced by, the growing alteration of school classrooms into innovative learning environments (ILEs). These environments are more than the shape of the learning spaces themselves. What turns the spaces into learning environments connects with what happens inside them, how they are inhabited and how the learning happens and how teachers expand, shift and adapt their pedagogical practices to meet the demands of working differently in different kinds of spaces. Our focus does not intend to denigrate the fine pedagogical work occurring in 'ordinary' single-cell classrooms. Instead, the book looks at what the new types of spaces create opportunities for that were too difficult to achieve or difficult to imagine in traditional, 'ordinary' classrooms, and illustrates specific challenges they pose.

Our combined efforts therefore offer insights into how different teaching and learning partnerships may be conceived and flourish. From an historical look at the nature of learning spaces, views of transition from one kind of learning space to another, teacher disposition and change and how teachers *make do* with available resources, the book gives voice to a range of perspectives, expanding our ideas of ILEs and what they might be. There is the policy view, which offers ideas about national priorities and the influence on the education sector and chapters exploring teachers viewing as exciting challenges, their practice in new spaces. Other chapters variously track teachers and students trying unfamiliar ways of teaching and learning, and rethinking purposes of learning. Overall, we discuss some implications of broader societal changes and their effects on wider perceptions of what is valued in learning.

This is not to say that all is rosy. Some educators, leaders, students, parents and local communities may object, viewing these unfamiliar types of learning spaces as

trampling on the tried, true and trusted. The book therefore offers broad perspectives from a broad range of positions.

The book is organised in five sections. It begins with Section: Background, containing three chapters setting the ILE scene, and concludes with Section: Conclusion. Together, these sections brace the following sections:

- Section: Possibilities for spaces
- Section: Possibilities for pedagogies and practices
- Section: Possibilities for partnerships

Terminology is an important starting point. We therefore outline some of the debates about terminology relevant to this topic, particularly the term 'innovative learning environment' (ILE). The term ILE has superseded earlier labels such as Modern Learning Environment or Flexible Learning Environments. Trask's chapter argues that an ILE is:

> An innovative learning environment (ILE) is an education ecosystem made up of teachers, learners, physical space and material resources (OECD, 2013; 2017). The term 'ecosystem' is significant, signalling interconnectedness between people and place. The word 'innovative' communicates an often-unchallenged assumption of doing things differently; of re-examining and reframing teaching and learning for a new age. Physical attributes of ILEs in Aotearoa New Zealand often include open or flexible spaces which accommodate large groups of students and teachers (Dovey & Fisher, 2014; Wright, 2017).

Fletcher et al. (2020) suggested that an ILE is designed to support the move from traditional single-teacher classrooms to multi-teacher learning spaces, where students are encouraged to be self-regulated learners. If that is the case, then the structures themselves act as policy drivers. The argument is still in play.

Next, we briefly outline, in numerical order, the sections and chapters, highlighting authors' contributions.

Section 1. Background (Chapters 1–3)

Three chapters constitute this background section. What you are reading now is Chap. 1: Introduction. The following two chapters, acting as the book's anchors, examine two aspects. Firstly, through a historical lens, a view of the nature of learning spaces (Chap. 2). Secondly, Chap. 3 explores relevant international and national policy frameworks and their potential effects on initial teacher education. Together, they indicate matters of history, policy and teacher education in relation to ILEs.

Noeline Wright's Chap. 2 offers an overview snapshot of historical and contemporary influences on conceptions of New Zealand schools, classrooms and the broad nature of learning spaces. Through examining characteristics of traditional school contexts including school furniture through international and New Zealand-based historical documents, she traces their development to a pivotal point in time where the Open Air Schools movement flourished. For the first time, societies embraced ideas that focused on the physical aspects of school buildings (light and ventilation

in particular) and their potential influence on children and young persons' health and physical wellbeing, with the intention of positively affecting academic outcomes. This appears to have paved a way for later ideas linking to learning spaces and their design. This rethinking of educational designs also included furniture for learning. The Open Air Movement appears to have been a key influence in the design of contemporary spaces that may facilitate positive learning experiences, and possibly indicates ways in which political decisions affect educational aims and structures.

By focusing on shifts in thinking regarding classroom furniture, pedagogy and learning, Wright walks us through the implications of these different ways of thinking, including the impact on the nature of teaching-and-learning in our current COVID-19 pandemic climate. She also asserts that architects can play an important role (see also Wright et al., 2021) in guiding the design of relevant and appropriate educational learning spaces to accommodate the shifting priorities and challenges that bear on educators and learners today, pointing out that:

> As governments like Aotearoa New Zealand's regulate the specifications for classrooms and schools, there will continue to be change over time: demographics, catastrophes (war, pestilence, natural disaster), and other factors including political agendas and social change, contribute to the flux of what is deemed appropriate as learning spaces.

They remind us that educators and their students will continue to 'make do': improvising as successive waves of changes and challenges occur across time, countries and learning spaces. Such developments and challenges provoke debates within education, research and public spheres as well as the ideas that influence those who design learning spaces. The chapter implies that through continued interrogations into educational policies about spaces and places for learning, the resulting evidence can inform debates into appropriate pedagogical practices expected to suit future learners' needs.

Bev Cooper's policy background chapter (Chap. 3) provides a view from a different window, looking at the nature of international debates and policy directions influencing educational change. She explores ways in which policies reframe teaching and learning and influence teachers' responses to shifts from traditional educational ideas and spaces to ILEs and leads to outlining potential implications for teacher learning and school leadership. Her chapter examines characteristics of twenty-first-century competencies and their intended links to developing a highly skilled workforce as proposed by international bodies such as the OECD, through a range of reports and syntheses. The general economic lens of such organisations applied to educational contexts, is however, moderated by the OECD's Learning Compass. The Learning Compass is a model synthesising expectations about the skills, dispositions and capabilities citizens across the world are likely to need to cope with disrupted, uncertain futures. Covid-19's rise is a case in point.

Cooper turns her gaze to tracing forces shaping preservice and in-service teacher education in Aotearoa New Zealand. Recent changes, for example, have led to providers having to create new teacher education programmes that meet the challenges of potential and actual disruptions and rapid changes. Teacher education programmes are expected to prepare capable and professional teachers who can assist

all learners to achieve educational success, and meet challenging demands, often, as with Covid-19 lockdowns, little warning. Next, she examines current conceptions of ILEs related to various social and pedagogical aspects that learners experience. She argues for 'significant mind shifts and changing capacities for leadership, teaching and learning', making comparisons between teachers' expectations in traditional versus ILE settings, to indicate the nature of the shifts and changing capacities we may yet face. She concludes by reminding us that 'significant investment' is needed in a range of educational areas: leadership; in-service and pre-service teacher learning. Without significant investment, it is difficult to expect that any teaching workforce is properly prepared to professionally support school students to learn to contribute to, as Cooper argues, a 'better world'.

Section 2. Possibilities for Spaces (Chapters 4–7)

The section comprises four chaps. (4–7). As a group, they consider the influences that learning spaces themselves and their design might have on teachers' practices and pedagogical thought. Such influences are likely to affect teachers' dispositional thinking and openness to shifts in pedagogical design and practices, as well as their understanding of what learning space might be.

Chapter 4 begins the section. Jenny Charteris and Dianne Smardon direct attention to ideas of spatial agency and its manifestation in ILEs. They consider relations between people, and people with material objects. Their contribution makes a distinction between *place* as opposed to *space*. The former, they argue, encapsulates the physicality of spaces that people inhabit, while the latter encompasses people's social practices within physical environments whether indoor or outdoor. Charteris and Smardon make a case that schools' spatial designs can influence students' and teachers' capacity to act. They suggest that it is essential to be spatially literate to maximise ILE affordances and understand the pedagogical actions and possibilities that might exist within such spaces.

Using a spatial ontology lens, they adopt Massey's (2005, 2009) framework about relationality, multiplicity and the fluidity of spaces to analyse data from primary school teacher perspectives regarding the influence that the spatial characteristics of learning spaces might have on teachers' and learners' agency. Their findings illustrate ways spatial agency is constantly being co-produced through the systematic manipulations of space by teachers and students, the physical affordances of the spaces and their spatial design. They conclude that '…a student or teacher cannot be said to "have" spatial agency, it is created through multiple factors (e.g., bodies, objects, discourses) in play within the school environment'. Their chapter exemplifies an important discussion on the influence of spaces and their design on pedagogical possibilities for teachers and learners.

Chapters 5 and 6 take a different turn on ideas about space and pedagogical practices. They focus on ILE spaces used to support drama teaching and learning processes and outcomes in secondary schools. Jane Luton's Chap. 5 takes the view

that drama education is unique in its positioning: that it is unlike other subject areas. Borrowing from Neelands and O'Connor (2010), she argues that drama is 'not simply a subject but also a method… a learning tool' (p. 35) where students learn about drama and through it to develop insights, ideas and dispositions in a holistic way. Luton's argument draws parallels between the United Kingdom's historical basis for the creation of drama spaces in schools, with Aotearoa New Zealand's recent developments of ILEs. She directs readers' attention to the ways drama spaces act as democratic learning spaces.

She asserts that drama educators have, for over a century, used drama as a space for possibilities, and says a drama room is 'the open space, inviting collaborative embodied learning, often through discovery'. The possibilities of such spaces suggest that power can be shared between teachers and learners, and that drama spaces are rooms where teaching–learning partnerships can thrive. Luton's notion of space resonates with Charteris and Smardon's (Chap. 4) ideas of *space* that go beyond physicality, imbuing 'an abstract concept' and becoming spaces where principles of an ILEs are related to the social, pedagogical, historical and physical aspects that connect with the *New Zealand Curriculum* (Ministry of Education, 2007).

Based on narratives collected from international drama educators through embodied reflection, Luton illustrates ways that collaborative learning is demonstrated between drama educators and learners to encourage, challenge and support each other. She notes, it 'is not only the teacher who is enacting an alternative pedagogical approach and relationships… [for] students experience an altered spatial relationship with their teacher and peers as they engage in "doing drama" in various ways with each other'. The chapter concludes with the hope that the wider ILE community can learn and draw on drama's democratic and embodied learning ideas to inform their own teaching and learning contexts.

In this way, Luton's chapter, together with Claire Coleman and Annette Thomson's (Chap. 6) and Eames and Milne's (Chap. 7), have similar intentions in opening up dialogue about what an ILE space is and could be. They bravely traverse divergent terrain in arguing for different learning spaces within and outside traditional classroom contexts. Collectively, they see these alternatives as valid and robust instances of spaces that uphold this century's learner-centred ideals of ILEs.

In Chap. 6, Coleman and Thomson report on the reflections of an experienced drama educator transitioning from the drama space she 'made do with', into a purpose-built ILE school. This transition process was fraught with challenges to both her pedagogy and her commitment to exploratory, collaborative and creative approaches. The additional restrictions of the shift to a new ILE space and its impact upon pedagogy rendered, she believed, the new space less innovative than her previous one. Coleman and Thomson problematise the effects of the transition to the new space on the teacher, her pedagogy and the opportunities and limitations for future praxis. Through undertaking a reflective practitioner inquiry into her own practice, the drama teacher offers readers insights and a new appreciation into the effort required to establish pedagogical innovation in new educational spaces. The authors draw on theory from an activity-centred analysis and design (ACAD) framework and network theory (Carvalho & Yeoman, 2018) to analyse the effects a transition to a

new ILE space has on a teacher's practice. It also analyses ways this plays out in the complexity of teaching in the arts. The chapter ends by challenging some of the rhetoric about ILEs, that posits they are a panacea for precipitating student-centred pedagogical practices on a greater scale than has been possible before. The chapter provokes future designers, schools and educators to recognise the influence of spaces on the teaching–learning nexus.

In Chap. 7, Chris Eames and Louise Milne invite the reader to consider alternative conceptions of spaces for learning transcending walled classroom settings. The alternative they propose centres on non-school spaces where important experiential learning opportunities can occur that can complement in-class activities. Their chapter argues that education outside the classroom is an important context for learning opportunities, for they embrace principles of twenty-first century learning and ILEs. As with Luton's Chap. 5 which draws parallels between drama education and ILEs, Eames and Milne begin by discussing the synergies between the principles and practices in Education outside the Classroom (EOTC) and those extolled within ILE ideals. Based on comparisons between the two bodies of literature, they then direct attention to notions of space, pedagogy and using digital technologies as a framework. They use this framework to unpack the term 'innovative learning'. Notions of space, pedagogy and using digital technologies are embellished through reporting on two EOTC research projects that involved both authors.

Milne explores her evaluation of the GeoCamp programme. The programme offered students opportunities to learn about geological science through engagement with earth scientists, creating experiences with personalised and authentic real-world projects. The fluid use of multiple spaces, pedagogical approaches and some digital technologies in a geoscientists' tool kit, enabled learners to plan, collect data, conduct analyses and solve problems in action to broaden their thinking and capabilities. Milne found that the project's impact was long lasting. At least six months after the conclusion of the programme, she traced changes in learners' perceptions of scientists and their understanding of the role of earth scientists.

The project Eames had co-led revolved around mobile learning and mixed reality (MR) to support students' learning about marine conservation. The intention was to enhance their ecological understanding. The project made use of MR to support children in making connections between their learning at a marine reserve, a visitor centre and within their classroom. Eames detailed how the different spaces, pedagogical approaches and digital technologies were used during the four stages of the project. Students, their teachers and even parent helpers were appreciative of the diverse implementation of different spaces, pedagogical approaches and digital technologies. Their insights offered suggestions for mitigating identified issues. Eames concluded that the project exemplified ways EOTC and ILEs share commonalities that resonate with the relational materiality of space. Together, Eames and Milne urge readers to reconsider their notions of the types of spaces within which learning takes place, so that it includes spaces outside classrooms. They also argue that EOTC offers viable ways to embrace principles of ILEs and twenty-first-century learning outcomes. Further, careful educational design through a framework incorporating

diverse spaces, pedagogies and technologies, they argue, is a productive way to interrogate the conceptualisation of spaces in ways that are student-centred and enhance teaching and learning.

Section 3. Possibilities for Pedagogies and Practices (Chapters 8–12)

This section centres on contributions to pedagogical possibilities for working in ILE spaces. These four chapters draw on three of the four education sectors: primary, secondary and tertiary.

Michelle Barnard and Jenny Ferrier-Kerr's Chap. 8 highlights the need to attend to teachers' 'liminal space'. They define this as the 'space in-between' or as a 'crossing over' space. The latter relates to the type of space one encounters during times of transition and change. Such a space can be marked by responses that reflect not only a sense of eagerness, but also uncertainty and anxiety.

Not commonly discussed in education contexts, the issue of teachers being suspended in a non-physical liminal space can impact significantly upon their behaviours, beliefs, professional identity and the success of change initiatives. The research contributing to this chapter explored junior school teachers' liminal spaces during actual or anticipated moves from traditional classrooms to ILE learning spaces. The authors hypothesised that teachers who are more cognisant of their liminal space *and* supported through differentiated professional learning opportunities are likely to have a greater capacity to positively navigate transition and change. Through surveys and interviews, findings revealed that foremost in teachers' liminal spaces were perspectives and worries about implications for their pedagogical practices. As well, findings revealed they undertook professional conversations strengthened or changed collegial relationships and had a vision for the ILE.

The authors identified seven pragmatic preparations that may enhance teachers' transitions to ILEs, drawing from productively using their liminal space. They contend that teachers can benefit from developing their liminal space knowledge and understanding as they anticipate moving to ILEs. They suggest that an 'ILE is not just a physical structure, it is subjectively interpreted and imagined' and that ILEs 'are inhabited by educational discourses driving school change'. They assert that when teachers are able to use liminal space productively and creatively, they are more likely to embrace and positively contribute to, educational and pedagogical change.

In Chap. 9, Frances Edwards draws evidence from interviews with students who withdrew from ILE contexts. Her goal was to investigate their reasons for shifting back to schools operating single cell classrooms and structures. Her research question: *What we can learn from students who have chosen to move from an ILE back to a school with single-cell classrooms?* frames the orientation of the chapter. Edwards

argues the importance of student voice within ILEs, particularly if the school purports to foster student agency.

Findings from her qualitative exploratory primary and secondary students' study revealed a range of issues creating 'mismatches' to occur between their experiences and the ILE schools' goals. Although students enjoyed some aspects of their specific ILE context, they fundamentally perceived that their experience of 'learning' in those schools did not match their expectations of what 'learning' is, nor what a learning environment should be. Edwards describes factors contributing to such mismatches and discusses structures and support within ILEs in terms of physical resourcing, social interactions or connectedness and pedagogical approaches that might align with and support these learners' needs.

Chapter 10 reveals important findings from a study that scoped principles for establishing robust mathematics (pāngarau in te reo Māori) teaching–learning practices within a Māori Medium Modern Learning Environment (M3LE). In this chapter, Leeana Herewini, Ngārewa Hāwera and Bronwen Cowie detail how teachers (kaiako in Māori) and researchers 'grappled together' to understand what it meant to be, do, and learn pāngarau (mathematics) in this specific M3LE context. The project involved understanding the intended goals, and why it had been developed. They wanted to know the extent to which it allowed teachers to work to their strengths to improve learning for students (ākonga in Māori).

The authors begin their chapter by positioning the development of Māori immersion learning contexts and how this dovetails with current Ministry of Education motivations for implementing these new designs for schools. Adopting a Kaupapa Māori framework and in partnership with teachers, the research team used findings from interviews with teachers and students, classroom observations and project team meetings to highlight important culturally-based and responsive practices. They considered these to be vital to establishing and sustaining the space for teaching–learning purposes.

Importantly, the new space—M3LE—was reconceptualised according to Māori ways of knowing and renamed as Puna Mātauranga Kiritoa (PMK). The name highlights the MLE as a place or Puna (source of learning) where Matauranga (education) is important, and the notion of Kiritoa (resilience), requiring participants to be strong and resilient is promoted. Resilience (identified as kiritoa) was revealed as an important underpinning value and attitude. Unlike typical views 'resilience', the authors assert that resilience is, from an indigenous perspective, 'ecological, and operates at both an individual and collective level'. Bringing together the collective and individual is thus essential in the operationalisation of the PMK. Collaboration between teachers-students and among students-peers was also a feature of the findings. Fostering collaboration was identified as not only complex, but also important for all parties to negotiate and navigate to meet the demands of teaching and learning pāngarau differently.

This chapter offers valuable insights for researchers and practitioners who work in Maori immersion settings as they develop the confidence to 'make sense of the potential of an MLE in their context' and to open up further avenues for discussion and productive teaching–learning aspirations.

Liz Reinsfield's Chap. 11 contribution focuses on in-service and pre-service secondary school teachers' thinking and their designing for effective learning when trust into new learning spaces. The emergence of ILEs have necessitated changes to existing and student teachers' professional practice. Using Activity Theory to frame her exploration of teacher perceptions and lived experiences, Reinsfield goes on to illustrate the importance of teacher thinking in supporting more agentic student learning 'who will face the realities of uncertain and rapidly technologised futures'. She draws attention to the challenges faced by pre-service and secondary teachers' practices and the need for professional development if they are to reshape and maximise the potential affordances inherent in flexible and well-provisioned physical spaces and digital resources. There is an imperative for student teachers to draw from research-informed and future-focused practices to be able to make sound decisions about the types of learning that will support students in a technologically mediated future. Suggestions for initial teacher education institutions in terms of supporting current and future teachers to prepare for schooling within this century are importantly offered to ensure their support and success in the profession.

In continuing the discussion on pre-service teacher education, Emily Nelson and Leigh Johnson's chapter (Chap. 12) investigates how pre-service primary school teachers (PSTs) learn to teach in ILEs while on professional teaching experience (practicum). Lamenting the paucity of research into teacher preparation for teaching in ILEs and the implications of ILEs for initial teacher education, Nelson and Johnson sought to identify key anchoring practices that PSTs draw on when adapting to teach in ILEs with the intent to inform current theory–practice gaps. Informed by a new materialist framing, they considered the influence of human and non-human forces at work in the ILE practicum assemblage. Nelson and Johnson found the notion of 'learner agency' to be fundamental to PSTs' learning while on practicum. They further propose implications for ITE along the lines of curriculum content knowledge, confidence and learner agency to ensure PSTs are better supported to be effective teaching professionals.

Section 4. Possibilities for Partnerships (Chapters 13–15)

This section brings together chapters connected with diverse partnerships. These partnerships exist between school-communities, teachers and students as they develop and enact what they hope will become effective ILEs. These chapters gather together research undertaken in primary, secondary and tertiary contexts.

Chapter 13 focuses on a whole school transition to implementing ILEs. Garry Falloon, in this chapter, sought to investigate the nuanced, complex and interconnected nature of factors guiding the school's evolution. Adopting the OECD's (2013) conceptualisation of ILEs as an analytical lens and drawing importantly from longitudinal data, Falloon accentuates the need to challenge 'teacher's entrenched beliefs about the purpose of schooling, and to empower and harness the talents of all staff towards achieving a clearly articulated and understood vision'. He illustrates how

successful ILEs demand more than mere considerations for the design of physical teaching spaces and goes on to detail key ideas essential for understanding the complex interrelationship between school leadership, curriculum, pedagogy, technology, professional development and physical learning space design in the development of ILEs. An important contribution from his work is the conceptualisation of the school's ILE development model as a way forward for informing other school leaders and policy makers on the holistic and multifaceted approach needed to map and undertake this journey and to effectively bring onboard and support the key stakeholders—school leaders, teachers and learners. He concludes by making a plea for reconceptualising of valued student learning outcomes in recognition of holistic student development in effective ILEs that go beyond current narrow standardised measures.

In Chap. 14, Suzanne Trask echoes earlier arguments that 'the act of inhabiting flexible spaces does not automatically translate to changed practice'. She adopts a novel technique; the technique of portraiture, to weave together data from three different ILE school contexts and offer stories of senior secondary science teachers and their students' stories of working in ILEs. Her qualitative study of eight teachers and their students to develop a portrait consisting of a chronological narrative illustrating what teaching and learning could or might look like in an ILE. Drawing from the salient features from each of the cases, the portraits importantly highlight possibilities and constraints, and the best and worst aspects of practice and partnerships in ILEs. Her findings demonstrate the way flexible spaces permit movement and social flow. These when combined effectively with the affordances in curriculum, assessment and digital technologies can create multiple possibilities for collaborative teaching practice and student-centred learning approaches. Taken together, her findings found support for engaging diverse learners in science-based ILEs at senior school levels and can offer important implications for other practitioners in other ILE contexts.

Emily Nelson and Maurice Rehu's Chap. 15 concludes this section. It examines how ideas of culturally responsive pedagogical practices and partnerships with key community stakeholders are crucial in a school's transformative journey towards embracing innovative learning environment (ILE) ideals that go beyond the rhetoric. Their chapter resonates with some of the ethos expressed in Herewini et al.'s chapter, for it details a case study about a predominantly Māori state school as it transitioned to become an innovative learning environment. The study traces something of the school's envisioning and journey in embedding culturally located learning through this transition. As they reconceptualised the school to become an ILE, its community sought to foster and sustain a learning ecosystem that nurtures students. Including the school community in its plans to redesign the school's physical and pedagogical structures, was a deliberate choice as the goal was to enhance students' identity and belonging development.

Through using an iterative design approach, staff, students and the wider school community had multiple input opportunities to establish Māori-centred perspectives that would support students to succeed as Māori. A key insight for practitioners interested in fostering culturally located teaching-and-learning practices within ILE

contexts is captured in the authors' observation that 'Māori student success was achieved not only through ongoing collective commitment to enhancing their mana linked across time with the wisdom of their tīpuna (ancestors), but also through culturally located spatial design, pedagogy and relationships'.

Section 5. Conclusion

Brett Bligh's chapter (Chap. 16) concludes the book by bringing together the key themes arising from the different chapters and unifying them through a 'social project' (drawing from activity theorists and specifically Blunden, 2010, 2014) perspective. His 'summary and signpost' provides an external eye to the chapters' projects researched and developed in Aotearoa New Zealand educational contexts. Adopting a 'principled enquiry' approach, Bligh unearths underlying assumptions of preceding chapters by disaggregating and reassembling them under a social project framing. In doing so, he is guided by six pillars of the 'social project' perspective: key predicaments confronted in a project, the pursuit of core concepts, the ethos guiding action, the sedimented artefacts used, the extent the social project engages with other institutions and the lived experiences motivating changes and development. He begins by positioning his work within the wider context of the *international* social project of ILEs introduced by organisations like the OECD which has shaped the global conception of ILEs. He goes on to map the contours of ILEs in Aotearoa New Zealand as a social project by tracing different stages of development across the chapters; the history of ILE including its sociocultural precedents, the introduction of ILEs and the experience of institutionalising ILEs.

Given the overall aims of the book and its individual chapters, we hope it offers an informative exposition of a range of projects exploring contextual experiences, challenges and structures related to ILEs within one country.

References

Benade, L., & Jackson, M. (2018). *Transforming education*. Springer.

Blunden, A. (2010). An interdisciplinary theory of activity. Brill.

Blunden, A. (2014). Introduction: 'collaborative project' as a concept for interdisciplinary human science research. In A. Blunden (Ed.), Collaborative projects: An interdisciplinary study (pp. 1–28). Brill. https://doi.org/10.1163/9789004261228_002

Carvalho, L., & Yeoman, P. (2018). Framing learning entanglement in innovative learning spaces: Connecting theory, design and practice. *British Educational Research Journal, 44*(6) 1120–1137. https://doi.org/10.1002/berj.3483.

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

Fletcher, J., Everatt, J., Macky, J., & Fickel, L. H. (2020). Digital technologies and innovative learning environments in schooling: A New Zealand experience. *New Zealand Journal of Educational Studies, 55*, 91–112. https://doi.org/10.1007/s40841-020-00156-2

Mahat, M., Bradbeer, C., Byers, T. & Imms, W. (2018). *Innovative learning environments and teacher change: Defining key concepts.* Melbourne: University of Melbourne, LEaRN. Retrieved from: http://www.iletc.com.au/publications/reports

Massey, D. (2005). For space. Sage.

Massey, D. (2009). Concepts of space and power in theory and in political practice. *Documents d'anàlisi geogràfica, 55*, 15-26. https://www.raco.cat/index.php/DocumentsAnalisi/article/download/171747/224065.

Ministry of Education. (2007). *The New Zealand Curriculum.* Learning Media.

Neelands, J., & O'Connor, P. J. (2010). Creating democratic citizenship through drama education. Trentham Books Ltd.

Organisation for Economic Co-operation and Development (OECD). (2013). *Innovative learning environments, educational research and innovation.* https://doi.org/10.1787/9789264203488-en

Organisation for Economic Co-operation and Development (OECD). (2017). *Learning environments evaluation program.* http://www.oecd.org/education/LEEP_Brochure_OECD.pdf

Organisation for Economic Co-operation and Development (OECD). (2018). *Education 2030*: *The future of education and skills.* Position paper.

Organisation for Economic Co-operation and Development (OECD). (2019). OECD *Transformative competencies for 2030: Future of education and skills 2030.* Concept Note: https://www.oecd.org/education/2030-project/teaching-and-learning/learning/transformative-competencies/Transformative_Competencies_for_2030_concept_note.pdf

Wright, N. (2017). Developing professionally: Examining the value of an external agent to the professional growth of teachers experimenting with mobile digital technologies. *Educational Action Research, 25*(2), 223–238. https://doi.org/10.1080/09650792.2016.1147367

Wright, N., Thompson, T., & Horne, T. (2021). Talking spaces: Architects and educators. *New Zealand Journal of Educational Studies.* https://doi.org/10.1007/s40841-021-00193-5

Wright, N. (2018). *Becoming an innovative learning environment: The making of a New Zealand secondary school.* Springer. https://www-springer-com.ezproxy.waikato.ac.nz/gp/book/9789811307638

Chapter 2
An Historical Perspective of Learning Spaces

Noeline Wright

Abstract This chapter offers some reflections on both historical and contemporary effects of specific influences on conceptions of schools and classrooms, particularly as they influence Aotearoa New Zealand education. Ideas about classrooms and schools are illustrated through images from a variety of contexts and times. These examples and ideas trace how educational changes become reflections of societal challenges. The chapter begins with outlining a background to schools and related institutions and then explores some classroom characteristics before addressing the influence and legacy of the Open Air Schools movement. The chapter outlines changes in thinking about classroom furniture, contemporary challenges and changes, and possible implications of pandemic influences on the nature of classrooms.

Keywords Historical perspective · Innovative learning spaces · Open air schools

Introduction

Education in a broad sense has existed for centuries, yet its formal arrangement into specific buildings called schools is a relatively recent event that became more common as various countries introduced basic education regulations, particularly increasing during the industrial revolution. De Carlo (1969), for example, has argued that formal education grew out of the Napoleonic view that education was a "means of directing opinion" (p. 14). In other words, the view presented by De Carlo is that education in formal institutions has consistently developed over time to manage the "necessities of the state apparatus" via mass education. In Aotearoa New Zealand, the 1877 Education Act established free compulsory education for all Pākehā children. Interestingly, the Act did not apply to Māori children. Instead, attendance at the free schools was down to parental choice. However, by 1894, primary education for Māori became compulsory. The compulsory nature of primary education created national

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demand for classrooms, and so Aotearoa New Zealand's trajectory mirrored similar changes in other countries.

On the one hand, governments seek to influence their population through mechanisms of education, and on the other, individuals recognize education as a conduit to knowledge and power. Regardless of these political tensions, 'school' is a physical structure with a specific role effectively isolating a specific group of people for periods of time to meet state requirements for educational credentialing. However, in very recent times, the massification of digital technologies has created unprecedented access to information that previously had been controlled. Such technological change shifted attention to rethinking questions about the nature of schools and the nature of learning. Now, the shape of classroom spaces has also altered, as has the labels that describe a school.

Current terms describing schools that have new kinds of physical learning spaces include *flexible learning environments* (FLS), *modern learning environments* (MLE), or *innovative learning environments* (ILE). The Aotearoa New Zealand Education Review Office (2018) defined an ILE as "the whole context in which learning is intended to take place. It encompasses the physical space (the FLS), the social aspects, and the pedagogy" (p. 16). Some of these labels suggest a focus on the nature of 'spaces' (the geography of the rooms themselves), while others on the 'environment', which may indicate how these labels arise. Labels including the word 'environment' usually imply encompassing the teaching and learning, culture, resources and intangibles of classroom life, including spaces not usually defined as traditional classrooms, which connect with the Education Review Office definition.

It is not only educators and educational researchers who are interested in learning spaces and environments. Brown and Campione (1996), for example, presciently argued there needed to be new ways for psychologists "to capture and convey the essential features of the learning environments that we design" (p. 290). It is clear however, that within the past decade, greater teacher and researcher attention is now focused on learning spaces and their role in shifting educational experiences. The design principles contributing to learning environments have also been a feature of this attention, and their connection to political, social, and economic changes has also not gone unnoticed.

Alterator and Deed (2018, p. 4), for example, argue that architectural expressions in the design of schools symbolize physical manifestations of "educational ideas and aspirations", symptomatic of social and economic change or upheaval. During times of privation such as wars or natural disasters, schools and their wider systems develop makeshift and sometimes urgent solutions to provide education. In either rebuilding existing or creating new schools, educational aspirations may reflect a social, political, or economic zeitgeist. One social and economic shift has been fueled by broadband access and the near ubiquity of mobile devices. In turn, these shifts have led to researchers rethinking teachers' roles and education in global terms beyond traditional expectations of learning spaces (Dumont et al., 2010).

Enduring Characteristics of Classrooms

Expressions of flexible and open classrooms are not especially new, notwithstanding the term's current application to specific types of school buildings and spaces, for people have created learning spaces when there is a need. Teaching and learning has taken place for thousands of years, with teachers and learners using resources at hand to achieve their goals, even while having a gendered history. Alsaif's (2014) thesis, for example, notes that despite the longevity of schools as sites of learning, they were seldom for other than males from elite social or economic classes, or clergy. Sometimes, learning was necessarily clandestine, taking place in caves or other secret spaces. People have consistently found ways to offer formal educational experiences even when conditions are obstructive, such as South Sudan, where three quarters of girls do not get a primary school education (Coughlan, 2017).

Alsaif (2014) observed that prototype school plans typically feature single rooms, sometimes replicated side by side or stand-alone. Similar one-room schools persist today, particularly in developing countries. The image below (Fig. 2.1) of a school building in Haiti HCH (Help a Child in Haiti, 2014, February 18) exemplifies privation and locals making do with local materials.

Even when resources are meagre, local communities create learning spaces which materialize traditional expectations of the teacher/student relationship. The orientation and structure of the Haitian classroom (Fig. 2.1) demonstrates Alterator and Deed's view that "school space is a necessary but not sufficient" (2014, p. 5) means of connecting material spaces with the expected social practices of formal education. Figure 2.1 is immediately recognizable as a classroom space: its arrangement

Fig. 2.1 'Secondary school classes are held in this space. Classrooms are separated by tarpaulins' (February 18, 2014) https://hisheartforhaiti.files.wordpress.com/2014/02/2013-10-17-11-02-27.jpg

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A student stands in the ruins of his former classroom, which was destroyed in June 2015 at the Aal Okab school in Saada, Yemen. Students now attend lessons in UNICEF tents nearby.

Fig. 2.2 A classroom in Yemen, after bombing https://www.unicef.org/press-releases/yemen-children-education-devastated-three-years-conflict

of furniture also implies certain assumptions about teachers and learners. Without many tangible materials for learning, such as chalkboards to write on, or books to write in, spaces and their arrangement, such as Fig. 2.1 illustrates, act in a number of ways as unidirectional conditions for transmitting information and transmitting cultural and social practices as well as power dynamics.

Figure 2.2, of a classroom destroyed in Yemen in 2015, shows that the design and associated technologies in a formal classroom setting replicate certain educational scripts that transcend country and culture. Still visible in the rubble are four walls, windows for natural light, and some kind of board for the teacher to write on as a teaching tool. While it is a physically more robust building than Fig. 2.1, it is nevertheless stark in its simplicity. The size of the child counterpoints the devastation of the space, as well as its dimensions. It is unmistakably a classroom. We can assume that since the chalkboard is fixed to the wall that students would have needed to face it, since it is where a teacher would demonstrate intended learning. We can also easily imagine rows of desks and chairs facing this wall. We can imagine that the teacher occupied the front of the room more often than any other part of the room. A positive quality of the space is that it had plenty of natural light, without the space becoming too hot and uncomfortable. We do notknow if the ceiling fitting is bereft of a light or a fan.

Fig. 2.3 Jacob A Riis: 'A class at the Essex Market School, with gas lamps lit by day'. Before 1914. Public Domain: http://www.zeno.org/nid/20001892762

Figure 2.3 (below), on the other hand, takes us to the second decade of last century, where the shape and orientation of the school room resonates across time and country Fig. 2.3 depicts a school room in Essex, United Kingdom, demonstrating enduring structures and configurations visible over time and location. Students again face one way, sitting in close rows, while the teacher commands the prime position at the front, close to the blackboard, visible to, and able to view, all students. She is also the only person standing in that space, clearly delineating an unspoken power dynamic, which are, at best, implied in Figs. 2.1 and 2.2. For generations in school rooms, a board (whether white for felt tip pens, or black for chalk) has been the traditional demonstration tool available to teachers. Even while blackboards have been replaced by whiteboards, movable boards, and digital screens, their function as a tool remains the same: an opportunity for demonstration and information transmission, quickly, and visibly. Such enduring functionality is evident across time, spaces, countries, and configurations such as Figs. 2.1, 2.2 and 2.3. Vestiges persist in newly designed classroom spaces.

In Fig. 2.3, it is also clear that space is at a premium for students, for they appear to be cramped, uncomfortable, and probably unable to move, once shoehorned into the space. We might predict that when the pot belly boiler in the corner heats the room, the air becomes quickly stale, especially if the window is closed for long periods. Students closest to the potbelly boiler are likely to become overly warm and soporific, while those on the furthest margins may shiver in winter months.

Comfort and discomfort apply to visibility too. Students sitting on the periphery of the classroom must have found it difficult to view the blackboard, while those sitting in the front row seem to strain backwards for a better view. Many students

Fig. 2.4 Kaikohe Native Classroom 1939: Native Schools Project records. MSS & Archives 2008/15, folder 173/1. Auckland Library

are holding their slates in front of them to write on, suggesting that either there is inadequate room for writing or there is no tabletop to rest the slates on. Either way, these are less than ideal learning conditions. The space for the teacher at the front is also confined, intersected by a wooden chair, a desk, and what looks like a high chair on the other side of the teacher. The teaching area appears confined to a narrow space, containing a single fixed chalkboard.

While Fig. 2.3's classroom may have been perfectly suitable in its day, new knowledge brings new thinking about the way heating, lighting, space, and color affect conditions for learning (Barrett et al., 2015). Perhaps the design, shape, and orientation of a learning space matters.

Unlike Figs. 2.1 and 2.3, where students sit in shared spaces, Figs. 2.4 and 2.5 show students sitting in physical isolation from each other. Both classroom types resonate across countries, generations, and time.

The 1936 New Zealand Native School classroom, in Kaikohe (Fig. 2.5), is a case in point. The Kaikohe classroom is called an 'open' classroom, despite the rows and aisles of desks still facing one direction. The 'open' nature of the classroom rests with the ability to have one wall open to the outside, even if the internal space seems cramped. The furniture, as in other schools of the time, is wooden, heavy, square, and one-size-fits-all. This uniform and inflexible style takes no notice of growing adolescent bodies, as shown by the awkward posture of some students. Combined, these physical elements imply not only a lack of mobility and discomfort for students within these classroom spaces, but also an assumption about the unidirectional nature of learning.

By the 1960s in New Zealand, classroom furniture was lighter and more moveable. A New Zealand classroom in 1965 (Fig. 2.5 below) suggests that although the