

Innovative Learning Environments Research Study



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Contents

Executive Summary.....	2
Chapter 1: Background	6
Chapter 2: Conceptual Framework of the Study	10
Chapter 3: Methodology.....	18
Chapter 4: Synopses of Case Studies	21
Chapter 5: Analysis Across the Case Studies.....	28
Chapter 6: Implications for Professional Learning and Leadership	41
Chapter 7: Conclusion.....	48

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“One of the lessons that children learn from a very young age is that space is both enabling and constraining” (Morgan 2000, p. 281)

Executive Summary

A growing body of educational research has indicated that we have reached the limits of educational reform with current strategies (Dumont and Istance 2010; Allegre and Ferrer 2010; Fullan 2005). Learning theory now focuses on the significance of the relational. The connections between learning and positive social interactions with learners and teachers (Hattie 2003; Aten Lee 2003, 2006), requires a broader conceptualisation of the notion of ‘learning environment’. This is constituted by multiple interlocking ‘environments’ through which innovative practices and learning outcomes are conceptualised. These environments are not to be viewed as layers, but rather together form an analytical lens for the exploration of the ways student and teacher identities and knowledge are constituted within specific sites. To understand an Innovative Learning Environment (ILE) we need to take into account how ‘pedagogical practices are linked to broader societal and policy changes’ (Alexander 2000; Lingard 2007, p.248). A de-territorialisation of schooling is occurring (Thomson and Blackmore 2006); schools are sites of intersecting networks of relations, technologies and practices in which space-time relations are constantly remade.

The DEECD authorised *The Connections Between Learning Spaces and Learning Outcomes: A Literature Review* (Blackmore et al 2010) concluded that while the investment in building new spaces had been premised upon sound architectural and educational principles, there was little empirical evidence that indicated how built learning environments connected to improved student learning, how these spaces were used by teachers, students and communities pedagogically, and with what effect for different student social groups.

The *Innovative Learning Environments Research Study* takes the position that focusing on the social practices of teaching and learning and the use of learning spaces and technologies is the next step in research on Innovative Learning Environments (ILEs).

The key question for this study is:

- To what extent do innovative learning environments contribute to improved cognitive, affective and social learning outcomes for students?

The sub-questions are:

- To what extent do innovative learning environments contribute to changes in behaviour and pedagogical practices?
- How are teachers, students and the community using innovative learning environments, particularly new learning spaces?
- How have schools prepared for the transition to new learning spaces or other innovative learning environments?
- To what extent have schools consolidated and evaluated the effectiveness of new learning and teaching practices in innovative learning environments?

Commencing in August 2010 twelve Victorian schools, self-identified as indicating the characteristics of ILEs, have been the sites for in depth case studies in this project. A key aspect of the data collection and analysis has been a focus on how organisation of learning in an ILE is mediated spatially and temporally with particular regard to the use of a range of technologies. The process has been premised on the co-production of knowledge with the stakeholders in schools as part of a generative research design. Data collection included:

- Curriculum and policy documents
- Interviews with leaders and facilitators
- Interviews and focus groups with learners
- Interviews with other stakeholders
- The direct observation of teaching, learning and resources
- Principal tours
- Field notes

A particular methodological strength of the study has been the use of visual data collection, generation and analysis. This has included a wide range of visual methods:

- Student maps and cartographic annotations
- Student photographs
- Google and Near Maps
- Design blueprints
- Visual symbols and spatial organisation
- Structural semiotic symbolism
- Researcher photographs

The research group consisted of a large multidisciplinary team of seven researchers and four research assistants from Deakin University School of Education. They recognised that the complexity of accessing the various representations of ILEs requires the use of custom designed qualitative approaches. The research design addressed the interplay of curriculum and pedagogical initiatives within re/designed learning spaces.

Findings from the study indicate that in all of these case studies, regardless of the lead time, there has been careful planning and preparation in both constituting the ILE and sustaining the innovation. In the case of purpose built environments, there were opportunities for experimentation and exploration regarding the use of flexible spaces. Community ownership of the planning and transition stages of the ILE is shown to be a catalyst for sustainable innovation. Designing built environments provides opportunities for teachers and leaders to create new partnerships and imagine new pedagogical possibilities. It is evident that there is a necessary change in *Spatial, Temporal, Cultural, Structural, Communicative, Social and Semiotic practices* (Thomson and Blackmore 2006) by school communities as they mobilise the discourses of reform through the re/design of learning environments.

The study identifies effective steps in the preparation for, and the transition to, new learning spaces. It also provides a detailed and insightful mapping of how teachers and students are currently using Innovative Learning Environments, identifying a recurring pattern of significant engagement with collaborative and flexible teaching. Professional learning and leadership are also identified as core attributes of successful development. The study highlights the need to create internal stability and professional peer accountability (Elmore 2003) within schools through professional support and development.

The study provides a rigorous, evidenced-based, multilayered analysis of twelve Innovative Learning Environments from across urban and regional Victoria. The research design has proved capable of addressing the complexity of the curriculum and pedagogical initiatives and of yielding robust findings. There are considerable challenges in discerning the various influences of differing pedagogical initiatives in a time of curriculum innovation. The ground work on interpretations of the pedagogical promises of ILEs combined with specific purpose designed data processes from this study increases the confidence stakeholders can have in similar future research. The findings from the study indicate the following future research questions:

1. What pedagogical relationships are possible in ILEs (between and amongst students, teachers and the community)?
2. How do teachers theorise and construct knowledge for pedagogical practice in these ILEs?
3. How can the benefits of ILEs be communicated to school communities and the community at large?
4. How can systemic support be shaped and provided to sustain and scale up ILE initiatives?

The report is organised into six sections. Chapter 1: **Background** describes the context for attention to Innovative Learning Environments (ILEs) with particular regard to Victoria. Chapter 2: **Conceptual Framework of the Study** considers the problematic nature of innovation and introduces the analytic lenses of 'neighbourhood', 'policy', 'built', 'virtual' and 'institutional' environments'. Chapter 3: **Methodology** positions the research approach of this study and details the research methods with particular attention to the use of visual methods. Chapter 4: **Synopses of Case Studies** provides brief introductions to the twelve complete case studies which are included in full as Appendices. Chapter 5: **Analysis across the Case Studies** is structured through four sections: aims of ILE, nature and history of innovation; structured patterns and characteristics of ILE; nature and quality of learning; and impact and effectiveness of ILE. Chapter 6: **Implications for Professional Learning and Leadership** addresses these two critical elements in detail with final attention to scaling up. Chapter 7: **Conclusions** provides a return to the research questions and identification of future research directions.

Detailed Case studies are included as Appendices. An Interactive Portal will be available in February 2011.

Contents page

Innovative Learning Environments

Executive summary

- Background
- Methodology
- Case studies:
 - aims of ILE, nature and history of innovation: holistic picture of organisation
 - structured patterns and characteristics of ILE: layout, sequencing and mix of learning activities
 - nature and quality of learning
 - impact and effectiveness of ILE
- Analysis
- Implications for professional learning
- Conclusion

Chapter 1: Background

Policymakers and practitioners now agree that teaching and learning, and therefore the organisation of schooling, needs to be redesigned in order to address the needs of learners and societies for the 21st century (Darling-Hammond 2008). Various reports (OECD 2003, 2004, 2006) and policy statements (e.g. Melbourne Declaration on the Educational Goals for Young Australians 2008) are a response to significant shifts in the relationship between education, societies and economies during the late 20th century including the:

- shift from industrialised to knowledge based economies and changing nature of a globalised workforce;
- collapse of vocational-liberal education divide with focus on generic employability capacities and multi-literacies;
- focus on the formation of citizen-worker identities that are flexible and adaptable for a rapidly changing global society;
- recognition of diversity amongst learners requiring personalisation of learning over the life course; and
- realisation of the networking capacity in digital economies and social media sites provided by connectivity between information and communication technologies.

A growing body of educational research has indicated that we have reached the limits of educational reform with current strategies (Dumont et al 2010; Allegre, A. and Ferrer, G. 2010; Fullan 1999). Learning theory now recognises that learners construct and interpret knowledge and are not merely passive receivers of knowledge. Mental, physical and emotional capacities are not fixed at birth, but change through interaction with environment. Learning is also situated (Vygotsky 1978). Individuals learn in different ways through multiple modalities and complex communication practices involving multi-literacies (New London Group 1996). Learners as sense makers are co-producers of knowledge who bring 'funds of knowledge' with them into school (Moll et.al. 1992; de Cortez 2010, p. 23). Focus has shifted onto the learner, but also, learning environments—virtual and real. This is in recognition of the specificity and ways in which individuals and groups engage with learning both formally and informally, as well as in and out of school.

This leads to consideration of how the conditions and relationships of learning impact on whether and how individuals engage with particular types of curriculum and pedagogical and assessment approaches. Learning theory now focuses on the significance of the relational and the connections between learning and positive social interactions with learners and teachers (Hattie 2003; Alton-Lee 2003, 2006), as well as the social mix of groups, classrooms and indeed schools (Thrupp 1999). Emotions and a sense of self-efficacy are now seen to have significant interrelationship with motivation and ongoing effects on learning. This means that both teachers and students have to be committed to learning together, thus limiting the extent to which curriculum and assessment policies can prescribe how they are to be enacted.

Emotional management is critical to understanding and leading organisational change and informs the quality of the social interactions between teachers and learners (Hargreaves 2000b; Leithwood and Beatty 2008; Blackmore 2004, 2010). Silins and Mulford (2010) show in a longitudinal quantitative Australian study that three factors impacting most on a school's success in terms of student outcomes are academic achievement, social development and student empowerment. Equally, one could argue that these are desirable attributes of a reflexive self-motivated learner.

Interactions between the 'social' and 'environmental' are key issues in both education and workforce with the recent focus on teamwork, communication and interpersonal relations. A renewed focus on the micro as well as the macro settings of learning (Dumont and Istance 2010) has brought into the mix issues around the spatial and temporal organisation of learning, and how schools and teachers structure and enact the processes and practices of teaching and learning. Such developments require constructive engagement with a range of disciplinary knowledge bases (e.g. brain science, health and wellbeing, architecture, socio-psychology and organisational change) to inform understandings of learning to create curriculum and pedagogical strategies best suited for diverse student populations (Adams and Pajian 2004).

Within this context, the focus of this report is the extent to which innovative learning environments contribute to improved cognitive, affective and social learning outcomes for students. Sub-questions arising from consideration of the *organisation of learning*, considered in this report, are:-

- To what extent do innovative learning environments contribute to changes in behaviour and pedagogical practices?
- How have schools prepared for the transition to new learning spaces or other innovative learning environments?
- How are teachers, students and the community using innovative learning environments, particularly new learning spaces?
- To what extent have schools consolidated and evaluated the effectiveness of new learning and teaching practices in innovative learning environments?

Victorian case studies

The twelve schools for which case studies have been developed for this report are all located in Victoria, the second most populous state in Australia. Each state has responsibility for government schooling comprising of approximately 70% of all students. The Council of Australian Education Ministers in the *Melbourne National Declaration on the Goals for Young Australians* (2008) set two goals: that schooling promotes equity and excellence; and that all Australians become successful learners, confident and creative individuals, active and informed citizens. The Victorian government system has 1555 schools over a geographic region equivalent to the UK. Currently, school curriculum and assessment is undertaken through the State authority, the Victorian Curriculum and Assessment Authority. The VCAA offers curriculum for Prep to Year 12 for all schools based on the Victorian Essential Learning Standards (VELS) for P-10 and three certificates for post-compulsory Years 10-12. The three exit certificates are the *Victorian Certificate of Education* (VCE) that leads to university, the *Victorian Certificate of Applied Learning* (VCAL) which provides a focus on making students highly relevant to gaining experiential learning in subjects such as Equine and Hospitality Studies; and *Vocational Education and Training* (VET) modules that provide basic trade training and are provided by schools in partnership with Technical and Further Education (TAFE) as well as private providers. Students can include VCAL and VET units into their VCE to graduate at Year 12, as all certificates are articulated through the Australian Qualifications Framework.

In 2003 the Victorian government developed a State-wide reform agenda. This was in response to the effects of 1990s reforms that had devolved responsibility (and risk) to individual self-managing schools while retaining resources and policy decisions at the centre with strong accountability frameworks. These reforms discouraged government schools from thinking of themselves as a system and many students were 'slipping through the cracks'. The Blueprint for Victorian Schools in 2003 outlined a number of Flagship Strategies:

- Focus on student learning
- Developing a new Resource Allocation Model
- Building leadership capacity
- Creating and supporting a performance and development culture
- Teacher professional development

VELS is the curriculum framework that emerged from these strategies, in association with new reporting and assessment approaches and a statement of the principles of teaching and learning (POLT). Australian teachers have historically been skilled at adapting to curriculum frameworks that identify key learning outcomes that can be achieved through a range of pedagogical approaches and content (Hayes et al 2006). VELS provides a set of rubrics and strategies that enable teachers to work through their students' progress. Progression points in VELS, for example, illustrate how a student might show evidence of progression and assist teachers in assessing student progress in relation to the Standard when they are used in conjunction with assessment maps. VELS can be modified by teachers so that the examples reflect the curriculum structure and timing of when content and skills are taught and assessed. Progression points are not a syllabus, nor are they mandated or comprehensive across all assessment.

The focus on leadership was also supported through a range of research driven action-learning programs focusing on renewal for current principals and aspirant principals, and developing teacher leadership through developing professional networks between schools that could support system wide reform. The Blueprint in 2003, as does the 2008 National Declaration, recognised three issues confronting the government sector:

- A high concentration of poor learning outcomes in some areas;
- Great variation between achievement in different classrooms in the same school; and
- Variation in outcomes between schools with similar student populations.

Australia, while listed in the top ten countries in PISA in 2010, is also classed as high quality and low equity because of a long tail of underachievement. Three priority areas in the Victorian government system in 2004 were to recognise and respond to diverse student needs; to build the skills of the education workforce to enhance the teaching-learning relationship; and to continuously improve schools. The last priority saw the development of a staged school improvement approach, with softer self-evaluation approaches for high performing schools, and closer scrutiny together with support for principals through a principal mentor scheme for low performing schools.

The Leading Schools Fund (Flagship strategy 7 of the Victorian Blueprint) encouraged schools to apply for funding to develop innovative programs. The intention of such programs was to improve student learning outcomes, change teacher practices, develop connections between pedagogy and space, encourage flexibility of teachers' working relations, professional learning and innovation, and facilitate cooperation and collaboration between schools. This was within a school effectiveness strategy linked to a leadership development framework. Any funded programs were encouraged to 'think beyond traditional practices and structures'. This trend to redesign schooling has been further encouraged through the *Building Futures* program initiated in Victoria in 2004 requiring schools to provide an educational rationale, other than enrolments, for any new buildings. School communities were given significant scope to innovate and design these buildings together with architects. This investment in infrastructure was accelerated and expanded with the Building the Education Revolution funded by the Federal Government in 2008 as part of a stimulus package to address the global financial crisis.

One aspect of the significant investment in school infrastructure by the State and more recently Federal governments has been to attract more students back to the public sector. But the

location of a school relative to other public and private schools, as well as rurality, is critical in terms of a school's capacity to attract and retain students and teachers. Consequently, there has been considerable restructuring of school organisation and provision over the past 20 years with various models emerging: P-12; junior and senior campuses; multi-campus schools with executive principals; and specialist schools (in science, physical education, music). In 2008, with the integration of Early Childhood into the Department of Education, the *Blueprint for Education and Early Childhood Development* set a five-year program from birth to adulthood with a focus on system improvement, partnerships with parents and communities, and workforce reform. The focus has thus moved onto transitions into school, between primary and secondary schooling, and from post-compulsory schooling into university, training or employment.

Since 2003, schools have also been encouraged to work more in clusters with other schools (e.g. middle year transition programs) and create networks for professional development. Partnerships with universities encourage professional renewal through teacher practitioner research as well as facilitate new configurations of teacher education. The Australian Qualifications Framework seeks greater seamlessness between all sectors and pathways for students across their life course. Schools have been central to a number of Neighbourhood Renewal Programs and community capacity building within the State, particularly in areas identified as having concentrations of poor health and wellbeing, high unemployment and low educational achievement in terms of retention rates to Year 12.

Victorian schools are funded with a global budget based on enrolments and then with additional funds according to the student profile. This has led to competition between schools for students as parents can choose to take their children to another government or non-government school. Australia has compared to other Anglophone nation states a lower completion rate at Year 12 (Victoria achieving the highest rate). The focus is increasingly on developing multiple pathways from school into further education and training as, for example, promoted through a federal program *Mapping Individual Pathways*. In Victoria, students are tracked in their first two years after leaving school to identify if they have any need for further counselling or support (*On Track*). In 2004 in Victoria, 31 *Local Learning and Employment Networks* were established to better coordinate training, health, welfare and employment services provided for 'at risk' students (those likely to leave school without a credential). The LLEN identify issues, develop programs and gain funding through partnerships with industry, local businesses, government and non-government agencies and educational providers in their regions. This fits with a range of State and Federal policies encouraging partnerships between schools, communities, industry and universities.

In evaluating the Leading Schools Fund in 2008, it was recognised further work had to be done with additional resources going to some schools in order to improve learning outcomes (Keating 2008). More recently, the focus has been on literacy and numeracy, while new learning spaces enable the development of positive approaches to learning and encourage innovation, creativity and problem solving. This was also in the context of federal policies outlining a national curriculum, introducing standardised national testing at Years 3,5,7,and 9 in key curriculum areas with the *National Assessment Program-Literacy and Numeracy* (NAPLAN) and launching *MySchool* in 2010, a website that provides student profiles and performance data on every school in Australia. Individual school outcomes are now compared with 'like' schools in terms of student population. Schools are therefore caught between rising expectations for personalised learning for all students to achieve that takes into account their circumstances, diverse backgrounds and learning needs and externally driven standardised testing against which all schools and students are measured and compared regardless of context.

Chapter 2: Conceptual Framework of the Study

Nature of innovation

Understanding the nature of innovation became a key issue in this project. The notion of innovation is itself problematic in education. Innovation in science and technology tends to be something done in a laboratory outside the environment in which it is going to be applied. Knowledge transfer occurs through technical manuals. In schools, innovation occurs in the same environment that has to simultaneously provide services and maintain the smooth running of everyday practices (Foray and Hargreaves 2003). In classrooms and schools, there is less opportunity to transform structures fundamentally, given their role in, and expectations of, society, parents and governments, and also their mandated responsibilities associated with compulsory education (Cuban 2001). Where there is scope for transforming structures, the processes to do this are complex with multiple stakeholders. Often those involved – parents, governments, teachers – require convincing as to the need for, and nature of, the innovation.

There are also strong historical connections between innovation and educational inequality. Innovative programs, curriculum and assessment have been developed by teachers and schools seeking to address the needs of marginalised students (Lupton 2005; Comber and Kamler 2005). Investment in innovation to alleviate social inequality is supported by epidemiological studies and indicates that reducing social and educational inequality has significant national benefits in terms of social inclusion, health, welfare and employment (Wilkinson and Pickett 2009; Blackmore and Kamp 2008). But school improvement takes time and measuring the full range of benefits of education for individuals in terms of social affects as well as qualifications is beyond the scope of current methodologies (Clarke 2005; Potter et al 2001).

What is innovative in terms educational practices within specific environments are also difficult to distinguish from existing practices. Whether any specific facet of the ‘innovation’ has particular effects is difficult to identity when often innovation, as in these case studies, involves changes in structures, organisation and practices of teaching and learning, let alone measuring any causal relationship. Further, when does an innovation become everyday practice in terms of ‘this is how we do things around here’ rather than ‘we are just trying this out’? Considerations of ‘innovation’ therefore rely to a large part on anecdotal evidence supplied by the actual practitioners and participants, as in these case studies, as they describe how they perceive why and how they have changed their ‘everyday’ practices in some fundamental ways¹.

The OECD ‘Innovative Learning Environments Project (2010) characterises an ILE as:

- *Learner-centred*: focus of all activities
- *Structured and well-designed*: role of teachers in supporting inquiry and autonomous learning
- *Profoundly personalised*: sensitive to individual and group differences in terms of background, prior knowledge, motivation and abilities
- *Inclusive*: sensitive to individual and group differences in terms of learning needs
- *Social*: learning most effective when cooperative and in group settings.

¹ Such data is preferably complimented by thick ethnographic descriptions involving observations overtime.

The above characteristics focus on the micro factors within an educational site, school or classroom – attitudes, relationships and social practices – and are generally seen to be within the control of principals and teachers, backgrounding the macro factors. But there is significant evidence that context matters in terms of the possibilities for innovation (Thrupp and Lupton 2007). While each of the 12 schools could be readily depicted as displaying the characteristics of an ‘effective’ school – as outlined in school effectiveness and school improvement (SESI) literature, whole school approach, planning, transformational or distributed leadership, authentic curriculum and assessment (Stoll and Fink 1997; Leithwood and Beatty 2008) come into play as other factors which are outside the locus of control of the principal and teachers.

The contexts of educational reform are more than a set of ‘nested’ or ‘embedded’ layers or levels of influence. Notions of context as layers, does not recognise the complexity, interdependencies and differentiations between and among systems, schools and settings. Nor does this recognise rapid and often contradictory policy paradigms, such as the trend towards over-standardisation in the face of more culturally diverse student populations. The focus perhaps should be more on tangled flows and layered connections between networks as the geographic, institutional and policy boundaries around schools blur (Nespor 1997; Barron 2006). The context of change operates in complex and inter-related systems where everything depends on (or undermines) everything else and contradictory policies frame practice (Bascia and Hargreaves 2000). Bascia and Hargreaves (2000) go on to argue that the politicisation and transparency of schooling means there is no longer ‘out there’ as distinct from ‘in here’ while the fiscal and moral supports necessary for sustaining innovative reforms is ‘rarely available’. Indeed, new initiatives are never given the time to become consolidated into educational practice and evaluated for their effects before other initiatives undermine possible gains. Schools cannot alone address the scale of problems in terms of compensating for society (Bernstein 1970).

This requires a broader conceptualisation of the notion of ‘learning environment’ as constituted by multiple interlocking ‘environments’ through which to conceptualise innovative practices and learning outcomes. One environment is the physicality of the geographic neighbourhood and of the built environment interconnected with and to the virtual online environment arising from technological and communications connectivity. The discursive environment produced by policies informs the institutional environment of a school and their relationships with systems, networks, and industry and community partnerships. These environments are not to be viewed as layers, but rather as an analytical lens through which to explore how student and teacher identities are constituted within specific sites of activity. To understand how innovation occurs requires examining the relationships between multiple elements in any innovative learning environment – its boundaries, the discourses that are mobilised in the ILE, how discourses inform practices, how location and space frames what can be done, as well as the scope and scale of the innovation. The centrality of teacher and student interactions is also about identity, a sense of inclusion or exclusion within the affective economy of any ILE (Adams and Pajjan 2004).

Neighbourhood environment

A considerable body of research about schools in challenging circumstances considers context as a major factor on school effectiveness and improvement (Heppell and Chapman 2004). The neighbourhood environment is defined geographically. Key factors are whether the region is undergoing population growth or decline, and the school’s location and proximity relative to other schools (public or private, primary and secondary) within education markets. School location is mapped closely to student achievement, with studies indicating the strong association between geographical location, residential patterns, infrastructure, community health and

wellbeing, levels of under-employment and unemployment with school underachievement (Teese et al 2007; Welch et al 2007; Vinson 2007). This sample of 12 case studies represents the full range of locational dis/advantage, with the rationale for ILEs arising from the desire to improve educational outcomes for students and, in some cases, provide a fair and equitable education in high poverty communities.

Policy environment

The same education, social and economic policies impact on schools differentially (Allegre and Ferrer 2010). In particular, there is significant evidence about how accountability frameworks, school improvement programs, and a range of reform policies impact significantly on an individual school's priorities and distribution of resources (Lumby 2009; Heppell and Chapman 2004; Newmann et al 1997). How a school fares on key performance indicators such as retention rates and NAPLAN tests of literacy and numeracy leads to differential treatment in terms of whether systems are more prescriptive or allow greater school autonomy in improvement plans. MacBeath (2008), in a study of 12 English schools, refers to supportive and oppressive policy environments and how they shape leadership possibilities and practices. Principal interviews indicate priorities – as to what gets foregrounded when talking about the school - professional learning or rankings. *Supportive* policy environments were those that challenge sloppy practices and provide ways of going forward including innovative examples in terms of pedagogy and rigorous approaches to teaching and learning. *Repressive* policy environments are those for which survival requires subversive activities. They tend to be overly 'prescriptive and condescending, deskilling rather than empowering teachers [and] [r]ichness and creativity are lost by formulaic prescription' while 'training is superficial' (Macbeath 2008, p.125-6). Policy environments position schools and teachers with regard to their level of autonomy and sense of agency. Recent studies on school autonomy have questioned whether greater autonomy necessarily leads to student learning improvement, and argue for the need for relative autonomy. Relative autonomy means schools do not assume all the risk and responsibility without the necessary resources, but work within a network of supports that facilitate flexibility and encourage teachers to undertake innovative approaches by providing resources.

Built environment

A useful conceptual framework for considering these 12 case studies was developed from a literature review undertaken for DEECD (Blackmore et al 2010). This review argued there were four phases of redesign of learning spaces: designing, transitioning, consolidating, and evaluating/sustaining. The review indicated that much of the research undertaken on learning spaces and outcomes has focused on building design premised upon best practice educational and architectural principles. This research has made 'aspirational' claims about how built environments impact on learning outcomes without a significant body of empirical evidence. Little research has been done on how schools prepare for, and transition into, new learning spaces in ways that encourage innovative pedagogical practices, or that investigates which pedagogical practices get consolidated and why, or considers how to sustain exemplary practices or to evaluate the effects of new learning spaces in terms of student outcomes. Each of the 12 case studies could be identified in one or more of these phases – John Monash Science School is 6 months into their first year of establishment, others have undergone redesign over a 6-7 year time period. How one understands the relationship between the built environment and an ILE is therefore variable across the sample schools.

While research has focused on *virtual* learning environments (Blackmore et al 2001) and *built* learning environments or quality of built conditions (Blackmore et al 2010), few consider the

relationship between physical/virtual spaces with regard to the use of different technologies, teacher pedagogical practices and student learning outcomes.

This review also indicated that there were spatial, temporal and cultural aspects to how learning was organised, with differential effects on particular student age cohorts and teaching practice. As teachers came to occupy new spaces, schools grew and teacher/student dynamics altered, such that spaces that did not work pedagogically had to be redesigned. 'Serial redesign' also was evident with the need for constant evaluation and revision of curriculum, pedagogical practices and assessment (Blackmore 2008). The nature and use of space usually meant changes in use of time with moves from short to block time frames. This spatial and temporal flexibility facilitated but did not necessarily produce both teacher collaborative preparation and student cooperative learning. These 12 case studies therefore focus on the *use* of space; that is, the pedagogical practices undertaken within different spaces (Higgins et al 2005; Fisher 2005).

Virtual environments

As ICT has become integral to the everyday work of teaching and learning and wireless and other technologies have facilitated both connectivity and mobility in the use of ICT, distinctions between virtual and built environment have blurred. The virtual environment therefore extends and enhances the reach and depth of students in their learning – in terms of communicating and developing relationships with other students, teachers and accessing large and diverse knowledge bases. As studies of how learning technologies are mobilised in classrooms and schools indicate, the focus has moved away from a focus on the technical, to the pedagogical and socio-cultural theories (Luckin 2010). The flexibility facilitated by laptops, thinkpads and handheld technologies, for example, facilitates a focus on pedagogical rather than technical ways of organising learning spaces as the need for computer rooms, hubs or pods disappears. It also facilitates the blending of inside/outside spaces and multiple uses within the same space, such as café/libraries (Heppell et al 2004).

Institutional environments

Research on both built and virtual learning spaces indicates that to fundamentally change how learners learn, teachers first have to change their mindsets and expand their pedagogical repertoires in ways that then can lead to sustained and sustainable changes in student behaviour and learning. That is, put pedagogy first. But to do so requires a culture that encourages risk taking and innovation. This, in turn, requires recognition of the powerful ways in which an institutional environment frames innovation. School cultures are informed by the student population and social mix, cultural legacies, the staff composition, leadership structures, and relationships with community (Thrupp 1999; Thrupp and Lupton 2006). Institutional environments also impact on the scope and scale of innovation and in turn how an ILE is embedded within, or marginal to, dominant school cultures. An ILE, as indicated in these case studies, can be a program at a year level, an alternative unit outside the mainstream school, or a whole school approach. Scale and focus have implications for the degree of staff involvement and therefore level of commitment to innovation: who has a sense of ownership of the innovation, and how and whether the innovation can be 'scaled up' within the school or across other schools (Datnow et al 2002).

There is a significant body of literature on whole school change (e.g. see review by Thomson 2009) as being a condition for changing teacher practices and student learning in a sustained manner. While the focus may be on the classroom practices of teachers and students when considering an innovative learning environment, classroom pedagogical practices, as teacher

professional learning, simultaneously involve 'identity negotiation' and 'knowledge generation' (Cummings 2003; Rodrigues 2010). Classrooms are also situated within wider structural and cultural frames that link them to their communities, society and the economy in particular ways that values some forms of knowledge more than others.

Deep-seated change in practice also is about identity and knowledge work. The research now recognises the significance of ownership of change processes by both students and teachers and the need for a sense of agency. Identity work for both students and teachers is also emotional work (Adams and Palijan 2004). Change theory increasingly recognises the emotional dimensions of educational change (Blackmore, Hargreaves 2000, Hargreaves and Goodson 2006, Leithwood and Beatty 2008). Large scale change such as school restructuring that occurs when schools are amalgamated produces collective emotional responses among communities, teachers and students ranging from fear and anxiety to anticipation and pleasure (Fullan 1999). Imposed change can lead to feelings of powerlessness, frustration and anger. Well-managed change based on participatory re-design can create a sense of agency amongst teachers and students as they negotiate what is taught and learnt. Teacher professional efficacy is seen to be critical to innovation in schools as they have a sense they can change their own and others' practices to make a difference (Ross and Gray 2006).

Changes in classroom practice also produce individual and collective emotional responses amongst students and teachers. In the emotional economy of a school, emotions are distributed unequally and with different intensity; some enjoy radical change, while others feel that their professional and personal identities are challenged by some reforms more than others and are therefore more risk averse. Addressing teacher identity is central as teacher attitudes, behaviours and actions in terms of how they read, re-interpret and enact policy (Hayes et al 2006; Lingard et al 2007). Teachers out of their comfort zones in curriculum or pedagogy feel threatened by change that is too fast or that requires significant reflection on, and changes in, their practice. Deep seated changes in practice usually involves a range of emotions – fear, grief, anxiety and even anger intermingled with pleasure, excitement, satisfaction and enjoyment (Hargreaves 2004; Fullan 1999; Leithwood and Beatty 2008). Working with new curricula in their own disciplinary field is less difficult than inter-disciplinarity or mobilising new learning technologies where technical proficiency has become equally important. Shifting from teacher-centred pedagogical practices to learner-centred pedagogical practices, requires a high level of reflexivity that challenges their sense of self. Shifting from individual to team teaching, or from the invisibility of teaching in a closed off classroom to a more flexible and shared learning space where teaching is highly visible can challenge some teachers' sense of professional efficacy and produce a fear of failure. Such changes are highly risky for many teachers who feel they are judged by their colleagues and by their capacity for control of their classroom, knowledge of their curriculum, and fail-safe pedagogical practices (Hayes 2006).

Teacher and principal leaders also undertake emotional labour when managing themselves and others in undertaking educational change. On the one hand, fundamental changes in pedagogical practice, increasing a teacher's repertoire and collaborative professional learning can renew teachers' job satisfaction and sense of professional efficacy. On the other hand, when positioned in ways that threaten their sense identity or professionalism, teachers will often revert to 'default pedagogical practices' (Thomson 2010) or 'defensive pedagogical practices' (McNeil 2009). Default pedagogical practices are when teachers resort to reverting to the familiar in order to gain a sense of control over their daily work, or indeed a pedagogical moment. These tend to be teacher-centred, formulaic, reliant on paperwork, less personalised and also less flexible in the use of space and technologies. Defensive pedagogical practices tend to occur when teacher professionalism is challenged or external accountabilities take priority,

such as when teachers teach to the test. These are not necessarily related, although the effects in terms of pedagogical practice can be similar.

School leadership

Leadership in this context is therefore critical – formal and informal, by leadership teams and teachers. Leadership is understood here to be a collective social practice undertaken by many formally and informally in specific contexts (Blackmore 2009). While there is significant agreement that leadership provides the conditions (structures, processes, discourses, resources) that indirectly contribute to improved student learning (see Robinson et al 2009) in a Best Evidence Synthesis Iteration (Barker 2007; Halinger 2003; Hallinger and Heck 2010), it is the quality of teacher student interactions that contribute most to student learning (Hattie 2003). Silins and Mulford (2010, p. 73) in an Australian study argue that ‘factors such as school capacity building, evaluation and accountability, and socio economic status have much stronger relationships with student outcomes than other variables such as principal characteristics’. Relationship between innovation and leadership indicates that school leaders who encourage risk taking and experimentation within the frames of school policy facilitate bottom up change and teacher expertise.

Professional learning

The above discussion has significant implications for professional learning. The recent focus on improving student learning has also focused on the importance of teacher collaboration. This collaboration includes the production and exchange of professional knowledge (intuitive and formal), and teacher reflection-in-action and on-action within learning communities and through inquiry approaches. Darling-Hammond et al (2003) argue that to create professional learning communities it is necessary to attend to teachers’:

- *Understanding*: deep knowledge of content, pedagogy, students and social context
- *Practices*: developing and practising repertoires
- *Dispositions*: ways of thinking, feeling and actions
- *Tools*: conceptual and practice resources.

These are all linked through an *educational imaginary* as to the possible (Dooner et al 2008).

While ownership of an innovation often rested with what we refer to as ‘first generation’ initiators, the issue of sustainability requires attention be paid to ‘second generation’ teachers; that is, those staff who come into the ILE as the program or school grows and often when there is less capacity for participatory decision-making due to scale. This raises the issue of how to maintain a sense of ownership by teachers, students and communities through what we refer to as ‘participatory redesign’ throughout all phases of development of the ILE from design through implementation, consolidation as the innovation becomes everyday practice, and evaluation (Blackmore et al 2010). How second generation teachers are inducted into and imparted with a sense of ownership, particularly in a whole school ILE where there is less capacity to opt out, is a major issue for leaders in terms of sustaining the initial enthusiasm and imperative as the initial rationale for a radical shift disappears. Building capacity for both teacher leadership and practitioner inquiry as well as collaboration are considered to be critical to improving student learning (Campbell and Groundwater Smith 2004; Day and Harris 2002).

Student identity

A neglected discussion in the literature on innovation is how students respond to ILE. While there is a strong case in the educational design literature for student participation in designing of new learning spaces, how they are used has attracted less interest and how they respond to these new learning spaces is not well researched (Gunter and Thomson 2007a, 2007b). There is a well established discourse around student consultation 'talking with pupils about things...in the classroom and school that affect their learning – a conversation that builds a habit of easy discussion between teacher and pupil about learning' (Rudduck and McIntyre 2007, p. 7). However, discussions with students regarding school's work, decision-making and planning can often lead to some discomfort. Nonetheless, Rudduck and McIntyre (2007, p.140) indicate that consultation that is done with respect for, and recognition of, student voice can lead to improved motivation among students making them feel more positive about school.

Learning outcomes

The key question is whether innovative pedagogical practices, that is, changing teacher practices, lead to improved student outcomes. This analysis argues that student learning outcomes should improve in light of contemporary understandings of the requirements of living and working in the 21st century. As outlined in the National Declaration, in terms of being fully productive, citizens and workers are social, cognitive and physical. Increasingly, student wellbeing and a sense of safety and belonging as well as agency are seen to be pre-conditions for cognitive development, that is, the physical and affective environments of learning (Mulford and Silins 2001). In terms of the conditions of learning, there are now strong arguments for an emphasis on the social and affective as well as the cognitive.

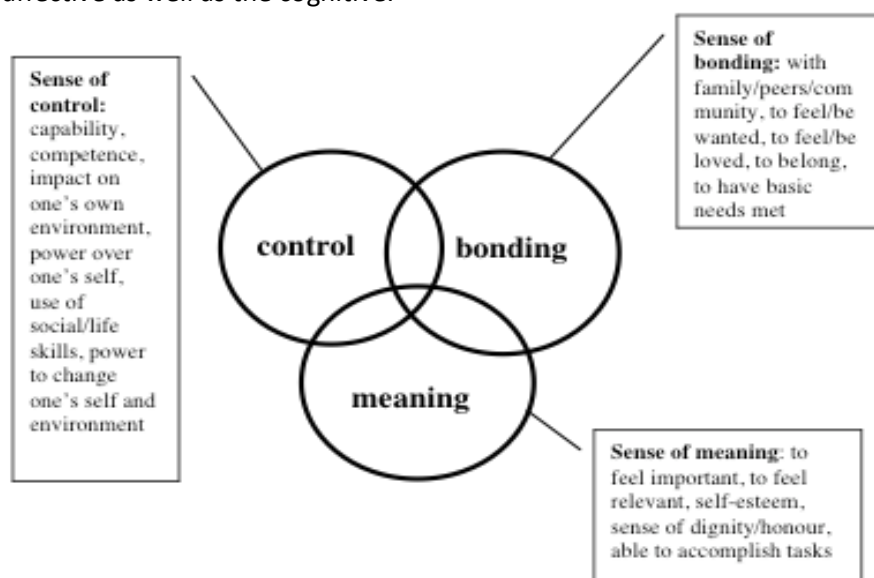


Figure 1 Phillips, Nancy. (1990) Wellness During Childhood/Adolescent Development, *in Prevention Forum*, Vol 10, Issue 4, July.

Learning theory currently focuses on the notion of student engagement; that is, students are seen to be 'on task'. Being on task may merely mean that students like the satisfaction of getting the task completed, but does not necessarily mean there has been learning. Recent literature suggests appearing to be engaged is not enough. The question is now what have students learnt and how do we know? How does this learning contribute to later achievements and in what way? These questions go to the heart of what constitutes authentic pedagogical practices and assessment. Comber and Kamler (2005) argue that it is necessary not to put the student first but

to practise 'turn around pedagogical practices'; that is, for the teacher to 'take a physical and embodied turn – literally moving to see the child in different contexts with a new lens'.

At the same time we would argue that the focus of any ILE has to be on pedagogical practices that both constitute and are constituted by multiple environments. We take the position of Cummings (2003) that classroom pedagogical practices, as teacher professional learning, simultaneously involve 'identity negotiation' and 'knowledge generation'. Rather than mobilising a macro/macro distinction, we recognise that schools are situated within wider structural and cultural frames that link them to their communities, society and the economy in ways that value some forms of knowledge more than others. To understand an ILE means we also need to take into account how 'pedagogical practices are linked to broader societal and policy changes' (Alexander 2000; Lingard 2007, p. 248). We interpret the learning environment (LE) as the indoor and outdoor, formal, informal and implicit qualities of space and place as well as the affective and intangible aspects of school experience existent for all members of the learning community. Learning is always contextualised (Kirschner and Whitson 1997; National Research Council 2000, 2005) and attempts to innovate the modernist sensibilities of progress, management and certainty in school are both environmental and pedagogical.

We explore this in these case studies, along with the constraints, opportunities and challenges that ILEs provide all stakeholders in the school community (Gulson and Symes 2009). Working with the conceptual frameworks outline above, the following 12 case studies provide rich data through which to investigate teacher and student pedagogical practices that support improved learning outcomes across a range of indicators – social, affective, physical and cognitive.

Chapter 3: Methodology

This report draws from the research literature to inform a discussion around case studies undertaken over four months in 2010 in 12 Victorian schools. These schools self-nominated for inclusion in the Innovative Learning Environment Program study undertaken by the Centre for Educational Research and Innovation (CERI) in the OECD. Five of these studies were selected by the DEECD to be included in the report; the other seven have been included in this report. The criteria for selection for the case studies, as developed by the ILE Program, were based on the following principles of ILE:

- *Learner-centred*: focused of all activities
- *Structured and well-designed*: role of teachers in supporting inquiry and autonomous learning
- *Profoundly personalised*: sensitive to individual and group differences in terms of background, prior knowledge, motivation and abilities
- *Inclusive*: sensitive to individual and group differences in terms of learning needs
- *Social*: learning most effective when cooperative and in group settings

Schools self-nominated through an application to DEECD. In their expressions of interest schools were requested to describe the ILE and why it is innovative, the background to its formation, the processes of development and underpinning rationale, and how they saw the ILE responding to 21st century learning challenges. In addition, applicants were to address learning aims and intended outcomes in terms of the knowledge, understandings and skills of the ILE, the learners who were its focus and the role of teachers and/or facilitators. Applicants were asked to provide an account as to the organisation of learning for both students and teachers, how the ILE was funded and what outcomes they intended to use as an assessment of effectiveness.

Data collection

Seven researchers and three Research Fellows as well as technical assistants from Deakin University undertook the 12 case studies over three months. Data was gathered in each case study through:

- *Documentary evidence* collected in the form of written materials on curriculum assessment; annual reports; video, visual and website materials; teacher and student products and portfolios; surveys and reviews; planning documents, building plans and professional development plans.
- *Interviews with leaders and 3-4 facilitators* identified as key change agents, initiators and participants in the ILE. Questions ranged around the origins of the ILE, processes for its development, policy, planning, resourcing, implementation and sustainability, as well as implications for leadership and professional development. A particular focus was on 'how do you know' in terms of evidence of changed teaching practices and of student learning outcomes. We also considered the facilitator's/leader's professional background/training.
- *A video-recorded 'virtual tour' of each school* was undertaken by the Principal while providing a narrative as to why and how certain spaces are used, why they were built in particular ways, and how effective they are pedagogically once in use.
- *Observation of classrooms and learning* with particular attention paid to learner engagement; the degree of self-directed activity; the role of teachers/facilitators; and

feedback and assessment strategies. Again there was consideration of the different activities and the motivational strategies mobilised, the sequencing of approaches and learner behaviour in groups. This involved considering the assessment tools, how quality of learning was judged and the nature of feedback to student.

- *Observation of activities and use of spaces, time, technology and resources.* A critical aspect was how the physical and digital environments were used pedagogically, and with other materials and resources. We used a combination of Fisher's Matrix Linking Pedagogy and Space (2005), Wolff's Problem-Based Design Model (2003) and the OECD (2009) 22 Quality Performance Objectives of educational spaces (Blackmore et al., 2010) to offer a holistic and detailed account of each learning environment.
- *Interviews and focus groups with learners* in the middle years and post-compulsory years. Students were provided with flip cameras to identify and photograph spaces they felt most engaged in learning and then these were used as prompts in the focus groups. The focus here was on student perceptions of the ILE, their expectations and responses to different aspects of the ILE in order to understand their motivation, sense of efficacy, engagement with learning, relationships with peers, quality of environment, use of space and technology, and sense of community.
- *Mapping exercises and cartographic annotation with early years students* about how they see their school and learning.
- *Interviews with community stakeholders such as parents, school council members, outside experts, and community partners* who had been involved in the ILE. We would ask them to reflect as to their role in terms of decision-making and planning with regard to the ILE and the teachers, and how they understood its rationale and impact.
- *Photographs generated by students and researchers.*

In this way, data was collected that addressed factors identified in the ILE Inventory Case Studies as baseline data:

- number and social mix of learners in the ILE (gender, age, race, abilities, personalities, socio-economic background)
- size and social mix of groupings in different activities or at different times,
- use of time and sequencing of activities over time
- overall use of teacher/facilitator resources, including team and individual teaching
- links to other learning environments/schools
- physical set-up of the ILE and locations of learning with their respective rationales
- rationale for design of the physical environment.

In each case study, we utilised multi-media approaches aligned with best practice as included in our documentation to expand upon traditional observational descriptions of people and place. These included tools such as:

- *NearMaps* that enable different points to be marked and tagged, and photos, videos and comments can be uploaded to these tags very easily.
- Videotagging by students using **Ving!**. *Ving!*, an in-house developed software tool that enables videos to be marked up and commented on directly for research purposes.
- *Mapping and cartographic annotation*: students chart where they are located within the ILE

- *Assessment tools of spaces* : linking pedagogical activity and space in learning settings (Fisher 2005)

The potential for different methods is presented in a separate paper: *Methodological Issues and Practices in Investigating Innovative Learning Environments* (Thomson 2007). The limitations of this study are the lack of longitudinal observation and reliance on interview data due to the short term (4-5 days) time frame researchers were in schools.

Chapter 4: Synopses of Case Studies

This chapter provides synopses of each of the twelve case studies. The detailed case studies and analysis are attached in the appendices. The schools cover a broad sample – including different organisational forms (including a P-9, an off-site alternative campus, primary (P-6) and secondary school (7-12)). Each case study was organised around the following themes for consistency, although there were distinctive aspects that emerged within these themes in each site.

- aims of ILE, nature and history of innovation: holistic picture of organisation
- structured patterns and characteristics of ILE: layout, sequencing and mix of learning activities
- nature and quality of learning
- impact and effectiveness of ILE

Ballarat High School

Ballarat High School was established in 1907 and was located at its current site on the Western edge of Ballarat in 1910. The school has long been known for its academic programs, and it is also extremely successful in its Music programs and sporting programs. The innovation at Ballarat High School is a combination of whole-school change through the development of a School Learning Framework and a specific innovation around Year 9. The Learning Framework puts the learner at the centre of the framework, and the framework itself has become the reference point for every decision made about every aspect of the school. The Year 9 ARCH program has been extremely successful in re-engaging Year 9s, in developing positive relationships with/between the Year 9 cohort and in focusing the Year 9 students with their learning and positioning them as responsible and active in their own learning. The success of the Year 9 program has paved the way for other innovations in the school, including the development of a Year 7 and 8 program and a Learning Advisory program throughout the school.

Bellaire Primary School

Bellaire Primary School is a state co-educational primary school located in the suburb of Highton in Geelong. The Bellaire Primary School community prides itself on being a leading school in the innovation of education. Its school motto is 'Aim High'. Students are drawn from both Highton and surrounding areas. While the enrolment is considered large for a primary school, the school prides itself on having a 'small school' feel. The school's current enrolment is approximately 590 students with an equal number of male and female students. The number of female students has grown over the past five years. Bellaire has increased its population by 25% over the past five years with approximately half the students travelling past closer schools, crossing 'boundaries' to attend the school. There is a strong demand for Prep (first year of school) enrolments in the coming years.

Student engagement in learning and catering for 21st century learners was the original impetus for whole school cultural change. Personalised learning enabled through team teaching in flexible open plan environments is the focus of Bellaire's innovative learning environment. This is strongly supported by teacher coaching and goal setting. The school works to engage students in learning communities through the personalised learning focus. There are four learning communities: the Prep Learning Community (first year of school); Junior Learning Community

(Years 1 and 2); Middle Learning Community (Years 3 and 4); and Senior Learning Community (Years 5 and 6).

Bentleigh West Primary School

Bentleigh West Primary School, located 15 km south of Melbourne's central business district, is a vibrant school of approximately 500 students including a large number of special needs students. The school has undergone substantial building redevelopment in the past five years under the Victorian Schools Plan: Building Futures program which has seen them open three purpose designed Learning Houses and a renovated Learning Suite for senior students in the older main building. The designs of each of the flexible spaces were devised by the staff through a series of in-house conferences in which the teaching and learning culture of the school was decided and the buildings designed to suit.

The school has strived to personalise learning for all students through team teaching approaches in flexible spaces where each student's next steps of learning are identified through a structured approach to VELs. The strong focus on literacy and numeracy across the school is included not only in discrete timetabling but also through inquiry learning appropriate for each level. The employment of multiple levels of educator from trained teachers to teacher aides, teaching assistants and technical specialists, provides students with access to multiple adults who bring various skills to the teams. This approach frees up time for teachers to work more closely with students to improve their learning outcomes. The school has developed a strong program in environmental science and outdoor learning spaces are a fundamental element of the school design. Buildings have very well thought out and utilise indoor/outdoor flow. There is a wetlands classroom, vegetable gardens which are used for inquiry learning and a range of other outdoor learning spaces. Comfort, safety and sightlines are a feature of the landscape design and the school and students have had a great deal of success with gaining gardening, environment and sustainability awards over the past five years. The most impressive aspect of this coordinated approach to design and teaching and learning culture has been a shift in student engagement. The school has moved from being a community to becoming a learning community where students are able to talk about their learning in meaningful ways and where authentic learning opportunities are provided.

Courtenay Gardens Primary School

Courtenay Gardens Primary School is an ambitious and hard-working school in the outer south-eastern suburbs of Melbourne. The innovative learning environment in this school is characterised by a whole school approach to learning, and the use of strategies which enable a consistent and predictive approach for learners. The Innovative Learning Environment at Courtenay Gardens Primary School has been developed in response to a number of societal factors with regards to children's backgrounds. The area from which students come to school is classified as an area of relative disadvantage.

Courtenay Gardens Primary School has been strongly influenced by the work of Douglas Reeves. Staff have been especially interested in the ways in that Reeves provides strategies which turn around underperforming schools as measured on standardised testing. Initially focussing on the teaching and learning of non-fiction writing, the school now measures significant increases in achievement in localised standardised testing. This success has led to more recent innovations, including a rich multimedia program. Courtenay Gardens Primary School has received numerous

awards for their continued improvement in student and staff data, and provides professional learning to other schools to help increase others' student learning outcomes.

Grovedale West Primary School

Grovedale West Primary School in the Barwon South region of Victoria on the outskirts of the City of Geelong is a small school which is engaged in a remarkable cultural change. The school has come back from a long period of leadership instability and enrolment flight to become a strong teaching and learning community which is doing great things. Stable and focused leadership over the past 4 years has seen the school embark on a change program which has been not only innovative but carefully considered in terms of the needs of the school community. This is a school that wants to ensure that change is well thought out and embedded for the long term benefit of current and future students.

In terms of space design the school has redeveloped part of an older building to create a Senior Inquiry Pod. This flexible and attractive design allows students to engage in formal and informal learning environments and provides access to withdrawal spaces while allowing light into what was once a series of dark traditional classrooms. Sightlines have been carefully considered so that teachers and students can easily see each other as they engage in shared learning. In 2010 the school received a BER template building which has served the dual function of housing the MIPod (Middle Inquiry Pod) for Level 3 students and also relocating the administration of the school in a more conducive orientation to the local community. Future development will include further redevelopment of the main building for Junior Developmental Learning Spaces while another adjacent building will become a Science and Arts Learning Centre that houses specialist programs. The overall aim of this culture of change has been to improve student data through a truly personalised approach to student learning. In a community that includes a number of learning challenges the teachers endeavour to meet each student's individual needs and challenge students and themselves to constantly raise the bar. They seek to do this by providing consistency for students both across their year level and as they move through the school. The established culture enables consistency in teaching approaches, consistency in learning experiences and consistency in educational language.

John Monash Science School

The John Monash Science School (JMSS) is an exciting educational venture, responding to a perceived lack of specialists entering the fields of Science and Maths beyond secondary education. JMSS is a partnership between the Department of Education and Early Childhood Development (Victoria) (DEECD) and Monash University. It showcases new ways of thinking about curriculum and pedagogical practices whilst also reconceptualising physical and virtual spaces for effective student learning.

The John Monash Science School is situated at Monash University, Clayton Campus, in the south-eastern suburbs of Melbourne. JMSS is a selective specialist entry state senior school. JMSS is different from other selective entry schools in a number of ways. Not only is it a specialist school but the enrolment policy at JMSS reflects a more individualised and specialised process, based upon the 'applicant's passion and aptitude for science, capacity for logical and numerical reasoning, and mathematical ability' (John Monash Science School, 2010) as determined by interview and entry exam. Innovation is visibly evident within the John Monash Science School due to its flexible learning spaces, quality of teacher and student interactions and

the creative ways in which learning occurs. A 'culture of collaboration and collegiality' is exemplified, as well as the staff's ongoing commitment to professional learning. In the same way, the rigorous intellectual pathways for student engagement and autonomy are enhanced by inquiry based curriculum and the school's daily practices.

Manchester Primary School

Manchester Primary is a Prep to Year 6 school located in the outer eastern suburb of Mooroolbark, Melbourne, at the gateway to the Yarra Ranges. Established 40 years ago, the school population in 2010 is 315 students. Overall, a strong, overarching emphasis on collaboration, negotiation and community displays an organisational understanding of the relationships within the school as the components of the learning environment. The curricular environment is a key element in the non-built atmosphere of Manchester Primary School. It is a stated expectation that teachers negotiate the curriculum and assessment procedures and class environment with students. Focus on organisation is paramount and is spoken of almost synonymously with learning. This overt and explicit pedagogical positioning on the part of the teachers is intended to create and support expectations of agency amongst students from a very early age.

Manchester Primary School has taken up the interdisciplinary learning goals of VELS in positioning Sustainability as a 'cross-curricula perspective', available to all year levels and domains. They have done this through student leadership, management and ownership of places around the school, maintaining consistent outdoor learning sites and valuing the ecological diversity of the school. Increased team-teaching is becoming an integral part of teacher initiated practice at Manchester Primary School. Furthermore, student expectation and capacity to engage in meta-cognitive discussion borne out of innovations at the school mean that they play a large role in driving the expansion of innovative pedagogy at the school. The initial simplicity and traditional physical appearance of Manchester Primary School's built environment belies assumptions that sometimes can be made about what might be a quality or innovative context. Rather than pedagogy occurring within the vessel of place, this school has conceived students, staff and the learning environment as constituents of agency and inclusive co-components to the ILE of the school.

Mordialloc College

Mordialloc College is a state co-educational secondary school located by Port Phillip Bay in the City of Kingston, an area renowned as being extremely well serviced in terms of secondary schools. Founded in 1924, the College currently has an enrolment of approximately 750 students in Year 7 to Year 12 and offers a broad range of academic and creative subjects, taught by a teaching staff of approximately 60. As a smaller secondary school which is situated in an area saturated with educational options it has a need to distinguish itself in some way in order to attract its 'market share' of enrolments. The school's Innovative Learning Environment (ILE) can be best described as personalised learning through the use of Quality Learning (Quality Learning Australia, 2010), team-planning and teaching, and flexible spaces as a means of maximising learning. Catalysts for the ILE included leadership with a specific vision, teacher renewal, exposure to new pedagogical principles and strategies and the possibility of funding. These enablers created an opportunity for innovation. Funding was an external driver which

legitimised the innovation within the broader educational community and drew widespread international and local attention to the school.

The Year 7 Learning Centre and the Year 8 Enquiry Zone are the most evident expressions of the Mordialloc ILE where students work for 75% of their school time. The former is a specially constructed open-learning area and the latter a redesign of an existing block of classrooms. Other designated learning areas include the Think Tank; a Glasshouse; dedicated outdoor areas; a library; and Science and Arts areas. Structures include family groups and family guides; team teaching and planning; optional workshops; student planning and documentation; engagement in learning; and development of self-management and social skills. Flexible learning is continued in Year 9 within the subjects of the Mordialloc Experience Program. The spaces lend themselves to the sort of pedagogy valued at Mordialloc – one which engages students in personal and interpersonal learning through an integrated oriented approach to curriculum. Pedagogy and personalisation are at the heart of the innovation; however the flexible spaces offer a tangible expression of the ILE, unique environments which have attracted widespread interest and support a renewed pedagogical approach.

Mt Waverley Primary School

Mt Waverley is located in a middle class area of Melbourne with above State average achievement and a significant number of students from non-English speaking backgrounds. It is a feeder school to two high performing government secondary schools and numerous non-government schools. Anim8tors@MWPS is a program offered at Year 6 level at Mt Waverley Primary School. Anim8tors@MWPS brings together the synergies of innovative teaching and learning practices, developed through collaborative teaching and learning around film animation. The Year 6 animated film-making program based on claymation was developed to re-engage students through interdisciplinary based tasks working in small groups for a day a week. Anim8tors@MWPS was enabled by a school re-building program that provided new learning spaces. The flexibility of a shared 'Great Space' space between the Year 6 rooms facilitated multi-modal teaching in teams and across disciplinary areas and classes.

The concept was developed by three teachers because of a perceived need to replace an annual performance that provided an avenue for a few students to a pedagogical activity that involved all children that recognised and enhanced their particular capacities. The teaching team brought together different skills in ICT, claymation and leadership, with significant support of the Principal and School Council. The program organised learning around team teaching and group learning in ways that encouraged independent learning, social interaction through group work and inter-disciplinary problem solving. Team teaching required considerable planning in a dedicated time and working with specialist teachers to integrate the program. There was strong evidence that individual students had enjoyed but also benefitted in terms of engagement by all students. Other areas of the school were affected in terms of the use of ICT and developing skills in preparation for the program.

The Lakes South Morang P-9 School

'The Lakes' is a purpose-built ILE and is located north-east of Melbourne in the outer City of Whittlesea. It comprises two campuses housing Prep-4 and Years 5-9 respectively with 899 students and 89 Staff in total. The grounds are large and open, offering distant views and open skies. The school has a clear student-centred vision and a focus on collaborative professional

relationships amongst staff. 'The Lakes' has almost completed its fourth year of operation. In these four years the student population has grown by 350% (located on two campuses); and in 2010, 40 of the 89 staff were new to the school. This time span, spatial relocation and significant student and staff growth permits a limited evaluation of the impact and effectiveness of this whole school ILE.

The school has had ambitious and innovative pedagogical philosophies underpinning the school design and construction since its inception in 2007. The Learning Streets and Pods offer movement, circulation and open spaces to make flexible pedagogical choices available to teachers and learners. Teachers plan and teach in teams. The overarching curricular conversation is embedded in terms of active learning, oral and play-based emphases, inquiry learning, student ownership, 1 to 1 learning programs, integrated programs and embedded ICT. The 'Lakes School' vision is to have 1:1 computers to facilitate flexibility. The open outdoor areas include large iconic sculptured elements which have been appropriated by the students as motifs of school belonging. There are positive indicators regarding student learning, student satisfaction and student agency and engagement. One of the most striking impacts of the ILE has been the comprehensive approach by the leadership team to the professional learning of staff. This focused work is critical in the ongoing work of an Innovative Teaching Environment (ITE). The relationship between the ITE and the ILE is essential for the ongoing effectiveness of the ILE. 'The Lakes' recognises that pedagogical and curriculum elements are crucial to quality and effective learning environments which are more dependent on relationships than space and environment – although these form qualitative aspects of the learning environment. The physical innovative learning environment is seen as moving into a consolidation stage. The pedagogical environment is still however in initial stages having to be reinvented in response to staff growth and teacher learning.

The NETschool, Bendigo

The NETschool is located in Bendigo, a major regional centre in Victoria, 150 kms north-west of Melbourne. Despite areas of economic growth, the region records lower than State average employment and income levels, and young people aged 15-19 show higher than State average rates of school disengagement. The NETschool was founded in 2005, as part of Bendigo Senior Secondary College, in response to the identification of up to 700 young people aged 16-20 years old receiving Job Seeker benefits. At present 100 learners are enrolled in the school, in mentor groups of 10, to undertake VCE, VCAL and VET courses. A number of teachers from Bendigo Senior Secondary College provide subject specific instruction at the NETschool, and learners may attend some College classes. Younger learners are supported in research based learning.

In order to re-engage young people in work or study, the NETschool offers a highly innovative environment designed to provide positive learning experiences for 'at risk' students. The wide-ranging innovations at the NETschool include a shopfront setting, a workplace interior layout, and the use of a respectful and non-judgmental vocabulary to describe young people and their learning achievements. The programs are also innovative in nature: individual plans are drawn up to accommodate each learner, and include the option of study in a home- or centre-based setting. The NETschool has a high rate of measurable success, with 89.13 % of learners in 2009 either employed or continuing in education. Of the remainder, 8.78% had withdrawn for reasons of relocation or mental health issues, but only 1.09% had disengaged from the program. The interviews for this study confirmed learners' satisfaction with the NETschool.

Since each learner requires a new and different approach, the demands on the mentors and teachers are considerable. Their support system offered is a co-operative and layered one: staff use both formal and informal means to assist one another, and are supported in turn by the Director, their professional development, and by professional agencies. This multi-level system is both consultative and inclusive. A notable indicator of the NETschool's success is that some of its innovative practices have been taken up by mainstream schools. At Bendigo Senior Secondary College, for instance, all students now have individual learning plans based around their goals, and self-paced learning programs, derived from NETschool models, have been implemented. These changes demonstrate that programs for marginalised learners have significant insights to offer mainstream educational practice.

Yuille Park P-8 Community College

Yuille Park P-8 Community College (YPCC) is a new school located in Wendouree West, on the outskirts of Ballarat. Wendouree West is an area of high disadvantage that has been going through a neighbourhood renewal project since 2001. Yuille Park Community College is a unique school, where the school is the centre of a Community Hub, offering opportunities and facilities for the wider community. Every aspect of the physical buildings, school operations and curriculum has been carefully designed towards enabling the school motto – *Living to learn, learning to live* – to become a reality for each student at the school. Another innovative aspect within the school is the attempt to flatten staffing structures and to respectfully work with all members of staff in an equal way. The new physical spaces in the school are exceptionally well designed and the school received the DEECD 2008 School Design Award. YPCC is an example of where a strong vision comes together in the school buildings and layout, and this vision is lived out in the pedagogical and social approaches of the staff to students.

Chapter 5: Analysis Across the Case Studies

Throughout the analysis exemplars of practice are given. These are presented as indicative examples.

Aims of ILE, nature and history of innovation: holistic picture of organisation

These 12 schools represent a wide sample of six P-6 primary schools, two P-8, two 7-12 secondary colleges, a senior secondary college (10-12) and one alternative school within a large senior secondary college. These schools represent a spread of geographical locations from suburban metropolitan to provincial towns and widely disparate student populations from relatively homogenous Anglo-Celtic backgrounds to culturally diverse populations, and from low socio economic, mixed and high socio economic communities. Not surprisingly, the aims, scope and scale of each ILE, as did the rationale and focus, differed. Both external and internal pressures influenced the decision to undertake fundamental changes that led to the formation of what are now described in these case studies and as defined by the OECD as Innovative Learning Environments (ILE). The warrant for redesign (Thomson and Blackmore 2006) included:

- improving student learning outcomes against NAPLAN
- exploiting the opportunity to redesign school buildings
- addressing student disengagement
- responding to regional low retention and/or attendance rates
- encouraging students to take up science and maths
- integrating with a community regeneration program
- catering for 21st century learners
- building a professional learning community

How the problem was defined and the reforms rationalised informed the scope and scale of each ILE. Different discourses were mobilised to justify the development of the ILE. For example, discourses of deficit and accountability around literacy that became the doxa of reform within one school (Courtenay Gardens PS). The lack of students entering science and maths education and careers led to a DEECD /Monash University partnership through which the John Monash Science School on Monash University campus aimed to develop new pedagogical practices in science and maths education to lure students back to the field. The NETschool's creation as a school within a large regional senior secondary college was driven by the wider social policy and community issue when studies determined that a large cohort of young people in the region were no longer in work, training or education. Yuille Park Community College (P-8) emerged out of a community regeneration program associated with a Community Learning Hub in the outer suburbs of a provincial city that were experiencing concentrations of high intergenerational unemployment, poverty and educational underachievement and the consequence of a transient population arising from de-industrialisation in the 1990s. The Lakes, South Morang was the response to local demographics with rapid outer suburban expansion in Melbourne in relatively low socio economic areas that was therefore linked to a building program. Other ILEs were internally driven, such as the push at Courtenay Gardens and Mt Waverley Primary Schools to re-engage particular students through developing new programs. Manchester Primary was influenced by the work of a particular consultant, to implement a tested model of pedagogical reform with the aim to 'create an environment where staff and students collaborate in their learning enabling everyone to reach their potential through innovative and negotiated curriculum that challenges and supports all members of the school community' (Manchester Primary School 2010). A new Principal at Bentleigh West Primary School and at Grovedale West

Primary School sought to build a professional learning community because each school was perceived to be overly teacher and curriculum centred. While the rationale for the formation of each ILE was highly context specific, all twelve case studies focused on pedagogy to improve student learning.

Context and the neighbourhood environment were equally critical in determining why and how each ILE emerged, its organisational structure and aims as well as the resources available. In particular, in high poverty communities such as that of Yuille Park Community College, the social justice aim was to re-engage students with education in meaningful ways in order to make a difference for all students and their families as well as the community by making the school the social centre for the community. In high SES areas, there was a need to be seen to be distinctive from other school. At the same time, schools undertaking innovations also had to consider how 'innovation' was perceived within the community, and whether the school was seen to 'add value' to students, as well as its positioning relative to other public and private schools. Thus, Mt Waverley Primary School had to convince their community as to the educational purposes and benefits underpinning the Animation program. The Lakes, as with Yuille Park Community College, was conscious that it was seen as different due to the reputation of being able to work with students who had not done well elsewhere. Promoting flexible, student centred approaches to teaching and learning or inquiry based project based learning positioned many of these schools as being non-traditional, which was often equated to being less rigorous and therefore, for some schools, a disadvantage in a competitive and conservative labour market where traditional education is perceived as the norm (Campbell et al 2004).

Industry- community partnerships

Geographical location in terms of community resources, infrastructure and relative positioning relative to other schools, the aims of the ILE, as well as the parent occupational profile also impacted on the capacity of schools to develop partnerships. Mt Waverley Primary School had the expertise and financial support of its largely professional parent community to develop a cost-intensive high-tech Animation program as well as the support of the local AppleStore and the Australian Centre for the Moving Image. Because it was initiated by science educators within the university, John Monash Science School had the capacity to draw upon significant university expertise and resources. New growth suburbs and regional towns tended not to have the same facilities. Yuille Park, in contrast, relies heavily on community voluntarism for their everyday operations (mothers working the shared community/school front desk) (Thomson et al 2007), and on local state and national governmental agencies and programs for their capacity to meet the health and welfare needs of their students. But its connectedness to community also means Yuille Park mobilises local resources through community based activities and shared spaces – the weekly market, the community coffee lounge as well as training facilities such as ICT resources that are shared between the school and community. This close relationship has created a sense of ownership within the community and also invites in parents who may have felt disengaged from school. Manchester PS is proactively involved in the local community with the 21st Century Library Learning neighbourhood. At the same time, the school gives back to the community in terms of Film Nights and presentations. The Bendigo NETschool is highly dependent on philanthropy from local industry and interagency collaboration with other professionals and government agencies to support the social, educational and employment needs of their students. These case studies indicate that community collaboration is an important aspect largely ignored in school improvement (Anderson-Butcher et al 2010).

Structured patterns and characteristics of ILE: layout, sequencing and mix of learning activities

In each case study the focus of the redesign into an ILE was to improve student learning through developing innovative programs and pedagogy and by developing new spaces, structures and processes. This redesign process requires attention to the following seven areas (Thomson and Blackmore 2006):

- *Spatial practices* – the use of architectural space and community as a pedagogical space
- *Temporal practices* – time allocated for research, reflection, planning and dialogue
- *Cultural practices* – attention to the symbolic, identity work, recognition of expertise and experience, significance of developing professional learning cultures, openness and sense of agency and community
- *Structural practices* – this ranges from minimal structures to looser coupling and greater networking on a contingent basis within and external to the organisation
- *Communication practices* – processes of exchange, sharing experience, ideas, accessibility
- *Social practices* – leading, teaching and learning as a collective endeavour and the centrality of relationships within that endeavour
- *Semiotic practices* – the discourses, language and metaphors that are mobilized to inform changing practices
- *Curriculum orientation practices* – pervasive systemic and individual stances that speak to an epistemological positioning.

Spatial practices

The pedagogical use of space and community in this project ranged from purpose built and designed architectural spaces to those generated from within existing structures. The Lakes, South Morang was designed to respond to infrastructure demands of a new school community in a growth corridor. The design consultation team which included the present school leadership team took the opportunity to embed environmental assets such as openness and community connectedness within the structured patterns and characteristics of the school. This has been a catalyst for driving pedagogical change within a rapidly developing and relatively young staff cohort designed to offer teachers greater flexibility in the ways they can use available space. In much the same way, Mt Waverley Primary School's 'great space' has led to the development of new pedagogical approaches; in this case the space came first and the pedagogy later. Bentleigh West Primary School also grew from a close collaborative effort between architects and staff. Located in an established urban environment, the ensuing 'Learning House' design reflects the built-up nature of its surroundings. In this respect, the environmental context of both these ILEs has played a vital role in the way in which these spatial practices have been interpreted. Yuille Park Community College was also purpose built. The design of the spaces was extraordinarily detailed and beautifully finished. The spaces facilitate team teaching and the community spaces are inviting, welcoming and useful for the highly disadvantaged community that the school serves.

By contrast, the ILEs at Grovedale West and Manchester Primary Schools are renovated spaces within established buildings or traditional classrooms. At Grovedale West Primary School, the Senior Inquiry Pod (SIPOD) was created by removing walls and establishing isolation rooms within the space. Grovedale West has some internal walls and shares the space with school administration. While some minor renovations were also made at Manchester Primary School,

much of the pedagogical spatial practices are lived out within the confines of traditional classrooms and corridors. A new building designed for part of the school cohort is under way. Mordialloc College redeveloped existing spaces for Inquiry Zone (Year 8), Forum (Year 12) and Learning Centre (Year 7). Ballarat High School also has renovated buildings, in particular the dedicated Year 9 space. This space has facilitated team teaching and changed relationships between staff and students.

Temporal practices

A strong consistent theme across all the case studies is the increased allocation of planning time that is required, considered necessary, and valued as an essential part of maintaining and sustaining an ILE. Reallocation of after-school meeting times common to most of the schools has been initiated so that teachers have more professional learning, planning and discussion time specific to each level rather than general administration meetings. This includes more time for coaching or mentoring staff. Yuille Park Community College had a long lead-up time to the development of the new facilities and changes. Teachers there are given 4 hours planning time a week instead of the regulated 2.5. However, they must spend 3 of these planning together. In the Year 9 program at Ballarat High School, teachers are allocated an extra 2 periods a week to manage the details of the program.

Cultural practices

Symbolic practices such as the naming and ownership of places within an ILE are especially important for the development of new spaces, structures and processes in both purpose built and 'renovated' environments. Iconic symbols such as the turtle, serpent and lizard sculptures at The Lakes are appropriated by the students to mark their relationship to a fluid internal school structure. Ownership and responsibility for key areas within the ILE such as dry/wetlands, native gardens or vegetable gardens have far reaching implications beyond these designated areas. For example at Manchester Primary School, the volunteer environmental group YEP have played a central role in leading whole school organisation with peers and their teachers through the external and internal recognition of their work and expertise in environmental initiatives. Such achievements are born of cultural attitudes fostered within the school that value taking student agency seriously. For example, as the case study at Manchester Primary School noted, as part of the everyday cultural practice of the school, students answer the phones in the front office and are in charge of managing other regular duties. Bentleigh West PS also has an environmental focus on sustainability in design, programs and culture. There is a strong connection to outdoor learning spaces developed through inquiry projects; there is a symbolic connection with community – parents sit in cars and listen to podcasts on the school's community radio band.

In ILEs where the innovation appears to be more isolated in nature, the way in which the broader teaching staff is brought into relationship with the innovation is significant to its continued success and to the possibilities of engaging other teachers and their cohorts in innovative environments. An effective enculturation process involves close consideration of how a professional learning culture can be extended to other staff and sustained beyond staff transition. By way of example, the leadership team at Ballarat High School have worked with other staff to transfer the school frameworks and structures to focus on relationships and the personalisation of learning for all members of the school community using the experience of the Year 9 ARCH program, including cycling staff through the program.

Structural practices

The case studies illustrate the broad and varied approaches that impact this aspect of ILE practices. At Yuille Park Community College, a multi-aging model across three learning pods has facilitated team teaching opportunities and the capacity for some inquiry based work with students. Working within the Community Hub has facilitated closer links with the community and increasing relationships with parents. At Bellaire PS four open learning communities provide the context for personalised learning achieved through conferencing and goal setting around Deep Knowledge Units. Similarly, the Learning Streets of The Lakes and the 4 period day timetable system has set up opportunity for informal yet activity-rich pedagogical practice. Family home groupings at Mordialloc College, each with a family guide (home group teacher), neighbourhood learning (the whole cohort), and relational circles (usually in family groups) support an emphasis on personalised learning within flexible spaces that house all classes of Year 7s and Year 8s.

By way of contrast the approach taken by Grovedale West Primary School is one invested in building a data driven learning culture from the ground up. Teachers are being trained in the analysis and interpretation of data to inform conversations and discussions in the school regarding student learning. Ballarat High School and Mt Waverley Primary School have both been highly influenced by their staff/student/parent surveys, and lack of satisfaction with various aspects of these schools has been attended to carefully and resulted in changes.

Communication practices

The open or shared spaces in a number of the case studies provoke numerous processes for the exchange and sharing of experience and ideas. Working in teams continues to be a driving force in the effective facilitation of communication practices. In the case of Ballarat High School, rather than turn to outside consultancy, staff meetings and professional learning has been led from within. Teachers at Yuille Park Community College describe their reflection on their teaching as being continuous and facilitated by team teaching, as providing a natural opportunity to reflect on the teaching and learning with others from the team. At Mt Waverley Primary School a more structured communication process operates between students and staff through a reliance on rubrics and student self evaluation. At The Lakes, student reflection occurs through formal evaluation but also through informal conversational and dialogue between staff and students: students are routinely asked to verbalise how they have been engaged in the learning task and what other processes or organisational skills would they consider useful next time. The NETschool bases communications on a mentor/mentee model and adult oriented workplace practices supported by negotiated individualised learning plans and reflective journals.

Social practices

The collective endeavour of teaching and learning in an ILE is underpinned by many of the practices outlined above; however the effectiveness of such work is premised upon fostering and sustaining relationships at the centre of the work. The case studies illustrate how different contexts and histories require a repertoire of approaches responsive to each environment and participant community. For example, at Bellaire Primary School teacher coaching and goal setting is engaged to support a culture of personalised learning in the flexible open plan environments. At Ballarat High School the Principal and Assistant Principals stand at the gates in

the morning and personally greet students and staff as they walk into the school. Yuille Park's Pod 3 teachers individually farewell each student while Pod 1 teachers stand at the front of the school and meet with parents.

Semiotic practices

Many of the schools within the project employ semiotic practices to marshal and mobilise change within the school environment and community. At Ballarat High School a copy of the Learning Framework is in every room in the school and used for teacher, student and management reference alike, but is also a focus for class discussions. At Manchester PS a similar approach is taken in the Grade 3 classroom where the VELs framework is clearly displayed on the classroom notice board for student and teacher reference. The language of the framework is explicitly discussed and used in student conferencing and project planning. At The Lakes the seamless flow between inside and outside mirror connections between safety and student responsibility (both physical and pedagogical). Overt messages of an inspirational and aspirational nature for learning are propagated through explicit slogans throughout the learning streets. At Grovedale West PS teams work on creating activities which not only engage but help students to move forward in their learning through skills acquisition and negotiated inquiry. John Monash Science School uses select entry to a school located on the grounds of university, the appropriation of academic discourse as teachers are named as tutors and frequent guest lectures by university staff. These examples are contrasted with the vocational discourse of workplace skills and expectations evident in practices at the NETschool, and the complementary logos for Yuille Park CC, Wendoure West Learning Hub, Well-Being, Children's Services Centre.

Nature and quality of learning

The nature of learning is not dependent on learning environments. Rather, the learning environment can support or constrain particular learning processes. Environments can also influence teacher practices. The case studies identify through interview and document analysis those teaching practices and learning processes which are identified by the school as aspirational within these ILEs. The study has also engaged the 'everyday' format and modes of teaching and learning in the ILEs by observation and analysis of the spatial organisation of teachers and learners in the schools' spaces.

The OECD ILE/CERI program and DEECD research program both focus on the pedagogical positions required to support the development of the self managing 21st Century Learner. The first phase of the ILE/CERI program identified the following 'principles' indicating that an effective learning environment is one that:

- Makes learning central, encourages engagement, and develops an understanding of their own activity as learners
- Is where learning is social and often collaborative
- Is highly attuned to the learners' motivations and the key role of emotions
- Is acutely sensitive to the individual differences among the learners including their prior knowledge
- Is demanding for each learner but without excessive overload

- Uses assessments that are consistent with its aims, with strong emphasis on formative feedback
- Promotes horizontal connectedness across activities and subjects, in- and out-of-school

The case studies themselves provide significant detail and evidence in relation to teaching practices and learning processes. In this overview each of the above principles is used as a lens for discerning productive and generative examples of effective learning as well as distinguishing common threads in pedagogical practices and learning processes.

Principle 1: The Learning Environment makes learning central, encourages engagement, and develops an understanding of their own activity as learners.

Each of the case study schools positioned learning as central to their design/re-design. There are, however, a diverse range of conceptualisations of 'learning' evident in the studies. This diversity comes from a combination of neighbourhood context, student population demands and schooling purposes. For several of the schools the student populations and schooling purpose were very focused and specific. In John Monash Science School and the NETschool, student learning was envisaged differently and yet all included individualised learning, specific goal setting and student agency in determining learning programs. For Manchester Primary School and Grovedale West Primary School, learning in the Early Years is conceived as being located and developed through play (Walker Developmental program, 2003). For Courtney Gardens learning is evidenced through NAPLAN results and this shapes the teaching practices and privileges particular learning processes. Grovedale West Primary School has a strong focus on literacy integrated across the curriculum including specialist subjects, while Mt Waverley Primary School draws on the specific requirements of the Anim8tion program to support literacy and numeracy improvement. Bentleigh West Primary School approaches personalised learning through identification of next steps through a structured approach to VELs, whereas evidence in achieving literacy and numeracy goals at Bellaire Primary School is described in 'child-friendly' language as the focus of learning.

Similarly, each of the ILEs emphasises student engagement and being responsive to a particular student cohort. Student agency in learning, physical comfort in flexible surroundings and embedded ICT were pervasive attributes of these ILEs. Particular content areas are being emphasised for the richness of the tasks they involve and for their links to student interest (Wetlands area development in outdoor areas at Manchester Primary School; Anim8tors@MWPS at Mt Waverley Primary School; TV and radio station at Bentleigh West Primary School; Design and Technology centre at The Lakes).

Many of the ILES have adopted direct metacognitive strategies in student engagements with learning. Students in Early Years at Manchester Primary School articulate their learning goals in daily activities. Teachers are heard to ask such reflective questions as 'how have you been learning in this task?' and 'what other processes and organisers will you consider useful next time?' In other ILEs senior students contribute their own assessment of learning goals and approaches to learning; John Monash Science School highlights learning styles and self-assessment, and the ARCH program (Year 9) at Ballarat High School has a core subject titled 'Thinking Learning Connecting'.

Principle 2: The Learning Environment is where learning is social and often collaborative

Social and collaborative processes in learning are central to each of these ILEs. Newly built environments, with flexible space and flows of movement are conducive to these processes. The priority of collaboration and teamwork between teachers is embedded in school design and organisation – ‘Everybody has to work in teams’ (The Lakes South Morang Teacher DVD) – and forms an integral part of the learning environment. The collaborative, open and flexible structural design of the LE spills over into the pedagogical engagements with and between staff and students. Many of the curriculum programs are premised on students’ collaborative work: Anim8tors@MWPSat Mt Waverley, the ARCH Year 9 at Ballarat High School.

The social and collaborative aspects of learning are seen to emerge from the social and collaborative work of staff and leadership teams. Team teaching is supported at many of the schools: The Lakes, Manchester Primary School, Yuille Park Community College, Mt Waverley Primary School, Ballarat High School, Bentleigh West Primary School, Mordialloc College, Grovedale West Primary School, and Bellaire Primary School. At Yuille Park Community College, multi-agency collaboration is evidenced as the P-8 College is a part of the Wendouree West Community Learning Hub, which includes education, health and community facilities in the one location.

Principle 3: The Learning Environment is highly attuned to the learners’ motivations and the key role of emotions

The ILEs all focus on pedagogical renewal and/or change. The impetus in some cases is for a pedagogical way forward for the whole school as a response to current approaches to schooling in the 21st century (Yuille Park Community College, Ballarat High School). For other ILEs, the impetus is the motivation of the learners; John Monash Science School is one such ILE. It is a select entry school where entry is based upon the applicant’s passion for and aptitude in science and mathematics. Another ILE which is driven by student motivation is the NETschool which is responsive to those 15-18 year olds who have not completed secondary school and who wish to complete VET, VCAL or VCE. There, teaching and learning is built around individualised learning plans negotiated between a mentor and a learner and is operated through either a home- or centre-based program, with opportunities to also engage with more a traditional learning environment at Bendigo Senior Secondary College.

The affective dimension of learning is prioritised in many of the ILEs. This is apparent in the language and the symbolic structures described in the previous section: ‘home groups’, ‘family groups’, iconic community and environmental connections. It is also apparent in the strong emphasis on student agency. At Manchester Primary School, for example, students have the opportunity to be elected, chosen and nominated for various responsibilities and awards including House Captains, managing assemblies, acting as ambassadors on Junior School Council and Student Recognition Awards. At Bentleigh West Primary School there is also a strong focus on student leadership – student council, environmental action, music – plus wide participation in state and national environmental award programs. Student Trust Licenses, similar to a driving license, are carried by students at Bellaire PS, indicating an agreement to abide by a set of principles. In return they are given privileges such as the opportunity to work in outdoor areas and to go to specialist classes unsupervised. Misdemeanours result in the suspension of the student’s license and the loss of privileges. Yuille Park Community College has a whole school approach to affective learning which includes parents and wider community.

Principle 4: *The Learning Environment is acutely sensitive to the individual differences among the learners including their prior knowledge.*

Each of the ILEs acknowledges student diversity and individual difference but curriculum and teaching responses vary across the case studies. For some, individual learning programs are negotiated with teachers or mentors: John Monash Science School, The NETschool, and Ballarat High School. Limited individual planning occurs in other ILEs; at Manchester Primary School, Prep to Year 2 individual student learning plans (ILPs) are used as a remedial measure when students are identified as having difficulties, and in Years 3-6 Educational Research Projects are developed. At Yuille Park Community College students in Y2 (a cohort of students who are transitioning back into secondary school) each student has an Individual Learning Plan (ILP) that is directly related to the student's needs.

The design or re/design of spaces accommodates a variety of learning activities that support individualised learning. At The Lakes, chairs were purposefully limited in number to compel teachers to provide a variety of concurrent activities requiring differing physical engagements. Several of the ILEs have been constructed to allow flows of movement between inside and outside: The Lakes has outside areas for each inside learning pod; Yuille Park has designed visual flows between spaces, for instance between the kindergarten and Pod 1; Manchester Primary School and Grovedale West Primary School have each adopted Kathy Walker's developmental curriculum. The types of play within this curriculum are specifically planned for and organised in the nooks, indoor and outdoor places as part of the days' learning work. At Yuille Park outdoor activities such as the Stephanie Alexander Kitchen Garden Program are important parts of the curriculum.

Principle 5: *The Learning Environment is demanding for each learner but without excessive overload.*

It is difficult to ascertain inside the short time of this project whether the learning is appropriately challenging. Indicators may include student satisfaction and attendance rates, for example, improved student satisfaction surveys at Mordialloc College, Bentleigh West Primary School, and Yuille Park Community College, and improved student behaviour data at Bentleigh West PS. Other likely indicators of this may become evident when attention is paid to levels of challenge in planning, such as the way in which Grovedale West Primary School has increased focus on student progression through VELs.

Principle 6: *The Learning Environment uses assessments that are consistent with its aims, with strong emphasis on formative feedback.*

The case studies reveal a diverse range of assessment practices that are congruent with the aims of learning environments. Courtney Gardens Primary School, for example, has focused the work of the school around improvement in NAPLAN results. In Prep and Year 1 at Manchester Primary School and at Grovedale West Primary School, Walker's (2003, p. 18) 'Stages of Play' (Onlooker, Solitary, Parallel, Associative and Cooperative) are formatively assessed by teacher observations of the child's eagerness, involvement, and sociability. At Manchester Primary School, two children are chosen to focus on each day, as a part of ongoing, structured formative assessment. Mt Waverly Primary School has structured assessments for their animation project, some of

which is self assessed, designed to progress the stages of the project and promote student autonomy.

Principle 7: The Learning Environment promotes horizontal connectedness across activities and subjects, in- and out-of-school.

An integrated approach to curriculum is emphasised in some ILEs and there is considerable variation in the extent of the integration. Often the integrated curriculum involves a part of the day's timetable running alongside literacy and numeracy blocks. Grovedale West PS integrates focus priority (literacy) across specialist areas. Ballarat High School's ARCH Program utilises team-teaching of core subjects such as English/Maths to a large group of learners with teachers making links to across the specific curricula and with other subject areas. Yuille Park Community College facilitates the opening up of curriculum to inquiry based learning which merges across subject boundaries and allows student-led learning. This is developed through rigorous topic design and teaching/learning approaches; in Pod 3, for example, there is a multi-entry point focus to all tasks to cater for the wide range of learners.

The time span of this study permits only limited assessment of the quality of the learning that is apparent in the ILEs; more in-depth reporting has the potential to reveal further detail and evaluation. In this respect, it is not possible to indicate at this stage the qualitative differences that are realised through these environments over others. It is evident that the quality of learning in these ILEs is supported and also constrained by the structures, patterns and characteristics of the learning environment. It is also evident that these ILEs make available teaching and learning encounters which underpin deep learning. The six principles of effective learning environments resonate throughout these ILEs but in varying degrees and at this stage appear to be directly related to teacher-student relationships emerging from supportive leadership, and ongoing teacher professional development and collaboration. This staff learning and positioning reflects the conditions or principles for student learning.

Impact and effectiveness of ILEs

With regard to the impact and effectiveness of the ILEs, there is a need to make some qualifications. First, impact is difficult to determine as argued in terms of the complexity of an ILE as creating a set of relationships that address the differential developmental needs of individual students. With significant changes in the organisation of learning and teaching and in the social practices of, for example, team-teaching and cooperative learning, there are multiple factors coming into play that could impact on students both individually and collectively with regard to attitude, motivation, behaviour, physical growth, and academic achievement as measured by test scores.

A range of forms of evidence were seen by teachers and principals to indicate success:

- Increased interest in enrolment (e.g. John Monash Science School)
- Sustained improvement in NAPLAN over three years (e.g. Courtney Gardens Primary School, Manchester Primary School)
- Student satisfaction surveys
- Increased parental involvement (Mt Waverley Primary School, Yuille Park Community College)
- Staff satisfaction (Yuille Park Community College)

- Impact on rest of school (Mt Waverly Primary School, Grovedale West Primary School, Mordialloc College, Bentleigh West Primary School, Ballarat High School)
- Closing the gap on data : student satisfaction matching with teacher satisfaction, VELS assessment vs VELS
- Confidence to innovate again (e.g. Courtenay Gardens – beyond literacy)
- International visitors—professional interest- (The Lakes, John Monash Science School, Mordialloc College, Yuille Park Community College)
- Facilitating professional learning networks (e.g. Yuille Park Community College, Courtenay Gardens Primary School, Grovedale West Primary School, The Lakes, Bellaire Primary School, Bentleigh West Primary School)
- Awards (Manchester Primary School, Yuille Park Community College)
- Public interest/community interest involvement
- Research interest (John Monash Science School)

Effectiveness of an ILE can only be claimed in terms of its stated objectives. In some instances, where the aim was re-engagement of students at a year level, as with the Mt Waverley Primary School Anim8ation program, there was anecdotal evidence across the year level from teachers as to changes in behaviour and attitudes that translated out of the program and into the rest of the week, such as the capacity of students to concentrate on tasks for longer periods. Evidence from other case studies includes: increased parental involvement in school councils and other activities as well as in classrooms.

Student feedback about effectiveness of ILEs was more uneven with some ambivalence according to individual dispositions, although student satisfaction rose in all schools surveyed. For those schools with above average NAPLAN academic test scores, these could only be expected to have minimal increases. Other case studies showed initial increases which plateaued as the school expanded. This could be a consequence of rapid expansion of student numbers or, equally, a result of a particular cohort's profile. At the NETschool, the aim was initially to re-engage students with school but this expanded to include employment or other activities. In the short term, success was judged by just getting some students to attend the school or access the online learning site. For Yuille Park Community College, the data for the first full year of teaching and learning in a new environment was lower than expected, but this was hugely improved after a further year of adjustment and settling in to new spaces, routines, and experiences.

For schools in what we refer to as design or transition phase such as John Monash Science School, which had only been operating for 8 months at the time of review, success can only be judged according to student attitudes, staff observations and anecdotal examples of individual and collective activities. The issue for John Monash, which was developing different ways of teaching science and maths at a senior level, was as described by the Principal: 'When you have innovation, current methodologies of effectiveness do not have the capacity to measure what has been learnt.' The issue of effectiveness lies in not what is happening in classrooms but the adequacy of the measures of success. This was equally applicable across all of the schools sites. If the innovation is defined within conventional parameters (e.g. NAPLAN) then the question is whether innovation as being undertaken in these schools counts as success.

What was also evident in this project was that constantly changing policy and funding meant that any innovations had to be protected and often justified in terms of allocation of funds to school communities. Principals often were unable to control their learning environments. Many faced either shrinking enrolments due to area demographics or rapid expansion (like 300% in 3 years). Others, such as Bentleigh West Primary School, had to protect what was working in their

school with a cap on enrolments. Courtenay Gardens has designated enrolment because it was physically at full capacity; a longer term consequence is for a new school was to be built in the neighbourhood which would impact on future enrolments and potentially affect sustainability. Finally, there are pertinent questions about how an ILE evolves: What remains as innovative? Once consolidated as everyday practice on a wider scale, how is an ILE sustained as innovative? Many of the case studies reveal that there is a need for ongoing or serial redesign.

Discussion

Innovative pedagogical practices enhancing 'lines of desire'

Many of these case studies indicate how teachers sought to re-engage students by authentic curriculum and pedagogical practices that captured their interests. It was about recognising and opening up new pedagogical spaces by capitalising on student's 'lines of desire', 'routes people take though open and semi-open spaces in preference to those marked out as paths by planners' (Luckin 2010, p.3). This was achieved by teachers adopting and adapting curriculum and assessment in ways that provided meaning to their students while addressing VELs standards.

Such was the case at Mount Waverly Primary School, a high achieving school in terms of NAPLAN but with evidence of student disengagement. With the Anim8tion Program at Year 6, teachers recognised the ways students enjoyed engaging with new technologies and popular culture, and converted them into:

...powerful tools of engagement for all students, not just those who struggle with literacy. These teachers capitalised on student interest and expertise with visual and computer literacy to establish an expanded range of performative, entertaining, collaborative literacy practices within the classroom. However, teachers were wary of exploiting the drawing power of new technologies without sound pedagogical intent. When teachers critically explored the various forms of multimedia and technology their students already enjoyed –film, cartoons, computer games, radio and music – they drew initially on a 'wow' factor, but moved beyond this initial stage to engage their students more deeply in the powerful communicative capacities of multimodal forms of literacy (Comber and Kamler 2005, p.117).

Affects and Ambivalences

This analysis would indicate that innovation is viewed with some ambivalence by students, parents, teachers, principals and indeed systems. Innovation is about breaking new ground and is therefore risky. For parents informed by their own school experiences that was often more traditional and discipline based, inter-disciplinary projects together with informal learning including in- and out-of-school activities can have the appearance of lack of rigour and/or content. For teachers, innovation as depicted in these case studies requires a capacity to consider the big picture beyond their classroom, to draw on expertise of others, and/or to work in teams rather than alone.

For students, the routine of the familiar is also often safer ground than moving into unfamiliar academic or social territory. There was surprising evidence amongst students indicating a level of nostalgia and grief and a desire to retain the old ways of doing things, the familiar spaces and places. This is borne out by a Ballarat High School student who acknowledged that she was a 'traditional' kind of learner and that the ARCH program didn't suit her individual learning style.

For schools, particularly those with more diverse student learning needs and located in more challenging circumstances (e.g. high poverty areas, rural and regional locations, isolated by familial or social conditions), additional resources may be required in order to both initiate and sustain innovation in ways that meet the needs of all students. Any desire for whole school change has to focus on reconfiguring pedagogical practices, resources and tasks that meet the needs of all students, activities that promote social learning and motivate students within an inclusive and caring ethos, while supporting and empowering teachers to take risks, and to develop a wide pedagogical repertoire that is also intellectually challenging (Lingard et al 2003), and respectful and engages with communities, including parents.

Conditions conducive to innovation

These case studies indicate how there needs to be policy support as well as additional resources to enable innovation. In each case study, additional resources provided opportunities for principals and teachers to do something differently. All of the projects were resourced by the Leading Schools Fund, the Building Futures Program or Building the Educational Revolution. Additionally and indeed a stimulus to innovation itself, was the generally supportive Statewide policy environment of DEECD in the form of:

- Leading Schools Fund encouraging innovative projects
- Building Futures which allowed for localised participatory design based on pedagogical and architectural principles supported by experts
- VELS curriculum and assessment framework that offered rubrics and strategies which facilitated adoption and adaptation within classrooms
- Focus on literacy and numeracy coaches from and for Regions
- Discourse and celebration of innovation encouraging school based innovation, e.g. ResourceSmart Sustainable School Awards
- Additional resources with additional teachers due to amalgamations
- Relative school autonomy, e.g. staff profile, mix of teachers and support staff
- School based rather than externally imposed reform approaches

As Darling-Hammond et al (2003) argue, for assessment, curriculum and pedagogical practices to evolve in ways that promote systematic inquiry, there is a need for first and therefore often second level change simultaneously. This requires dedicated time over time as it takes 'pedagogical sophistication to manage extended projects in classrooms so as to maintain a focus on 'doing with understanding' rather than 'doing for the sake of doing' (Barron et al 1998).

Chapter 6: Implications for Professional Learning and Leadership

Teaching practice is informed and framed by different approaches to reform, with each approach having implications for how professional learning is undertaken. There is now considerable evidence that *top down* mandated reform that is universal and assumes one size fits all is not an effective way of changing teachers' practices. This approach is usually accompanied by short term Professional Development based on transmission pedagogy or 'train the trainer' models. By contrast, while contextual and system-wide factors have been catalysts for ILEs, in all cases the approach has been school-based or bottom-up. All the 12 ILEs were bottom-up school-based approaches within a supportive policy environment balanced by stronger external accountability, both externalities acting as drivers for improving outcomes. While the scope and scale of each ILE varied, they were focused on improving student learning outcomes and at the same time recognising that teacher autonomy and sense of agency were critical to improving student learning. The focus was in many cases on staff renewal in already established schools, building teacher leadership and professional learning communities.

Similarly, the scope and scale as well as the rationale for the ILEs had implications for professional learning. A *whole school approach* based around an ongoing school improvement model and development of a learning organisation tends to be a process driven cycle of review and evidence oriented, as was the case at Yuille Park Community College, The Lakes, and Ballarat High School. This was about shifting the whole school culture. Whole school approaches run the risk of producing defensive pockets among some teachers, particularly in large schools. *Program based reforms*, for example, where an ILE is located at a Year level such as at Mount Waverley Primary School and Mordialloc Secondary College, tended to be a strategic intervention that was more issue focused while modelling innovation. Mordialloc Secondary College's ILE emerged out of long term commitment to Quality Learning program and the PEEL program which focused on explicit meta-cognitive strategies and a desire to move away from 'teaching to the text'. The smaller scale ILEs, with the focus on a smaller group of students and teachers' program-based innovations, were often more inquiry based and action research oriented, as at Ballarat High School. *Curriculum focused* professional renewal has a strong content focus and is often linked to drawing in specialists for professional development, as for example, at Manchester and Courtenay Gardens Primary Schools in relation to literacy or play-based learning. Some schools, like Ballarat High School, focused on professional learning as the precondition for improving student learning with the explicit aim to build professional capacity first and rethink and evaluate current teacher practices. A *student centred approach* put pedagogy at the centre and focused on teachers listening to students as occurred at Mt Waverley Primary School where student disengagement originally was the issue.

In each case study school, there was evidence of development of professional learning communities arising out of changed teaching practices. Various strategies to develop the learning communities were mobilized:

- (i) Organic evolution of the ILE by a small group of teachers working together and recruiting in volunteers such as at Mt Waverley Primary School and the NETschool.
- (ii) External consultants bringing in new ideas and strategies, for example, play based learning at Manchester Primary School.

- (iii) Evidence driven analysis in which data from NAPLAN, student and parent surveys, observation, student evaluations indicated the need to improve in terms of current strategies, such as occurred at Courtenay Gardens Primary School.
- (iv) Provocations to challenge teachers to change practice; student perspectives on what is taught, how it is taught and what they learn is increasingly critical for informing practice (Grovedale West Primary School, Manchester Primary School and Courtney Gardens Primary School).

At Grovedale West, where the aim of the ILE was to create a collaborative professional learning culture, an assistant principal tracked the learning of a student in the school and wrote up her story. This student narrative was then used by the teachers to consider the lack of consistency and coordination across the school and within year levels, and highlighted the incongruence of student experiences with regard to expectations and variability in teaching. Such a provocation became the reference point for whole school change.

- (i) Development of a whole school Learning Framework as the primary reference point for all initiatives across the school; at Ballarat High School the framework provided a scaffold for building a professional learning community (McLauhlin and Talbert 2006, p. 67)

At Ballarat High School, the leadership team under a new principal moved towards a whole school approach through integrating professional learning through the development of a core values framework in which all staff and students were expected to undertake personalised learning and building relationships. The process was to develop a year level initiative at Year 9, facilitated by a building upgrade of a dedicated space. But the focus on relationships as the starting point was symbolised by each of the five executive leaders greeting and meeting students, parents and staff at the front gates each day. Once students realised this was not about surveillance, but about care, there was recognition by them and the community that something different was occurring in the school.

- (ii) Adoption and adaptation of established programs to create a purpose-built program.

Mordialloc College sought to move from text based teaching to student focused learning under the leadership of an Assistant Principal that moved on from utilising a Quality Learning Program. In 2004 a Leading Schools Fund proposal shifted teaching and learning towards an inquiry based action research approach informed by the PEEL program for Year 7 as the first stage in whole of school regeneration.

- (iii) An explicit focus in some schools on building professional learning communities, as at Ballarat HS, Mordialloc College and John Monash Science School. This required staff to adopt inquiry approaches and also to engage in professional reading and undertake practitioner research.

- (iv) Community Renewal

Cochran-Smith and Lyttle (1996) indicate there are three forms of knowledge that teachers negotiate with the pedagogical needs of students:

- *Knowledge in practice* : expressed in practice, reflections and narratives – sharing with colleagues

- *Knowledge for practice* : subject matter and content, pedagogical repertoire, theories of learning, reading and doing research
- *Knowledge of practice* : relationship between knowledge and theoretical aspects arising from systematic inquiry about teaching, schools, curriculum in and out of school, and policy analysis through professional communities to create a practitioner body of knowledge.

It is evident in most case studies presented here that the teachers were strong in knowledge content as well as knowledge in practice. Hayes et al (2006) identified in their longitudinal study of classroom practices that Queensland teachers were high in terms of content knowledge and care, as indicated in these case studies also. But teacher professional learning needed to focus more on developing intellectual depth and addressing individualised learning needs, areas which were the focus of the rich tasks at Mt Waverley Primary School.

There is also significant research arguing for the need for school and even system wide systematic practitioner research which builds a knowledge base (Kekale and Pirttila 2006; Campbell and Groundwater Smith 2010; McLaughlin and Talbert 2006; Lieberman and Miller 2008). What was emerging in these ILEs was a strong move towards developing knowledge of practice and growing teacher leadership capacity. While there were examples of professional inquiry approaches, as in the case of Ballarat High School's encouraging teachers to be doing, reading and applying research in practice, there was no evidence as yet of what could be regarded as systematic practitioner action research (Campbell et al 2004).

This is where regional and central support can facilitate progress by creating supportive policy environments. System wide professional development is equally important, complementing what schools can do, and facilitating the dissemination of ideas across schools. As McLaughlin and Talbert (2006, p.77-8) argue, combining multiple approaches to teacher professional learning should be based on three principles:

- Complementarity between classroom coaching and teamwork; collaborative team work and off site activities
- Interdependence which encourages the building of knowledge for practice as professional community
- Synergy between classroom professional relationships, learning communities and system wide professional development.

Leadership practices

A critical element to each ILE was leadership which is, according to Lingard et al (2003) often conceptualised as a pedagogical relationship between the leader and the team. There is now evidence that leadership plays a significant role in terms of providing the vision, resources, and conditions of work that enhance student teacher interaction (Hallinger 2003; Leithwood and Jantzi 2006). An Iterative Best Evidence Synthesis of the literature (Robinson et al 2009, p.38) stated that of the two dominant models of leadership currently circulating—transformational leadership which focuses on vision and inspiration, and pedagogical leadership which focuses on establishing clear educational goals, planning curriculum and evaluating teachers and teaching—pedagogical leadership is more likely to impact on student learning outcomes. Five leadership dimensions that were seen to influence student outcomes were:

1. establishing goals and expectations
2. resourcing strategically
3. planning, co-ordinating and evaluating curriculum and teaching
4. promoting and participating in teacher learning and development
5. ensuring an orderly and supportive environment (p. 39)

As with school effectiveness research, these conclusions were developed through a backward mapping approach by considering leadership practices in research reporting schools where student learning had improved. Our case studies confirmed these conclusions, but also indicate that neighbourhood, policy and institutional environments continue to be key factors. Unexpected contingencies also shape leadership possibilities and the capacity to be opportunistic and strategic – for example, large demographic shifts, such as that at The Lakes which has expanded 300% in three years, required a move away from more democratic processes; the BER which arose out of the global financial crisis gained Mt Waverley Primary School a new hall; and in the case of Ballarat High School, Grovedale West Primary School and Bellaire Primary School, the dynamic arising from a particular group of teachers and/or Principal with like minds produced new directions and focus.

There were a range of leadership practices identified in these studies:

- Tendency towards flatter structures or devolution of responsibility down to team leaders of smaller clusters, pods, or centres around a group of students and teachers.
- Variations in leadership practices from more directive leadership upfront in early stages of establishment of the ILE to initiating leaders stepping back and leading from centre as collaborative practices became more consolidated. This occurred both at school and team level.
- Some projects continued to be more executive-driven which was often symbolised by where the executive was located within the building and that the Principal attended all meetings. This could produce some tension between executive and team leadership.
- Smaller schools had flatter structures such as at Yuille Park where the Principal led from the centre, and the NETschool where the Director worked as one of the team, or in smaller teams within an ILE that was organised around a program (e.g. Mt Waverley's Anim8tion).
- Team teaching was central to the discourse of reform in most ILEs, but more overtly evident in practice in some schools, such as at Yuille Park Community College, Ballarat High Schools Year 9 ARCH program, and Mt Waverley's Anim8tion program.
- High levels of trust in colleagues in terms of devolving power to others to lead the innovation, whether an Assistant Principal or Leading Teacher, for example, Yuille Park Community College, The Lakes, Mt Waverley Primary School; at John Monash leadership was devolved to designated curriculum areas.
- Critical role of principals in encouraging staff to take risks and experiment, without blame where there were failures, as well as allocating resources to support the ILE, as it gave teachers a sense of agency (Manchester Primary School, Bentleigh West Primary School and Mt Waverley Primary School).
- Working in a partnership with external organisations such as John Monash Science School and Monash University raised some ownership issues but had the benefits of drawing in a wide range of expertise.
- Focus of executive leadership on staff wellbeing and support emotionally.
- Provision of a range of professional development opportunities including travelling overseas and/or interstate to investigate innovative practices (Ballarat High School, Yuille Park and Mount Waverley).
- The importance of teachers and students having a sense of autonomy (Bellaire Primary School), self-direction and the capacity to opt in or out of the ILE (NETSchool), volunteering for a school improvement team and not a position at (Grovedale West Primary School and Ballarat High School).
- Leadership capacity building in most schools as experienced teachers mentored novices, but also recruiting, inducting and mentoring second generation teachers into the ILE, a

critical factor in a whole school approach to sustain the innovation, for example at The Lakes where there was up to 40% new staff in one year.

Significant across all case studies was the role of, and relationship between, executive and teacher leadership. All the ILEs focused on flatter structures with a strong focus on teacher leadership. Home-grown teacher leadership was seen to be critical to sustaining reform. As an ICT coordinator who initiated one ILE commented, as much as she would like to think of herself as indispensable, the program would go on without her. At Yuille Park Community College the Principal aims at building leadership capacity. While principals devolved responsibilities to leading teachers in learning pods or areas, this needed to be resourced. While in some instances it was more a model of distributed leadership, in smaller schools, the capacity for all staff to be involved in decision-making facilitated collaborative decision making and produced a strong sense of ownership, although this changed over time if the school or ILE expanded rapidly. There was a sense in some schools, even over a three year period, of a loss of ownership over the initiative between first and second generation teachers. Mentoring was particularly important in schools with a large number of novice graduate teachers, as at The Lakes. While seen to bring a new enthusiasm, and being more technologically disposed and therefore vital to whole staff regeneration, many young teachers struggled with non-traditional flexible spaces while others flourished.

Team teaching, encouraged by the openness and flexibility of space and multi-age interdisciplinary classes, was highly conducive to teacher collaboration. Across all schools there was a discourse about team work and collegiality. These were seen to be critical to developing teacher professional knowledge and also to retain the focus on student learning.

Building professional skills and knowledge was also central aspect of these case studies. The Principal of The Lakes said the aim was to move staff through three stages: from dependence, through independence to interdependence. The strategies used across the case studies included:

- Induction of new staff (The Lakes)
- In house conferences
- Mentoring between experienced and novice teachers
- Induction into ILE
- Coaching by specialists dedicated to teaching and learning as at John Monash, Bentleigh West and Grovedale West)
- Principal in residence (Mt Waverley and Courtenay Gardens)
- Researchers and academics in school – teacher-adjuncts (John Monash)
- Teacher education practicum rounds incorporated into the ILE (The Lakes)
- Technical specialists to support staff as at Bentleigh West
- Partnerships with industry as with Mt Waverley
- Working with other professionals and government agencies in regeneration and environmental sustainability as at Yuille Park.

While none of the strategies are new, their availability to all staff was important in terms of providing a supportive ethos but one premised on building professional knowledge and collegial relationships. Critical to the success of collaborative teacher professional learning were a number of organisational factors including:

- blocked timetabling that encouraged team teaching and collaboration
- capacity of teams within learning spaces or pods to have dedicated time for teacher planning each week as part of overall teaching allotment
- flexible spaces for mobilizing a range of pedagogical repertoires

Scaling up: within and across schools

Professional Development purpose-built spaces were a common feature of the flexible spaces in ILEs which enabled outsiders to visit, observe and even undertake in-house professional learning sessions. A common practice was for teachers to provide their own professional learning through presentations to each other in designated staff meeting times. For example, John Monash Science School and Ballarat High School allocated a Wednesday afternoon specifically to meet, plan and share ideas. Often individual teachers presented at other schools, conferences and professional development sessions at the Bastow Institute of School Leadership.

All 12 schools were seen to provide exemplars of how to do things differently. As such each has become the focus of teacher professional training within the Victorian schooling system, but also nationally and internationally. As indicated, international visitors are common, and other schools come to observe and learn in terms of how they transpose and translate, adopt and adapt, or create a local version of the ILE elsewhere. At the same time, teachers and principals expressed caution at the notion that the ILE could be 'transported' elsewhere and 'applied', or scaled up across a number of schools. In many instances it was the small scale of the ILE that produced the greatest effect, as with the NETschool.

Investment in teachers

Also critical across these case studies were the ways in which school leadership facilitated teacher capacity to undertake serial redesign through visits to other schools/sites to investigate ideas. Courtenay Gardens Primary School invested \$20,000 in teacher professional development and Ballarat High School had a team of teachers travel internationally through the Teacher Professional Leave program. An example of system wide programs that support this knowledge transfer and are linked to professional capacity building is the International Teacher Fellowships program funded by DEECD. Specialist training was offered, as in the case of the NETschool where teachers gained training in health and welfare. These studies indicated an emerging shift in the workforce profile, with greater differentiation in terms of expertise evident in classrooms with teachers, teaching aides, health and welfare experts and technical support working together in classrooms (Gunter 2007).

Conclusion

Silins and Mulford (2010, p.19) in longitudinal studies of leadership and student learning in five Tasmanian schools concluded that the challenge for school leadership is to 'create synergistic effects: the accumulation of a number of effects developed with others over time in the same direction, even though this direction may change as a result of feedback on performance.' Equally important is how teachers and principals choose to focus on school capacity, evaluation and accountability, teacher values and beliefs and student *social* skills and *empowerment* (p. 73). Feedback was defined not merely as evidence-based monitoring but also critical reflection on 'why', 'how' and 'what' and 'how do we know' and what 'do we need to change'.

When it comes to building teacher professional communities, Lieberman and Miller (2008) consider there are five core factors at work: context, commitment, capacity, content and challenge. They maintain that:

Context matters. Factors such as where a community is located, the culture that surrounds it, the way it gets started, and its conditions of membership combine to impact on the trajectories it takes and the challenges it faces. (p. 97)

At the same time, it is important to have individual teachers committed to working together as a learning community. Hence some of the more successful ILEs were those that had a core of teachers working together voluntarily. Capacity was also important in terms of the range of skills, interests and relationships that developed as they worked towards a shared project. Recoding and reporting the stages and phases as well as planning and curriculum design made explicit their newfound individual and collective capacities. Equally important was the balance between content and process – about how to deepen subject matter knowledge, create intellectually challenging interdisciplinary tasks while expanding their pedagogical repertoires to address individual difference. The ILEs all confronted the challenges of constant navigation through complex relations, serial redesign to make the environments fit the purpose, collectively developing norms, and working collegially.

Teachers in these ILEs had to be ‘adaptive experts’ in terms of juggling the balance between *efficiency* (multi tasking, capacity to organise to meet goals and not being overwhelmed) and *innovation* (moving beyond existing routines, rethinking key ideas, questioning assumptions, values etc.) (Hammerness 2005).

Chapter 7: Conclusion

To what extent, therefore, do innovative learning environments contribute to improved cognitive, affective and social learning outcomes for students?

These twelve case studies exemplify the key aspects of how and why improving student learning is such a complex task that takes time. This study indicates that there is no simple coincidence between an ILE and flexible learning spaces, whether renovated and new, and no simple association between innovative learning environments and/or flexible learning spaces and improved student learning outcomes. The study can confidently identify effective steps in the preparation for, and the transition to, new learning spaces or other innovative learning environments. It also provides a detailed and insightful mapping of how teachers and students are currently using Innovative Learning Environments by identifying significant engagement with collaborative and flexible teaching. However the limited time that has elapsed in each of these environments constrains any substantial or enduring predictors of cognitive, affective and social learning outcomes for students. The very short period of data collection for this study exacerbates this situation. Concluding comments regarding the sub-questions highlight the possibilities of ILEs and areas indicated for further research.

To what extent do innovative learning environments contribute to changes in behaviour and pedagogical practices?

Designing built environments on sound pedagogical and architectural principles that are appropriate to community needs provides new opportunities for teachers and leaders to create new partnerships and imagine new pedagogical possibilities. But the precondition to maximising these possibilities and improving student learning is changing the habits of the minds and hearts of teachers to focus on student learning. This means focusing on the purpose and rationale for change, the social practices of teaching and leading, relationships with colleagues, and organisational structures and cultures that support collaborative inquiry. At the same time, there are a range of external factors which impact on an individual school's capacity to improve student learning – the neighbourhood environment, the policy environment and the built environment. The studies indicated that it was the instability of the impact of policy and neighbourhood environments that disrupted the internal capacities to manage change in schools. Therefore there is a need to create greater internal stability and professional peer accountability (Elmore 2007) within such schools through professional support and development.

While these case studies indicate that there has been a change in the ways in which teachers teach, a pedagogical focus considers the relationship between teachers and students and how that affects student learning. An engagement focus considers not only the relationships underpinning these interactions, but also the interaction between the learner, teacher, knowledge and context. Each ILE was at a different phase of development, with some having existed for only six months and others for six years. Some such as John Monash were still in the transition phase. Others, such as Ballarat High School, Yuille Park Community College and the Mt Waverley Animation project were in what could be described in the consolidation phases as the innovative practices become embedded, even with considerable variation, as the everyday practice. These schools are therefore only just moving into evaluation phase and raising questions about how to sustain the innovation. In response to this, Yuille Park Community College, for instance, has integrated a seven year strategic plan for regeneration and sustainability and, three years on, The Lakes was undergoing a radical increase in size that disrupted consolidation and required 'serial redesign'.

These case studies therefore provide evidence of changes in the organisation of the learning of teachers and students in more flexible learning spaces as well as changes in teaching and student practice, but only early evidence of how this impacts on student learning outcomes in the long term, given the early stages of many of the ILEs. From these accounts it is possible to indicate that teachers and students have responded positively, that there are improvements in cognitive outcomes that teachers observe improved student behaviour and engagement with learning, and that parents are more involved and interested. In the long term, longitudinal research evidence suggests that social skills are more important in influencing students' relative life changes than cognitive outcomes alone (Carneiro et al 2006). The focus in all of the case studies was on personalised learning, but supported by pastoral care. As many of the teachers and principals stated, 'It's all about relationships'.

How have schools prepared for the transition to new learning spaces or other innovative learning environments?

There was in all of these case studies, regardless of the lead time, careful planning and preparation in both designing the ILE and sustaining the innovation. Most principals and teachers visited numerous sites in person or online to explore a range of possibilities to develop their unique designs for the school. In the case of new built environments, prior to occupancy, there were opportunities for experimentation and discussion around the use of flexible learning spaces, for instance at Mordialloc College, John Monash Science School, The Lakes and Yuille Park Community College. Schools also actively sought to engage and educate the community, for example at Manchester and Courtenay Gardens Primary Schools, where the planning and development of new buildings and the school environment is linked to community sustainability. At Yuille Park and The Lakes which designed and planned the schools as part of community centres, there was strong teacher, student and community ownership, signalled three years later at Yuille Park Community College by the high level of parental and community voluntarism in a range of activities. The focus was therefore on participatory redesign, and also extending teacher professional and pedagogical repertoires. The Bendigo NETschool, as an alternative off campus site, had just gained occupancy of an old bank and was exploring the use of this old/new space in order to emulate a workplace. Multiple transitions require flexibility and continual adjustment, as at Yuille Park Community College, where the whole 'regenerated' school took up residency on the Yuille Primary School site while the Grevillea site accommodated the new building program.

How teachers and students use ILE and new Learning Spaces

There is no necessary link between learning spaces and innovation. An ILE does not by nature require a new built space as evidenced at Manchester Primary School and the early phases of Ballarat High School's Year 9 ILE. Furthermore, new built environments do not necessarily constitute or produce an ILE. What does lead to the production of an ILE, and indeed one could argue the best pedagogical use of a new learning space, is changing the everyday practices of leaders, teachers and students in ways that focus on engagement with learning and how this can be enhanced by the learning spaces. Furthermore, while not all schools adopted an inquiry approach to learning, with some maintaining more traditional structures and organisational frameworks such as a 2 hour literacy block, the driving focus on *engagement with learning by students and teachers* produced an innovative learning environment, as with Grovedale West Primary School. However, physical and spatial designs can function as a provocation for imagining the possibilities of innovative learning and collaboration.

From a Reggio Emilia philosophical position, the built environment is a 'third space' in pedagogical relationships. Teachers and students could imagine and follow 'lines of desire' by taking the directions they felt most meaningful to them. Students indicated some ambivalence as did teachers towards these new learning spaces – as flexibility was seen to also produced sense of insecurity, and a desire to reassert a sense of place and belonging. Students at the same time, created spaces and claimed ownership over them, thus gaining agency.

Both the redesigned and purpose built learning spaces provided the capacity to extend and enhance pedagogical repertoires. Even more importantly, these had symbolic value for educational communities in high poverty areas in that the community was able to take pride in the school. Parents and students saw this as an exchange relationship, in terms of taking care of and utilising the new built environment as a learning centre, and feeling that the government had invested in them and their community. Students and their teachers felt valued and took pleasure from working in the new built environments. At the same time, there was uneven usage and differing individual responses to the pedagogical intent of the school and the extent to which they aligned with the new built environment. The flexibility of the learning spaces was still in many instances being explored. In a few cases, teachers reverted to 'default pedagogical practices' when they reinvented 'walls' through use of storage boxes, ICT mini-labs and shelving, indicating that some teacher still felt professionally insecure. In other instances, where there was not a new learning space, the behavioural shift through professional development and leadership created an ILE. When building templates and infrastructure were imposed on Courtenay Gardens Primary School to provide a gym when they wanted a community hall, staff worked to redesign the space to suit the pedagogical practices.

Again, as indicated by Blackmore et al (2010) in the literature review on learning spaces, leadership and a school culture that encourages the taking of risks and experimenting with the use of space were critical. The use of outdoor spaces was reliant upon how teachers and students are encouraged to use space – whether highly regulated or free flow.

Consolidation and evaluation: How do we know?

These Victorian case studies indicate that teachers and principals used a range of evidence to inform their thinking, whether it was student evaluations, classroom observations about the behaviour of individuals and groups, the artefacts of teaching in terms of written and visual student work, self-evaluations of teachers and students, parent questionnaires, discussions online, and NAPLAN results. It was the comprehensiveness of this form of evaluation that allowed them to ask questions and change in ways that made a difference to a wide range of outcomes – social, affective and cognitive. At the same time, there was evidence of pressure based on NAPLAN results and MySchool reporting that indicated a realisation that while these were just one measure of success, this was the public measure upon which a school is being judged regardless of how they had improved on their own performance, were instituting significant change, or were value-adding in terms of student learning. There is inherent danger for a school to focus on NAPLAN results as the desired outcome or use NAPLAN as a means to develop a range of outcomes. Indeed, such as reductionist use of NAPLAN is not about creating forms of professional inquiry based research; this is NAPLAN based rather than evidence based. The issue is to cultivate a balance between pressure for immediate gains in high stake tests and long term benefits which will sustain student and teacher learning (McLaughlin and Talbert 2006, p.62)

Furthermore, this study indicates that it is teacher perception of the school's capacity building and importance of accountability and evaluation systems that make a difference; this conclusion

is supported by other studies on teachers' sense of individual and collective agency. But the forms of accountability most likely to improve student learning are those that are developed within a culture of systematic inquiry where peer review is central; this means strong internal accountability and weak external accountability (Elmore 2007). From such a position, teachers consider themselves to be professionally answerable to students, families, the community, and indeed the system (Lingard 2007). External focus is therefore often counterproductive unless it is linked to a strong internal systematic school-based system of review, which entails answerability.

Strong external accountabilities also challenge how teachers and principals think of 'success'. As MacBeath (2008, p.127) found in his UK case studies:

How heads choose to describe the salient features of their schools provides a clue to how they validate their own practice in relation to external pressures. On the one hand their accounts may be constructed predominantly with reference to the external validation of success, or with a more inward focus in which there is validation of the school's own criteria of success.

Finally, there is the positive effect of a supportive home environment which is not necessarily about learning (OECD 2004). As PISA itself indicates, it is student confidence and sense of agency that leads to academic success, and this accumulates as students continue to experience a sense of success (OECD 2009). This requires closer attention to be paid to a range of pedagogical activities that attend to student social competencies as well as academic skills and to providing learning environments which nurture social development, and student initiative and agency. Silins and Mulford (2010, p. 88) concluded that learning needs to be organized to produce:

- A climate of trust and empowerment where decision making is transparent and inclusive for both teachers and students
- Shared sense of aims of the school developed by dedicated times for teachers to discuss and articulate their views and plan through the use of an array of evidence
- Schools' structures and ethos that support collaborative 'experimentation and initiative' through 'open professional exchange' where mistakes are allowed (See also Hallinger and Heck 2010; Day et al 2009).

In an ILE, evaluation is embedded as critical reflection on practice as well as taking into account, but not being driven by, external accountabilities; this is what Thomson and Blackmore (2006) refer to as undertaking 'systematic inquiry'. With regard to student outcomes, the strongest predictors are students' social skills in terms of capacity for critical approach to learning and the capacity to solve conflicts through negotiation and listening. Teacher values and beliefs are also significant in promoting student social development and empowerment (Silins and Mulford 2010, pp.88-9). Indeed, Silins and Mulford (2010, p.90) conclude that 'emphasising the non-cognitive goals is the most direct and successful route to achieving cognitive goals'.

Capacity building or organisational learning in schools is therefore critical. This requires more than just providing professional development or promoting and nurturing leaders through mentorship. If teachers (as with students) feel that their efforts to improve are not recognised, or rewarded, or that their voice has little effect, innovation is unlikely, regardless of the teachers' commitment to innovate. To innovate teachers have to assimilate complex knowledge and apply it simultaneously in the highly unpredictable contexts of the classroom. This requires what Hammerness et al (2006) conceive as 'adaptive' teachers who juggle the balance between *efficiency* and *innovation*. The 'ideal' learning organisation would also be one that provides the conditions that allow teachers and students to fulfil their objectives to individual capacity. It also means that teachers need to be committed to ongoing inquiry in recognition that experience alone is insufficient, and that practice requires reflection.

A central feature in these case studies was collaborative team-teaching. Again, collaboration requires significant planning, coordination, and even synchronicity in terms of activities, because of the greater interdependence resulting from shared flexible learning spaces. Dedicated time for such planning of curriculum, assessment moderation, discussions as to social interactions of groups and individual student progress occurred in most cases. Block timetabling usually accompanied flexible learning space usage and facilitated planning as well as team teaching and inter-disciplinarity. Teachers had the capacity within teams to organise their roles in ways that promoted professional learning, complementary skills, and mentoring between novice and experienced teachers based upon mutual respect and professional engagement with knowledge production (see also McLaughlin and Talbert 2006; Lierberman and Miller 2006).

If the focus is on student learning, mechanisms must be in place for thinking about the purposes of education and evaluating whether system-wide structures, policies and processes are productive or counter-productive in achieving desired outcomes (Macbeath 2010; Gorard 2010). System-wide support is critical in terms of encouraging innovation; policy frameworks should provide a capacity to adapt curriculum and assessment and still address standards, while also providing regional support where needed. However, each of these case studies indicated the tensions evident in policies which focused on a narrow range of academic and cognitive learning outcomes that are measurable (e.g. NAPLAN), where an ongoing drive for incremental improvement and the desire to do something innovative can sometimes lead to inconsistencies or even decline in such measures.

Most teachers and principals believe, and recent research indicates, that over time attending to more holistic aspects of achievement – the physical, social and affective – is more likely to have greater educational and life benefits for individuals. Re-design then works against the pathologies of the current systems and much of the work of teachers and principals revolves around how to negotiate and mediate extant and innovative teaching. Innovation in education may be about succeeding in changing the most difficult things to change (Rowan 2000) or producing a reconfiguration of resources to improve outcomes through new mediums while working with/against legacies of past practices (Thomson and Blackmore 2006; Luckin 2010).

System wide innovation: scaling up

Scaling up refers to whether and how such innovative practices can either be extended and enhanced across a whole school, or undertaken in other schools across a system. Within schools where the ILE was initiated as a program on a small scale, as at Mt Waverley PS and Ballarat High School, there was evidence that the success of the initiative was contagious. Ballarat HS staff involved in the Year 9 ILE became frustrated with mainstream practices, and the enthusiasm of the students and teachers infiltrated across the school. This was facilitated by the Learning Framework that informed whole school decisions, and planning was underway at Years 7 and 8 to develop new programs.

At the level of educational systems, there is a range of ways in which policies can restructure schools to improve student learning. In the US, school reform has been encouraged through federal funding for schools to adopt one of 10 models of school restructuring. These case studies demonstrated, as does this report, that such approaches to the scaling up of successful reform is problematic as context is powerful in shaping the possibilities within each locality. Innovation emerged out of the social practices of leading, teaching and learning, while being enabled by supportive policy environments and funding opportunities. Building innovation from the ground up is more likely to impart a sense of ownership, community, localised knowledge and

relationships necessary to sustain innovation that will improve student learning. Thomson and Blackmore (2006) argue that redesign as a concept has strong discursive power in that it recognises that redesign is both process and product, that nothing is entirely new, and that all learning environments live with legacies of the past. At the same time, re-design implies something fundamentally different is happening with a sense of purpose within a specific context (New London Group 1996).

In each ILE case study there was a clear and well-defined justification and sense of purpose for redesign. There were a range of external drivers that provided the catalyst, such as a need to create a shared school vision in a new school, as was the case of The Lakes which was addressing rapid suburban expansion, or for John Monash Science School to encourage more students to undertake science and technology by developing a specialist school, or so that Mordialloc College might position itself more favourably in the education market because it was losing enrolments, or to meet a perceived need for students at risk of dropping out of school as with the NETschool. In other instances, specific groups or year levels (e.g. Year 9 students at Ballarat HS and the Year 6 students at Mt Waverley PS) were identified for attention due to being seen to have become disengaged. Innovative redesign was facilitated in the majority of the case studies by additional financial or structural resources being made available through the Leading Schools Fund, sponsorships from industry and government, and newly built or renovated learning spaces.

In each case study the focus of the redesign into an ILE was to improve student learning through developing innovative programs and pedagogical practices, as would be expected due to the selective nature of the ILE nomination process. There was a strong sense of the need for purposeful change practice with particular regard to teaching and learning which then became the warrant for new ways of organising teaching and learning and a change in everyday practices. The process of re-designing new spaces, structures, processes and practices led to the explication of the 'problem' which then provided a clear sense of political–moral purpose.

A second overarching feature of redesign was the capacity to develop infrastructure to support and shape the process. This varied according to the focus and school location. The redesign process resulting in an innovative learning environment required attention to the following:

- *Spatial practices*: the use of architectural space and community as a pedagogical space.
- *Temporal practices*: time allocated for research, reflection, planning and dialogue,
- *Cultural practices*: attention to the symbolic, identity work, recognition of expertise and experience as well as realising the significance of developing professional learning cultures, openness and a sense of professional agency and community.
- *Structural practices*: from minimal structures, looser coupling and more networking on a contingent basis both within the organisation and externally, but seeing schools as nodes of networks, through to more multilayered internal/external structures, such as with the NETschool and John Monash Science School.
- *Communication practices*: where the focus is on knowledge production and dissemination, then processes of exchange (sharing experience, ideas, accessibility), spreading out to communication systems that support this. Where the issue is about cost efficiencies and survival, then communication is on a need- to-know basis, and is more top-down. When democratic deliberation is central then communication tends to be undertaken on the grounds of shared ownership.
- *Social practices*: leading, teaching and learning as a collective endeavour and the centrality of relationships is critical to any redesign project. These case studies indicate that the key benchmark of redesign is how it fosters collaborative and productive relationships

that impact on learning.

- *Semiotic practices*: these are the discourses and language that are mobilised to inform changing practices, the metaphors used and then embedded in practice.

A key element of an innovative learning environment was the ways in which school redesign brought together the philosophy of school and community life. This was most evident at Wendouree West Community Hub which integrated a community centre with the Yuille Park P-8 school. There were strong links with a range of community activities which positioned the school as central to this local community, including a market, gym, ICT classes and an adult education program. While some parents had previously opposed the amalgamation of the schools, these same parents were spending up to 30 hours voluntarily working in the front office of the shared space.

What these case studies offer to other schools and systems are ways of undertaking fundamental reform in terms of recognising how environments – policy, built, virtual, neighbourhood, institutional – create the conditions, suggest the processes, identify the supports, and encourage the professional dynamics and synergies that produce the imaginaries most conducive to innovative practices in teaching and pleasurable student learning.

Future research questions

1. What pedagogical relationships are possible in ILEs (between and amongst students, teachers and the community)?
2. How do teachers theorise and construct knowledge for pedagogical practice in these ILEs?
3. How can the benefits of ILEs be communicated to school communities and the community at large?
4. How can systemic support be shaped and provided to sustain and scale up ILE initiatives?

This requires longitudinal ethnographic studies involving observation of student and teacher practices but also the organisation of learning, learning cultures, teacher collaboration, as well as supportive policy environments. It further requires consideration as to the range of evidence that can be brought to bear in understanding what is learnt. In particular, it points to the need to take into account student voice and agency (Fielding 2004, 2006) and would examine and assess the ways in which students act and participate in cooperative learning. These studies indicate that many schools had begun on a path to radically change their practices. Longitudinal studies are needed to consider how teachers develop and exchange their professional knowledge and how this can be done in terms of more systematic forms of inquiry at school and system levels. Research on individual teacher perspectives on collaboration and impact on professional learning would assist to develop collaborative practices of teaching in more systematic ways.

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