TRANSITIONS 19

ONE JOURNEY, MANY PATHWAYS

SYMPOSIUM PROCEEDINGS 2019
TRANSITIONS19

What is involved in making the journey from traditional to innovative learning environments?


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Melbourne Graduate School of Education
What is involved in making the journey from traditional to innovative learning environments?

An international symposium for graduate and early career researchers

Edited by Associate Professor Wesley Imms and Dr Marian Mahat
Preface

Transitions19 was a trans-disciplinary research symposium held on 2nd–4th October 2019 in Melbourne, Australia.

The papers in this volume underwent double blind peer review in line with HERDC specifications.
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One journey, many pathways: Teachers’ transformative journey into innovative learning environments

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The University of Melbourne, Australia

Introduction

Transitions—a component of the Australian Research Council’s Innovative Learning Environments and Teacher Change (ILETC) linkage project—is a series of research symposia running in 2017 (Melbourne, Michigan and London), 2018 (Melbourne, Phoenix and Copenhagen) and 2019 (Melbourne). It brought together researchers, educators and industry partners to showcase research that explores the theoretical and practical issues involved in creating successful innovative learning environments. In 2017, the symposium opened the door to an international conversation about realising the potential of innovative learning spaces. Transitions 2018 continued the conversation by considering what teachers are doing (well) to transition from traditional spaces to innovative learning environments (ILEs). Transitions19 was a three-day trans-disciplinary, research symposium focusing on the journey schools and teachers make as they re-imagine and redevelop their learning spaces.

Drawing on the success of previous years, the aims of Transitions19: One journey, many pathways were two-fold: to provide a forum for sharing and discussing current research from across the world; and to engage participants in providing their expert input into ongoing research by the ILETC project. The learning design for the conference reflected these dual aims by attempting to balance the delivery of information with opportunities for structured discussion, reflection and feedback. The 2019 event brought together 127 participants from 12 countries, including Australia, Brazil, Canada, Hong Kong, Italy, Malaysia, Netherlands, New Zealand, Norway, Singapore, Sweden and the United States of America.

The conference was held in studioFive, the innovative visual and performing arts education facility at the Melbourne Graduate School of Education, University of Melbourne. The conference format was designed to enable participants to engage in a variety of learning modes and physical spaces. The plenary sessions were held in a flexible learning space configured ‘in the round’ with a variety of seating options, viewing options and informal organisation. The workshops made use of the specialist studios within studioFive with a range of spatial configurations, furniture settings, acoustics and digital technologies.

Structure of Symposium

Transitions19 began with a proposition—while research may show that innovative learning environments are not a magic cure, evidence is mounting that they constitute a powerful tool that, if used well, improve student educational experiences. The ILETC project has found that schools (and teachers) navigate a transformative journey as they reimagine their learning spaces. But what is involved in making the journey from traditional to innovative learning environments? And what is the latest research telling us about how teachers can be supported on this journey?
Our work also emphasises that that successful spaces host a unique diversity of teaching, learning and environmental qualities that can assist teachers to navigate their pathways. These can be viewed as a framework of typologies which categorise the elements in developing effective learning spaces. We currently identify five typologies: spatial designs, teaching approaches, furniture, acoustics, and digital technologies. Importantly, they constitute the mechanism for making tangible to teachers what needs to be known about good use of learning spaces. The typologies are, in essence, a teacher-friendly, practice-focused summary of the mass of theoretical knowledge we have collectively built regarding ILEs. Transitions19 tested these five typologies through actual practice, asking participants to immerse themselves in them, to interrogate them, and to verify their validity.

The conference featured 18 presentations from a wide range of academic, practitioner and professional perspectives—extending the network beyond just graduate and early career researchers. Presentations were delivered over two days in five themed sessions: Policy and Design, School Culture, Teacher Change, Student Voice and Student Learning and Experience—which were followed by workshops that explored the issues raised in presentations through a variety of learning activities. The overall objectives of the workshops were to let participants: reflect on the presentations they have listened to through the activities; listen to the different perspectives of participants (policy, industry, practitioners and academics); and experience a combination of the five ILETC typologies, i.e. space, pedagogy, furniture, digital technologies and acoustics.

Groups of approximately 20 participants attended each concurrent workshop. Each workshop made use of the same/similar activity but with different pedagogies, space, furniture, acoustics and digital technologies. One workshop after each session, as in previous years, used expert interlocutors (Chris Bradbeer, Ben Cleveland, Marian Mahat, Mark Osborne and Fiona Young) to discuss key arguments that had emerged and draw inferences from as well as elicit audience discussion on issues pertinent to each theme. In all workshops, audience participation was encouraged and robust, drawing perspectives from various academic, practitioner and professional sectors.

Structure of the proceedings

The papers included in this volume, Transitions19: One journey, many pathways, were submitted by presenters who wished to develop their presentations into a full paper. Each paper was double-blind peer-reviewed, and the comments were sent to authors in order to help them prepare a revised version to strengthen the continuity and congruence of the proceedings. The result of this revision process is the backbone of this volume and represents what we consider to be a stimulating and careful set of analyses about how teachers transition into innovative learning spaces. An overview of each paper is provided below, grouped into common themes, with different perspectives also being highlighted within each topic. The papers within the volume are ordered alphabetically according to the first author’s surname.

Policy and design

Policy and design—the first session of the conference—set the political context relevant to the design of schools. While Anteet provided a theoretical perspective, Morrison traced the experiences of school leaders in translating policies. Dale, an American architect focused on educational environments, presented examples of design implementation as a result of Open Building principles.
In his paper, Anteet investigated how emerging learning environments can be discussed as part of larger complex systems. Employing the theoretical notions of ‘complex adaptive systems’ and ‘resilience’, he explored public schools from three perspectives: education policy, learning environments and architectural program(ming). He argued that the voice of multiple stakeholders should be incorporated into the process of designing learning environments.

On the other hand, Morrison argued that the new generation learning environment (NGLE) policy is a political device aimed at bringing about certain networks, while pushing other stakeholders into the shadows. In her paper, she presented assemblage stories of school leaders, which trace tensions emerging between ‘old’ and ‘new’ in NGLE policy translations by school leaders as they work to change the physical infrastructure and pedagogic approaches of their schools to student-centred learning environments.

In his paper, Dale discussed recent examples of flexible educational facilities and a qualitative evaluation of how completed facilities can facilitate ongoing change in support of innovative learning environments. The case studies explored are evaluated based on a specific set of principles stemming from a systematic methodology known as Open Building.

School culture

Developing a school culture of continuous improvement through practitioner-led research and collaboration form the basis of the second theme. Papers in this session focussed on supporting innovative teacher practices, teacher education and teachers’ perspectives of the impact of learning environments on classroom milieu.

Blannin, Mahat and Imms sought to understand how teachers effectively engage in the design, development and use of innovative learning environments within primary and secondary schools in Australia and New Zealand. Drawing on data from one case study school, their paper provides evidence that supporting teachers’ use of innovative learning spaces may increase student engagement in learning.

Galante explored the key learnings and challenges of fostering a collaborative growth culture within a newly established innovative learning environment at the Margaret Hendry School in Canberra, Australia. Her experiences indicated that the primary challenge in establishing a new and innovative school is finding the delicately complex balance of being just uncomfortable enough to facilitate change without compromising staff well-being or developing an overtly top-down hierarchical culture.

Through focus group interviews with six final year preservice teachers, Nelson and Johnson identified key aspects of the ILE practicum experience that co-constituted their experiences as successful, and the implications of these for their teacher education program, as well as for initial teacher education more generally. They advanced a ‘toolkit of noticing’, a set of reflective questions designed to orient preservice teachers to ILE practices more deliberately as part of their teacher education curriculum.

Drawing on preliminary qualitative data as part of a broader PhD research, Thomas described how the physical elements of a newly refurbished classroom may shape the classroom milieu. Two emerging themes—the significance of teacher agency and tensions between pedagogy, student-teacher relationships and physical learning environments—provide insights into successful teacher transition into contemporary learning environments.
Teacher change

The third theme focusing on teacher change provided perspectives from academia and the industry on how teachers navigate the change process of transitioning into innovative learning environments. Leijon, Tieva and colleagues drew on the ‘Designs for Learning’ (Selander & Kress, 2010) framework as a theoretical perspective that views teachers and students as designers of their learning process in a formal learning setting. The aim was to understand teachers’ expectations who are new to their role in teaching in flexible higher education learning spaces.

Two other presentations (both not included in this volume) by Strickland and D’Hauteville, and Tieva, also focused on teacher change. Strickland and D’Hauteville sought to understand the change process from the teachers’ lived experience as schools shift from passive to more active teaching and learning. On the other hand, Tieva described teacher conceptions of teaching in flexible higher education learning spaces.

Student voice

Five presentations form the focus of this theme. Presenters from Australia, Brazil, Sweden and Italy argued that student voice has the power to shift pedagogy and implementation of innovative learning environments. While Little and Marcarini located their study in secondary school contexts, three presentations (Ronnlund; Slingsby and Jacka; and Sagaz and Closs) focused on student voice in primary, secondary and higher education contexts. The latter three presentations have not been included in this proceeding.

Little, a Science teacher in an Australian all-boys school, investigated whether a task-based learning (TBL) teaching strategy could be used to help students adapt to a new generation learning space (NGLS). In his study, he found that TBL helped boys adapt to the space by fostering a positive affection for the space, enhancing independence and increasing engagement in their learning, as well as giving boys an awareness of the space that they were in.

Drawing inspiration from Sugata Mitra’s Self-Organised Mediation Environments (2003), Marcarini sought to experiment and identify positive aspects and critical issues to develop a student self-organised design model to re-design schools’ environments at Guilio Verne High School in Rome. Using an action research method, her study found that the model encouraged student agency and autonomous student learning.

Student learning and experience

The impact of spaces on students’ 21st century skill development and student experience form the focus of this session. Closs, Mahat and Imms (not included in the proceeding) focused on the physical, pedagogical and psychosocial learning environment that impact on student learning experience in higher education. The studies by Chiasson, Thornton, and Page and Charteris, demonstrated the links between innovative spaces and student-centred pedagogies.

Chiasson’s study focused on the development of students’ computational skills in innovative learning environments. The findings of his pilot study of two classroom teachers transitioning into innovative learning spaces, found that teachers are aware of the complexity of challenges they face in order to
transform their teaching practices. In particular, teachers perceived that a new learning space, with a combination of new types of analogue and digital tools, has the potential to contribute to innovative teacher practices in the development of students’ computational skills.

Thornton sought to investigate the effective design of innovative learning environments that could enhance the learning of students at an all-boys school. Her study incorporated students’ voice during the design process, which not only enhanced students’ educational experience, but also empowered them to make decisions about their own learning.

In their study, Page and Charteris investigated the spatiality of inclusion that supports seamless movement of children across spaces. Working within the policy context of Aotearoa in New Zealand, they argued that there are possibilities for teachers to embrace the ethos of the pedagogical shifts that address the needs of children with disabilities in inclusive education within innovative learning environments.

**Conclusion**

In its final year, Transitions19 continues to support quality graduate and early career research through facilitating greater connections between researchers and professionals in the emerging field of learning environments. The conference has encouraged and supported new and renewed collaborations, international exchanges, greater access to new and ongoing research and deeper understanding of international practices on the impact of innovative learning environments on teacher practices. In particular, the conference provided increased knowledge and expertise on how we can support teachers in making the transformative journey.

Transitions19 is unique, in that it drew upon knowledge and expertise across academia, industry and practice, and from around the world. The papers in these proceedings provide indications that interests in innovative learning environments are not waning—in fact, significant research efforts are being put in place to address the impact of learning spaces on multiple student and teacher variables. They reflect a strong cross-disciplinary interaction between the fields of education, design, and architecture, and feature opportunities for developing a shared understanding of the complexity of developing and using learning spaces. In doing so, the papers in this proceeding have made a significant contribution and has advanced the body of knowledge of the impact of learning environments on educational outcomes.

**References**


Emerging learning environments: Complex adaptive systems and scales of resilience

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Abstract
This research investigates how emerging learning environments can be discussed as part of larger complex systems. Public schools are explored from three perspectives; education policy, learning environments and the architectural program(ming). The study employs the theoretical notions of ‘complex adaptive systems’ and ‘resilience’. It suggests a discourse analysis method to highlight cross-scale dynamics (‘panarchy’) and contradictions of the educational system as processes of ‘remember’ and ‘revolt’. The paper develops complex adaptive systems (CASs) at four scales; learning environment, school, state and global education. The proposed framework expands the issue of learning environments design by highlighting more influential actors. It provides an arena for discussing education change by researchers in future studies. The challenge is in controlling the number of multiple actors and their agency.

Keywords
LEARNING ENVIRONMENTS | POLICY CHANGE | ARCHITECTURAL PROGRAMMING | COMPLEX ADAPTIVE SYSTEMS | RESILIENCE | PANARCHY

Introduction
This research is part of an ongoing PhD study concerned with the alignment of school architecture and educational aspirations in public primary schools. The paper offers a methodology for discussing complex issues of learning environments and their resistance to educational changes. It focuses on the entanglements from three lenses; policy, learning environments and the architectural program or brief. The ‘policy’ denotes the state’s aspirations, objectives and drivers for change at a national scale. ‘School learning environments’ implies both the physical location and school climate where students learn. The ‘architectural program’ refers to the “research and decision-making process that defines the problem to be solved by design” (Cherry, 1999, p. 3).

This paper starts with a background on the issues of ‘complexity’ and ‘scale’ with consideration of the historical context of school architecture. Then, it discusses the application of ‘complex adaptive systems’ and ‘resilience thinking’ on learning environments. Next, it suggests discourse analysis for conducting the study based on the discussed framework.
Background

In 1996, Richard Elmore highlighted the complexities of massive educational reforms as the problems of ‘scale’. Elmore (1996) argues that the question of scale is not about the resistance to change as school regulations and rules usually are in an ongoing changing process, but the problem is in the weak ‘incentive structure’ for educational practitioners, which drives a resistance by pedagogies and the ‘core’ patterns (learners, educators and knowledge). Ball (2006) adds that schools are complex and paradoxical organisations that change over time physically (buildings and spaces) and practically (routines and activities) to respond to the emerging educational changes and “policy effects” (p. 47). These entanglements at multiple scales encouraged this study to discuss the complexities of educational reforms in relation to the design and use of learning environments in the context of Riyadh, Saudi Arabia.

Public schools in Saudi Arabia host about 90% of primary school students (OECD, 2015). The national educational reform shows a notable example of the transitional movements in policy, curriculum and pedagogy towards investing in human capital (Kingdom of Saudi Arabia, 2016). As one of the key economic players in the world, the expenditure on education has taken the priority in the state’s local strategic investment (Ministry of Finance, 2018), which is evident in the growing school construction projects, digital technology adoption in classrooms and partnerships with international expertise to improve the curricula and train teachers (Watterston, 2018). Such a transition towards knowledge economy challenges the existing roles of many actors in the learning process such as teachers (Griffin et al., 2017) and learning environments. Although tackling the challenges might seem practical, the history of large-scale educational reforms has proven that aligning school learning environments and educational aspirations is a complex issue.

The shift towards student-centred pedagogy is not a twenty-first-century trend. The progressive movement, mainly by John Dewey (Dewey, 2001) in late 19th century and its realisation by The Educational Facilities Laboratories (EFL) in 1958, was a movement towards linking education with real-life problems. EFL had a significant impact on educational architecture between 1958 and 1980s (Marks, 2009), especially with the innovation of open-plan schools in 1960s-70s that responded to open education (i.e., learning beyond the self-contained classroom) (Gislason, 2009). However, both the open-plan school and the progressive movement failed because of complex reasons beyond teachers’ complaints about noise and distraction (Elmore, 1996; Tanner & Lackney, 2006). Nevertheless, the open-plan school has re-emerged today in various developed countries (Saltmarsh et al., 2015), and with different degrees of openness and ‘adaptability’ (Dovey & Fisher, 2014). In other nations, pedagogies can be changing rapidly, but the socio-spatial assumption of passive teaching remains intact. Understanding this misalignment is framed below.

Theoretical approach

Elmore (1996) suggests that the solution for the ‘scale’ issue is not immediate, but it is through improving the structures surrounding the issue and observing the outcomes – the “connection between the big ideas and the fine grain of practice in the core of schooling is a fundamental precondition for any change in practice” (p. 18). From this study’s perspective, understanding the vertical relationship between the small scale of learning space and the larger scales in the educational system is essential to discuss educational change. Cross-scale relationships are discussed based on the theories of CAS and resilience.
COMPLEXITY AND COMPLEX ADAPTIVE SYSTEMS

Unlike the proposition of reductionist thinking that the simplest components can guide an understanding of a system, the complexity theory suggests a comprehensive and non-linear approach (Cohen et al., 2018). In complexity, the system components are dynamic actors where their interactions create new emergent behaviour in the system properties (Heylighen, 2008). Actors can be both humans and non-humans that share agency within a system (Fenwick et al., 2011). However, complexity thinking does not undervalue other forms of analytic science, but it is a transdisciplinary approach that “aims to embrace, blend and elaborate the insights of any and all relevant domains of human thought” (Davis & Sumara, 2006, p. 8).

Schools and learning environments can be considered as complex adaptive systems (Cleveland, 2018). CASs are self-adaptive regimes, which can adapt to the changes that disturb the system internally as well as externally (Heylighen, 2008). The system can change smoothly or stressfully (Law & Urry, 2004). It adjusts seamlessly through ‘positive feedback loops’ where the dynamic system learns, responds and adapts. It changes stressfully through ‘negative feedback loops’ when the system is static, resistant and unexpectant of changes. The spatial arrangement of a classroom with rows of tables and seats and a teacher standing at the front is an example of a static system that unwelcome changes. Resilience thinking offers multi-scalar methods for analysing CASs.

RESILIENCE

Resilience is a confusing term as it can be defined differently (Walker et al., 2004). In ecological studies, the term was first used academically by C. S. Holling in 1973 (Gunderson, 2000). The ecologists study the interactions between human systems and natural systems for proposing management policies and controls.

Walker and Salt (2006) demonstrated resilience thinking in social-ecological systems. They defined resilience as the ability for a system to absorb changes and self-adapt without changing its identity or moving into a new domain with a new identity where it becomes unable to return (Walker & Salt, 2006). A socio-ecological system can change within itself, through changing the surrounding forces and at multiple scales. The theory asserts that resilience thinking can be applied to any system and should consider cultural differences (Blewitt & Tilbury, 2013).

Resilience is used to discuss human systems from macro to micro – from global educational agenda to the classroom furniture in a specific cultural context. This research looks at the contradictions among multiple CASs to understand their abilities to absorb disturbances, adapt or change. The study proposes four scales of complex adaptive systems; learning environment, school, state and global education in a ‘panarchy’ framework (as shown in Figure 1).
**PANARCHY**

Panarchy is a qualitative conceptual framework for discussing the changing phases of complex adaptive systems with the hierarchical connections of larger and smaller systems (Gunderson, 2008). The ecological theorists prefer using the word ‘panarchy’ over ‘hierarchy’ because the concept focuses on scale relations, not power relations (Gunderson, 2008). Panarchy highlights cross-scale dynamics instead of a top-down control or bottom-up direction of connections and information (Gunderson, 2008; Gunderson et al., 2002). It suggests that different scales of CAS need to be analysed concurrently rather than separately to understand complex systems (Walker & Salt, 2006). Therefore, this study focusses on the controversies between multiple scales of the adaptive educational cycles.

As shown in Figure 1, starting with the smaller scales, ‘learning environment’ implies both the physical and social climate where students learn. ‘School’ scale refers to the climate of an organisational entity. These scales are discussed from a spatial and sociomaterial perspectives. Both scales aid in addressing the research inquiry of ‘school learning environment’ through the semiotics and meanings. The larger scales of ‘state’ and ‘global education’ can steer the discussion from the perspective of decision-making and educational change. In this research, ‘state’ refers to the nation’s educational objectives. ‘Global education’ denotes the forces, drivers and effects of educational change globally. The ‘state’ scale addresses the research inquiry of policy change. It also discusses the problem of ‘architectural program’ as a text. Regarding the discussion of ‘educational aspirations’ and ‘architectural programming’ as a decision-making process, actors among the four scales can be involved. These can be school users, community, policymakers, local and global architects and experts. At each scale, Walker and Salt (2006) suggest two loops of change at multiple phases, outlined below.

**PHASES OF CHANGE**

As shown in Figure 1, the disturbance of a system runs through four phases within ‘adaptive cycles’ at different scales in space and time (Gunderson & Holling, 2002; Walker & Salt, 2006). At the scale of ‘learning environment’, pedagogy, for instance, is an actor in the adaptive cycle. It runs through the ‘rapid growth’ phase of exploiting ideas such as teacher-centred education. Then, it moves incrementally into a ‘conservation’ phase, where this pedagogy is adopted, generalised and protected. Next, the ‘key slow variables’ such as school management strategy or educational reform or technological innovations disturb the system of teacher-centred pedagogy. As a result, the regulations weaken, and the system is pushed into a ‘release’ phase. Subsequently, the regime crosses a threshold by shifting into a new domain that can be self-organised in the ‘re-organisation’ phase as student-centred learning. These changes occur independently within each system.

**REMEMBER AND REVOLT**

Cross-scale tensions are brought to light through the concepts of ‘remember’ and ‘revolt’. ‘Remember’ refers to the accumulated wisdom and experience to control the change by larger systems, while ‘revolt’ denotes the ‘creative destruction’ in the back loop of the smaller systems that ‘cascade up’ into larger systems (Holling et al., 2002). For instance, the ‘local’ cultural norms resist the ‘global’ ideas of cultural openness, the mass production of similar school buildings by the state challenges the innovation of teachers to change their practices at the scale of ‘school’. In a ‘learning environment’,
a constructivist education is challenged by embedded ideologies of a teacher-dominated culture in a ‘school’ system. The examples of vertical tensions are countless, which mean that narrowing the scope of the study and identifying the culture are crucial.

However, as this study is concerned with human systems, it is suggested that ‘remember’, and ‘revolt’ can affect both larger and smaller scales (as shown in Figure 1). For instance, in a highly-populated classroom, teachers can be more mature to control the creative shifts towards open education that is proposed by the state without consultation.

The proposed theoretical concepts are used as ‘a way of thinking’ about interdisciplinary issues (Folke, 2006). They do not reduce the study into scientific numbers and equations. The rationale follows Dovey’s (2012) call for ‘complex adaptive assemblage’, which connotates less systematic controls and avoids predictable top-down power. The practical methods of discussing these issues are outlined below.

**DISCOURSE ANALYSIS**

Complexity implies “looking at situations through the eyes of as many participants or stakeholders as possible” (Cohen et al., 2018, p. 28) to create a holistic understanding of a complex situation. This study suggests an ethnographic approach and discourse analysis to develop insights into the values, beliefs and behaviours of the many stakeholders who participate in planning, designing and using school buildings. As ethnography entails studying culture and writing, discourse analysis deals with the discursive language of both talks and texts that enacts culture (Gee, 2014). Texts refer to written language and signs such as images, buildings, artefacts and media (Barker & Galasiński, 2001).

In discourse analysis, the process of analysing the language is not mechanical that leads to generating themes nor explicit findings, but a window for managing data by the researcher in preparation for making interactions with other forms of discourses. For instance, Potter (2004) views interviews as a medium of interaction rather than a transcription. Gee (2014) adds that the process of discourse analysis is about building “webs of association” (p. 26) in the researcher’s brain between interpreted forms of language. Thus, the tensions between multiple scales of adaptive cycles are structured through ‘versus coding’ (Saldaña, 2016) to discuss the contradictions.

The proposed data analysis strategy follows Charmaz and Mitchell’s (2001) call for the presence of multiple realities in the studied world in which both the researcher and the participants construct knowledge. Complexity theory shares the same view and argues for “different voices, views and interpretations to be heard, incorporated and understood respectively” (Cohen et al., 2018, p. 29).

**Conclusion**

This paper provides a methodology for discussing learning environments as part of larger complex problems. Rather than delimiting the issue of changing schools and learning spaces, the proposed framework expands it. Thinking of school learning environments as part of complex adaptive systems helps to value multiple actors that contribute the educational change without making causal judgements. Resilience thinking and panarchy support this approach by taking into accounts the vertical contradictions between actors at various scales. Discourse analysis helps to identify the meanings of language and signs through practical research activities.
The PhD research focuses on complexities from three perspectives; policy, learning environments and the architectural program in the context of public primary schools in Saudi Arabia. However, the proposed framework can be an arena for discussing different relevant educational issues in future studies by researchers. It can be applied to other levels of K12 education or tertiary education. The challenge is in controlling the number of various actors and their agency.

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References:


From Plans to Pedagogy: Developing teachers’ spatial competencies

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Abstract

This research seeks to understand how teachers effectively engage in the design, development and use of innovative learning environments within primary and secondary schools in Australia and New Zealand. Innovative learning spaces are defined here as open, flexible and creatively-used spaces within which teachers and students collaborate to learn. There is seen to be a continuum of space types from entirely open, flexible spaces to closed, traditional classrooms that accommodate one teacher and one group of students. This paper reports on the results of one case study school located in the Australian Capital Territory. A case-study, mixed-methods methodology highlighted that innovative learning spaces may increase student engagement in learning and teachers’ use of evidence-based, student-centred pedagogies.

Keywords

TEACHER LEARNING | INNOVATIVE LEARNING SPACES | TEACHER TRANSITIONS | SCHOOL EDUCATION

Introduction

In the last six years the Australian government has invested AU$14.1billion of public funding (Department of Education, Employment and Workplace Relations, 2016) to build Innovative Learning Environments (ILEs) in schools to provide multi-modal, technology-infused, flexible learning spaces (Imms et al., 2016). These may accommodate the changed, and changing, needs of so-called 21st century learners and meet educational reform priorities such as the Melbourne Declaration’s reform agenda that “… acknowledges major changes in the world that are placing new demands on Australian education…” (Ministerial Council on Education Employment Training and Youth Affairs, 2008, p. 4). It is becoming clear that new learning environments require new teaching methods. While building teacher and student performance has been well researched, little has been done to identify the specific impacts of pedagogy within different spaces (Blackmore et al., 2011; Cleveland & Fisher, 2014). The few existing empirical studies that address any correlation of space and learning that also demonstrate some causality have been small-scale studies with limited generalizability (Byers et al., 2014; Byers et al., 2018).
This research project provides missing evidence about the ways in which teachers and leaders engage with designing, building, and preparing to teach and learn in these new learning environments. The Plans to Pedagogy (P2P) research program, being conducted at the University of Melbourne, investigates the practices of teachers and leaders across a wide range of schools within Australia and New Zealand. These varied contexts provide opportunities to investigate the impact of learning spaces but also to evaluate longer-term, sustainable quality teaching practices in schools. This paper presents emerging results from one school within the Plans to Pedagogy research program.

**Supporting teachers to develop skills and knowledge of ILEs**

The term innovative learning environment, or ILE, is becoming commonly used to describe a school facility design that is characterized by highly flexible spaces, purposeful furniture and other learning space affordances, and ubiquitous technology. However, it is a term that also implies a commensurate innovative use of those spaces, via improved pedagogy and student-centred learning. The latter, sometimes described as 21st Century learning, and promoted by policy documents such as the Melbourne Declaration (Ministerial Council on Education Employment Training and Youth Affairs, 2008), is proving elusive; evidence exists that simply moving into ILEs does not automatically create a change to more student-focused pedagogies (Byers et al., 2014).

Research into the design and use of innovative learning environments offers insight into teachers’ actions and learning strategies in the classroom. Despite research indicating that many school learning spaces remain as traditional classroom spaces (Imms et al., 2017), research within the Innovative Learning Environments and Teacher Change (ILETC) research project identified that teachers have higher mind frames and students engage in deeper learning experiences when they teach and learn in flexible, next generation learning spaces (Imms et al., 2017; Mahat et al., 2017).

The P2P research program seeks to explore these findings further and generate a deeper understanding of how changes to teacher practice occur, if indeed changes are caused by the space within which teachers teach. It is anticipated this research could provide more evidence-based strategies and knowledge for school leaders and teachers as they move to more flexible, collaborative and student-centred learning environments.

The design of the P2P research program has acknowledged the complexities and unique contexts of each school so that a range of factors might be considered as impacting on teachers’ work within ILEs. This approach has been developed based on the works of Mulcahy et al. (2015) whose findings demonstrated that innovative learning spaces alone do not impact on teachers’ pedagogical choices.

> It was found that there is no causal link between learning spaces and pedagogic change. Rather, pedagogic change is encompassed within multiple sets of relations and multiple forms of practice (Mulcahy et al., 2015, p. 575).

The concept of ‘multiple relations’ and ‘multiple forms’, as defined in this research, refer to teachers’ interactions with their peers, their students and school leaders as well as the space itself, the technologies available, accessed and/or used and the culture of the school within which these relationships are built and maintained (Schatzki, 2000).
The P2P research program provides schools with, individualised strategies to develop teachers’ skills and knowledge of ILEs that can help them to more effectively use innovative learning spaces as a pedagogic tool. It then investigates the processes that schools undertake to design, build, engage and fully utilise the affordances these spaces provide, and asks:

**How can school leaders and teachers effectively engage in the design, development and use of innovative learning environments?**

**Research methods**

The study will utilise a quasi-experimental design within a case study approach.

A case-study approach frames this project within the wider P2P program as one case study among many. A strength of theory building from unique cases is the increased likelihood of “generating novel theory” in this emerging research field (Eisenhardt, 1989, p. 546).

A case-study approach, within the broader P2P research program, has enabled a focus on individual teachers within their diverse teaching contexts. This project seeks to better understand how and why teachers make use of innovative learning environments within the “complex social phenomena” (Yin, 2006, p. 4) of each individual school.

This focus on the specific cases of individual schools, and teachers within those schools has enabled a deeper consideration of research findings within and across schools.

Specifically, the following research methods were used:

- Pre- and post-questionnaire to teachers in nominated prototype teaching spaces. This questionnaire sought to understand the mind frames that teachers brought into ILEs.
- Pre- and post-questionnaire to students in the nominated prototype rooms that asked students to reflect on their perceptions of their own learning approaches. Student responses provided an additional, and sometimes alternate, perspective on the ways in which ILEs were used.
- Classroom observations. The Linking Teaching, Pedagogy and Space survey (LTPS) (Byers, 2016) was used to identify teaching and learning practices in the prototype rooms. This tool provided pre- and post- observation data on teacher practices in classrooms.
- Strategic learning workshops for teachers at the schools. These workshops were designed to meet the needs of the school as teachers gain experience of teaching in ILEs.

**Results**

This project, focused on one school within P2P, engaged with a ‘spatial learning’ team of six highly motivated teachers within a public school in the Australian Capital Territory. The school-based spatial learning team has worked under the direct supervision of an academic expert. The primary purpose of this team is to develop teachers’ spatial competencies that can then share their newly acquired expertise across the school.

The school currently has two building masterplans underway. One building is fully completed. The other building is to be constructed during 2018, with expected occupation in 2019. These new buildings are designed to respond to the school’s ongoing growth in student numbers.

This paper reports on the results of classroom observations using the LTPS tool in two prototype classrooms in the high school campus.
The Learning Activities for Effective Thinking is one aspect of the LTPS survey that was used in this research (Byers, 2016). Findings describe classroom observations of two teachers in two prototype innovative learning spaces.

Figure 1 presents the data from Teacher 1 at the school. The majority of teaching practice in this observation was identified as lower order thinking skills such as remembering and applying (O’Donnell, 1965). There was some engagement of students in analytical thinking processes, but this was not identified as the main learning activity.

Figure 2, however, suggests that when working within an innovative learning environment, Teacher 1 used more higher level thinking skills, in relation to Bloom’s Taxonomy of Educational Objectives (O’Donnell, 1965). This data also indicated a reduction in student disengagement in observation number 2.
Teacher 2 appeared to demonstrate a similar change in learning and teaching approaches (Figure 3) across two classroom observations. However, Teacher 2 was observed to engage in higher level thinking skills with their students in the initial observation, indicating that this was part of her regular teaching practice in traditional learning spaces. In observation 2, conducted within an ILE, Teacher 2 engaged with more evaluative and analytic learning activities. A reduction in student disengagement was also noted in observation 2 for Teacher 2.

This ongoing research project provides initial evidence of the impact of learning spaces and teaching practices in those spaces to student learning in one school. While the research project is in its early phase, a number of themes are emerging that are currently being explored and validated as the research progresses. These include:

- Student engagement in learning increases when working within innovative learning environments;
- Teacher’s pedagogical choices can be positively influenced by teaching within ILEs; and,
- ILEs can provide opportunities for all teachers to make positive improvements in their teaching and pedagogical choices, regardless of their previous teaching practices.

Ongoing questions that will inform future research will be:

- Do teachers who move into ILEs maintain positive changes in their teaching practice?
- Do teachers who work in ILEs understand the ILE as having impacted on their teaching practice?
- In what ways are students engaged within the ILE—collaboratively, independently, virtually or in other ways?
Conclusion

The project directly addresses the Australian Federal Government’s strategic goals of lifting productivity and economic growth, which require building innovative, creative capacities within each sector of society (Australian Industry Group, 2017). Consequently, this research provides considerable value to students, teachers, their schools and communities, education systems, the wider public and the field of education. Additionally, the project meets educational reform priorities of the Melbourne Declaration on Educational goal for Young Australians through promoting “personalised learning that aims to fulfil the diverse capabilities of each young Australian”, developing learners’ “capacity to learn and play an active role in their own learning” and encourage learners who “are creative, innovative and resourceful, and are able to solve problems in ways that draw upon a range of learning areas and disciplines” (Ministerial Council on Education Employment Training and Youth Affairs, 2008, pp. 6–9).

This program of research has investigated the ways in which teachers and leaders engage with designing, building, and preparing to teach and learn in new, innovative learning environments. It has focused on teacher practices and the processes of change encountered when introducing ILEs to classrooms and schools.

This research provides an understanding of how teachers might better unlock not only the massive financial investment made, but also longer-term, sustainable, quality teaching practices in schools. Data has suggested that teachers who move into ILEs can be supported to use these spaces effectively through the development of a spatial learning team within their school. These teams can in turn be supported to work with their teaching colleagues as mentors, peer coaches and models of effective teaching and learning practices.

This project, and the broader P2P research program, is ongoing. The findings presented in this paper, therefore, will continue to be interrogated and validated. It is anticipated that this ongoing research will provide considerable value to students, teachers, their schools and communities, education systems, the wider public and the field of education.

References


Investigating teachers’ transition towards innovative practices in a modern learning space

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Abstract
Modern society pressures the educational systems to develop competencies involving new forms of thinking to solve complex problems while adjusting to new types of workspaces. However, in the scientific literature, the relationship between new learning spaces and the teaching process is still unclear. Our pilot study of two classroom teachers embracing novel learning spaces equipped with cutting-edge technologies allow students to create a challenge, to validate it and to share their work with their community members. In particular, we address the following two objectives (1) analyse teachers voices reflecting the experience of teaching in a new learning space; and (2) identify patterns and issues that emerge during the transition period. Our findings reveal that being positive about their first experience, teachers are aware of the complexity of challenges they face in order to transform their teaching practices when moving towards new roles of coordinators of the assets of new learning spaces.

Keywords
SPACE | TEACHING PROCESS | COMPUTATIONAL THINKING | FLEXIBLE CLASSROOM | TRANSITION

Introduction
The notion of learning spaces at work and how it facilitates individual engagement, collaboration and productivity seems to be a new trend in today’s society (Evans & Kersh, 2014). During the last two decades, with the arrival of the Information and Communication Technologies, working environments have been reconceptualised in response to the changing requirements of digital economies and, more specifically, workplaces (Malloch et al., 2011). Kersh (2015) mentioned that learning spaces at work play an important role in facilitating or undermining personal agency through spatial and organisation dimensions. This new wave of technological advancement has systematically transformed the culture of operations as well as the processes of industries creating new paradigms requiring a combination of new competencies and ways of thinking to solve complex problems (Freiman et al., 2016).

According to Cobo (2013), these new workplaces and skills requirements pressures the education system around the world resulting in an enormous turbulence. He points to a clear mismatch between formal education and the challenges of an innovative society. With that being said, how should
education reflect and adapt? According to the New Brunswick Government Ten-Year Education Plan (MEDPE, 2016), the education system recognises the need to adapt to societal changes through the development of skills while paying particular attention to the learning environment.

While addressing the issue of bridging the existing gap between the needs of society and the difficulty for the school system to respond to these needs, we focus on understanding how teachers embrace novel types of environments specifically designed for 21st century learners. This environment combines the recent technological advancements, new types of analogue and digital tools for the development of skills, such as computational thinking in a new type of learner-centred pedagogy.

This paper reports the second part of an ongoing multi-stage study that aims to better understand the relationship between space and personal agency. More specifically, the learning and teaching process in a learning space (Figure 1) designed to reflect real life workspaces where complex problems are addressed in a collaborative approach (Benade, 2019).

Figure 1

*Learning Environment (Chiasson, 2019, p.2)*

![Learning Environment](image1)

Figure 2

*Process of Computational Thinking (Chiasson, 2019, p.3)*

![Process of Computational Thinking](image2)
The first part of the research focused on capturing the computational thinking process, a competency required in today’s society (Wing, 2010), of two groups of students (24 in Grade 6 and 20 in Grade 7) and identify characteristics of the learning space that contribute to its development. In short, based on Chiasson’s (2019) Computational Thinking Process model (Figure 2), the results showed that spaces that are multifunctional, engaged, comfortable and diversified have the potential to help students perceive and investigate problems in order to test their decisions and resolve them through instant feedback.

While continuing to contribute to the field of research, the second part of the study shares the preliminary results of the teachers’ experiences. Hence, the understanding of how this learning space interacts with new pedagogical practices of two teachers (Grade 6 and 7) whose students were faced robotics challenges using iPad, Swift Playgrounds application, and Dash and Dots educational robots to design, to solve the problem, and to share their computational thinking process in a novel learning environment. In other words, we asked how teachers feel, embrace, adjust and adapt to this new learning space, what approaches they use and how they perceive student’s learning?

Objectives

Setting up a learning space to anchor active learning nurturing new types of learner-centred pedagogies equipped with recent technological advancements to capture the experience of teachers will be the main goal of this paper. Therefore, the following two objectives have guided our investigation: (1) analyse teachers voices reflecting the experience of teaching in a new learning space; and (2) identify patterns and issues that emerge during the transition period.

RATIONALE OF THE STUDY AND THEORETICAL PERSPECTIVE

The need to solve today’s complex problems gives rise to new approaches, new forms of thinking, and new types of learning spaces. Kersh (2015) highlights that learning/working spaces enhance individual and collective engagement. Moreover, Lye and Koh (2014) indicate that individual engagement and organizational success rely on knowledge sharing, peer collaboration, transparency in communications and a culture of “empowerment”. In this fourth industrial revolution, students and teachers can no longer afford to work in silos and are, therefore, challenged to work together productively and efficiently. In fact, according to Ertan (2019), new collaborative technologies showcase teamwork, problem solving, knowledge development, task completion, and other cognitive achievements. Such a space allows students and teachers to concentrate, collaborate, socialise, learn and innovate. So, what are the characteristics of working-learning spaces? What are the technologies that facilitate teaching and learning?

According to Branigan-Pipe (2016), although teaching and learning strategies have improved, school buildings, classroom organisation and classroom design remain the same. Branigan-Pipe (2016) further suggested that current classroom environments limit student learning and the practice of new learning strategies such as Project Based Learning, Inquiry Based Learning, Challenge Based Learning, Flipped Classroom and Universal Design Learning. King et al. (2015) argued that student engagement will be enhanced in spaces that are flexible and that foster the use of multiple learning strategies. Therefore, it is essential to provide learning and teaching spaces that create conditions that will respond to a diversity of learners by taking into account their learning style (Keefe, 1988) and teaching styles as well as their fields of interest (Fullan, 2012).
Research suggest that the learning space must be multifunctional, technology-rich, adaptable, and engaging (Thomas, 2010). As for Öman and Hashemi (2015), they believed that a space that is multifunctional, contains various resources and offers a variety of spatial configurations (D'Amico et al., 2016) will facilitate learning and teaching activities by engaging students in their learning styles (Kersh, 2015; Kersh et al., 2011). The OECD report (2015) noted that despite the many challenges arising from the integration of new technologies into teaching and learning, new digital and analogue tools (mobile chairs and tables, small whiteboard, writable walls, etc.) represent an advancement in education. Fisher (2005) shared that spaces need to be adaptable for allowing the transition between activities with ease regardless of the space configuration. According to Scott-Webber (2004), space reconfiguration must be done every twenty minutes to support different activities that meet the needs, interests of all students, and learning styles. Learning spaces need to be also diversified. In a diversified space, learning activities allow students to make choices during their learning process, adapted and modified in terms of content, processes, structures and expected outputs (Leroux et al., 2015). According to these authors, the diversification that takes place in the context of learning modifies the skills to be developed, the degrees of complexity and the material to be exploited. These characteristics of learning space plays an important role in student engagement as well as success and is often associated with individual and collective attitudes and aspirations (Kersh et al., 2011; Lye & Koh, 2014; Scott-Webber, 2004).

Such as mentioned above, learning spaces promote the use of new teaching strategies and pedagogical practices placing students at the centre of their learning by allowing them to constantly reflect in a mode of production and creation (Jessop et al., 2012; Robinson & Aronica, 2015). In other words, the teaching strategies should provide learning experiences that is a personalised process. According to Burns (1972), learning needs to be personalised as there are no two persons who learn in the same way and at the same pace. So, how can those new learning spaces assist the practice of new pedagogies? How can it support personalised learning and assure the development of 21st century skills, such as computational skills?

McLoughlin and Lee (2009) reported that the practice of new pedagogies that are more social, personal and participatory, needs a personalized learning environment (PLE) designed to initiate students into self-directed, socially-based and conversationally-driven learning. This implies that pedagogic change and greater personalisation of learning are both necessary for student-centred, self-regulated and independent learning (McLoughlin & Lee, 2009). As for Gruskin and Searson (2016), PLE must decentralize the teaching practices allowing more student flexibility, instantly configurable and negotiated by the students themselves. In contrast to the traditional approach whereby learning content is composed, organised and packaged, PLE are more syndicated (Downes, 2005). Thus, as shown in Figure 1, the front and the back of the class no longer exists positioning the teacher in the centre of the learning environment (Chamberland, 2016). Based on effective classroom management, (Fisher, 2005) explained the smooth transition between various pedagogical activities maximises student learning time and minimises wasteful downtime, hence stressing the importance of easily adaptable resources that promote engaging learning opportunities in the PLE. Therefore, a space as described above encourages teachers to position themselves closer to the students to give help when needed (Branigan-Pipe, 2016). Alexakos et al. (2011) agree and explained that while the students are accomplishing complex problem-solving tasks to develop computational thinking skills, they often
need additional information and the teachers are perceived as a human resource in certain contexts. Chiasson (2019) added that the students call on the teacher to provide them with feedback and suggestions to solve their complex problems.

This leads us to continue our investigation capturing teaching experience regarding their pedagogical transition process in this new novel learning spaces where complex problems are solved in a more efficient way (Barr & Stephenson, 2011).

Mode of inquiry, data sources, and method of analysis

The methodological approach guiding this case study is rooted in the qualitative research interpretive paradigm (Van Maanen, 1983) allowing conceptual categories to inductively emerge from the collected data during a thematic analysis (Méliani, 2013). Data collection included semi-conducted interviews, field observations, digital traces and researcher journal. The semi-conducted interviews with two teachers took place during three one-hour-sessions at the beginning, mid-point, and end of the four months data collection period. Data analysis was conducted in two stages. First, each interview was transcribed and analysed, along with video observations, to identify elements of the transition process (Paillé & Mucchielli, 2012). Secondly, within-case thematic analysis was undertaken using NVivo software to create conceptual categories in order to identify element of the characteristics of the learning space that contributed to the transition process of teachers thus allowing personalised learning ecosystem (Glaser & Strauss, 1967). The use of various data collection tools such as interviews with teachers, traces of work, videos, research journal gathered from several different sources was put in place in order to triangulate the data. Interviews with two teachers were repeated three times during the process (Creswell, 1998) and once the new data did not add meaning to what was already understood, the data was saturated (Glaser & Strauss, 1967).

Results

In relation to the first objective of the study, our findings indicate that this new learning space specifically designed can potentially assist teachers to reflect on their practices and explore new ways of teaching. First, regarding the embracement of the new learning space (Figure 1). The teachers clearly mentioned that they were excited about it, but they had to adjust their teaching practices quickly. In fact, our findings indicate that even though the teachers were excited about their new teaching space (Figure 1), both of them expressed they had to adapt quickly. One of them stated:

"Just like the students, I absolutely love the new classroom, new look, the writing space on the walls and the mobile furniture..."

However, this open concept flexible classroom agonised the teacher at the beginning. Teachers had to quickly adapt because students had the freedom to move freely within the learning space created a certain loss of control. Teacher 2 mentioned:

"...it took away some control...we had to be careful and adjust quickly to that... and to keep an eye".

Secondly, teachers seem to notice increasing students’ engagement in their work. Our results show that over the time period, since students were making choices in the way to learn, they were more engaged and took more ownership of their learning and the teachers relinquish more control. Teacher 1 mentioned:
“I wouldn’t say the change was hard, but it does take some time to get used to...Offering choices to students to learn by themselves using all the resources available, you know... it is easier to teach the fact it free me up ...”

Teacher 2 agreed as well. He shared that he became a facilitator and a resource to student:

“I am a facilitator job now and resource to them... I am going along with them, we are doing this together, it’s really neat!”

Third, our data also indicate that the synergy between analogue and digital technologies significantly assisted the teachers to reflect on their teaching practices and aid them in transitioning from control and deliver the content to being a resource to all students. In other words, relinquish control to the students while still being in control.

While students are actively engaged in their learning, teachers had the time to listen, to observe student interactions and reflect on the teaching practice using tools. There are three resources that have helped teachers to succeed to modify their approach during the transition period. The first one is the sound system with pods capable of listening student conversations. Using an App with their iPad and pods located at different places within the learning space, teachers really appreciate having the capability to select a specific area and listen to the conversation. This assured the teacher that the learning was really happening. Teacher 1 state:

“Having the freedom to spy on your kids and actually listen to them to know if they are on task, or are they making an effort to speak in French, or are they struggling on something or do they need help was a game changer for me.”

The second resource was the relationship between the big writable walls and the three mobile monitors equipped with Apple TV’s. Using their iPad, teachers noticed that students started taking pictures of the teacher’s lesson activities and started to broadcast (using Airplay) on one of three monitors initiating discussions between students. During those conversations, teachers observed that students were also using the big writable wall, creating a back and forth movement between the monitors and walls. Teacher 1 states:

“It’s absolutely fantastic! The immersion of digital technologies with analogues technologies makes it attractive to students to work with peers and learning in their ways”.

As for the teacher 2, he found it very interesting seeing this type of behaviour in class. He states:

“That was really interesting...I never anticipated that, they just did that by themselves”.

On the same topic, the teacher continued and explained that other students were observing them, picking up on that and started to do the same thing. Teacher 2 shared:

“Kids tends to do that when they see other students doing something, they pick up on that ...and do the same thing with a different set of problem of the TV, so that was very interesting”.

32.
In relation to the second objective, our results show that over the time period, students were more engaged and took more ownership of their learning while the teachers relinquish the control of teaching as represented in Figure 3. While students started from being a passive learner to active learning to a deep learner, teachers started their journey by controlling and delivering the content to assist and guide the learning to manage and coordinate the asset. By consequence, teachers had more time to reflect on their pedagogical practices while embracing all the resources in the space. Based on our results, this learning space embraced the development of competencies and the skills required by today’s society. By positioning the teaching in a space where teachers can observe, reflect and explore new ways of teaching created an ongoing professional development for them. In fact, one teacher explained his transition:

Figure 3

*Pedagogical Transition Phase*

“Traditionally, you would load yourself with information and blasted the information to students and that’s it. But here, I am now learning with them because it is new to me as is it to them”.

In addition, this relationship with students became stronger and allowed them to go deeper in their learning/teaching. Teacher 2 stated:

“It really neat to work collaboratively with kids and seeing their mindset… it is a good challenge for my brain, but that has been really, really cool!”

Conclusion and discussion

First, we analysed teachers’ perceptions of the experience of teaching in a new learning space. Using the affordances of technology-rich environment, teachers seem to be in a context where they can reflect on their pedagogical practices and explore new approaches of teaching. In this context, the teacher had to adapt to the new space which prompted a dynamic of decentralisation of teaching that could potentially increase student’s engagement. This resulted in transforming students and teacher roles where students became actors of their learning and the teachers became a resource to them. We could maybe describe this phenomenon as teach less, learn more.
At the same time, teachers perceived that a new learning space with a combination of new types of analogue and digital tools has the potential to contribute to the transition of teacher practices.

As for the second objective, our analyses help to identify several patterns and issues that emerged during this transition period. In particular, teachers needed to have some time to adjust their teaching practices and feel confident to allow students to be in charge of their own learning. Second, accepting their new role as a resource to students and as coordinator of assets of the learning space.

Although the results were obtained on a small scale, they provide new insights in the field of educational innovations forging paradigmatic changes in the 21st century learning perspective. Through this study, new direction has emerged in areas needing further exploration: How to expand novel models of schools to wider school settings and what accompaniment is needed from school leadership perspective, teaching and learning perspective, as well as research to ensure effective implementation of new learning spaces in connection to the development of essential competencies such as computational thinking, thus closing the gap between the needs of society and its school system.

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References


Planning for changing pedagogies - Flexible facility design

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Abstract

The focus of this research paper is on recent examples of flexible educational facilities and a qualitative evaluation of how completed facilities can facilitate ongoing change in support of innovative learning environments. The case studies explored are evaluated based on a specific set of principles stemming from a systematic methodology known as Open Building.

Open Building is a 40-year old international movement with well-established principles driving the design of adaptable facilities. Current research is focused on gathering examples and assessing the completeness and success of flexible strategies. Of critical concern is the ability for design changes to take place at different levels of intervention, allowing incremental, somewhat autonomous changes within an overall building framework.

The paper draws on recently completed school projects in the USA: Arlington Elementary School in Tacoma, Washington; the Missouri Innovation Campus outside Kansas City, Missouri; the Geffen Academy at UCLA in Los Angeles and the Discovery Building at Santa Monica High School, Santa Monica, CA.

Keywords
OPEN BUILDING | FLEXIBLE FACILITIES | BUILDING INNOVATION | SPATIAL RELATIONSHIP (FACILITIES) | SPACE UTILIZATION | FURNITURE ARRANGEMENT | BUILDING DESIGN

Introduction

There is a compelling need to design educational environments capable of change, to accommodate and support pedagogies that are continuously evolving. As an architect, I advocate principles embodied in the Open Building movement, employing strategies supporting future change and collecting examples of projects, that, either intentionally or intuitively, enable such change. The goal is to make Open Building ‘normative’ so that, as designers of educational environments, we can move beyond the persistent limitations of traditional models.
What is Open Building?

The term “Open Building” originated at the Technical University of Delft in the 1980s, an outcome of a research program exploring the practical implementation of the theories of Dutch architect and educator, John Habraken. Habraken was critical about the uniformity of post war mass housing, believing that housing that did not engage inhabitants in their planning would be inflexible and unsustainable (Habraken, 2019).

The underlying principles of Open Building are not new. Lasting built environments exhibit a balance between change and stability. These age-old qualities are often forgotten in the quest to optimise and specialise building typologies.

The basic idea of Open Building is simple: resilient built environments are renewed constantly because human activities change; therefore, we should prepare buildings for this reality. But permanence is also important. Buildings gain permanence precisely because their interior fit-out – related to cycles of changing activities – can be renewed. Significantly, the control or responsibility for change - of function, space utilisation, technology, etc. - is distributed among many players, including the users.

Open Building has been a focus of discussion and practice internationally for at least 40 years. During this time, numerous Open Building projects in the fields of housing, health care and education have been built around the world.

The case for designing educational facilities for change

“...the main goal should be to ensure an appropriate fit between the spaces in question and the evolving pedagogy used within them. However, given the turbulence caused by changing head teachers and diverse and evolving views of optimal pedagogies relative to the long-term nature of school buildings, the implication is clear that flexibility for users should be built in from the start” (Barrett et al., 2019, p.36).

Educational buildings, especially schools, constitute a huge segment of our built environment, directly impacting a major portion of the population daily. Often, these facilities are inadequate to the task at hand – providing meaningful, accommodating, healthy settings for our children’s learning. Many continue to operate long after they have become obsolete, in spite of periodic cycles of renewal and rebuilding. Too many of the schools we build today are based on 19th, or at best, early 20th century notions of teaching and learning. We need to find better approaches to accommodate shifting demographics and pedagogies. The Open Building approach addresses this challenge.

Applying open building principles in schools in North America

Although the United States has been relatively slow in exploring Open Building, a new generation of school design is emerging which embodies its principles. Examples include Arlington Elementary School, Tacoma, Washington; the Geffen Academy, Los Angeles; the Missouri Innovation Campus outside Kansas City; and the Discovery Building at Santa Monica High School, Santa Monica, California. These examples are all unique, varying in design with each context. What they share in common is their configuration to allow changes in pedagogy, program and even ownership as vital, evolving centres of community.
We are still in the early stages of applying the lessons of Open Building to the design of educational facilities in North America. Of the four examples mentioned, two have opened within the last two years and one is just under construction. Only the latter has been explicitly designed with Open Building principles.

**Research in action**

Architects rarely have direct access to the deep data that makes meaningful qualitative and quantitative research possible. Instead, we rely on the studies of experts. A prime example is the Head Project by Peter Barrett (Barrett et al., 2015). Barrett’s (2015) study has been built on data from 127 classrooms from 27 primary schools across three regions in England. Quantitative analysis of this data is therefore meaningful.

We do, however, have techniques at our disposal that can provide immediate feedback and inform our approach to future work. For example, my firm, HED, promotes the idea of ‘pilot projects’. This entails the transformation of one or more existing learning spaces at low cost and within a short time frame. Pilot projects become laboratories where furniture and spatial reconfiguration can be readily tested. Feedback can be obtained through qualitative and quantitative evaluations via surveys and questionnaires. In this regard, students are ‘captive audiences,’ meaning everyone can be required to participate under an instructor’s guidance. Qualitative responses are also relatively easy to obtain because comments can be made anonymously.

![Figure 1](Optional Space Configurations for the Orange Unified School District Prototypes Prepared by Steelcase for Hed (Copyright 2016 by Steelcase. Reprinted with Permission))
HED recently took this approach with Orange Unified School District in Southern California. They wanted to test the impact of new furniture to support 21st century learning practices. The desired outcome was to make individual classrooms more agile, so they could be used in diverse ways, even during a single day.

Different flexible furniture systems, supplied by alternative vendors (see Figure 1), were installed in two classrooms at each of the four high schools and rotated every semester for one year. Post Occupancy Evaluations included a survey (see Figure 2) of almost 1,000 students. The responses (see Figure 3) were generally enthusiastic, the highest compliment being paid by one student who stated “It’s pretty ‘sick’”!

Another example of on the job research is the participatory design workshop process (see Figure 4). All the examples to follow are, in part, the result of interactive workshops with educators, administrators and students. With a focus on the shaping of space around specific activities rather than the standard categorisation of space into preconceived program units (i.e., classrooms), we typically ask participants to draw their own ideal learning environments.
Diagrams quickly shift from the standard double or single loaded corridors with uniform classrooms. The task of the architect is to find the underlying DNA of these explorations and devise a spatial solution knowing needs will continue to change.

Figure 4

*Students of Pasadena Waldorf School Present Their Studies for Ideal Classrooms at a Participatory Workshop (Copyright 2014 by John Dale [author])*

Note. Photograph was taken during workshops conducted at Pasadena Waldorf School, 2014. Permission from students and their guardians were received to use this photograph.

Case Studies

The case studies presented here shine a light on some key Open Building strategies that support the design of versatile and adaptable learning environments. The following themes emerge as common ground for these examples.

- These projects anticipate and accommodate ongoing pedagogical change.
- The design process has involved multiple stakeholders and even different design professionals to complete the facility’s development.
- Learning is not confined to conventional classrooms; the planning of space is determined by an understanding of a range of activities rather than the multiplication of a standard classroom as building block.
- Circulation zones become flexible learning / studying environments; dedicated corridors are avoided.
- Access to natural light in all learning spaces is paramount.
- A simple open structural system is deployed to allow the reorganisation of spaces over time.
- A clear distinction between shell and core and infill systems anticipates the shaping of space by multiple users at different levels of control.
- Floor footprints are deeper than usual, typically exceeding the width required for a typical double loaded corridor with classrooms on either side. This allows for more variation in the clustering of learning spaces of different shapes, sizes and activity.
CASE STUDY 1: ARLINGTON ELEMENTARY SCHOOL, TACOMA WA – MAHLUM ARCHITECTS

DESCRIPTION OF THE PROJECT
Commissioned by Tacoma Public Schools near Seattle, Washington, Arlington Elementary School serves 450 students (see Figures 5, 6 and 7). The 54,000 gross square foot single story complex consists of three wings of learning clusters, connected by a communal bar housing dining and gathering functions, and a separate administrative and athletic wing. The school opened in 2017.

PLANNING PROCESS
The architects conducted multi-disciplinary workshops that included students, educators, visionaries, neighbours, parents, alumni, community partners, and public agencies. Design exercises included mapping neighbourhood assets, drawing exercises, observation and listening sessions, image boards, photography and videography, and tours. Small group work included programming exercises and design studies using large-scale physical models of space and furniture. The focus was on building consensus about what makes a good learning environment.

BUILDING CHARACTERISTICS THAT FACILITATE INCREMENTAL CHANGE
According to the architects,

“The building form results from a regular structural grid overlaid on an efficient volume, divided into three learning communities, each married to an active exterior learning space, and connected at the core and to the street by assembly spaces. Efficiency is paramount, as is connectivity and future transformability.”

- (Mahlum Architects, Inc.
Narrative excerpt from A4LE Design Awards Competition, 2018).

The building complex has also been designed to anticipate changing functions and even jurisdictions, with each learning wing independently accessible from the street and adjacent to its own outdoor activity spaces.
HOW IT IS BEING USED

Arlington Elementary School has no dedicated corridors. The learning suites are clusters of varied learning spaces that can be interpreted by each instructor.

Each cluster is interconnected by the equivalent of a large climate-controlled porch with direct access to outdoor play spaces, providing a variety of opportunities for learning activities. The central bar is set up so that students can get a meal or snack at any time of the day, fostering independence and flexibility.

Figure 6

_Arlington Elementary School: Alternate Interpretations for Space Use and Control by Teachers (Copyright 2019 by Mahlum Architects, Inc. Reprinted with permission)_

Figure 7

_Interior View of Learning Community Wing (Copyright 2019 by Mahlum Architects, Inc. Reprinted with permission)_

>Note: Permission to use the children in the photograph was established prior by Mahlum Architects. The author was provided permission to use this image.
CASE STUDY 2: THE GEFFEN ACADEMY AT UCLA IN LOS ANGELES, CALIFORNIA - EYRC ARCHITECTS (CORE AND SHELL) AND KONING EIZENBERG ARCHITECTURE (ADAPTATION AND REDESIGN FOR THE GEFFEN ACADEMY)

DESCRIPTION OF THE PROJECT

The Geffen Academy is a 620-student middle and high school on the campus of the University of California, Los Angeles (see Figures 8, 9 and 10). It was originally designed as a ‘surge’ building to temporarily accommodate academic programs as their own facilities were undergoing renovation or replacement. The 78,000 gross square foot, three-story facility was completed in 2001. It has since undergone two major transformations, one by Studios to create a student community centre for UCLA in 2012 and the other just over a year ago to create the Geffen Academy for middle and high school students by Koning Eizenberg Architecture.

Figure 8

Geffen Academy: Third Floor Plan Showing Clustered Learning Spaces (Copyright 2019 by HED)

PLANNING PROCESS

The concept for the building was initiated by UCLA’s Campus Architect who, with an intimate knowledge of the extensive construction activity throughout the main campus, identified the need for a staging building that could temporarily accommodate multiple displaced departments and programs. When, in 2012, the focus turned to student life and the creation of a student community centre to support the university’s nearby residential complex, a different design team – Studios - worked with the Office of Student Life and student representatives to transform part of the ground floor. More recently, Koning Eizenberg Architects engaged in an in-depth, inventive planning process with the founding faculty and administration for the new school.

BUILDING CHARACTERISTICS THAT FACILITATE INCREMENTAL CHANGE

A simple grid of steel columns divides the building into two wide structural bays allowing large uninterrupted spaces for diverse programs. The building is subdivided lengthwise into three discrete fire separation zones with concrete block demising walls to maximize freedom of planning within each zone. Access to daylight around the perimeter is maximised. Exit stairs are pushed to the outside of the building, leaving each floor as column free and open as possible. A new central staircase, cut into the floor plate, creates a focal point for the school and is top lit to bring daylight deeper into the building.

HOW IT IS BEING USED

Students and Teachers are fully engaged in the learning process on multiple levels. Instructors feel they have been able to fully test the educational environment with successful results. They cite the
emphasis on connections to the outdoors and the concept of an open library which knits instructional spaces together and provides a variety of closed and open work spaces. Transparency between activities, the presence of daylight and multiple options for study and group activity foster a sense of empowerment. Learning spaces are proving to be flexible and adaptable.

Figure 9

Geffen Academy: Ground Floor Terrace Connected to Learning Studios with Overhead Glazed Garage Doors (Copyright 2019 by John Dale [author])

Figure 10

Geffen Academy: Third Floor Interior Showing Learning Spaces Clustered Around ‘Open Library’ (Copyright 2018 by Eric Staudenmaier [photographer]. Reprinted with permission)
CASE STUDY 3: THE MISSOURI INNOVATION CAMPUS, KANSAS CITY, MISSOURI - DLR GROUP WITH GOULD EVANS

DESCRIPTION OF THE PROJECT

Opened in 2017, the Missouri Innovation Campus is a shared use facility for 1,540 students from multiple programs spanning grades 10-16 (see Figures 11, 12 and 13). The facility is the result of an active partnership between the University of Central Missouri, Lee’s Summit School District, Metropolitan Community Colleges and regional businesses. The program is housed on a suburban site in a 147,000 gross square foot, two story loft building.

Figure 11

Missouri Innovation Campus: Ground Floor Plan Showing Clustered Learning Labs and Interconnected Commons (Copyright 2019 by HED)

PLANNING PROCESS

The design team led a robust visioning process which took the form of round table discussions. A diverse group of stakeholders including business partners, institutional leaders, students, faculty and alumni participated. Student input informed the concept for learning communities as Academic Quads where students can progress at their own pace while partnering with other students. This interactive process reinforced the need for future flexibility in the design of the facilities. The architects also mocked up pilot learning spaces during the design of the project. Multiple instructors tested these spaces and provided feedback leading to further refinements. An incubator space in the new building acts as a place where faculty can train in the use of flipped classroom methodology and advanced pedagogical strategies.

BUILDING CHARACTERISTICS THAT FACILITATE INCREMENTAL CHANGE

The result is a multi-valent building with a series of flexible planning modules organised by two-story spines. The image of the exterior design of the facility is, in the words of the architects – a ‘Learning Warehouse’ that can easily adapt to future program needs. The building envelope is modular, incorporating metal panels and windows that can be reconfigured as programs within change. Clerestory windows above the two-story spines bring daylight deep into the expansive building footprint.

The building is divided into four quadrants. These “Academic Quads” are designed to facilitate future changes in educational programming. Each of these quads is configured to maximise adaptability. Walls are eliminated where cross- collaboration between labs is required; moveable walls are deployed
where shared use between the different educational institutions requires the melding of differing schedules with after-hours security. Soft walls, non-structural stud walls largely free of services, are designed to allow reconfiguration within relatively short (five) year intervals while Hard Walls are permanent elements that provide lateral structure, carry utility systems and storage. These are strategically placed - mainly at the perimeter of the building to minimize their impact on the ability to reconfigure space.

**HOW IT IS BEING USED**

According to the architects,

“*The facility is geared to career technical education with the emphasis on developing very specific skill sets to meet the demands of the job market. Students spend most of their time within a highly concentrated set of interactions alongside like-minded peers. Occasionally, they travel to neighboring facilities for internships, supply runs, or to seek a ‘third place’.*”


There is a balance between highly specific, clustered environments of labs, workshops, offices, seminar spaces and looser social spaces which merge with circulation spines to support seamless activity for both groups and individuals.
CASE STUDY 4: DISCOVERY BUILDING, SANTA MONICA HIGH SCHOOL (SAMOHI), SANTA MONICA, CA - HED WITH MOORE RUBLE YUDELL ARCHITECTS AND PLANNERS

DESCRIPTION OF THE PROJECT

The Discovery building is a six-level loft building comprising approximately 244,000 of indoor and outdoor program space serving multiple purposes for Santa Monica High School (see Figures 14, 15 and 16). Housing approximately 1,200 students in two academic houses, the program includes an outdoor rooftop classroom, labs, classrooms, seminar rooms, breakout spaces, commons and decentralised administration and counselling areas, a 50-meter pool and support facilities, a central kitchen and distribution area for the entire District, a central dining facility, and community meeting rooms. In addition, parking is provided in two basement levels.

Figure 14

Discovery Building Conceptual Diagrams Illustrating Open Building Features (Copyright 2019 by HED)

PLANNING PROCESS

The design team, collaborating with the District’s facilities staff, conducted a series of interactive workshops focused on faculty, students and administrators to test capacity of the core and shell for different learning configurations. Within this framework, faculty tested the capacity of the floor configurations with a diverse set of ideas for clustering and diversifying learning spaces. Through this process, with the overall building already defined, the design team was able to refine the program and finalise functional requirements.

BUILDING CHARACTERISTICS THAT FACILITATE INCREMENTAL CHANGE

The Open Building approach facilitated a collaborative design process and allowed the specific programming of different spaces to remain in flux as the shell and core design for the building were being finalised. Early in the process, given the diversity of needs and potential for change, the design team recommended a ‘loft’ building and set about to establish clear shell and core strategy to accommodate a variety of infill. The building layout provides deep spaces wrapping in an open ‘U’
around a courtyard for vertical circulation and daylight. The structural system is a uniform 32’x38’ column grid – part of a prefabricated steel moment frame system that eliminates internal shear walls and maximizes the ability to reconfigure space. A raised floor system is deployed throughout most of the classrooms, labs and commons areas to supply air, electrical, and communications systems, the standard pedestal floor system facilitating the relocation of outlets and diffusers as spaces change.

Vertical shafts are distributed evenly about the floor plan to minimise disruption and stairs and elevators are pushed to perimeter zones. Learning clusters, common areas, and horizontal circulation zones can be adjusted incrementally with relative ease. Infill systems include folding glass walls that interconnect learning spaces to promote flipped classroom pedagogy.

In spite of the building’s flexibility, the exterior has a distinct character – in this case bridging the present with the traditional Art Deco style of the campus through the expressing of undulating plaster walls – ensuring a contextual, yet inspiring presence on campus.

**HOW IT IS BEING USED**

The Discovery Building is now under construction. Scheduled to be complete by the summer of 2021, the stakeholders, from Board of Education to support staff, are waiting to test this new paradigm for school design.

Figure 15

*Discovery Building: Typical Upper Floor Plan Showing Optional Space Configurations (Copyright 2019 by HED and MRY Architects and Planners. Reprinted with permission)*
Conclusions: Looking ahead

Schools for the 21st century, that will stand the test of time, should be designed to accommodate changing pedagogies, shifting demographics and even changing uses and ownership. As centres of community, schools need the resilience to be both safe havens and dynamic focal points for learning and experimenting. Our school facilities, both new and old, need simultaneously to be permanent anchors of stability and agents of change.

References
Project unlearning: Being comfortable with being uncomfortable

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Abstract
Margaret Hendry School is a newly established Innovative Learning Environment (ILE) in the ACT. The learning community provides a personalised approach to learning through an inquiry pedagogy that prioritises real world learning opportunities through play and passions. Research was undertaken to ascertain the key challenges faced by teachers when transitioning from a single sell classroom structure to a highly collaborative ILE. The study focuses on the perceptions of staff vs. reality, the changes in pedagogy required, how to effectively build a collaborative culture and the importance of engaging with the community.

Keywords
CULTURE | COLLABORATION | INNOVATION | TEACHER CHANGE | VISION

Context
This paper will be exploring the key learnings and challenges in establishing Margaret Hendry School, focusing on the intention of fostering a collaborative growth culture within a newly established Innovative Learning Environment (ILE).

Margaret Hendry School is the first school to be built as a result of the Australian Capital Territory’s (ACT) Education Directorate’s ten-year Future of Education Strategy (ACT Education Directorate, 2018). As a driver for educational reform, the intent was to move learning from the old paradigm of education into the new.

With a purposefully built ILE, the school is organised into three multi-age, multi-stage neighbourhoods; Preschool, K-2 and 3-6. The school’s vision is to develop a student-centred, personalised pedagogy to empower both educators and children to become active participants in their community.

When looking at the architectural plans of the school site, the aptly named spaces allude to a 21st Century pedagogy with ease. Presentation Studio, Media Room, Creative Studios and Learning Commons. And when imagining these spaces in action, what do you envisage? Collaboration, social interaction, problem solving, multi-disciplinary learning, technology?
Using this plan as a stimulus, it is easy to imagine the future of education. The spaces become a hive of activity. Children working in collaborative clusters, adults working 1:1 with children or in small groups, conferencing and talking about learning goals, and independent learners; reading, researching and tinkering. The flexible nature of the building means this can easily be facilitated.

This is the Margaret Hendry School vision. The child at the centre with their learning coach by their side, supporting each individual to become empowered and autonomous within their own learning. Educators are eradicating the traditional ideology of ‘teacher at the front of the classroom’ to invite children into the learning so they too become a critical agent.

They know what they are learning, why they are learning it and can identify where to next? Importantly, the children’s educators, known as learning coaches, become inherently collaborative and strive to foster authentic relationships. Collectively they take risks, support one another to do so, and then reflect the impact of their decision-making and practice. They are the change-makers that build the vision from the ground up.

When looking at these plans, one could argue that bringing this vision to life is inevitable, but it is easier said than done. Unlike traditional education settings, the adaptable and canvas-like nature of these spaces does not provide instruction in how to best use each space and how to translate effective practice into a new and innovative setting. Nor does the space suggest how educators should operate as a collective.

**NO FIXED CLASSROOMS? NO TEACHER OFFICE? NO DESK?**

Without the familiar four walls, we create uncertainty. When spaces do not dictate how to be used, they become foreign and unfamiliar. Moreover, they become uncomfortable. Teachers are creatures of habit, and when you take away the artefacts of familiarity, you create the opportunity for unlearning in order to establish new ways of being and doing. For some, the uncomfortable is an exciting space to be. Standing at the very edge of change; pioneering without a beacon ahead. But for others, this space is more than uncomfortably exciting. It is unpredictable, and it’s scary.

The feelings educators experience has a direct impact on the culture you create, and so the dominating challenge in establishing a new and innovative school is finding the delicately complex balance of being just uncomfortable enough to facilitate change without compromising staff well-being or developing an overtly top-down hierarchical culture.

Therefore, the first key learning is this: It’s not all about the build.

When trying to evolve culture and pedagogy, the build alone will not be the determining factor. Having an innovative learning environment removes one barrier – but it is not the answer. The answer lies in the unseen, it lies in a school’s culture. The staff will be the driving force behind change, and if you truly want to innovate, you must cultivate the right kind of culture. One that nurtures and listens whilst also thriving on change and progress.

At Margaret Hendry School, there were just three days as an entire collective before doors opened to both children and the broader community. So came the mantra, ‘*Be comfortable with being uncomfortable*’. Although the team knew what they wanted to achieve, the pathway to realising this dream was not yet carved. Paramount to the school’s success would be the development of a culture where educators had permission to innovate, to take risks and to fail. In trying to achieve this, there would inevitably be many ‘unlearnings’, and it was the leadership team’s responsibility to nurture a positive working culture.
But how do you build a culture from the ground up? How do you foster a culture that thrives on risk-taking and questioning the status-quo? And is it possible to establish a change culture so that pedagogy begins to evolve from Day 1?

**Strategy 1: Clear vision**

It is commonly understood that a positive culture is nurtured when there is one shared narrative as it is much easier to see where you are heading. When you share the same story, collaborative progress becomes easier to achieve (Knoster, 1991). Margaret Hendry School has four pillars for learning: Grow, Collaborate, Connect and Love. Integral to success was the assurance that every decision, action or response explicitly linked back to these pillars. In essence, these four pillars became the cultural markers; the foundation upon which everything grew. For the team, these pillars underpinned the ‘who we are and how we are together’ and became the core beliefs of the school as a collective.

To grow a culture that embodied these pillars, the leadership team developed organisational structures and norms to ensure teams operated in a way that mirrored the learning culture being cultivated in learning neighbourhoods.

Collaboration is a high-impact lever. Each team worked collaboratively on the floor, while also engaging in collaborative planning and professional learning. Learning coaches were not given individualised release within the establishment year as this would contradict the belief on collective power, and potentially facilitate the development of siloed educators working to the beat of their own drum.

While working together, teams assumed the role of teachers as inquirers within Professional Learning Communities (PLCs) to develop new pedagogical understanding and knowledge of contemporary practices. In addition, they developed their own lines of inquiry to explore and apply new learning, as it is the learning coach’s voice that must drive practice forward. If we truly want to create a co-constructive culture, leaders must give educators the freedom to make decisions along with adequate time and space to reflect upon and evaluate the impact on student outcomes.

Furthermore, educators also developed the feedback focus for learning walks implemented by the leadership team. By negotiating these criteria, learning coaches were empowered to receive feedback on a targeted area that connects to current learning. By creating these opportunities, the leadership team is endeavouring to foster collaboration amongst teaching teams to ensure practice is consistently moving forward across the school.

Why should the leadership team determine where the feedback is focused? Is it not more effective to ask the educators for their focus and then support them to achieve their goals? By placing the learning coaches in the driving seat, the role of ‘leader’ is re-imagined to honour the vision of fostering a collaborative working culture within which there is equitable decision-making processes and authentic opportunities for teacher voice to shape and inform pedagogy.

A key learning from these opportunities is that it empowers both the leadership and teaching teams with formative data to drive pedagogical change. As leaders, one can gain a sense of how practice is changing across the whole school, whereas teaching teams are supported to receive any necessary reassurance to affirm the changes in practice while also offering guidance in ‘where to next?’.
Strategy 2: Professional learning, networks and engagement from the beginning

To build the right kind of culture from the outset, a key strategy was forming professional networks with colleagues who are also trying to bring about change. We know that collective teacher efficacy, effect size 1.57, has a high impact on outcomes (Hattie & Zierer, 2018), and so, by fostering meaningful connections beyond the school, it was hoped that teacher knowledge on pedagogy and function of space within an ILE could deepen. By providing intellectual stimulation and the offer of support when needed, staff well-being was continuously at the forefront when planning for change and new learnings.

Prior to opening, a relationship was forged with Stonefields School in New Zealand to learn from an existing ILE. Key questions were asked such as: What were their key takeaways from the development process? If they could do it all over again, where would they start?

By engaging in these discussions, the leadership team could think strategically about anticipated frustrations and challenges, and therefore develop a considered establishment plan. In effect demonstrating that the team would not always have the answers but that is ok. It would be the teams’ ability to problem-solve, act and reflect that would ensure success as a school.

Soon after opening, educators identified they were feeling overwhelmed by the spaces. Frustration and anxieties were aired. The challenge of trying to create change from the outset while also working with children who were presenting with unforeseen complex and challenging needs seemed to be unwinnable. Was the vision simply an unachievable dream?

The school initially responded by facilitating a discussion with Research Fellow and Stonefields School’s Associate Principal, Chris Bradbeer, to try and deepen levels of understanding on the function and form of ILE spaces. This was an intentional cultural intervention to try and prevent educators from reverting to old practice in a time of uncertainty.

Reflective discussions after the session, and reiterating that educators were expected to take risks, supported teams to take further small steps forward. However, it was soon realised that the building was dominating educators’ worries. The focus needed to shift.

Further learning was then sought to learn from existing ILEs within Australia. Site visits to schools, such as Lindfield Learning Village and St. Luke’s Catholic College, provided in-situ experience of ILEs in action. This supported the team to share ideas and discuss challenges with objective, like-minded professionals, while also providing empowering affirmations that Margaret Hendry School was in fact on the right pathway.

Fostering professional networks has been integral to understanding the developing culture within the school. External feedback is powerful because when you are ‘in the thick of it’, an objective perspective can provide clarity.

Reflection

Continuously sharing the journey and acknowledging the current reality has been a powerful and objective mechanism to keep a finger on the pulse. Furthermore, the feedback received has facilitated the noticing and celebration of growth. Leading to another key learning, and one could argue the most important, don’t forget to celebrate, no matter how small.
Every step forward is another step closer to change. Every decision that is made may have come with a sense of anxiety or worry of failure, therefore meaning the school leaders must endeavour to look for growth and acknowledge these successes. It is these affirmations that encourage educators to innovate and continue to take risks.

The Margaret Hendry team learned this mid-year when feedback from learning coaches indicated that educators felt they were failing as feedback from the leadership continuously asked, ‘where to next?’ Teams perceived this as a message to work harder. It was received as a message of failure. In fact, the leadership team provided this feedback with the intention of giving a positive affirmation, ‘you are ready to progress even further’.

But in listening to staff, a disparity between the intention behind feedback and how it was being received was revealed. Something was missing: the small celebrations and noticing of success. It illuminated that many of the positives were going unsaid on a day-to-day basis.

This learning meant a more conscious effort was needed to notice the positives to boost team morale, or else the fear of failure would creep back in. It felt uncomfortable to slow the pace of change down, but it was crucial in honouring staff wellbeing. The leadership were now also living by the mantra.

The current reality vs. place of aspiration

So where is Margaret Hendry School at present? It must be acknowledged that the school is still at the start of the change process. Pedagogy is adapting, relationships with children are strengthening, reciprocal trust is now established, and the team is slowly beginning to understand the new ways of being and working together.

As a collective, it appears as though people are striving to bring the vision to life. But scratch away below the surface, and the aspiration for change is hindered by certain social and structural barriers. Feedback from staff has helped capture the development of the school’s culture. Learning coaches wanted and sought more clarity around pedagogy. For the most part, they were not overly comfortable with being uncomfortable.

Prior experience informs how all educators operate, and the different types of leadership and managerial styles educators encounter also shape the expectations they may have of colleagues. Leaders may micro-manage to ensure targets are met, or a façade of consultation may be created when decisions have already been made, but none of this is conducive to an authentic growth culture. It diminishes teacher efficacy. Yet, this is how many educators are used to working.

This was a poignant consideration for the leadership team. Although there was an awareness of the differing experiences each educator brought with them, it was assumed that in time people would ‘adjust’ – re-assimilate naturally. If people continuously reiterate that taking-risks and unlearnings were integral to a foundation year centred around transitional change, surely people will believe this and act accordingly?

Yet statements such as, ‘Just tell me what you want’, ‘What is it that they want? Tell me and I will just do it’ and ‘Am I doing it right?’ I don’t want to get the vision wrong’, enlightened the team to realise that educators were not in fact used to being authentic decision makers. These statements suggested a sense of fear, of ‘getting it wrong’, which may hint that in previous settings there was a ‘right way or the highway’ culture. Moreover, there was the possibility that teams were not yet operating on a strong foundation of trust.
Upon reflection with Peter Hutton from the Future Schools Alliance, the team were introduced to the idea that even with a clear vision and the best of intentions, the leaders may have inadvertently been creating a Compliant Dependent Culture where educators did not innovate and take risks because they were scared of being ‘wrong’. If educators asked questions and were immediately given answers – where was the empowerment to grow from the ground up? Opportunity to make decisions and try new things were being provided, but without genuine trust these opportunities dissipated into a mass of false starts and missed deadlines.

And with possible fear of failure at the forefront of people’s minds, came another crucial learning. If the vision is continuously idealised and consistently made the point of reference, if every action is measured in response to how close you are to the vision, progress can very quickly fall short of the over-arching expectation and as a result, the team will experience ‘anticippointment’. It must be acknowledged that it will take years to truly achieve what the team aspires to, and therefore the leaders of the school must ensure realistic and achievable targets are set to ensure a) educators do not burn out, and b) a sentiment that people are falling short is not fostered.

Conclusion

It is now understood that the team should not have expected teachers to simply assimilate to a different working culture. Even more, although the build breaks down a barrier in facilitating change, it can also be a ‘blocker’. To foster the right kind of culture, you must first know and trust your staff. Transparent conversations about current realities married with celebrations of growth will enable you to foster the right kind of culture (Fullan, 2010). Talking about the vision is simply not enough, and leading by example cannot lever and instil cultural change – leaders need to intervene, reflect and take risks.

The vision will not come to life overnight, and the more pressure leaders place on themselves and one another – the more the culture will begin to feel these pressures and fracture. Trust becomes fractured when teachers are no longer the decision-makers, and in pursuit of growth and success, leaders must endeavour to authentically consult. As a result, teams must therefore be continuously checking-in, reflecting and intervening to ensure the right kind of culture is fostered. Just as educators support and guide children to grow, the team must also ensure they do the same for each other.

One could never have anticipated the broad range of complex and challenging needs that the children at Margaret Hendry School would bring with them on Day 1. After the ‘initial shock’ set in, the team began to plan for adjustments and intervention to ensure that all children were set up for success. If leaders truly want to innovate and redefine school culture, they must ensure this approach is mirrored for their staff too. At the crux of education is relationships, and if the time is not taken to foster meaningful connections within and across teams – the culture will reflect this.

The final message is this: It’s ok to be uncomfortable… when you are part of a team. And when you have the right amount of uncomfortable? That’s where the magic happens.

References


Teaching in flexible higher education learning spaces – Time for DiSCo!

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Background and aim

This paper presents teacher didactic design in flexible higher education (HE) learning spaces. Several Swedish universities have invested in flexible learning spaces or in retrofitting existing ones. Inspiration comes from ideas on innovative learning environments (ILEs; Imms, 2018), but also from active learning classrooms (ALC; Walker et al., 2011). The ILE concept includes physical, social and educational context (Osborne, 2016). Here, we focus on the physical part of an ILE, and on how teachers design their teaching.

Research has hitherto largely centred around students’ learning in HE learning spaces (King et al., 2015; Temple, 2014). There is a growing evidence of how teachers develop their pedagogy in innovative and flexible spaces (Barrett et al., 2015; Benoit, 2017; Byers & Imms, 2016; Metzger, 2015; Philipson et al., 2018; Rands & Gansemer-Topf, 2017). The project “Room for learning” at Umeå University (Gruffman-Cruse & Sundbaum, 2013; Lundahl et al., 2017) shows how flexible spaces nudge teachers to develop their student-active pedagogy. Leijon (2016a, 2016b) shows how students and teacher interactions are shaped by, but also shape the physical learning spaces. However, teaching and learning are complex.

Abstract

This paper aims to describe teacher conceptions of teaching in flexible learning spaces in higher education. How do teachers design teaching? Do they experience changes on their beliefs about teaching and learning? Results from interviews with teachers, teaching in flexible spaces at six Swedish Universities, will be presented. The results show how a flexible learning space both inspires pedagogical change but also throws teachers out in an unknown territory where the teachers are trying to navigate to find their place. The teachers are beginning to incorporate the flexible learning space as a part of their teaching repertoire, as part of their designs for and in learning. Can “didactic spatial competence” (DiSCo) be used to frame a complex relation between learning spaces and teaching?

Keywords

LEARNING SPACES | TEACHERS | PEDAGOGY | HIGHER EDUCATION | TEACHING | DIDACTIC SPATIAL COMPETENCE
processes, and it is difficult to isolate the space as the only contributing factor (Boys, 2009; Mulcahy et al., 2015). However, it is relevant to focus on how teachers describe how they use affordances, act and interact in flexible learning spaces. The aim of this paper is to describe teachers’ conceptions of teaching in flexible learning spaces. How do teachers describe how they design teaching in flexible HE learning spaces? Do they experience changes in their beliefs about teaching and learning?

Theoretical framing

For theoretical framing, the perspective ‘Designs for Learning’ (Selander & Kress, 2010) is used – a perspective that looks upon teachers and students as designer of their learning process in a formal learning setting. In a flexible learning space, the perspective offers insight on how space and its affordances constitute essential elements in interaction. Designs for learning focuses on conditions for learning, such as institutional patterns, norms and governing documents or how a teacher makes didactic choices before a class. A teacher often has a significant role through his or her didactic design, where physical space represents an important resource. Design for learning influences designs in learning and thus affects how, in this case, teachers use affordances to act, re-act and interact in a learning space.

Methodology

This study stems from a collaboration within the Swedish national network ‘Room for learning’. Six universities had designed different innovative flexible learning spaces and were working with small, often action based research projects, to understand the development of teaching and learning. For their data collection, all six universities had included interviews, and in total, 14 interviews with 23 teachers teaching in flexible spaces, were collected. All interviews were individual except one case, where two participants were interviewed in a pair. Informed consent was collected, and all interviewed teachers were informed that their participation was voluntary, their right to being anonymous and that they, at any time, could decline further participation. From a methodological perspective, the procedure in this study is problematic, and raises questions about validity and reliability, amongst other things. However, we will argue, there is still a point to do this kind of comparation; first and foremost, because the field is fairly new and there is lack of knowledge about the teacher perspective.

Analysis

All interviews were recorded, transcribed and uploaded to a research platform. A deductive qualitative content analysis was used as a way to understand the material in relation to the research questions (Elo & Kyngäs, 2008). The analysis served as an instrument for eight researchers to collaborate on analysis of a somewhat scattered material with focus on only a manifest level. With previous research as a starting point a coding frame was suggested by one researcher, tested by the rest of the group of researchers which individually coded one interview each. This resulted in a coding frame with high intercoder reliability (Schreier, 2012) and only small revisions were made. The final categories were – challenges and possibilities in: teaching, teacher role, students and spatial aspects combined with the temporal aspects before, during and after (a class or a course). According to Schreier (2012), categories in a coding frame should be separate and cover one aspect of the material each; this doesn’t mean that one unit could be coded in just one category. All relevant aspects of the material should be covered by a category and this could easily be done by the use of residual categories. In this study, with the varied and scattered base for the empirical material from different
disciplines, not all material could be included in the categorisation. Utterances that covered other fields with no connection to teaching in learning spaces were excluded, for example specific planning for a subject content or assessment in written exams. Here, we only present categories relevant to the research question. The main analysis was conducted by all eight researchers working on material from another university than their own. The material was sorted into the three different main categories, one document for each interview. Two researchers collected all results from each category into one document, so the final empirical material consists of three different documents. Same two researchers continued the analysis in search of themes and patterns in the category teacher role – being the results presented in this paper.

Results

We use the theoretical frame designs for learning (Selander & Kress, 2010) to further understand teachers´ descriptions of their teacher role who are new to teaching in flexible learning spaces.

**DESIGNS FOR LEARNING**

Designs for learning concerns the conditions and framing of a learning sequence. In relation to their teacher role, the teachers in the study discussed the following aspects: Inspires me to change (or not) and Support.

*Inspires me to change (or not)*

The teachers considered themselves to be change agents and they see possibilities in the flexible learning space to make changes in their teaching. Sometimes it is stepping away from being a lecturing teacher, sometimes it is to continue elaborate on active learning ideas:

> I have been working so many years, so I need to be shaken up, and that was what happened to me. This is brilliant, if students seem to sleep when I am lecturing it actually could be that it is my design of teaching that has to be changed so that their learning could be optimized.

In the material, there were several examples of how a physical learning space nudges change in teacher plans for teaching. Many of them were in the process of making changes anyway, but the new physical learning space had made these changes much easier, and in some cases, resulted in new pedagogical ideas. There are examples of teachers that reflected upon their teaching:

> Then I went back to lecturing a couple of times, and I thought this isn’t interesting anymore, I have to change that.

That said, we also saw teachers who stated no change and that they could have designed their teaching in a similar mode in any learning space.

*Support*

The teachers clearly stated a need for support before teaching in the flexible spaces. This support could be technical, pedagogical or collegial. When it came to technology, lack of support resulted in a limited use of technology in their teaching design. Teaching could be looked upon as a way of taking risks, and teachers in the study were not ready to be caught in action and not being sure of how to use the technology:
That is the case with all technology, you would like to practice and check that you remember how to use it. You are not comfortable with that yet... But I know, I have to dare.

Teachers also described how technical affordances in the room had affordances that clashed with the initial pedagogical design:

*I had another pedagogical idea, and that idea didn’t work with the technology in the room.*

However, most teachers were positive towards the technological possibilities and were considering to incorporate more in the near future. Additionally, some teachers sought pedagogical support:

*I haven’t got any guidance from a leadership level. What is the pedagogical idea behind this?*

Furthermore, there are expressions of fear of not going to get any support if stuck. The support may be of a collegial nature and the teachers described the power of working together in teams:

*We really stand up for each other and have a common goal to develop our pedagogy.*

The support could be discussions, reflections and visiting lessons as critical friends. They also saw the value of being an inspiration to others, but there was a need for organised collaborative learning and support. As one teacher stated:

*There has to be a critical mass of teaching experience so that we can share. I am very interested in taking part of other experiences, but I don’t want to take the initiative for such sharing, and I want it to be systematically so that we can legitimate this developmental process.*

**DESIGNS IN LEARNING**

Designs in learning concerns teacher descriptions of how they act, interact and use the affordances in a flexible learning space while teaching. Here, we highlight the following aspects: Activity and Time.

**Activity**

An active teacher role and movement are aspects of activity that we trace in the material. Who is active in a flexible learning space? Even if students are supposed to be active, it is the teacher role that really changes, according to our teachers:

*Even if I had a less prominent place in the space my role as a teacher was being even more active.*

This active role could be demanding and tiresome. Teaching with a changed pedagogy in a flexible learning space means, according to the teachers, that students and teachers have a shared responsibility for activity. It is not always clear what extent teachers should interact when the students work in a collaborative set up, with the risk of interrupting a dynamic discussion or attract focus to themselves instead of the group discussion. It challenges a teacher to be able to change and act in action:
I try to trace and understand what they do. In that sense I work much more organically and my actions differs from time to time. It could be to challenge them or to support them or to save a situation that is going wrong. I never know what is going to happen.

However, when teachers talk about activity, they were also very much occupied with their own movement in the learning space. One teacher described himself as a “mover” and how the learning space supported that. Another stated that thinking about how to move took her focus from other, more important things in her teaching. However, they not only search for a position in the flexible space but also in relation to the students’ learning process, thus describing a changed teacher role, where the teacher can be challenged and also become a co-learner:

You have a picture of yourself knowing everything about their knowledge and understanding since you have taught for so many years, and you need to be shaken up a bit every now and then; and then a brilliant solution from a group that seems to be only sleeping through the lectures. Then I might need to change my plan to make sure their learning is optimized.

Time

Even a change agent needs time to change; time to reflect upon a changed role, but maybe first and foremost, time to practice in a safe environment:

Now, that I have done this for the third time, I feel secure with no butterflies in my stomach. Now it is OK to change path during a lesson if we have done what we are supposed to.

The excerpt illustrated how teachers need time to feel secure to let go of control and to develop skills to be able to change in action as well as being able to give needed support to the students:

I see that my first task is to, in some way, create some sense of safety in the room.

Time is also about the development of knowledge about how to handle technology in the space:

Technology takes time, and I have to move around and explain for the students how things work. It took time for me to be secure of what to do. It isn’t that difficult, but it takes time.

Discussion

The teachers are beginning to incorporate the flexible learning space as a part of their teaching repertoire, as part of their designs for and in learning. We argue that, by teaching in these spaces, teachers become aware of how the affordances in the space frame their teaching – designs for learning. However, teachers need time, support and collaboration to develop their teaching and the teacher role. When it comes to designs in learning, teachers are occupied with their own activity. The results show how a flexible learning space both inspires pedagogical change but also throws teachers out in an unknown territory where the teachers are trying to navigate to find their place.

Going back to didactics – we are aware of that the concept didactics can be interpreted in different ways around the world, and that it may carry a negative and limited view of teaching. However, we interpret didactics in a wider sense, and stemming from a European tradition, didactics is understood as the science of teaching with an emphasis on the teacher as a reflective practitioner both in
planning teaching and in evaluating teaching (Uljens, 1997). To the didactic questions why, what and how, we would like to add the question of where. A Didactic Spatial Competence (DiSCo; Leijon, Malvebo, & Tieva, 2019) that is grounded in research and proven experience can be used to frame a complex relation between learning spaces and teaching. A teacher on his or her way to DiSCo would organize content, learning activities and critical reflection within the spatial setting in order to support students learning. A teacher on the way to DiSCo would develop a competence and agency to act, re-act and interact in the learning space, and can critically reflect on all aspects.

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Enhancing adaptability in grade 9 boys through task-based learning

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**Abstract**

A Next Generation Learning Space (NGLS) is an exciting but foreign space for many teachers and students. While teaching in a NGLS, I witnessed some boys enjoy great learning success in the space, while others struggled. This action research project investigated whether a task-based learning (TBL) teaching strategy might help students adapt to a NGLS. TBL was adopted for a whole term of regular Science class and data were collected through a survey, photographs, exit slips and focus groups. The data were categorised and coded and a simple thematic analysis performed. The findings show that TBL was successful in helping Grade 9 boys adapt to a NGLS. Boys expressed a positive feeling or “good vibe” about the space they were in, which led to increased engagement. They recognized the difference the space made to their learning and they experienced independence during learning tasks. This research suggests that teachers using a NGLS could adopt TBL in an attempt to help students adapt to a new learning environment.

**Keywords**

*Next Generation Learning Space | Task-Based Learning | Adaptability*

**Background**

In 2015, a *Next Generation Learning Space* (NGLS) was installed in the secondary school Science building at The Scots College, Sydney in New South Wales (NSW), Australia. Through its design, it attempted to disrupt classical teaching pedagogies and encourage an *activity-based learning* (ABL) approach amongst teaching staff. Due to time constraints and being unfamiliar with the space, staff and students found it hard to adapt teaching and learning strategies during the initial introduction. Many teaching experiences in the NGLS were frustrating for students and staff. Since that time there have been many attempts to achieve pedagogical success. One teacher recommended a change in approach that handed the students a greater responsibility for their learning. Tasks were set up that allowed the students greater freedom to use the space in the way it was intended. The transformation in teaching strategies was also marked by a change in attitude of the boys and how they learnt in the space. Teachers became more team-focused and the students made much greater progress in their ability to articulate their scientific understanding. Furthermore, they developed greater teamwork,
independence, and enjoyment in their learning. These positive qualities in the boys’ education inspired further investigation. Building on this foundation, the action research project employed a TBL intervention to help boys adapt to a NGLS.

**Research question**

*How might participation in task-based learning help Grade 9 boys adapt to a next generation learning space?*

**Literature review**

**NEXT GENERATION LEARNING SPACE (NGLS)**

“Next Generation Learning Space” is a term used to describe a new type of classroom or learning environment. These types of learning spaces have been implemented across Australia in primary, secondary, and tertiary educational institutions, including Churchie Grammar School in Queensland and Newcastle University in NSW. Similar designs have also been used when creating spaces for the mainstream workforce. Companies such as Google and Commonwealth Bank of Australia have included elements of the NGLS in their office interiors. With the variety of terms, including “innovative learning environment”, “open plan”, “future focused learning space”, and “flexible work or learning”, there is a need to define these types of work spaces. Fraser (2014) clusters these spaces under the term “Next Generation Learning Space” (NGLS) and has collated the key aspects. Primarily, these are spaces that:

- enable new pedagogies, including technology-enabled pedagogies, to be explored and trialled (Boys, 2011; Carr & Fraser, 2014);
- are intentionally designed to facilitate collaborative, connected, and active learning (Heppell et al., 2004; JISC, 2006);
- are technology-enabled and allow for students to use their own devices (Morrone & Workman, 2014);
- include formal and informal spaces, physical and electronic spaces (van Schaik, 2014); and
- have comfortable furniture that is configured easily and quickly by academics and students to suit different pedagogies (Morrone & Workman, 2014).

Ling and Fraser (2014) make it clear that although there has been a significant amount of work on designing NGLSs, little has been made available to teachers in the form of appropriate training for effective use. Even less research has been developed in the use of NGLS in secondary schools and the impact they have on high school students’ learning. This action research project is of importance to implement ideas from current research to this area of educational practice.

The design for these new spaces most often draws upon cognitive and social constructivist learning theories (Ling & Fraser, 2014). Intended pedagogies are primarily student-centred approaches that identify children as intrinsically motivated and able to construct their own understandings of the world around them. TBL is an attempt to address the need for a new pedagogy in the NGLS since previous experience demonstrates classical techniques can have limited success. Successful transition from classical learning spaces to NGLS appears to present students with challenges and requires teachers and students to adapt to best utilise the opportunities afforded by the space. The most successful learners will be the ones who most swiftly adapt to the NGLS (Keppell, 2014).
ADAPTABILITY TO NGLS

For students to be successful in a NGLS, they must adapt primarily to the space and also to the teaching and learning styles that most appropriately accommodate the space. It is of critical importance to choose the most appropriate pedagogy to fit the space. As each space is different, it might be expected that a single pedagogy may not provide a solution for all spaces. Given the diverse range of these spaces and students’ familiarity with classical style classrooms, it can be a demanding task to adapt to these new classrooms. Martin et al. (2013) define adaptability “as appropriate cognitive, behavioural, and/or affective adjustment in the face of uncertainty and novelty” (p. 1). According to this definition, the NGLS is the uncertainty to which students must adjust.

A BOYS’ SCHOOL CONTEXT

The key aspects relating to a NGLS that intersect with the distinct needs of boys include boys’ natural physicality, their ability to adapt, and their diverse range of learning needs. Boys’ natural physicality has been addressed by Lingard et al. (2009) through the implementation of an activity-based program. They found that increasing the amount of physical activity through the program successfully increased the engagement of boys in the classroom. TBL is flexible enough in nature to include aspects which account for the physical nature of boys. Amongst secondary school students, Martin et al. (2013) identified that low achieving males are the least likely to be able to adapt. This places great significance on the project theme of adaptability in the context of boys’ schools. Given Martin et al.’s (2013) findings, it is likely that, in a class of 18 boys, there will be a number of boys who need assistance when adapting to the NGLS.

There is a range of pedagogical strategies which caters to the broader needs of boys in the classroom, including explicit teaching, hands-on activities, high structure, and success criteria (Lingard et al., 2009). Owing to the range of abilities present in the class, a targeted approach to differentiation in the task design is essential. TBL presents an opportunity to plan a range of tasks, with both high and low degrees of support scaffolding, to allow accessibility to a broad range of student abilities. The strength of the proposed TBL action is that it can embed the specific needs of boys into the pedagogical approach, including their physicality, ability to adapt, and range of learning needs.

TASK-BASED LEARNING AS AN ACTION

TBL aims to bring together a range of content delivery methods (Zheng & Borg, 2014) where students choose their learning based on the set tasks, and classroom activities are designed by the teacher to meet the learning outcomes. TBL combines the following aspects into the instruction method:

• Considers the space in which the task is undertaken (Ling & Fraser, 2014)
• Allows a degree of freedom in choosing from a range of tasks to meet a student’s ability (Basset, 2014)
• Connects tasks with the real world (Basset, 2014; Zheng & Borg, 2014)
• Embeds differentiation by the degree of scaffolding (Lingard et al., 2009)

These key aspects of TBL draw together the specific needs of boys and take into account the NGLS. Due to this strong link, TBL is a natural choice of action to take for the project. It is possible to embed tasks that cater for boys and their different academic abilities and the manipulation of specific tasks within TBL that can assist students adapt to the NGLS. Assigning appropriate tasks teaches boys how to use the space.
The literature review demonstrates the clear links between core aspects of the research question. These core aspects include boys' learning, NGLS, adaptability and TBL. A synthesis of the literature demonstrates that TBL has the capacity to help boys adapt to NGLS.

**Data collection**

It was integral to the scope of this project to collect qualitative and quantitative data as both data types provide different, yet equally important, information in addressing the overarching research question (Stringer, 2014). Quantitative data were collected through the use of Google Survey Forms. This diagnostic tool was used to steer the direction of future data collection, analyse selected binary outcomes of the action, and to act as a summative tool for the final questionnaire. Qualitative data were collected by way of survey questionnaires, photographs, exit slips, and focus groups.

Previous research (Martin et al., 2013) suggests that to focus on adaptability, the following domains should be considered: behaviour, affection and cognition. Table 1 shows the range of different data types adopted and the adaptability domain to which each one related.

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Adaptability Domain</th>
</tr>
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<tbody>
<tr>
<td>Baseline Questionnaire</td>
<td>Generic</td>
</tr>
<tr>
<td>Exit slip</td>
<td>Generic</td>
</tr>
<tr>
<td>Photographs</td>
<td>Behavioural and cognitive</td>
</tr>
<tr>
<td>Focus groups</td>
<td>Cognitive, behavioural, and affective</td>
</tr>
<tr>
<td>Final Questionnaire</td>
<td>Cognitive, behavioural, and affective</td>
</tr>
</tbody>
</table>

Based on the nature of adaptability, an adjustment to the NGLS would occur over a period of time after the initial introduction. It was therefore important to include multiple data sources collected at various points in time. This also gave an opportunity to poly-angulate points of interest in the data to increase the credibility of the information gathered (Stringer, 2014). Previous research suggests that 15-year-old low-achieving males find it hardest to adapt, hence it was necessary to give boys multiple opportunities to demonstrate their ability to adapt over the three different categories (Martin et al., 2013) and to collect data around each of these opportunities.

**The analysis**

Once data were collected, they were subsequently analysed and coded. Within the analysis it was important to gauge similarities and differences, with the aim of discovering new phenomena relating to the use of TBL (Strauss & Corbin, 1990). Data were further analysed to ascertain whether there were indications of adjustment in the categories of behaviour, affection and cognition. As boys responded to surveys, they were interviewed throughout the action period. Through analysis of the data, clear themes emerged which helped capture the essence of the boys' experiences.
Discussion of results

Through data analysis, four major recurring themes emerged: positive feeling or *good vibe*; spatial impact; increased engagement; and independence.

**POSITIVE FEELING OR GOOD VIBE**

Overall, it was clear that boys could articulate their positive feeling towards the space, defined in the data as increased freedom and happiness. As the action period progressed, one boy described the experience as “a bit more free in here,” and another student remarked, “It’s kind of a happier place…. You get a *better vibe* from this classroom compared to others.” These statements demonstrate how students attributed a positive feeling to the space. Students also articulated their positive feelings compared with other classrooms. Classical classroom design tends not consider the students’ enjoyment. However, based on the student-centred pedagogies which underpin much of the design philosophy of the NGLS, students recognised that their interest and feelings have been considered in the design of the space.

**SPATIAL IMPACT**

The boys had no difficulty identifying the types of tasks they felt had the greatest benefit for them and how the space impacted their learning in relation to these tasks. When asked what the best types of learning tasks were, one boy replied, “group tasks, because there are so many places where there is a round table where you can communicate with each other,” and another boy stated, “it has the capability to hold large groups, but if you also want to work by yourself there are various areas you can do that.” Students had an awareness that the tasks were being matched to the space, as exemplified when one student responded, “The classroom is fit for the tasks we do.” The boys could clearly link their learning to the types of tasks they did in the space.

**INCREASED ENGAGEMENT**

A vivid response from the boys about how they felt as they were learning in the space was observed. Increased engagement was defined in the data by increased productivity, increased interaction and understanding, as well as sustained focus and attention. One boy said, “Being in here you can engage a lot more thoroughly with the task,” and another observed, “I interact with lessons better in this space … even if I was doing the same task it would just be easier to understand.” Compared to other learning experiences, the boys were able to identify that TBL in the NGLS engaged them more thoroughly in their learning. One boy described that “being in a conventional classroom with whiteboards and desks, it’s boring you know, and you tend to get distracted.” Many students shared an experience where TBL in the NGLS allowed them to thrive in their learning by providing them with greater engagement.

**INDEPENDENCE**

Many students struggled with the level of independence associated with the NGLS. While some students thrived on the freedom and the access to new space, others found it difficult to adapt their behaviour to the NGLS. Most boys were able to articulate that they needed to make a conscious decision to avoid distractions; one boy stated, “I reckon it’s kind of hard, you get more distracted in here.” Other students made a conscious decision to take responsibility for their actions in the NGLS. This attitude was perceptively observed by one boy “in here it allows you to participate or act however you want, which makes it more enjoyable to act better.” The TBL program unlocked this boy’s ability to enjoy behaving in a more responsible way and his increased independence brought about by TBL.
allowed him to flourish. Some students clearly identified a greater degree of independence throughout the TBL in the NGLS as exemplified by statements such as, “In this classroom you have to work way more independently,” and “In this area I notice you get a lot more independence which is really important.” In many instances they described independence in their learning and their class time in a positive way. Other students, however, had an opposite view, stating, “You could say that some people use it as an excuse to act silly, but that’s their fault, they’re just wasting the space,” and “There’s lots of open spaces so you can hear everything.” While some boys found it challenging, many boys found the greater independence an important component of their learning. In summary, student engagement and independence were closely linked. As students mastered independent learning, their engagement increased, and as engagement increased, students were more independent in the space.

INTERSECTIONS WITH ADAPTABILITY

Further analysis of the qualitative categories was undertaken to gauge if they naturally fitted into any of the three adaptability domains of behaviour, affection, or cognition (Martin et al., 2013). Upon inspection it could be clearly seen that they indeed did. “Positive feeling or good vibe” fits the affective domain because of the nature of the language the boys used to describe an emotional response to the NGLS. “Recognise the impact of the space on learning” and “greater engagement with learning” fit into the cognitive domain, as these two categories are distilled from the boys talking about how their thinking changed as the period of the action continued. Finally, “independence” fits into the behavioural domain because the data collected in this category describes how students changed their behaviour in ways that impacted their independence across a broad range of activities. This neat intersection provides further support to suggest that the students successfully adapted to the space.

Conclusion

The success of this action research project is clear, and the research question was answered by the four categories which emerged from an analysis of the data. TBL helped boys adapt to a NGLS by fostering a positive affection for the space, enhancing independence in their learning, giving boys an awareness of the space they were in, and increasing their engagement in learning. Not only did the boys adapt but they excelled beyond the expectations of a classical classroom as a result of TBL in NGLS.

There are some limitations to consider, including:

• The ability to collect data at regular intervals over the sustained period of action was a challenge. I often needed a colleague to cover a class in order to take photographs or to conduct focus group interviews.
• The Scots College NGLS is unique; another NGLS may be quite different.
• For some students it was not their first time in the NGLS, so their adaptation to the space may have differed from a boy who was brand new to the space.
• This action research project only used one class as the research sample, out of two that were experiencing team teaching. This may have had an impact on the data collected.
• Many data were collected through student self-assessment. Future studies should consider data from sources outside student assessment to poly-angulate data further and to increase the validity of the research.
Given these limitations, the validity of the action research process is maintained by the clear response of the boys in how they articulated their responses in the data and by following the action research method.

It is evident that more research in the area of NGLS and matching pedagogy must continue throughout secondary schools. Secondary school cultures often have a high focus on student outcomes, most directly met by quality of learning that occurs in the classroom. It is important to find the teaching and learning techniques that work best for boys if these spaces are to be utilised to their potential. TBL is one technique among many that is likely to be successful in a NGLS; however, finding which techniques work best for each space may take the community of teachers much time and effort. The definition of TBL remains malleable enough to review and adapt for use in many types of NGLS. It is for this reason that it was used in this project and can it hopefully be translated into other classrooms with ease.

References

Students’ self-organised design of educational environments through work-related learning

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Abstract

The research investigates the learning environments re-designed by students (aged 14-19) at the Giulio Verne Professional Institute in Rome. The aim was to experiment and identify positive aspects and critical issues to develop a students’ self-organised design model to re-design schools’ environments, referring in part to experiments by Sugata Mitra regarding the Self-Organised Mediation Environments (SOME; Mitra & Dangwal, 2010). The experiment has been done to motivate students in new way of carrying out work-related learning.

The action-research method with the ideographic purpose has been used: a critical approach induces the participants to reach the objectives through hermeneutic and reflexive modalities.

After the Reform of Professional Institutes in Italy, the learning personalisation and the self-awareness of the students as protagonists of their own learning path have become relevant and this model encourages the autonomous students’ learning. The teacher as a mediator must review his role and promote the active and autonomous students’ learning.

Keywords

ACTION RESEARCH | EDUCATIONAL FACILITIES DESIGN

Introduction

Great transformations and rapid developments are present in society. Learning does not take place only at school, but everywhere and in every moment. It is important that students can self-organise their learning path helped by teachers as mentors who accompany the students to develop autonomy, critical sense and ability to collaborate and working in groups.

In the new school curricula of Italian Professional Institutes, teaching must have an inclusive and quality connotation, so that it is able to contain dispersion and school dropouts to offer articulated and dynamic answers to the work demands.

The knowledge must be perceived by the students as useful, significant and found in reality. It is essential to have an accentuated didactic flexibility and personalisation for the different cognitive styles and students’ learning abilities to motivate and orientate them in the progressive construction of their educational and working path. In addition, Work-related Learning, in the new name, Pathways
for Transversal Competences and Orientation (PCTO), is compulsory during the three-year period of secondary schools. This must accompany students to confront themselves with the working environment and with their personal attitudes to be able to orientate themselves in their own life project.

**Context**

The experimentation took place at the Giulio Verne Professional Institute in Rome, founded in 1979, where the courses “Socio-Sanitary Services” and “Commercial in the Tourism Sector” are present. This public school has about 950 students, 45 classes, 120 teachers and 25 school-staff, and is located in the Rome suburbs.

The experimentation started from four assumptions:

- the willingness of the headteacher to identify new design solutions for the school atrium and the teaching-room;
- the desire to make the students experiencing a Work-related Learning in an innovative form that would make them protagonists in a perspective of collaborative self-organised design of learning environments;
- the intent to encourage students’ autonomy for making them responsible for their transversal skills;
- the impossibility for researchers, living in Milan, to follow closely the entire design process of the school being located in Rome.

For these reasons it has been decided to take inspiration from the SOME model (Self-Organised Mediation Environment) by Sugata Mitra (De Toni & De Marchi, 2018; Mitra & Dangwal, 2010), where the mediator is not, as in Mitra’s project, a retired teacher or a volunteer, but a support teacher and researchers (two architects and a pedagogue).

The design process was carried out through peer education which has many positive pedagogical advantages both for the peer tutor who develops greater relational capacity and for the other participants because there is immediate feedback resulting in anxiety reduction and a greater awareness of students in their learning process (Greenwood et al., 1990).

**Objective of research**

The experimentation has been done to motivate students in a new way of carrying out the Work-related Learning and also to be protagonists in proposing new ideas and solutions for the learning environments.

The objectives are to:

- convert some project proposals into a shared learning environments project design;
- develop self-assessment form for the students about their self-awareness of their learning path, an open-ended questionnaire on students’ self-organised design of educational environments model, a joint school-tutor and researchers ministerial assessment form about transversal skills reached;
- transform the teacher role as mediator to promote the active and autonomous students’ learning;
- construct a design model for all those schools which want to undertake a self-organised learning environments project led by students.
Methodology

The action-research method with the ideographic purpose has been used: a critical approach induces the participants to reach the objectives through hermeneutic and reflexive modalities (Mertens, 2010). The action-research has two phases: theoretical-design and laboratory-practice (i.e. building furniture through the fab-lab).

Phases of theoretical-design experimentation:

- May 2018: school survey made by the researchers.
- September 2018: project presentation to the teacher’s board.
- November 2018: questionnaires to teachers, students, parent’s class representatives and school-staff involved in the project, to identify the nodal points of the project and to collect reflections and ideas.
- December 2018: two workshops one with twenty students to be trained as peer leader (only six became peer), another one with five teachers, one support-teacher, two parents and two school-workers were organised. The workshops were divided into two parts: first information on the results of the questionnaires and second “practical individual and group activities” through playful exercises on the concept of appropriation of spaces to build spatial competencies, led by architects with the support of the pedagogist.
- April/early May 2019: students self-organised themselves into groups to carry out the planned activities supervised by the teacher-mediator; two Skype meetings were scheduled with the researchers and the peer leader of each group to evaluate the progress of the design and to answer some questions.
- End of May 2019: final meeting with the researchers; the peer leader of each group presented the ideas developed;
- Finally, the self-assessment form and the open-ended questionnaire was completed by students, a ministerial assessment form about transversal skills reached was completed by researchers and mediator; and an interview for evaluating the vision about her role was completed by teacher-mediator.

Research design

The research is inspired by peer learning and by SOME model by Sugata Mitra who, in 1999, conceived the experiment “Hole in the wall” in a degraded area of New Delhi by inserting a computer with internet connection into a wall adapting to the children’ use (Mitra, 2004). Experiments show that children are able to self-organise into working groups without supervision (De Toni & De Marchi, 2018; Mitra, 2003; Mitra, 2004).

However, if they were helped and supervised by an external mediator, they achieved higher results (De Toni & De Marchi, 2018; Mitra & Dangwal, 2010). Moreover, some theories on the self-organisation of schools identified solutions that derive from the participants’ collaboration and have greater chances of success (Bain, 2007).

Self-organisation made it possible to find new solutions without constant top-down intervention (Merry & Kassavin, 1995). It is also important for education because concepts such as distributed leadership (Spillane, 2006); community practice (Wenger et al., 2002); and collaboration and school management (Dimmock, 1993; Friend & Cook, 2003) are fundamental to self-organisation (Bain, 2007).

From these considerations, it was decided to propose the self-organised design to a classroom of 31 students, divided into six groups. They decided themselves who would be the peer leader based on
their personal willingness and their own life skills that the students must possess, or develop, problem solving, critical and creative thinking, effective communication, empathy, emotional and stress management, personal and collective effectiveness (Boda, 2001).

Results and findings

INITIAL QUESTIONNAIRES

In the initial questionnaires (see Figure 1 and Figure 2), the students and the teachers indicate the school spaces where they do not feel well. The teachers’ room and the restroom are the space where they feel bad. Teachers sought a comfortable teachers’ room for their wellness and for improving their work. Students don’t feel well in the classroom and they wish and need comfortable spaces for reflecting and for have relaxing time. Both students and teachers thought it was important to be involved in the learning environments design.

Figure 1

Initial Teachers’ Questionnaire

Figure 2

Initial Students’ Questionnaire
At the end of the experimentation some objectives were reached:

1. **Design proposals for school spaces**: each group presented the project proposals focused on school areas identified by them as “areas of intervention” for logistical and strategic issues and poor maintenance.

The students’ proposals focussed on:

- **Atrium**: it must become the school’s calling card. They proposed to install a monitor that concentrates all the service communications to avoid the effect of “posters hanging everywhere” and chairs to create a welcoming environment;
- **Bar/cafeteria area**: planned in a space little used at the entrance in the current auditorium. For the students designing the bar interprets a desire for relationship spaces;
- **Space for listening-relaxing**: students need a space for studying and relaxing open to all, including teachers;
- **Anti-panic/anti-fury room**: students need a space with pungball dedicated to their frequent moments of fragility (crisis of fury/crying, panic attacks, desire to be alone);
- **Teachers’ room**: it would be positioned adjacent to the entrance, but the position is to be assessed, it needs re-organisation and refreshed furniture;
- **Outdoor spaces**: the school has very large outdoor spaces in very poor condition: garden, soccer and tennis field. They proposed to reactivate involving the whole school community: students, teachers, parents;
- **School as Civic Centre**: the school be used by the community even outside school-hours because there is a library open to the community.

2. **Self-assessment form**: in the application of the self-evaluation of the projects, all the schemes contain four levels of quality or competence, arranged in descending order: scale of 4 to 1 from ‘excellent performance’ to ‘insufficient performance’. Additionally, a final general self-assessment of its own work in the self-organised design with five levels arranged in descending order: scale of 5 to 1 from ‘far exceeding expectations regarding own performance’ to ‘do not exceed expectations regarding own performance’. Finally, the peer leaders’ general self-evaluation of its own work is arranged in five levels in descending order: scale of 5 to 1 from ‘I actively and constantly contributed and managed to organise the team’s work’ to ‘I didn’t contribute and failed to organise the team’s work’.

   - **Part One**
     - Group work: contribution to the group; collaboration with the group
   - **Part Two**
     - Critical thinking: self-criticism about one’s own work
     - Problem-solving: contribution to solving problems
   - **Part Three**
     - Communicative aspects: relationship with others
   - **Part Four**
     - General assessment of one’s work in self-organised design

The results of the analysis of the self-assessment form on their work, completed by 20 students and four peer leaders, were positive in almost all the items present. The self-assessment of the students is based on the Values 3 and 4, with only few students giving Value 2, stating that they needed the help of their peers to continue the design work. Only in one case the student wrote he was not able to carry out the planned work also with peer leader help because he had difficulties to work in group.
The peer leaders’ self-assessment stands at grades 3 and 4. It had the same result for the specific question for the contribution as a guide to recognise group dynamics and for the awareness of their role in their relationship with others (Gnemmi, 2004).

3. **Questionnaire:** All students answered the questionnaire. The majority of students considered the experience very positive; they experimented a new way of “making school” and felt them protagonists able to find autonomous solutions and new ideas on learning environments.

Only two students disagreed – for them, the design with the use objects for representing spaces and furniture was too childish and they complained about a poor integration in the group because some school-friends did not engage and slowed the work.

Almost all students would have preferred more external support from all teachers of the class. Most students considered mediation via Skype useful, but they would have preferred more meetings.

The students appreciated the mediation of their teacher-mediator who changed her role: she didn’t have a didactic approach, was a real mentor to reinforce the difficulties, and guided the students in finding solutions in an autonomous way. The peer leaders liked their role, although they considered it complex and difficult to coordinate a group of 5-6 students. The results of the final evaluation of the project model by the student collaborators and student peer leaders can be seen in Figure 3 and Figure 4. Values are provided in descending order from 5 to 1, from ‘very satisfied because expectations have been exceeded’ to ‘expectations not satisfied’.

![Figure 3](image1.png)

*The Student Collaborators Results*

![Figure 4](image2.png)

*The Student Peer Leaders Results*
4. **Ministerial assessment form transversal skills reached (for each student):** The competences acquired by the students for the activities carried out in “Work-related Learning” were evaluated by the company tutors (researchers) and in this case, also by the school tutor (teacher-mediator). The competences evaluated for student collaborators are: Analytical skills, Relationship skills, Problem solving skills, Communication skills, Self-organising work skills, Time management skills, Ability to adapt to different situations; Stress management skills; Teamwork skills; Enterprising spirit; Flexibility. For student peer leaders two competences more: Decision-making skills and Ability to understand the overall view. The Ministerial assessment form contains ten levels of quality or competence, arranged in ascending order from a scale of 1 to 10 from ‘very insufficient performance’ to ‘excellent performance’. Level 6 is ‘just sufficient’ and Level 5 is ‘just insufficient’.

The results of the student collaborators and peer leaders were quite positive (see Figures 5 and 6). Based on the scale, almost all student collaborators stand on the values between 6 and 9. Only in very few cases there is a value of 5, which is not entirely sufficient. The peer leaders achieved very positive results, with a rating of 7 to 10 on the scale (statistical data collected by professor Maria Evelina Di Maio).

Figure 5

*Ministerial Assessment Form – Results from Student Collaborators*
5. **Interview of teacher-mediator**: the teacher-mediator pointed out how important it is to abandon one’s role as a teacher to get in empathetic contact with the students. It was essential to listen to students actively, helping them to achieve the objective. It was essential to be recognised as a ‘helper’, and not as an ‘evaluator’, to support students to rework reflection with previous knowledge not immediately apparent to them.

**Conclusions and Significance**

When drawing up a replicable model, there are three considerations on the experience to keep in mind: positive aspects, critical points, attentions.

**POSITIVE ASPECTS**

This experience had a strong educational value for transversal skills improved and in terms of personal growth, empowerment towards oneself and other students and positive perception of themselves. Even if some of them have not always shown active participation, the students’ impression of their performance influenced their self-assessment (Pope et al., 2002).

The peer leaders were faced with a difficult role because they had to organise and guide the group in autonomy and put into practice the indications obtained in the preparatory workshop. In the groups, positive socialisation and significant collaboration have been created spontaneous ‘positive interdependence’ and ‘appropriate collaborative skills’, characteristics of cooperative learning (Dishon & O’Leary, 1984) that favoured the solution of complex problems.

The teacher-mediator changed his didactic approach with a transition to educational methods stimulating students’ autonomy and helping them to access and process information (Imms, 2016), rather than giving solutions. To make this transition, the teacher ability and quality is fundamental; it is the key to making learning meaningful (Rowe, 2003) and to building learning community (Wald & Castleberry, 2000).
CRITICAL POINTS

Students need to improve their ability to organise themselves and to express their ideas, which they are not used to exercising their creativity freely. All classroom’s teachers, even if not participating as mediators, should give external support and their approval to the project because it would help students to increase confidence in this experimental path.

ATTENTIONS

Students must have a clear understanding of the objective of their work. The request for more meetings with researchers, while reassuring them, would also make them less responsible for their work. The results of this experimentation represent a useful point of view about students’ self-organised design of educational environments through Work-related Learning, but for the construction of a replicable model in each school, there is still a need to experiment and investigate this approach more in a heuristic way.

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References


NGLE policy assemblage: Exploring tensions between ‘old’ and ‘new’

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Abstract

This paper provides some findings from my PhD thesis. I argue that New Generation Learning Environment (NGLE) policy is a political device aimed at bringing about certain networks while pushing other possibilities into the shadows. In its work, dualisms between traditional classroom teaching (old, past) and contemporary learning environments (new, present-future) are produced. However, when we turn our sociological attention to how NGLE policy is assembled in everyday practices, we find ourselves deep in (uncertain) relations that reflect both continuity and change—where the past is continually carried into the present in a ‘dance of agency’. Three leader assemblage stories are told using fieldnotes and leader interview material. The stories trace tensions emerging between ‘old’ and ‘new’ in school leader NGLE policy translations as they work to change the physical infrastructure and pedagogic approaches of their schools to open, flexible and visible student-centred learning environments.

Keywords
ASSEMBLAGE | TRANSLATION | SUBJECTIVITIES | NGLE POLICY

Introduction

In Australia, New Generation Learning Environment (NGLE) policy is a strategy aimed at reconfiguring the physical and technical infrastructural arrangements of educational institutions in efforts to influence teacher pedagogic practices and the related learning practices of students, for the purpose of improving student outcomes. To that end, NGLE policy is producing a ‘new’ imaginary of education along the lines of openness, flexibility and visibility, replacing what has been referred to as the ‘cells and bells’ of earlier configurations.

The new imaginary of education produced in NGLE policy, and guiding the renovation of older schools and construction of new schools, is made to appear uncomplicated, couched in persuasive language shaped by, and contributing to, broader, globalised policy discourses (Rizvi & Lingard, 2010). One way in which policies persuade is through placing newly valued notions in opposition to other notions, which become less valued or perhaps silenced. An example of this persuasive work is MCEETYA’s (2008) Learning Spaces Framework’s four values of learning stated as: active participation, collaboration, producing new knowledge and student-centredness. While many
teachers would agree with these practices, Bansel (2015) urged deeper analysis of what and who policy narratives silence, because “... policy narratives typically occlude the diverse and multiple relations, technologies and ambitions through which socio-political realities and subjectivities are constituted” (p. 192). Occluding diverse relations may give policies the appearance of smoothness and immutability but does not completely hide diverse realities. It is when we consider that policy emerges in multiple processes of contestation and cooperation, not from a single policy-making site, but in diverse and disparate practice sites, that we get a sense of the uncertainty and contingency of policy. Therefore, in researching NGLE policy practices researchers need to attend to the devices deployed in policy’s processes, interrogating policy for its inclusions, assumptions and exclusions (Law, 2007).

Policy processes

Interrogating NGLE policy processes for how they work brings to light three interconnected approaches: problematising, dualising, and reproducing uncontested assumptions.

NGLE policy processes identify a problem and provide answer/s to the problem. Policy problematisation starts to shift entities out of their roles and specify new roles, (new) knowledges and valued identities and de-contextualising others in processes that simultaneously “create areas of suspicion” (Callon, 1981, p. 209). Specifically, NGLE policy shifts the teacher out of classroom teaching which become traditional, closed, inflexible practices of the past (old). In this way, traditional teacher emerges a potentially problematic subject, a subject of blame. Students become implicated in the ‘classroom’ processes, as passive, immobile and lacking in freedom to choose; potential victims of traditional practices. The solution proposed is to reconfigure of the physical infrastructure along the lines of openness, flexibility and transparency, thus separating past (old) from the present (new). With the infrastructural rearrangement of learning spaces, the NGLE teacher is repositioned as a contemporary, visible facilitator of learning, and students as independent learners, educational subjects who take responsibility for their own learning.

Analysing the assumptions on which policy ideas are based (Bacchi & Goodwin, 2016), I found different entities pushed into the shadows by MCEETYA's (2008) four values of learning listed above; these are: passive involvement (still bodies), individual study, existing knowledges, and teacher-centred pedagogies. Analysing policy for what lies in the shadows also illuminates NGLE policy dualisms. While forwarding the centrality of ‘learning’, NGLE policy creates a binary of ‘classroom’ and ‘learning environment’ as separate entities. Classroom becomes the closed space of teaching, a traditional, teacher-centred space of control over the student and conflated with narrow, linear, systematised teaching methods. The classroom thus positioned becomes an object of comparison to the new generation learning environment, as if these were commensurable, one able to replace the other. But what if what is happening in practice is not separation but relation? Not contradiction of an either/or choice, but contrasts adding to repertoires of practices? (Stengers, 2005).

Researching NGLE as policy assemblage

Policy assemblage research requires the researcher to proceed slowly, creeping ant-like along tiny conduits, tracing the trails “left behind by some moving agent” (Latour, 2005, p. 132). Such research proposes that NGLE policy not be taken for granted as good but that it becomes a matter of concern for how policy is enacted in practices—research that attends to processes of displacement as well as emplacement, seeking what is coming to light as well as what is being pushed into the
shadows. This research is an attempt to show how elements of the past are continually enacted in the present, in creative practices that continually bring world/s into being. From this view, accounts of various elements, human and nonhuman, involved in mediating policy, show how shifting material and discursive entities do not simply transfer objects and subjects from one place to another, rather they rearrange, working to select some aspects and reject others in complex processes of translation (Latour, 2005).

Actor-network theory (ANT) provides sensitising tools to do this work deploying the concept of translation as a tool for tracing policy assemblages (Clarke et al., 2015; Latour, 2005). Translation is not simply “the ability of one language to ‘represent’ in some way the givens of another language” (Deleuze & Guattari, 1987, p. 72). Translation is only possible because it interprets and transforms entities from one substance into another—discourses as materialising processes. Policy translation posits that the NGLE is always in the making, continually reordering, revising, resisting and connecting in ways that make NGLE both fit and unfit—doing and undoing policy in continual change processes (Clarke et al., 2015).

Translating NGLE policy—Assembling the NGLE leader

The NGLE-policy-leader assemblage stories below perform a version of temporality as relational, co-constituted in heterogeneous relations circulating pasts into political presents and anticipated futures (Scott, 2004). Working with vignettes drawn from fieldwork notes and interviews, these stories assemble school leader, researcher, teacher and learning environment in multiple ways, told through leader translational practices.

These three stories are interconnected around the research encounter of my first visit to the school and meeting with the principal.1

STORY ONE: THE NGLE-POLICY-LEADER-INFLUENCER-ASSEMBLAGE

It is 10am on a school day when I arrive at St Constance’s primary school for a meeting with Andy, the school principal. I enter the school grounds from the car park, through a gate with a hard-to-reach-child-lock in the high metal-mesh fence. A sign directs me, the visitor, to the school office where the automatic door slides open, welcoming me into the modern waiting area. A smiling receptionist asks, “Who are you here to see?”, before phoning through to tell Andy that I have arrived. Openness and welcome are inscribed in the buildings and enacted by the receptionist. Yet closedness is also enacted in the fences, signs and systems. Once ‘in’ I cannot go any further without signing the visitor book, pinning on a visitor badge, and taking a seat on one of the comfortable chairs to wait for the principal to invite me into her office. The principal’s office is large and bright with windows overlooking well-maintained playgrounds. There is a formal desk and computer, the principal’s chair and shelving containing folders and books, and an informal lounge area with comfortable chairs and coffee table where Andy invites me to put my bag and folder while offering me a cup of tea or coffee. We each take a seat on one of the comfortable chairs around the coffee table, as equals in this office that speaks of leader work, this centre of discretion.

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1 The stories perform the school leader as a Principal named Andy. Andy is a consolidation of the nine leaders who participated in my research. St Constance’s School is a composite of four schools involved in the study.
and decision-making that is nothing without the material apparatuses of secretary, telephone, computer, desk, and teachers and students. I talk about my research and what I am hoping to do at the school. All the while Andy listens, asking a few questions and speaking about the changes they had made to the buildings and are still making with their teaching and learning practices.

This encounter is not simply one of a meeting between two people, a researcher and a school principal. This encounter is brimming with materiality—telephones, desks, chairs, consent forms, visitor badge, gate, office arrangements, doors and with the complex interrelations of openness and closedness, inside and outside, past and present, self and other, creating this encounter as a unique assemblage of sociomaterial relations (Dugdale, 1999).

Sometimes, in case studies focused on policy, the materiality retreats into the background—perhaps noted but absent from the social analysis. Other studies more attentive to the physical surroundings, foreground materials which are treated as supporting or enabling the social event. But, both framings work to separate the social (human) from the material (nonhuman)—placing agency solely in the purview of humans with little concern for how matter participates in knowledge practices (Latour, 2005; Mulcahy, 2013).

Yet, when we turn our attention to practices, the scene above becomes a localised (spatially and temporally) sociomaterial encounter, co-constitutive of “… the bodies that are assembled together as subjects” (Dugdale, 1999, p. 118, Italics in original). That is, the materiality of the meeting encounter constituted educational subjectivities of a particular kind—NGLE-policy-leader and researcher-visitor, bringing past into the present (Dugdale, 1999).

The subjectivities emerging as participants in the NGLE policy research, were already being performed in complex, material arrangements long before ‘we’ sat down and ‘I’ began to speak, and before Andy signed the consent form. NGLE policy subjectivities were being enacted in diverse sites, by the material arrangements of administrative procedures, in the formal arrangement of the principal’s office, through research ethics arrangements at the University, and in the reputation that the school’s ‘learning environment’ had earned among the Catholic Education community, which drew me to this place (and not others). The subjectivities performed in the meeting encounter were different to, but not entirely disconnected from, our ‘other’ identity-assemblages as parents, student, partners, drivers, shoppers, etc. constituted through different sociomaterial relations. The point is that research subjects ‘NGLE-policy-leader’ and ‘NGLE-policy-researcher’ did not come to the research assemblage as ready-made fixed, individual human identities. Rather, our subjectivities were emergent, co-constituted with the material arrangements of the research.

Other subjectivities were also enacted. For example, becoming researcher-visitor I was constituted as a potentially-risky-outsider by the surveillance system of signing in and out of the visitor book, and by wearing the badge that announced me as a visitor while at the school. Becoming ‘visitor’ enacted me as a less-knowledgeable-outsider-of-St Constance’s-learning-environment while at the school. I needed-to-learn-how-things-worked-there.

What this analysis of the meeting encounter suggests is that NGLE policy subjects are not simply the centred human identities inscribed in policy texts, but are decentred in ways that only partially...
connect (Strathern, 2005). Dugdale (1999) proposed that subjectivities connect in ways that overlap and continually shift, ‘oscillating’ between similarity and difference. And, if subjects are decentred and only partially connected, then objects such as the NGLE are also decentred, shifting and multiple.

**STORY TWO: THE NGLE-POLICY-LEADER-PROBLEMATISER-ASSEMBLAGE**

The meeting over and the consent form signed, and Andy invites me on a tour of the school. As we walk through the buildings, Andy talks about the open learning environments and their pedagogic changes towards developing collaborative, team-based teaching practices. Indicating where walls and doors used to be, Andy engages my imagination, showing me how the separate classrooms used to be configured and describing the teaching and learning approaches fostered by those past configurations. The problem, as Andy defined it, was that teachers worked mostly alone without sharing spaces and without team teaching, and students were not free to move around very much. Comparing the (in/visible) closed classroom arrangements with the open learning environment, Andy says that teachers no longer close themselves off, instead they work as a team with other teachers to plan for and teach all the students’ learning needs. The open infrastructural arrangements look comfortable and inviting, but the teacher in me notices the absence of a defined place for the teacher in the learning environment. The infrastructural arrangements are centred around the students, student-centred pedagogy in built form (built policy), creating possibilities for students to move around and choose places to do their work, while the teacher has become decentred—less visible.

As we walked through the learning environment, Andy defined the problem as the closed classroom where teachers worked alone with their own class. In the process, a practical ‘problem-space’ opened, performing a series of contrasts: of spaces and pedagogies, old and new, closed classrooms and open learning environments, past and present practices, teachers and students. And, with that problem-space a “thousand performative struggles of other object-subjects pushed into the background” (Massumi, 2002, p. XIX). Pushed into the background were different kinds of teaching-learning subjects, other possible pedagogies, and alternative spaces. And, identifying the problem by walking me through the spaces also translated me, disciplining my sight, teaching me what to see and not see, disciplining my body as we negotiated walls and doors that were there and no longer there, moving between configurations of furniture, resources, and teaching and learning bodies.
STORY THREE: AN NGLE-POLICY-INTERFERENCE-ASSEMBLAGE?

As we walk through the senior learning area, we see Year 5 and 6 students spread throughout the spaces and I must look closely to find where the teachers are situated. But, when we entered the junior learning area, we see all the teachers and their class groups arranged in separate clusters on the floor in different parts of the learning environment. Students gather in large groups, all facing the teacher and the interactive whiteboard for what appeared to be a reading lesson, making closed-in, whole class arrangements among the openness of the learning environment. A momentary glance between Andy and me registers as a hesitation at the difference between this closed-in, whole-class arrangement and Andy’s problematisation of enclosed spaces not enabling openness and freedom of movement. Andy says, “You know, we don’t throw out good teaching”.

Affect registered through me as puzzlement, surprise—a momentary disturbance emerging in the recognition of difference, “when one affective state of mind transforms into another state of mind... thus contributing to a change of experience, focus and attention” (Staunæs & Pors, 2015, p. 100. as cited in Massumi, 2002). Researcher-me, touring the learning environment, learning what to see and not see, hesitated with a sense of dissonance, a lack of harmony between the instructional arrangement of teachers, students and materials and NGLE policy expectations on them given the open learning environment they inhabited (Ranciere, 2015).

Andy responded differently to the moment of hesitation. For Andy, the arrangement of the instructional teaching moment was not a problem. Translated as ‘good teaching’, the class arrangement showed that pedagogic practices do not perform a cut between past and present, do not enact time as a linear continuum. Rather practices create a non-linear, contingent time-space as a somewhat holey, folded fabric (Haraway, 1994). In that moment the contrasts of open and closed, teacher and learner, classroom and learning environment constituted a range of opportunities, expanded the repertoires of practice.

Andy’s translation of closed practices as good teaching, draws attention to other partially connected subjectivities performed by school leaders, such as the leader as teacher-practitioner and member of a professional community, and draws attention to the affective practices creatively entwining past routines and habits into new relational assemblages (Wetherell et al., 2019). In that affective moment, Andy’s translation of pedagogies-that-don’t-quite-fit-with-NGLE expectations drew past into the present, interfering in NGLE policy as a singularity that limits bodies (social and material). Past practices of good-reading-teaching remained within the present, constituting the NGLE-policy-learning-facilitator and the instructional-teacher simultaneously. The salient point is that NGLE policy works at multiple levels, circulating multiple policy contexts, translating the past and animating the present (Clarke et al., 2015).
In conclusion

When practices are traced with conceptual tools of Actor-Network Theory, attention given to multiple entities, human and nonhuman, show how NGLE policy enactments both produce and resist (interfere with) policy expectations, opening and closing spaces, producing multiple subjectivities. Leader becomes both NGLE-policy-influencer and NGLE-policy-problematiser, and teacher becomes NGLE-policy-learning-facilitator and traditional instructor. In practice, the past is continually drawn into the present through the routines, habits, people and materialities of schooling. Entities enacting NGLE policy assemblages are not singular and fixed, but are always “open-endedly becoming—taking on emerging forms in an intrinsically temporal ‘dance of agency’” (Pickering & Guzik, 2008, p. 1), performed in entangled relations between past and present, leader, teacher and student subjectivities, material elements and affective intensities.

Multiple and shifting enactments of NGLE practices can never quite fit the schemes that policy imagines for them. They always will overflow or become hidden in the complexity of translational practices that fail to completely tame the world into a single object (Mol & Law, 2002); and as NGLE policy subjects, leaders, teachers and students never quite fit the moulds that NGLE policy creates.

References


ILEs as social assemblages: Implications for initial teacher education

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Abstract

In an education context where Innovative Learning Environments (ILEs) and conventional classroom configurations co-exist, teacher educators are challenged to prepare preservice teachers to teach across this complexity. In this paper, we utilise new materialism to identify key embodied, discursive and material affects influencing preservice teachers’ bodily capacity to act in ILE practicums (teaching experience placements). Through focus group interviews with six final year student teachers, we identified key aspects of the ILE practicum experience that co-constituted their experiences as successful, as well as the implications of these for our programme and for initial teacher education (ITE) more generally. We reflect also on what we as teacher educators make of this preservice teacher vantage point, enfolded as we are in the social assemblage of the ILE practicum with them. We contribute a preliminary ‘toolkit of noticing’, a set of reflective questions designed to orient preservice teachers to ILE practices more deliberately as part of our teacher education curriculum.

Keywords

social assemblage | practicum | new materialism | affect

Introduction

Schools transitioning from traditional to innovative learning environments (ILEs) also challenges initial teacher education (ITE). ILEs (characterised by flexible spaces and groupings of students, technology integration and collaborative teaching) and conventional classroom environments co-exist, challenging teacher educators to prepare preservice teachers to teach across a complex array of spatial and pedagogical arrangements. Preservice teachers increasingly experience ILEs for practicum. This can mean they have to decipher, translate and adapt their practice to navigate these new spaces, drawing on their more conventional reference points.

In this paper, we utilise new materialism to identify the human and non-human affects, flows and de-territorializing forces that co-constitute an ILE practicum from a pre-service teacher vantage point. We reflect also on what we make of this vantage point as teacher educators, enfolded as we are in the social assemblage of the ILE practicum. We then outline new curriculum content that we are incorporating in our degree to address learning and teaching in ILEs and contribute a ‘toolkit
of noticing’ developed to orient preservice teachers more deliberately to practicum in an ILE. We conclude with a consideration of further research needed in this area and the questions that continue to challenge us.

ILEs as social assemblages

We utilise new materialism to explore how ILEs work to produce successful practicum experiences for/with preservice teachers. In new materialism the ‘discourse/matter divide’ is collapsed, in favour of the view that “both material entities and discursive statements are real, in that they both have effects in the material world and they both affect each other” (Feely, 2019, p. 4). Alldred and Fox (2017) argue that new materialism replaces ‘agency’ with ‘affect’, i.e. an entity’s “capacity to affect or be affected” (p. 1163); and “de-privileges human agency as the means by which the social world is produced and reproduced” (p. 1164). These embodied, discursive and material actions, events and effects form assemblages “in a kind of chaotic network of habitual and non-habitual connections, always in flux, always reassembling in different ways” (Potts, 2004, p. 19, as cited in Alldred & Fox, 2017, p. 1163). Analysing affect pays the same attention to non-human materialities as human, and is identified as a “complex and pressing concern in education research” (Mulcahy, 2012, p. 10). Utilising a flat ontology where human and non-human affects operate within the same plane, enables us to conceptualise ILEs as social assemblages and to analyse the discourse and materialities our participants invoked as important to learning to teach in an ILE practicum placement.

In ILEs, conventional classroom practice is de-territorialised, opening up new possible relations or ‘affect economies’. Traditional practices are challenged and new practices emerge. We are interested in these affect economies and the social assemblages they produce in an ILE practicum. We view learning to teach in ILEs as “a series of material and relational encounters and of the affectivity attaching to these” (Mulcahy, 2019, p. 96) within the social assemblage of practicum.

The study

Over two iterations of our research (in 2016 and 2018), we have attempted to apprehend the socio-spatial entanglements of teaching in an ILE practicum and how student teachers decipher, translate and adapt their teaching (Nelson & Johnson, 2017). However, our foray into new materialism and the challenge of a flattened ontology shifted the focus of our analysis. As Charteris et al. (2019) note “decentering the human is an experimental process” (p. 2). In the spirit of experimentation, we put a new research question to work: How do affects in ILEs as social assemblages, work to produce successful teaching experiences for/with student teachers? This question enabled us to decentre the student teacher, viewing them as part of the broader human and non-human assemblage that co-constitutes teaching in an ILE. This meant that we could examine how material and discursive entities affect each other to influence student teachers’ success.

We conducted an ‘assemblage analytic’ (Mulcahy, 2012); an analysis of “how a problematic social assemblage works in the present” (Feely, 2019, p. 17). We envisaged that such an analysis would enable us “to think about ways to alter the assemblage and to make it work differently” (Feely, 2019, p. 17).

Six student teachers in their final year of their Bachelor of Teaching (Primary) degree volunteered to participate in a focus group interview. The participants had to have experienced an ILE practicum in their time enrolled in the degree. We conducted two 45-minute focus group interviews (one with two participants and the other with four participants) that explored characteristics of the ILE, influence
of ILE layout on teaching, approaches to planning, technological capability, support and guidance on practicum, support and guidance from teacher education provider, comparisons to a conventional practicum, teaching collaboratively and supporting student agency.

We analysed the components, forces and relations (affects) that influence participants’ bodily capacity to act in an ILE practicum utilising Feely’s (2019) three-stage assemblage analytic approach for new materialist research with interview data:

- Stage 1: Identifying components, forces and relations;
- Stage 2: Mapping flows; and
- Stage 3: Exploring processes of re-territorialisation and de-territorialisation.

We take the view that “data are a matter of encounter” (Mulcahy, 2019, p. 105). As teacher educators working within the context that we are researching we are very much focused on “recognising how we are constituted and enfolded in the materiality of assemblages” (Charteris et al., p. 2) and we expected that Feely’s approach would disrupt, or de-territorialize, our conventional thinking on practicum and prompt insights into how we might re-imagine our practice.

Table 1 below presents the demographic makeup of the participant group as well as the number of ILE practicums each experienced and where these were located across their teaching degree.

Table 1

<table>
<thead>
<tr>
<th>Participant</th>
<th>Gender</th>
<th>Age</th>
<th>Ethnicity</th>
<th>ILE Practicum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.07 (Y1) 6.06 (Y2) 6.07 (Y3) 7.04 (Y4) 7.05 (Y5)</td>
</tr>
<tr>
<td>1</td>
<td>F</td>
<td>33</td>
<td>NZ Māori</td>
<td>x</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>26</td>
<td>NZ Euro</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>F</td>
<td>29</td>
<td>NZ Māori</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>27</td>
<td>NZ Euro</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>26</td>
<td>NZ Euro</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>F</td>
<td>21</td>
<td>NZ Euro</td>
<td></td>
</tr>
</tbody>
</table>

Ten ILE practicums had been completed successfully by the six participants. No participants had been placed in an ILE for their final practicum. All the practicums had been hosted in retro-fitted spaces; that is existing classroom, hall or library spaces converted into learning hubs.

Key embodied, discursive, material and social affects

A number of embodied, discursive, material and social forces or affects worked to constitute the ILE social assemblage. These are presented and discussed in this section. It is important to note that although affects are presented as discrete in this paper, in the assemblage each connects rhizomatically rather than hierarchically. For this reason, we use hyphens between items to depict the absence of hierarchy between the affects that emerged in the assemblage analytic. In the interests of space, not all the affects we identified are discussed in this paper.
Participants described teaching in ILEs as embodied, ‘being thrown in the deep end’ and ‘hard’.

*I think hearing all the things going on in the media about them [ILEs], and people’s differing opinions on them, it does make it quite tricky because some schools are completely for it and some schools are completely against it. I think that makes it hard for a student teacher to go into it, especially in your first year when you’ve never really been at a school and having to go jump in off the deep end.*

The debate around the value of ILEs circulating in the media generated a sense of wariness for student teachers towards ILEs, a sense of being asked to teach in a social assemblage that was under debate.

The importance of the embodied experience of an ILE practicum was highlighted by participants who emphasised the value of ‘finding your way’.

[S1] *I think it’s how you make it really. You can give someone all the advice in the world but … they don’t necessarily take it.* [S2]: *and that process of finding your way, the process is almost more important than the [destination].*

‘Finding your way’ was a personal and bespoke experience, replete with complexity:

*So, managing transitions, volume, distractions, placement, student agency, whether children are able to work independently or whether they need to be sort of near you, especially in that space where they could get lost, maybe.*

The materiality of the space and the discourses in play affected participants’ embodied experience of an ILE practicum.

Participants identified that these retro-fitted ILEs required extra work on their part to navigate.

*Yeah, that’s something that I would have desired; a space that was maybe purpose built, rather than all these old classrooms and we’ll make it into this new space. It needed a bit more work to make it work.*
The bespoke material design of these spaces affected how student teachers could act in the teaching role.

*It was quite open. I think that it affected the teaching. Because there were breakout spaces and little corners to hide behind. You always had to be aware of roving the classroom and making sure everyone was on task.*

Here material affects intertwine with discursive norms around the primacy of ‘on task’ behaviour as good management, engendering a heightened embodied ‘awareness’ of student behaviour and a physical practice of ‘roving’.

<table>
<thead>
<tr>
<th>Discursive Forces</th>
<th>Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>classes-student agency-surveillance-workshops-business-day care-media messages-no teacher desk-collaborative teaching</td>
<td>ease of teaching-discourses of class management-pedagogy-participation of the teacher-being mindful of others-decentred teacher</td>
</tr>
</tbody>
</table>

Student agency emerged as a key discourse associated with teaching in an ILE. The discourse affected student teachers’ capacity to act in the teaching role during their ILE practicum.

*I think you have to allow more opportunities for student agency in an ILE. You’ve got to let go of some of the control and provide work where you don’t have to be standing in front of them.*

Promoting student agency was taken up as requiring the student teacher to cede varying degrees of control to students. This generated tensions for student teachers at times. For example, a discourse of ‘student choice’, exemplified by learners self-selecting curriculum workshops, dictated student teachers’ pedagogy and shortened the time they had available to plan for the needs of the learners.

*Obviously, the workshops were dictated by the children who had to choose which workshops they attended and that sort of thing.*

Participants conveyed a sense of paralysis in response; that they could not act until students had made their choices about their learning, and they often had to respond to these choices in the moment with minimal preparation.

The physical arrangements of ILEs also challenged student teachers’ accepted discourses of classroom management at times.

*If they had one big classroom and maybe a few breakout spaces it would probably be a little bit easier …, [in an open space] you can see what the kids are up to instead of trying to stand in the doorway, have a look at both classrooms and go “come on, come on, get into [a central point].”*

Negotiating doorways, large groups of students spread between the spaces within a hub, and the expectation to be able to gain and hold students’ attention provide new, upscaled management challenges for student teachers even with the support of more colleagues available to them.
Working with one or two ever-present colleagues in the learning environment was described by participants as a positive support for their development as a teacher.

> I think that what’s good about being in an ILE is you’ve almost always got another teacher there. As far as the full management goes, even though we had to step in and take on x number of days of full management, we always had the support of other teachers there. They never take 60 kids just by themselves for a full day so we’re not going to do that, we’re not going to step in and do that either. We’re always going to work together.

This perspective also signals a misalignment between the conventional notion of ‘full management’, (a key aspect of student teachers demonstrating their competence on practicum) and the reality of ILEs where teaching is practiced collaboratively. Participants identified that teaching collaboratively increased their energy:

> It’s almost less tiring at the end of the day because you’ve had support throughout the day.

Teaching collaboratively also appeared to deepen student teachers’ relationships with their colleagues:

> I felt like the need to plan collaboratively formed those strong relationships more quickly, and for me, I felt I was able to ask for help sooner.

Support appeared to ‘envelope’ student teachers in an embodied and ongoing connection:

> I think with the ILE you feel like you have two mentor teachers sometimes, which is really cool. You’ve got two brains to pick from and, at the end of the day when you’re all three of you sitting there and chatting, it’s nice to hear both sides and all that. It’s just the extra support.

Participants identified collaborative teaching ‘made work a lot easier’, and ‘enjoyable’. A sense of equality emerged in relation to the vision of collective chatting on a shared purpose.

**De-territorializing practicum: Implications for ITE**

Our analysis identified a number of re-territorializing (stabilising relations) and de-territorializing (destabilising relations and opening up to new possibilities) flows at work in ILEs to consider in practicum design going forward (outlined in Table 6).
We used these flows to consider how we could disrupt our re-territorializing practices and de-territorialize our practices in new ways.

To strengthen student teachers' capacity to decipher, translate and navigate ILE spaces from the outset of their practicum, we suggest the necessity to incorporate new heuristics in ITE programs such as philosophical imaginaries of ILEs (Couch, 2018), spatial typologies of ILEs (Imms et al., 2016), typologies for teaching collaboratively (Bradbeer, 2016), key learning progressions to support the rapid-pace decision-making of ILEs (Alterator & Deed, 2013), collaborative conversations, and
reflection frameworks to support student teachers to examine the degree of coherence between their expectations and the realities of their ILE experiences (Deed et al., 2014).

To promote coherent reflection, we propose a ‘toolkit of noticing’, (see Table 7) to integrate within our practicum preparation courses in order to more deliberately scaffold student teachers’ metacognitive awareness of key affects and features of ILEs and what these might mean for their own teaching. This toolkit is a framework of reflective questions to prompt ‘noticing’ on the part of student teachers so that in turn they might recognise practices and opportunities in their bespoke ILE environment and respond appropriately. In this respect the toolkit of noticing aligns with the work of Cowie (2000).

Table 7

**Toolkit of Noticing**

<table>
<thead>
<tr>
<th>Type of Affect</th>
<th>Aspect</th>
<th>Orienting Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discursive</td>
<td>Origin story</td>
<td>How has this ILE evolved? What is its story?</td>
</tr>
<tr>
<td></td>
<td>Philosophy</td>
<td>What are the key concepts that teachers talk about in this ILE? How do these link to theory and practice?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What does a typical day in this ILE look like? What are the strategies teachers use to manage the overall group of learners and groups within the hub?</td>
</tr>
<tr>
<td>Material</td>
<td>Spatial design features</td>
<td>How is the ILE organised? What type of ILE does it most resemble?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What are the particular physical features of the space(s)? How might these features influence how you can teach? How might these features influence how you can manage the class or groups within the class?</td>
</tr>
<tr>
<td>Social</td>
<td>Collaboration</td>
<td>How do the teachers plan together? What will you need to do to participate in this system?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How are the responsibilities shared in the space? And what does this mean for you?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How do the teachers teach together?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How do the teachers communicate together? What things do they share or focus on in their conversations? What does this mean for you?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What does assessment look like in this ILE? How is learning monitored and how does this contribute to assessment in the hub? How will you contribute meaningfully?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What will your ‘full management’ role involve in this ILE? What systems do you need to prepare yourself for?</td>
</tr>
</tbody>
</table>

The toolkit provides orienting questions that address the multi-faceted components and forces at work in an ILE practicum.
Concluding thoughts

As ILEs proliferate, ITE needs to attend to their implications for practicum and pre-service teacher education curriculum. At present we expect student teachers to operate successfully within an assessment framework that centres them, but in an ILE environment that decentres them by design, a tension difficult to navigate for all players. The toolkit of noticing attends explicitly to the embodied, material and discursive affects at work in an ILE practicum. This heuristic may contribute to de-territorializing long-established conventional practices in the ITE sector, ‘re-coding’ practicum, and ultimately enhancing student teachers’ capacity to act in the bespoke ‘innovative’ learning environments in which they increasingly find themselves expected to teach.

Our research remains small-scale and exploratory, limited to the perspective of preservice teachers. We are currently expanding our study to investigate the vantage points of associate teachers and teacher educators. We are also augmenting our narrative interview data with classroom observations of the material and discursive dynamics at play in an ILE practicum. This will enable a multi-faceted analysis of the social assemblage of an ILE practicum that we hope, will in turn, inform flexible and adaptive practicum design to enhance student teachers’ success.

References


Abstract

There is currently a lack of research in the field of inclusive education and innovative learning environments (ILEs) and specifically the problems of incorporating satellite buildings within the new builds. The paper highlights the need to engage with the complexities of teaching students with high, and very high, educational needs when designing ILEs and the provision of support for teachers with professional learning and development to work with these students in these settings. The research, located in Aotearoa New Zealand, focused on how the needs of children with disabilities could be addressed in ILEs. On the basis of our field work, we mobilise an argument that there are possibilities for teachers to embrace the ethos of the pedagogical shifts that are associated with inclusive education in ILEs. We investigate the spatiality of inclusion that supports seamlessness (movement of children across spaces).

Keywords
ILE | DISABILITY | INCLUSIVE EDUCATION

Introduction

With the Canterbury Earthquakes of 2010 and 2011, and issues with leaky buildings (Osborne, 2016), there has been investment in school buildings in Aotearoa, and an associated national policy impetus for all schools to address principles of flexible design with a view to enhance educational outcomes (see Te Kete Ipurangi, n.d.). There has been debate whether the design of these schooling spaces as Innovative Learning Environments (ILEs) result in pedagogic shifts and ultimately benefit student learning (Bradbeer et al., 2017). Moreover, there is a lack of research regarding how inclusive education can be addressed in ILEs (Page & Davis, 2016).

Inclusion in education commonly refers to a model where all students learn together in the same educational environment, regardless of their disability (Mitchell, 2016). In 2010, the Aotearoa Ministry of Education (MOE) developed a policy to promote the presence of students in every mainstream school, where “success for all” informs current MOE views of inclusive education where all learners are
welcome (Moran, 2014, p.8). This loose definition allows for the continued enrolment of a few students in segregated special schools. School enrolment data in 2014 showed that of the 1% of students with high needs, 33.5% were educated in special schools (Education Counts, 2019).

Special schools are geographically removed from regular school settings and are unique in their capacity to address the high needs of students who require specialist teaching. They incorporate individualised programming, personal care and specialised curriculum that may centre on mobility needs. Students enrolled in special schools are referred to in this article as students with high or very high needs, consistent with the criteria used in Aotearoa to access resourcing scheme (Ministry of Education, 2019a). While the MOE allow provisions for special schools to continue to exist, there is a stronger drive towards inclusive special education which involves satellite units. These are specialist classes that exist within mainstream or host settings (Ministry of Education, 2019b; Mitchell, 2016). Such units primarily meet the purpose of social inclusion needs with students remaining in a special school role.

Recent turns in Aotearoa education policy have seen the implementation of approximately $1.2 billion investment into the development of ILEs, where the government intends for all schools to redesign learning environments by 2030 (Ministry of Education, 2019c). This educational policy involves the redesign of educational space and brings together inclusive principles where inclusivity is promoted by removing potential barriers to participation (Osborne, 2016). It incorporates the view that “sensitivity to individual differences and learner variability must be a driver for decisions relating to pedagogy, practice, and design of flexible spaces” (Te Kete Ipurangi, n.d., para. 1). The changes in educational practices in Aotearoa, afforded by ILEs, provide possibilities to debate the relationship between inclusion and the provision of special education that has been a contested concept for some time (Selvaraj, 2015). While the MOE continues to establish ILE satellite units within mainstream settings, it is timely to interrogate the appropriateness of the intersection between the purpose and design of these satellite buildings within the new builds.

This article shares findings from research in Aotearoa that addresses the needs of children with disabilities in ILEs. On the basis of our field work, we mobilise an argument that there are possibilities for teachers to embrace the ethos of the pedagogical shifts that are associated with spatial pedagogy. Spatial pedagogy involves utilising the affordances of the spatial design and working with the fluidity of the continuous redesign of space and ongoing evaluation and reconsideration of how curriculum, pedagogy and assessment can be enacted (Blackmore et al., 2011). We signal the benefit of professional learning and development (PLD) for inclusive educators who may not recognise the spatial affordances that can support their students’ learning. We investigate the spatiality of inclusion that supports seamlessness (movement of children across spaces) and allude to the policy context of special schools and ILE. Consideration is given to the argument that “a flexible learning space will work well for everyone only if it is designed to do so” (Te Kete Ipurangi, n.d., para. 5). We signal the need for spatial designs that can accommodate ALL learners and their differences, with consideration given to the needs of high and very high needs learners.
Inclusion in ILE

The notion of inclusion in ILE is complex with features that are both conducive to an equity agenda and teachers continued implementation of traditional pedagogical practices in these spaces (Page & Davis, 2016). Structural and social aspects that support inclusion include rich technological resources, co-teaching practices involving multiple teachers who collaborate in responsive practice, the flexible use of support staff, and a physical layout that can support easy movement for students with physical disabilities (Page & Davis, 2016). However, as Benade (2019) points out, there can also be a difficulty with teachers reverting “to default practices” (p. 60). These practices may be ablest, in that the collegial potential to work together to support the provision of inclusive education may not be actualised when teachers re-wall open spaces. The teachers’ comfort may be prioritised over what could best benefit students with higher learning needs. This has also been observed with teachers within ILE special school settings (Davidson, 2015).

There can be the provision for a range of spaces that support inclusion in ILE, for instance, safe places for students on the autism spectrum, breakout spaces for teachers and students, a range of quiet spaces for students, and acoustic management (Benade, 2019). However, consideration should be given to those students with greater needs. We argue that because satellite units are able to be separate entities, ILE designs can serve to exclude some students. More could be done around inclusion in Aotearoa’s ILEs to design spaces that can better accommodate higher needs students. While tangible environmental factors are cited as evidence to support inclusion by the MOE (Te Kete Ipurangi, n.d.), they can, in fact, work against inclusion for all. Bright colours and lots of light, movement, and sound, may not support the individual needs of students with very high needs. Further, noise across levels can be an issue for all students, however, it may especially affect the personalised learning of students with disabilities (Tolmie, 2016).

Inclusive education and the policy context in Aotearoa

Aotearoa’s commitment to inclusive education remains problematic as it still grapples with what it is to be inclusive (Selvaraj, 2015). The MOE, for example, describe inclusion to mean that all learners are welcome in their local school and are supported in all aspects of their life (Ministry of Education, 2019d). This description allows for the broad interpretation of inclusive practice and it can be used to argue for separate special education provision via satellite units that are, by virtue of their location, exclusionary by design.

Flexibility in the interpretation of inclusion can result in differences in its application. ILEs appear to bring these different interpretations to the fore as the Ministry of Education profile inclusion as a cornerstone of them (Te Kete Ipurangi, n.d.). Haug’s (2017) Scandinavian model of inclusion distinguishes between the horizontal and vertical dimensions of the inclusion concept and can be used to explain why tensions can exist. The horizontal dimension refers to varied definitions of inclusion that range from a narrow framing of ‘special education’ which describes special school placement, through to a broad definition of inclusion that aims to meet social and academic needs for all with a view to create communities. Haug (2017) states that student placement is frequently an element in the definitions used. The MOE’s definition of inclusion, that all children are welcomed by their local school and are supported, incorporates both special schools and full inclusion in mainstream classrooms.
The vertical dimension of Haug’s (2017) model refers to the coherence or unity between the political and organisational levels of society and school. If a lack of consistency between these elements is apparent, then inclusion is weakened. If the aim is to be inclusive, then schools need to support the mandated policy in both teaching and structures. However, as highlighted above, the policy position of the MOE is at best vague, and so inclusive practices in schools may as a result, be weakened.

The Aotearoa Ministry of Education links new building designs with ILEs and inclusivity which is a step toward generating vertical alignment (Haug, 2017). The MOE’s aim is to remove the distinction between special and mainstream schools and provide an education for all students despite their level of disability (Hornby, 2014). The difficulty with this initiative is the possibility that schools have interpreted inclusive education in alternative ways.

One alternative interpretation of the MOE policy is adopted by advocates for the provision of special schools. These advocates argue that regular schooling can threaten the education of students with disabilities, with their interests becoming secondary to the needs of all students (Kreitz-Sandberg, 2015). Within this argument, it is considered that the learning of students with disability is a low priority (Haug, 2017). Moreover, given that MOE plans for new build is premised on designing ILEs for all students, there is ambiguity in how the ILE model fits with current special school practices.

The research

The researchers investigated the experiences of 15 teachers and 3 school leaders from a total of 6 schools. These practitioners have been involved in teaching students with disabilities in mainstream Aotearoa primary and secondary schools, as well as in ILE designed satellite units within ILE mainstream schools. Qualitative data was gathered from school staff through semi-structured interviews that explored various aspects of the participants’ experiences of inclusive education provision in ILEs. The findings of the study are presented to reflect the main themes we generated from the data which relate to participants’ perceptions of inclusive education in ILEs. The findings indicate a policy to practice gap, differences in perceptions between satellite units and mainstream staff, and the suggestion that there can be improved education opportunities for students with disabilities in ILEs.

Policy to practice gap

The teaching staff interviewed in the satellite units reportedly perceived that the MOE were idealistic in their utopian view of inclusion for all. Satellite staff participants, who supported the special school as a stand-alone institution, articulated a mismatch between MOE ILE policy and the reality of teaching students with very high needs. These staff described a necessity to match the features of an environment with the sensory requirements of students with very high needs. Satellite unit staff reported that students with very high needs required a specialised environment, whereas students with disabilities who were able to access mainstream settings did not require an environment that was dedicated to their sensory needs.

This policy to practice gap signals that attention should be given to the needs of students over the philosophical principles of flexibility and openness in ILE. The environment should be a bespoke design and developed for the students rather than requiring teachers and students to accommodate to the ILE conditions. Consideration could also be given to the nature of professional development
provision for inclusive educators in ILEs. It could be a focus for further research to consider how PLD can be implemented to promote inclusive educators’ pedagogical shifts that are associated with spatial practice in ILE contexts.

A further theme arising from the research was the clear differences in the perceptions of satellite staff and staff who were involved with educating students with disabilities in mainstream schools about the provisions for students with disability. Further research could tease out the nuances of providing for students with disability in these different contexts.

**Differences between satellite and mainstream staff**

The interview data signalled that students with very high learning needs in satellite units were considered to have different issues to those students with a similar disability who were mainstreamed. Satellite unit teaching staff were concerned that common ILE design characteristics were not favourable for teaching students with very high needs. There were environmental concerns with issues raised around sound, colour, light movement, ownership of spaces and distractibility. “We need walls” was a common refrain. There were also student safety concerns. The staff articulated the importance for students to have contained spaces for them to feel safe. The mainstream staff interviewed also recognised the value of environmental considerations, such as break out spaces, although they considered that their students’ needs were adequately met in ILEs.

The practitioners’ perceptions of the best place for learning for each child, according to their level of disability, contributed to the third theme which pertained to the impact of ILEs on students with disabilities.

**Improved education opportunities for students with disabilities in ILE**

The staff who taught students with disabilities in mainstream contexts reported that ILE spaces improved their learning. Levels of challenging behaviour also reduced, which further enhanced their students’ ability to engage productively in their learning. This positive behaviour change was suggested to be the result of student-directed learning which was individualised to meet the student’s learning abilities. It was also suggested by mainstream teaching staff that levels of inappropriate behaviour were noticeably reduced because they no longer saw themselves as oppositional authoritative figures but as facilitators in learning. They reported that their students responded positively to this change in power relations. Further, the flexibility associated with spatial pedagogy meant that students with disabilities could find spaces to meet their sensory needs independently or with assistance.

The staff interviewed from satellite units indicated that they supported their students to participate with peers on a social basis. Because of the perception that the satellite and mainstream environments were mismatched, the teaching staff articulated reluctance around the fluid use of space which was potentially afforded to practitioners and students through the building design. Although there was the promise of movement between the satellite units and mainstream buildings, these affordances were not used to their potential. Some staff, however, expressed a desire to be part of the mainstream school where they and their students could contribute to and participate in activities. Staff from satellite units attached to ILEs also reported that although they worked in ILE
spaces and many of their key teaching principles were aligned with ILE practices (e.g., student-centred learning, personalised learning), pedagogically they did not notice any difference from traditional practices.

Summary of findings

This article highlights how different practices of inclusion are in operation within ILEs in Aotearoa. On the basis of our research findings we suggest that school staff working in special schools and satellite units may perceive that there are mismatches in the material provision of a suitable learning environment for students with very high needs. The teaching staff interviewed in special school and satellite unit settings perceived that MOE were idealistic in their ILE vision for students who were enrolled in special schools.

Additionally, the results indicated that students with very high learning needs were considered to have very different issues to those students with a disability who were mainstreamed. These issues included a need for a separate geographical setting that was more aligned in design to that of a traditional single cell. It was considered that single-cell designs better met the sensory, safety and dignity requirements for students with complex disabilities.

In contrast, staff who taught students with disabilities in mainstream contexts, reported that ILE spaces were beneficial for learning and behaviour. The sensory needs of these students were regarded as very important in the consideration of managing learning and behaviour. The teachers interviewed identified that mainstream ILE spaces provided for their students’ different environmental requirements.

Conclusion

The existing dichotomy between special and mainstream education within inclusion has manifested in Aotearoa ILE contexts. This dichotomy reflects an orientation and emphasis on privileging student placement over giving consideration to the quality of teaching and learning processes for students with diverse teaching needs (Göransson & Nilholm, 2014). It is valuable to understand the complexities of teaching students with high and very high educational needs in relation to the design of ILEs. Both vertical and horizontal considerations need to align (Haug, 2017). We highlight two key considerations from this research. Firstly, consideration of inclusivity is warranted with attention to the complexity of creating appropriate educational spaces for supporting students with very high needs. Secondly, we point to the need for further research into professional learning and development for inclusive educators, with consideration given to how pedagogies developed in inclusive education settings may be developed as spatialised pedagogies in ILE. If teachers are to effectively teach students with high and very high needs in ILE settings, it is important to maximise the affordances of the spaces available.
References


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Teacher transitions - Agency, autonomy and accountability

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Abstract

This paper draws on research as part of a PhD project which is aiming to describe how the physical elements of a newly re-designed classroom may shape the classroom milieu. Classroom milieu can be characterised by things such as pedagogical practice, student and teacher identity, feelings of inclusivity or exclusivity and other aspects of the affective domain such as well-being, sense of agency and feelings of dominance or autonomy. This paper presents preliminary qualitative data, currently being collected and analysed, from photo-elicitation interviews conducted with primary teachers. Key emerging themes in relation to teacher transition from data collected, thus far, include: the significance of teacher agency in designing their physical learning environments, and identified tensions between individual student autonomy and the sense of accountability towards a learning community. This paper will specifically look at how early data collected is identifying contributing factors to successful teacher transition from traditional to contemporary learning environments.

Keywords
PHYSICAL LEARNING ENVIRONMENT | RELATIONSHIPS | PEDAGOGY

Introduction

This study is based on descriptions of the lived experiences of teachers in newly designed classrooms in an effort to better understand what makes a successful transition from traditional to more contemporary learning environments. This phenomenological research, which is utilising photo elicitation interviews to gather qualitative data, is in the early stages of investigation. The research question seeks to gain insight into what happens once teachers are in these spaces and how the environment impacts teacher-student relationships, pedagogy and teacher attitudes towards effective learning experiences.

Research Question: In what ways do the physical elements of a newly re-designed classroom shape the milieu of a classroom (pedagogical practice, sense of agency/power, wellbeing, positive/negative feelings, motivation/engagement) from teachers’ perspectives?

To establish the gap in the literature that these questions address, a brief review of the literature is provided below.
Literature review

**PHYSICAL LEARNING ENVIRONMENTS**

Although it is becoming the case for more work environments, design in education does not usually consider how an environment is perceived by an individual nor does it attend to the need to function cognitively or to maintain attention and motivation (Attaianese & Ducaas, 2012). As humans, we simultaneously experience and react to our environment and various qualities within an environment evoke unconscious meanings, feelings and judgements (Seamon, 2014). Seamon (1980) draws on the work of phenomenologists who refer to the unnoticed or unquestioned aspects of our everyday life as *natural attitude*. Within *natural attitude* we become so absorbed in our goals and purposes that we do not pay attention to the way the world is presented to us. A lot of everyday movement is habitual, something we do automatically. Seamon (1980) refers to *place ballet*, as “an environmental synergy in which human and material parts unintentionally foster a larger whole with its own special rhythm and character” (Seamon, 1980, p. 163).

Seamon (2014) describes space and people connectivity as an enmeshment – people shape space and space shapes people. Environmental aspects have the power to influence the way people interact and come together. As important as these relationships are, they are often taken for granted. The way teachers and students interact is an essential and significant factor in the educational experience (Giles et al., 2012). Giles et al. (2012) conceptualise relationships as a connectivity that is basic to our human nature. The way we shape our spaces can support or inhibit particular *place ballets*. Continuing to draw from architectural research, Deed and Lesko (2015) describe the architectural concept of *openness* as spaces that seek to challenge conventional constructs, established routines and practices.

Situating learning theory acknowledges that learning is embedded within particular contexts and activity (Yeoman & Wilson, 2019). Most research tends to focus on the social interactions and neglects to consider how the material structures frame those interactions. When there is human and object equivalence in ontological assumptions, epistemological beliefs about learning assumes a deep entanglement with the physical world (Yeoman & Wilson, 2019).

The material and built aspects of a learning environment participate in pedagogical practices as the material semiotics affect how people can behave and interact (van Merrienboer et al., 2017). Changing learning spaces from those designed for a past, which represented traditional views of education, supports and invites teachers to have the agency to explore new possibilities, not just in pedagogical practices, but also in student-teacher relationships which allow for different ways of engaging with learning and with each other (Deed & Lesko, 2015).

**CONTEMPORARY LEARNING ENVIRONMENTS**

In many places significant funding is being directed towards more contemporary learning environments (Byers et al., 2018). Contemporary learning spaces seek to support learner centred paradigms which attend to learning and well-being and consider individual student needs and preferences and at the same time, build their capacity to take responsibility and develop autonomy (Mäkelä et al., 2018). Contemporary or innovative learning environments are “characterised by polycentric room designs, infused information and communication technologies, flexibility brought about by moveable walls and other agile interior elements, a variety of ‘student friendly’ furniture, and ready access to resources” (Imms et al., 2016, p.6). The financial implications of getting the physical resources wrong are significant and how they are configured and reconfigured is just as
important (Yeoman & Wilson, 2019). There is little research on the impact of classroom design or an understanding of the skills or knowledge required by teachers to be successful in these spaces (Charteris & Smardon, 2018).

**TEACHER AGENCY**

There is emerging literature that links the successful engagement in contemporary learning spaces with teacher and student involvement in the design process (Blackmore et al., 2011). If teachers are not given the agency to experiment and take risks in new spaces then they often revert to the way they used to teach. This co-participatory approach was found to be significant in a number of research studies (Hall, 2017; Könings, & McKenney, 2017). A culture of maintaining the status quo in education is systemic; doing things differently requires changing the culture (Fullan, 2001). Fullan et al. (2014) describe a school culture that supports innovation as having leadership that gives direction, but then relinquishes control - valuing experimenting and risk-taking and then reignining back in to collaboratively assess impacts in an ongoing cycle. The authors describe an organic process in which leadership, teachers and students all learn together. Literature regarding teacher agency in designing and continually redesigning a learning environment is pertinent and this paper aims to add to the literature by identifying some key elements that support this as an ongoing process.

**STUDENT AUTONOMY AND ACCOUNTABILITY**

Viewing spaces as a vehicle for promoting the development of 21st century skills, positions the students as active, autonomous and self-directed in pursuit of their own educational goals (McPherson & Saltmarsh, 2017). When the task of education is viewed as a tool for economic production, the knowledge economy requires a “flexible knowledge worker who has made learning into its lifelong task” (Biesta, 2014, p. 8). When spaces are viewed through a more human or learning focussed lens, rather than with an economic agenda, there are affective considerations we need to bring to the fore (McPherson & Saltmarsh, 2017). This tension between economic and human needs is elaborated on by Biesta (2014) as the author argues for the goals of education to be less focused on one’s self and more on how we exist with others.

McPherson and Saltmarsh (2017) draw on ethnographic data collected in open plan classrooms in three NSW Catholic primary schools which identified that while there where many positive aspects, the active, collaborative, highly self-directed spaces also had the potential for some students to become lost or overwhelmed. There was a sense “that such environments are not suited to all students and certainly not all of the time” (McPherson & Saltmarsh, 2017, p. 835). A primary focus on developing student autonomy and responsibility for learning that attends to individual student needs and desires, based on economic drivers, needs to be balanced with the needs of humans as social beings. We should not overlook the need to also attend to the development of students who have a compassionate sense of learning community, who take responsibility, not just for themselves but also for others, and who thoughtfully consider how they exist with others and their environment.
Preliminary findings

At this point in the study, around 20 teachers from 6 different schools have been interviewed. The teachers range across primary year levels and varying years of experience. The schools also range in size, socio-economic backgrounds, the levels of money invested in re-design and the type of professional development support provided for involved teachers. The data collection process is approximately halfway through and it appears to be getting close to saturation level, as few new themes or insights are being revealed.

A co-participatory approach to design and a sense of agency by teachers to be able to continue to experiment, adapt and evolve the physical learning environment was a key factor in teachers transitioning. At first, they may engage with the physical environment in a static way. In order to move towards a more conscious and purposeful construct teachers need to feel they have the agency to adapt and manipulate their physical learning environment or they tended to revert back to traditional approaches. The diagram below (Figure 1) illustrates two possible pathways teachers described as part of data collected from interviews in this research project.

![Data Collection Pathways](image)

The teachers who were involved in making decisions about the refurbishing of their room were much more positive about their learning environments and more prepared to experiment and take risks.

TEACHERS NOT INVOLVED IN THE DESIGN PROCESS

“The same furniture was ordered for every classroom. It was like, here it is, you don’t have the other stuff anymore, so you can’t whinge, just do it.”

“It would have been nice to have even seen the catalogue. I felt like, ‘Don’t do this to me, do this with me’.”

TEACHERS INVOLVED IN THE DESIGN PROCESS

“I have embraced a lot of the aspects but also had difficulty with some. I keep going and trying to work to find solutions to those difficulties.”

“As time has gone on, I have become less concerned about whether something is going to work or not. I just take things out or adapt them if it isn’t working.”
**STATIC PHASE**

Other research that explores how teachers adapt and react to more contemporary learning spaces describe similar teacher experiences. At first, teachers simply try applying old routines and practices in the new space and are initially concerned with control mechanisms for behaviour and order (Deed & Lesko, 2015). In the presented model, the initial stage describes teachers’ interaction in the new space as *static*. They are hanging onto a desire to maintain control. Most were excited and open to the new space but also had some concerns and feelings of apprehension so they tended to take things very slowly, making small changes and not very often.

“At first, I was excited and I was a bit overwhelmed with how different it was”.

“I am enjoying it. Since I initially set it up I haven’t changed it much.”

“I wasn’t worried about working in the new space but I had questions about how the kids would know where to sit, will they be able to stay on task, how can they write neatly.”

“At the start of the year I got a plan from the architect on how to set up the space, so that is how I did it. I thought I had to.”

**EXPERIMENTAL PHASE**

The teachers who were able to make small changes over time, rather than being forced into a contemporary space suddenly, were more able to be responsive to the students’ needs and were clearly able to identify if something was ‘working’ or not. They worked with students to establish clear expectations around how to work in particular spaces and were beginning to release more control to the students, gradually allowing the students to take more ownership and to make their own decisions. This phase involved teachers experimenting and re-imagining space and practice.

“As time has gone on, I found out what the students liked and made changes accordingly.”

“I initially started with bigger groups. In response to noticing that the student interactions were not very effective I made them much smaller.”

“I am slowly bringing more things in as I see a use or a need for them. Last year, I had a room full of new furniture and I just had to make it work for the class, but it was tricky.”

“Initially it was set up on a rotational basis so each student got a go in the different spaces. Now the students get to make decisions about where they want to work.”
Teachers and students need to be co-participants in the design of their classroom and need time to adapt and evolve their space, constantly making small changes in response to observations and student feedback. How then, is this possible? Refurbishing classrooms requires significant financial investment for the long term. Teachers are constantly moving rooms, year levels and schools – it would be impractical to take their physical resources with them. Participants in this study also identified that different groups of students needed different types of learning spaces.

Implications and conclusion

The first emerging theme supportive of effective teacher transition is a sense of teacher agency in designing/redesigning the learning environment. This requires a co-participatory approach to design between designers, leaders, teachers and students. This process needs to be ongoing, not just in the initial design phase. To enable the ongoing and continuous redesigning and adapting of a learning environment, in response to student and pedagogical needs, elements need to be flexible, multi-purpose and designed for small spaces. This provides teachers with the flexibility they need to have the agency to continuously design and tailor their learning environment.

Another emerging theme revealed was an identified tension between teachers supporting student autonomy and ensuring student accountability. Teachers need the ability to gradually release responsibility to allow student autonomy, while constantly negotiating the balance of power between teacher and student, to promote accountability to student growth as an individual and as a member of the learning community.

Contemporary learning spaces provide teachers with a valuable resource that if used thoughtfully, can help to create the relationships required for pedagogy that supports the development of students who have the skills to be a “flexible knowledge worker who has made learning into its lifelong task” (Biesta, 2014, p. 8). However, for teachers to embrace this type of learning environment they need the agency to make decisions and the resources that have the flexibility, adaptability and agility to serve multiple purposes. If we believe, education is more than a tool for economic growth we also need to find the balance between freedom and autonomy and the needs of the individual as well as boundaries and expectations and the needs of the group and the environment.

References


We shape our buildings; Thereafter, they shape us

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Abstract

In 1943, Winston Churchill said, “we shape our buildings; thereafter, they shape us” (UK Parliament, n.d., para.1). Over the past several years, Christ Church Grammar School has undergone significant changes to the Preparatory learning environments and teaching pedagogy. The present research seeks to address the steps which are instrumental in this journey towards designing effective Innovative Learning Environments (ILEs) and ultimately shaping the way the all-boy student group learns best. Designing an ILE must start with the students as the core focus. Ethnography studies with students can be particularly beneficial in finding out how each student prefers to learn and what inspires each student to come to school every day. Inviting students to collaborate during the design process will enhance their educational experience, empowering them to make decisions about their own learning.

Keywords

ALL-BOY | INNOVATIVE LEARNING ENVIRONMENTS | 21ST CENTURY LEARNERS | ETHNOGRAPHY RESEARCH

Designing for the future

As teachers, we aspire to make learning engaging for our students, so they can reach their full potential. When developing their new Preparatory school, the staff at Christ Church Grammar School in Perth, Western Australia, wanted to ensure they were, “creating a safe and comfortable environment so the boys felt happy to take risks and embrace their learning” (Miller, 2016, p.1). Motivating boys to achieve their best is a strategic imperative for Christ Church. It is an area of strength the school is focused on constantly improving. To support this strategy, comprehensive research was undertaken into the motivational drivers in education and, in particular, what motivated Christ Church boys.

It was essential that when planning for the future, the design team considered innovative learning environments (ILEs) that were both all-boy friendly and catered for the needs of a 21st century learner.
Innovative learning environments

An ILE, within the context of this action research, is a space that is student centric, designed for learning, not just teaching. The area needs to encourage flexibility, in relation to teacher pedagogy and the accommodation of student needs. “An ILE enables students to acquire skills, including technological ones, and deep learning characteristics that will enable them to thrive in an increasingly complex world” (Mahat et al., 2018, p.20).

To successfully create an ILE, both teachers and students need to use the space for its intended purpose, “a design may be deemed ‘innovative’, but it only becomes an ILE once its inhabitants (teachers and students) teach and learn innovatively within them” (Mahat et al., 2018, p.8).

Learning environments for boys

Boys and girls develop differently. They are wired and, therefore, learn, differently. At Christ Church Grammar School, it is believed that a single-sex education engages boys in their individual learning styles and teaches them in a way they learn best; utilising their physicality and tapping into their energetic and competitive nature. By having only boys in the classroom, teachers can cater to the specific learning style of boys and their unique brains. Boys tend to prefer learning through experience; therefore, teachers can keep that at the forefront of their lesson planning (Christ Church Grammar School, 2019).

Prior research indicates that boys need a hands-on, active learning environment to stimulate self-motivated learning (Adams et al. 2019). Taking on an active role in their own learning, encourages students to engage and take responsibility for their learning and behaviour. As Viands (2018) indicated, “by having a say in their education, students not only take on the responsibility of their learning but have a more meaningful and lasting experience while doing it” (p.1).

21st Century learners

Currently, there is a point of recognition globally that there are a set of competencies that are increasingly important for students to possess in our connected and fast-moving societies, but which are not commonly assessed and monitored by school systems. Fostered in classrooms across the globe, 21st century skills, commonly referred to as the 4C’s of Education; Creativity & Innovation, Critical Thinking & Problem Solving, Communication and Collaboration (Anderson, 2017) are all vital skills that will allow today’s learners to successfully work in a world that is continuously changing.

Learning experiences for students’ needs should be meaningful and relevant to their own lives. This is pointed out by Scott (2017) that “strong discipline knowledge still matters, not so students can regurgitate facts, but because it is fundamental to deep understanding, strong thinking skills and the ability to learn” (p.1). When designing a new school, the design team needs to accommodate these 21st Century skills, creating an environment that encourages students to, “work collaboratively, as they gather information, solve problems, share and generate new ideas” (Beers, 2011, p.3).
**Ethnographic data**

During the design phase, a diverse range of students were immersed in a series of ethnography surveys, to ensure that their voices were heard, and their needs met in the new school. A strong emphasis was placed on student design and collaboration, to empower learners and promote a sense of ownership toward the new learning space. The aim of the survey was to establish what motivated the boys, find out what their aspirations were, and discover if they had any unspoken needs.

**Participants and setting**

The sample comprised of 21 children, ranging from Year 1 through to Year 6, from an Anglican, all-boys school in Perth, the capital city of Western Australia. The school has an Index of Community Socio-Educational Advantage (ICSEA) score of 1191 (Australian Curriculum, Assessment and Reporting Authority, 2018).

Students who were chosen had differing ages, cultural backgrounds, current academic levels, attitudes toward school, learning preferences, friendship groups and extrovert/introvert tendencies.

**Instrumentation**

The Innovation Unit of Australia has developed an Ethnographic Research Handbook, with the aim of discovering the common messages, challenges and opportunities that students face while they are at school (Innovation Unit Australia, n.d.). This handbook is comprised of a series of ethnography methods that were used to question students regarding a range of personal factors. Examples of questions include:

- What do you dream of for the future?
- What do you like to do on weekends?
- Think about a time when you had the biggest learning experience of your life (followed up with who, what, when, where, why questions)
- What helps you to study?
- What does it mean to be good at school?
- What does a classroom of the future look like?
- What would the classroom look like if you were the teacher?

The interview method chosen allowed the interviewer to collect purely objective data, with no assumptions projected onto the child.

**Procedure**

A set of seven staff members involved in the schools Innovative Learning Environments team were given the Ethnographic Research Handbook, which included a set of written instructions, to ensure standardisation across each interview. The students chosen were informed about the purpose of the research and reassured that their responses would remain anonymous. They were given the option to withdraw if they desired; however, none did so. The interviews were conducted over a week, with the average time of each interview lasting approximately 30 minutes.

Staff were advised to listen rather than interject throughout the interview process and to assist each student to feel comfortable to share (Innovation Unit Australia, n.d.).
Results

Once the interviews were completed, all results were grouped into the main themes that were prevalent (see Table 1). Staff presented their interview notes to one another and as each person spoke, the remainder of the group noted down main themes from each interview. These notes were grouped accordingly and became the main themes generated from the interviews.

Table 1

Main Themes Gathered from Interviews and Response Examples

<table>
<thead>
<tr>
<th>Main Themes Generated from Interviews</th>
<th>Examples from study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music</td>
<td>“Music helps me to concentrate.”</td>
</tr>
<tr>
<td>Thirst for Knowledge/Desire for More</td>
<td>“When interested will extend self with own research.”</td>
</tr>
<tr>
<td>Play/Creativity/Making</td>
<td>“We learn best when playing with our friends.”</td>
</tr>
<tr>
<td>Social</td>
<td>“I like being with people who have had similar experiences to me.”</td>
</tr>
<tr>
<td>Screen Time/Technology</td>
<td>“I know I shouldn’t but I play games on the computer whenever I can.”</td>
</tr>
<tr>
<td>Parental Expectations</td>
<td>“My parents are the proudest when I try my best.”</td>
</tr>
<tr>
<td>Values</td>
<td>“I think being kind is important.”</td>
</tr>
<tr>
<td>Quiet Learning Time</td>
<td>“I like to learn in a quiet space.”</td>
</tr>
<tr>
<td>Relationships with Others</td>
<td>“Behaviour is important. You must be good and listen to the teacher.”</td>
</tr>
<tr>
<td>Learning ‘outside’ of the classroom</td>
<td>“Real life experiences help me to learn (at home and at school).”</td>
</tr>
</tbody>
</table>

Note: Data for main themes collected from ethnographic research at Christ Church Grammar School (2018).

Discussion

After analysing the results from the study, each staff member chose a particular theme to focus on and prototype in their own classroom. They used the themes to write ‘how might we’ questions (see Table 2) to focus their case studies on.

Each member of staff created a project to trial (see Table 3) in their classroom for five weeks. Prototyping was an approach chosen to develop and test ideas at the early stage to learn how students might interact with them, in a low risk environment and before large amounts of resources were committed to the project.
Table 2

‘How Might We’ Questions Based on the Common Themes from Student Interviews

<table>
<thead>
<tr>
<th>Enquiry question</th>
<th>How might we questions</th>
<th>Key words</th>
</tr>
</thead>
<tbody>
<tr>
<td>How might the learning environment improve student outcomes?</td>
<td>How might we broaden the learning outcomes that are valued and assessed?</td>
<td>expand, widespread, creativity, peer to peer, problem solving, design thinking, social and emotional skills, leadership</td>
</tr>
<tr>
<td>How might we understand what it is in learning spaces that deepens student learning?</td>
<td>How might we understand what it is in learning spaces that deepens student learning?</td>
<td>C21 skills, experiences, across subjects, disciplines, relevant</td>
</tr>
<tr>
<td>How might we think about space and time more creatively?</td>
<td>How might we think about space and time more creatively?</td>
<td>beyond school walls, flexible, changing, timetable, less interruptions, breaks, food, mix of long and short blocks</td>
</tr>
<tr>
<td>How might we use different furniture and different arrangements of furniture to deepen engagement?</td>
<td>How might we use different furniture and different arrangements of furniture to deepen engagement?</td>
<td>flexible, multi-purpose, collaborative, spaces.</td>
</tr>
</tbody>
</table>

Table 3

Examples of Staff Projects in Relation to the ‘How Might We’ Questions

<table>
<thead>
<tr>
<th>How Might We Questions</th>
<th>Prototypes Developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>How might we understand what it is in learning spaces that deepens student learning?</td>
<td>Create spaces where both types of learners (loud and quiet) could co-exist</td>
</tr>
<tr>
<td>How might we think about space and time more creatively?</td>
<td>To minimise time spent providing lesson instructions and reiteration of instructions by communicating these through the student iPads and the school webpage.</td>
</tr>
<tr>
<td></td>
<td>To give students autonomy over where and how they learn in Mathematics.</td>
</tr>
<tr>
<td></td>
<td>Learning does not necessarily have to take place within the four walls of a classroom.</td>
</tr>
<tr>
<td>How might we understand what it is in learning spaces that deepens student learning?</td>
<td>How learning centres could be adapted to encourage floor book access.</td>
</tr>
<tr>
<td>How might we use different furniture and different arrangements of furniture to deepen student engagement?</td>
<td>Learning does not necessarily have to take place within the four walls of a classroom.</td>
</tr>
</tbody>
</table>

Note. Research questions generated from student interview answers (2018).
Once the prototypes had been tested within the seven classrooms, students from each class were sent a Macquarie Marketing Group (MMG) survey (MMG Education, 2019) asking each child to reflect on their learning preferences through 20 questions (see Table 4).

Table 4

<table>
<thead>
<tr>
<th>Question</th>
<th>Average Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>What I learn in school is relevant to my life</td>
<td>Agree (49.63%)</td>
</tr>
<tr>
<td>I talk to other people about what I am learning at school (e.g. family members)</td>
<td>Agree (45.02%)</td>
</tr>
<tr>
<td>I feel I am being well prepared for life after school</td>
<td>Agree (43.17%)</td>
</tr>
<tr>
<td>School is helping me become the person I want to be</td>
<td>Strongly Agree (36.90%)</td>
</tr>
<tr>
<td>I feel pleased with myself when I do well at school by trying hard</td>
<td>Strongly Agree (66.79%)</td>
</tr>
<tr>
<td>I carry on learning when I am not at school</td>
<td>Agree (46.13%)</td>
</tr>
<tr>
<td>I like being at school</td>
<td>Agree (40.59%)</td>
</tr>
<tr>
<td>At the end of the day, I can remember what we learn about in school that day</td>
<td>Agree (50%)</td>
</tr>
<tr>
<td>I learn more outside school than at school</td>
<td>Disagree (39.11%)</td>
</tr>
<tr>
<td>At school, I try hard to do my best work</td>
<td>Strongly Agree (59.04%)</td>
</tr>
<tr>
<td>The way my classroom is set up helps me learn</td>
<td>Agree (39.48%)</td>
</tr>
<tr>
<td>I have enough time in class to do my best work</td>
<td>Agree (44.44%)</td>
</tr>
<tr>
<td>I do lots of hands-on activities at school</td>
<td>Agree (42.59%)</td>
</tr>
<tr>
<td>I am interested in what I am learning at school</td>
<td>Agree (48.89%)</td>
</tr>
<tr>
<td>For my school work, I sometimes learn from people outside school (e.g. member of the community)</td>
<td>Agree (52.40%)</td>
</tr>
<tr>
<td>My teacher tries new strategies to help us learn</td>
<td>Strongly Agree (49.82%)</td>
</tr>
<tr>
<td>I do as little work as possible at school; I just want to get by</td>
<td>Strongly Disagree (37.41%)</td>
</tr>
<tr>
<td>I don’t really care about school anymore</td>
<td>Strongly Disagree (61.99%)</td>
</tr>
<tr>
<td>At school, I spend a lot of time pretending to pay attention</td>
<td>Strongly Disagree (46.30%)</td>
</tr>
<tr>
<td>I am usually bored at school</td>
<td>Disagree (39.48%)</td>
</tr>
</tbody>
</table>

Note. Data from the MMG Survey results at Christ Church Grammar School (2018).

The feedback indicated that students were responding positively to the prototypes and changes that had been put in place. There were elements from different prototypes that needed adjusting, however, staff members were encouraged to go outside of their comfort zones and value the opportunity, not being discouraged by the fear of failure. Prototyping was an iterative learning process that helped the staff to, “fail faster to succeed sooner” (Kelley, 2013, para. 5).

At the conclusion of the trial period, staff presented their findings to all of the preparatory staff, where they reflected on the changes made to the learning environments and to their own pedagogy. It was noted that students had responded well to the benefits of an active classroom, with 42.59% of
students commenting, “I do lots of hands-on activities at school” and “the way my classroom is set up helps me learn” (Table 4). As mentioned previously, boys benefit from an active classroom with studies showing that boys need hands on learning environments as this type of setting, “stimulates self-motivated learning within a flexible yet disciplined atmosphere” (Viands, 2018, p.1). In regards to whether or not students’ 21st century skills were being catered for in the ILEs, the results (see questions 1, 3 and 14 in Table 4) indicate that a large percentage of the group surveyed felt that when learning at school, the themes were relevant to their lives, they were being well prepared for life after school and they were interested in what was happening whilst at school.

Conclusion

To ensure the staff worked as one to implement innovative pedagogy and learning environments throughout the new preparatory school, a set of guiding principles was established. Staff were able to brainstorm and collectively use the information to establish the principles (see Table 5) that would be the foundation for the ILEs for years to come.
<table>
<thead>
<tr>
<th>Guiding Principles</th>
<th>Practices</th>
<th>PL Opportunities</th>
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| Empower boys to have collective ownership of and look after their learning spaces. | Students to clean desktops at the end of the day. Create a roster of hallway clean-up.  
Decide on furniture layout based on learning and lesson intentions.  
Provide students with choice on where they work.  
Put up student work and involve students in decisions about what work is displayed.  
Give boys agency to construct a flexible learning environment to suit their individual needs.  
Involve boys in classroom design.  
Assign roles to boys to look after the space. | Teachers talking to peers about the strategies they use to build a sense of ownership. |
| Intentionally set your environment for purposeful student-centred learning.       | Have flexible seating arrangements.  
Be flexible with how furniture is used.                                                                 | What student-centred learning strategies would teachers want to hear about? |
| Use learning spaces as a third teacher.                                           | Organise the learning space in a way that is appropriate to the learning intentions.  
Put up posters that reinforce learning and change these regularly. |                                                                                   |
| Create a warm, inviting classroom that reflects your collective personalities and tastes whilst also maintaining an uncluttered view. | Keep access to natural light unobstructed.  
Keep at least 20 per cent of your wall space clear and leave ample space between displays. |                                                                                   |
| Have high expectations of classroom spaces and external communal spaces.          | Articulate explicit rules and expectations to boys.  
Establish and reinforce routines for setting up, organising and clearing spaces after use.  
Work to be displayed on frosted glass and wires.  
Display space is not to be used as storage, but rather inward and outward display of student work and projects.  
No stickers on lockers. | Note: Centre for Pedagogy, Christ Church Preparatory School Guiding Principles (2018). |
References


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Qusai Anteet is currently a PhD candidate at the University of Melbourne, having worked mainly in academia since 2012. His research investigates physical learning environments as part of broader socio-cultural and decision-making contexts. Qusai has taught architectural design subjects at two universities in the middle east. His professional experience includes participation in designing several multi-scale projects in Saudi Arabia. He participated in multiple conferences and workshops between Riyadh and Melbourne. Qusai is interested in gaining more experience in the field of environmental psychology, especially in learning environments. He holds a Bachelor of Architecture and Building Science and a Master of Architecture.

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Joanne Blannin is a Senior Lecturer and Digital Learning Leader at Graduate School of Education (MGSE) at the University of Melbourne. She has taught in four countries and developed an in-depth understanding of learning and teaching. Her many education roles include outdoor education curriculum director, language tutor, bilingual teacher, curriculum leader, leading teacher, teacher trainer, Victorian Department of Education project officer, lecturer, and leadership coach. Having taught in the private and public sectors, Joanne now researchers internationally on digital technologies and digital pedagogies. Her research foci include teachers’ uses of technology, teachers’ technological/pedagogical skills, and technology’s impact on student learning.

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John Dale is an architect focused on educational environments. By defining small learning communities to boost student achievement and encourage collaboration, he fosters high performance learning environments. Building on evidence-based research, he believes that students are healthier and more effective learners in sustainable, resilient environments. John is Principal and Pre-K12 Studio Leader at HED Architects and Engineers. As 2016 Chair of the AIA’s Committee on Architecture for Education and Co-Founder of the Council on Open Building, he has promoted research and design for changing pedagogies. He is also a Board Member and Past-President of the Architecture and Design Museum, Los Angeles.

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Leigh Johnson is a teacher educator at the Eastern Institute of Technology, Taradale, New Zealand. She is a passionate advocate for e-learning in the implementation of learning and teaching from primary years through to tertiary. She has extensive experience with the implementation of e-learning in the primary sector as a classroom teacher, a School Advisor in e-learning and as a Facilitator for Ministry of Education contracts. Her research interests include technology-infused teaching and learning within literacy and the implications of innovative learning environments for preservice education.

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Marian Mahat is a Senior Research Fellow at the University of Melbourne and the Research Manager of an Australian Research Council Linkage project on innovative learning environments and teacher change. Marian has over twenty years of professional and academic experience, spanning several Australian universities, the Australian Federal and local governments, as well as the private sector. Highly proficient in both quantitative and qualitative research methods, she has worked on collaborative projects, written numerous publications and presented in conferences in education. Her research focus is in student learning and outcomes in different learning and teaching contexts.

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Kym Thomas has been in primary education for almost 20 years and is currently a Year 5 teacher in south-east Queensland. She is a PhD student at the University of the Sunshine Coast where she is also a sessional staff member working in the School of Education with undergraduate and post-graduate pre-service teachers. She has a passion for driving innovation in education and a deep interest in contemporary learning environments. Her current area of research is exploring the physical learning space and its impact on the teachers and students within it. This includes the design, furniture and technology and the interrelatedness with relationships and pedagogical practices that are learning rather than performance focused.
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Carly Thornton is a Primary School Educator, currently teaching in Year 4 at Guildford Grammar School in Perth, Western Australia. She has previously worked at Christ Church Grammar School, where she worked alongside a committed Innovative Learning Environments team to help establish the guiding principles for a new preparatory school building, establishing purposeful, student-centred learning environments for all students.

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