Victorian School Design

A Victorian Government initiative

Victoria
The Place To Be

Acknowledgements

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Foreword

The Victorian Government is building a world-class education system to invest in young Victorians and our state's future. The Victorian Schools Plan will see every school across the state rebuilt, extended or renovated by 2017.

This investment in infrastructure has created an exciting challenge for the design of our schools. Student outcomes are strongly influenced by the design of learning spaces. To engage children in their learning they require spaces to learn, spaces to share and spaces to play. A supportive learning environment can be enhanced through building design that reflects the diversity of the school community and enables student and teacher interaction.

It is important that we recognise the role of design in achieving high quality teaching and learning programs in our schools. This resource illustrates best practice in school design and highlights some key design challenges for our school sites and buildings.

Bronwyn Pike

Bronwyn Pike MP
Minister for Education

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1. Introduction

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Figure 1.1: Effective schools model

(Source: http://www.softweb.vic.edu.au/blueprint/es/)

These designs recognise that the organisation of a school has a significant influence on its capacity to deliver a contemporary education. Organisational factors include the size and flexibility of student groupings; the way in which students and teachers work together; teachers' professional relationships and professional learning arrangements; the breadth, depth and flexibility of curriculum choices and pathways opportunities; and the number and nature of student transitions.

The physical spaces in schools should be designed to match the teaching and learning required for a modern curriculum. The Principles of Learning and Teaching that underpin the Victorian Essential Learning Standards have significant implications for the design of schools and their learning spaces and this link between curriculum, design and pedagogy is reflected in the early chapters.

The Department's vision for education begins with the learning needs of every child. It is becoming more widely recognised that students' learning outcomes are strongly influenced by their learning environments. The Effective Schools Model that the Department has adopted provides the conceptual framework and context for developing stimulating learning environments that are conducive to the quality of teaching and learning. How learning spaces are designed, the quality of teaching and the richness of curriculum all contribute to how students are engaged in learning and become willing and enthusiastic learners.

The design of school facilities and learning spaces:

- supports effective learning
- promotes new teacher practice
- supports the delivery of quality education over the long term
- engages local communities and
- provides the opportunity for community use and maximising the use of infrastructure.

This document provides a portfolio of designs that includes both educational and architectural features. This portfolio will feature a range of designs and photographs that will change or be supplemented over time.

Good design also places a strong emphasis on flexibility, with spaces capable of supporting different styles of learning. For example, promoting self-directed learning as well as collaboration and project work requires learning spaces that encourage individual and teamwork, as well as space for individual learning. Different pedagogical approaches and the different ways that children learn need to be represented in the design of new learning environments.

Connecting learning with the community, beyond the confines of the classroom or school requires facilities that bridge the gap between community and school. It also requires information technologies that enable new ways of learning and link students to the broader community and to the world.

It is crucial that the schools we design:

- promote individualised learning
- create settings for innovative teaching
- realise the potential that new technologies can bring to learning
- be environmentally sustainable and responsible and
- support community engagement.

Effective Schools Model

Figure 1.1

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Figure 1.2: Teaching and Learning Principles

(Source: Dr Kenn Fisher, Linking Pedagogy and Space, http://www.sofweb.vic.edu.au/facility/pdfs/linking_pedagogy_and_space.pdf, 10 February 2005)

Figure 1.3: Curriculum Frameworks

(Source: http://www.vels.vcaa.vic.edu.au/stages and DoE Curriculum Planning Modules, http://www.education.vic.gov.au/studentlearning/curriculum/preptoyear10/modules/default.htm)

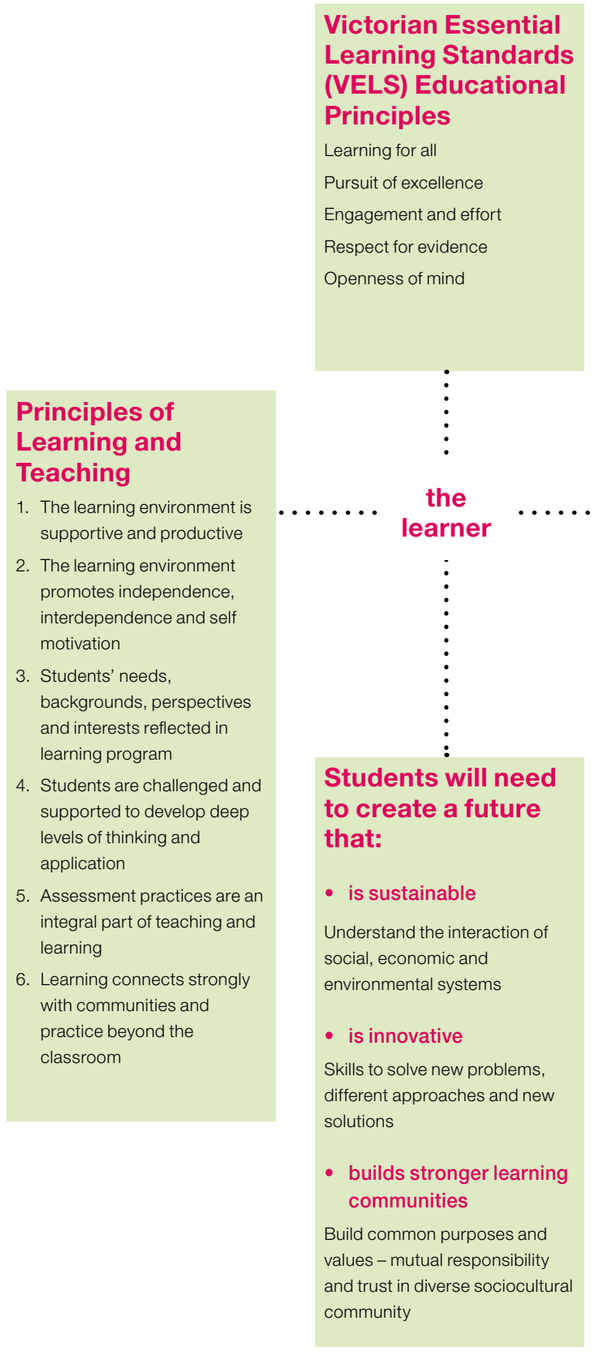

Figure 1.2

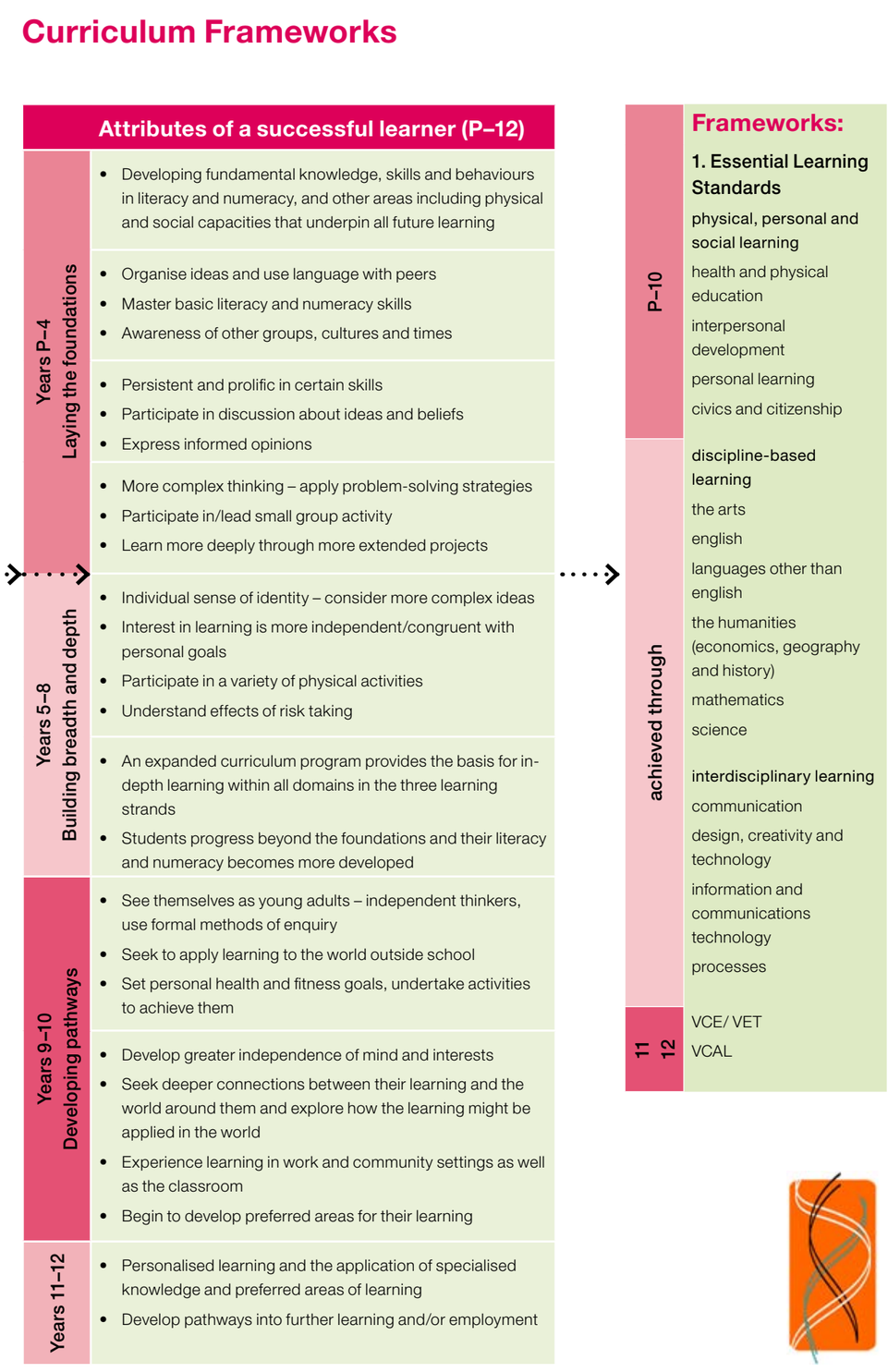

Figure 1.3

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1.1 Linking Pedagogy and Space

From the Preparatory Year through to Year 12, the Department of Education and Early Childhood Development (DEECD) Principles of Learning and Teaching (PoLT) are used to underpin teaching practice.

The PoLT consist of six principles that address the need to 'build consistent, comprehensive and improved pedagogical approaches within and across schools'[1].

While the PoLT address teacher practice, the Victorian Essential Learning Standards (VELS) govern the curriculum for students in the Preparatory Year through to Year 10 in government schools. The VELS are used as a framework for curriculum planning, assessment and reporting. They are designed to prepare students for their participation in the Victorian Certificate of Education (VCE), the Victorian Certificate of Applied Learning (VCAL) or Vocational Education and Training (VET) in the senior years and for future life.

In the early planning stages it is important to establish the relationships and learning and teaching that the school wishes to maintain as well as new approaches that the school wishes to implement. This is then incorporated into an educational plan, whereby the most effective practices both current and intended are combined to create a new shared whole school/community vision.

This concept can then be translated into a process map in which links begin to form between each of the learning spaces and their purpose[2]. Here the core principles of the planning phase are developed visually and it is possible to identify how, when and why the different spaces might be used. To aid this process three zones are applied: Reflective, Creative and Interactive[3]. The zones are mapped to assist in the development of a conceptual template[4].

[1] http://www.education.vic.gov.au/studentlearning/teachingprinciples/principles/default.htm, 2007
[2] http://www.sofweb.vic.edu.au/facility/pdfs/linking_pedagogy_and_space.pdf
[3] Fisher, K., A New Theory of Office Design: the Learning Organisation, January, 2005, p. 35.
[4] McInerney, D. M. and McInerney, V., Educational Psychology – Constructing Learning, Pearson Education Australia, Melbourne, 2002, pp. 295–6.

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Figure 1.4: Key pedagogical approaches

(Source: Dr Kenn Fisher, Linking Pedagogy and Space)

Figure 1.5: Process map for linking pedagogy and space

(Source: Dr Kenn Fisher, Linking Pedagogy and Space)

Key pedagogical approaches

A range of pedagogies will be used according to subject matter and essential learning.

These pedagogies will target and support improved student learning outcomes and enhanced student understanding.

Students are at the centre of learning standards.

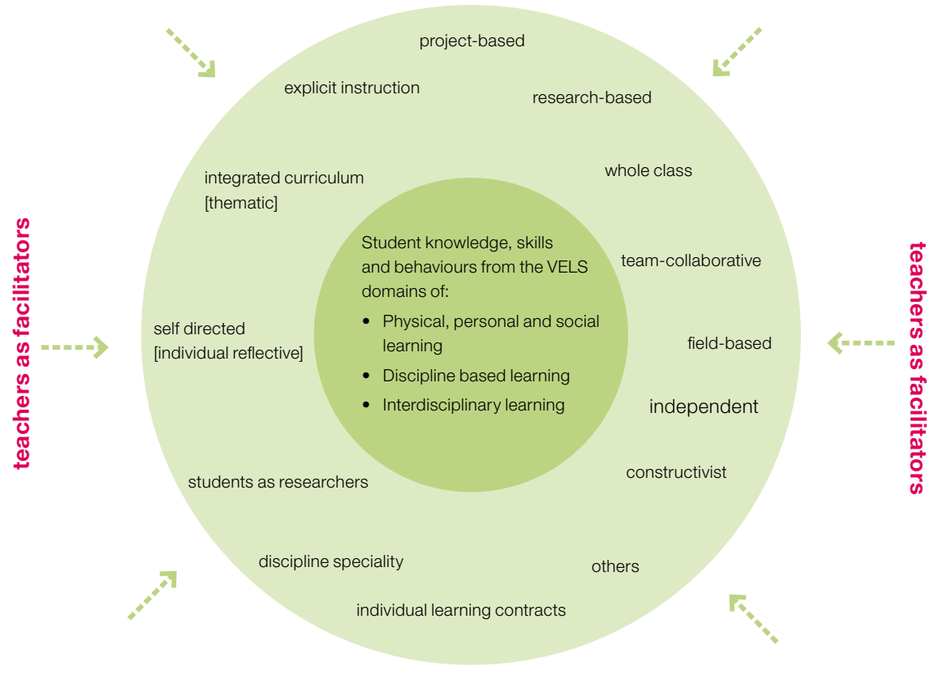

Figure 1.4

Process map for linking pedagogy and space

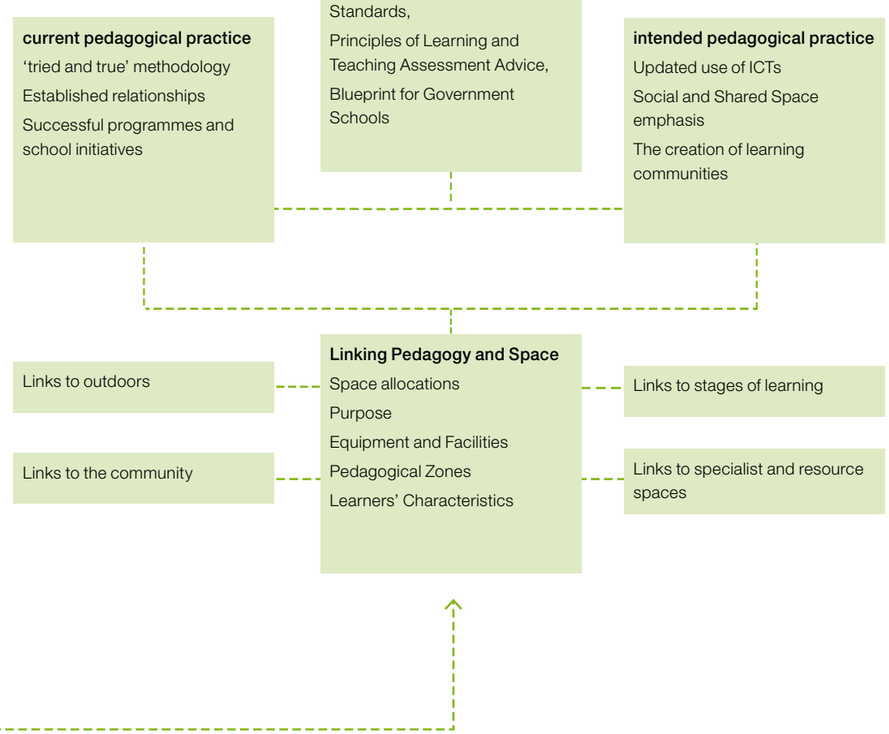

Figure 1.5

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More generally these zones indicate acoustic division; the intended pedagogical activities in the reflective zone, for example, they will involve independent or one-on-one learning of a calm and cognitive nature such as reading or researching, but may also be creative.

Conversely, it is intended that the Creative and Interactive zones may be filled with the 'buzz' of collaboration and exploration, but also provide the opportunity for quiet or reflective learning.

The learning spaces created within these zones are flexible and provide numerous options depending on the ages and stages of learners, the activity, the number of students and the facilities, equipment and resources required.

Zonal Definitions Chart

Summary	Attributes	Spatial Principles/Alternatives	Furniture Arrangements
Reflective/Creative • Working independently and reflectively • 1–3 students • Quiet • Acoustically and visually private	• Personal learning spaces • Independent, quiet working areas • Space for reflection • Small groups of 1–3 students • Technology access • Located in 'eddy spaces'	• Accommodation for a maximum of 10 individual students • Acoustically and visually separated • Some small, screened meeting spaces or rooms • Provision of work benches	Lounges Comfortable seating Movable tables
Creative/Interactive • Making, forming, constructing, creating • Small groups of 3–5 students • Working interdependently/ collaboratively • Some separation from other larger groups	• Space for processing/gathering information • Space for learning activities in small groups • Problem, process and inquiry-based learning • Technology access	• Accommodation for a maximum of 25 students in groups • Resource and technology rich • Flexible arrangements • Links to the outdoors • Some access to non-specialist wet spaces	• Round tables for 4–6 students • Movable chairs • Storage for student work and resources • Display and projection space
Interactive • Acting reciprocally • Larger groups – multiple classes • Potentially very noisy • Working interactively • Little separation between groups as they are interacting	• Space for more collaborative, interactive learning • Team teaching • Larger groups • Open space • Technology access	• Accommodation for a maximum of 75 students in groups, e.g. 3 x 25 students • Movable and flexible furniture • Less acoustic and visual separation • Links to outdoors • Specialist wet spaces/studios shared with other larger groups	• Round tables for 4–6 students or flexible furniture that can be configured in different groupings/ arrangements • Views to multiple visual learning screens • Access to multiple display areas

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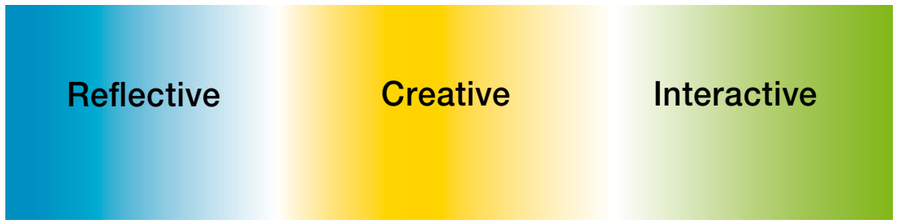
Figure 1.6: Acoustic division of zones

Acoustic Division of Zones



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1.2 The Consultation Process

From the early stages of design, the learning community for whom the school is being created must be involved. School council, teachers, students and members of the community (including from business and industry) can provide valuable knowledge throughout the design phase, which will result in a well-established connection by the time the school is functional.

Successful school design is achieved through a clear understanding of the educational needs and vision, and translation of these requirements into creative and responsive learning settings. The requirements and other inputs are harvested during consultation that should embrace the staff, students and the wider community.

Consultation must be well managed and transparent and it should involve all key stakeholders in the project working collaboratively. It is a critical phase in which all planning and design is founded.

Schools and communities can build their knowledge and understandings during this process by being exposed to innovative and functional designs, best-practice research and concepts.

Teachers, students and community members should be provided with a thorough understanding of the design concepts. Those who utilise the space must know its intended uses and how the space can be best used to achieve desired outcomes. Professional learning to support the effective use of the new environment and the linkage between pedagogy and space is an essential part of the change process.

The concepts linking pedagogy and space should be applied consistently throughout all phases of design to maintain links between space and purpose. These links will improve the interpretation of language between design and pedagogy, resulting in a shared understanding of how the initial spatial concepts and the learning and teaching methodologies are integral to achieving the school's vision.

Accordingly, the consultation process itself should be considered, structured and nurtured carefully. The process can be supported through a variety of techniques and procedures including:

- clear articulation and analysis of the school's vision
- establishment of a collaborative, varied and multiskilled planning group
- inclusion of critical or alternative views
- regular planning meetings and discussions
- review of current projects (by site inspections or research)
- one-on-one interviews (i.e. with key staff, authorities or other key stakeholders)
- design workshops and focus groups (to 'brainstorm' ideas, review planning options and to develop the Project Brief)
- participatory and interactive forums and sessions
- iterative review of the Project Brief and the design responses
- clear identification of key decisions and sign-offs.

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Figure 1.7: The collaborative process

My community
My connections
My home

My education
My dreams
My future

My family
My expectations
My culture

The collaborative process

My profession
My creativity
My expertise

My work place
My success
My knowledge

My resources
My relationships
My experience

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1.3 Professional Learning

A key to success is the focus on consistent and ongoing professional development of teachers and their involvement in cooperative planning in relation to all elements of the school's program ... schools must heavily invest in this approach to achieve success for students and for teachers.

The Victorian Essential Learning Standards (VELS) define what students should know and be able to do across the different stages of schooling. The VELS also focus on learning for understanding and on developing students who can apply their knowledge beyond the classroom. The Principles of Learning and Teaching (PoLT) P–12, provide a basis for selecting the appropriate teaching practice, reviewing that practice and identifying key areas for improvement.

Effective schools have cultures that value continuous learning and encourage the establishment of the school as a learning community, informed by learning from each other and sharing of best practice on effective teaching and learning.

For school communities that are embarking on the development of new schools, modifications to existing facilities or regeneration proposals, professional learning plays a key role in engaging staff in the vision for the new facilities and the pedagogical activities that will occur within the learning and teaching spaces.

Many of the new learning environments described in this document are premised upon the use of a range of pedagogical approaches to learning – the engagement of small and large groups of students, individualised learning, peer to peer learning, explicit teaching, the embedded use of Information and Communication Technology (ICT) and project-based and inquiry-based learning.

What does this mean for the design of new school facilities?

- Involving all staff in defining the characteristics of effective learning and what teaching practices can best support the achievement of this learning.
- Deciding the best way that these practices or methodologies can be delivered and the type of environment in which the learning can take place.
- Identifying and supporting any changes in teaching practice and the ways students engage in their learning that may be influenced by the design of the learning spaces.
- Monitoring and reflecting on practice over time to ensure that it is meeting the intentions outlined in the educational rationale.

Resources

Professional Learning in Effective Schools – the Seven Principles of Highly Effective Professional Learning, **http://www.education.vic.gov.au/about/publications/policy/blueprint.htm**

Linking Pedagogy and Space – Planning principles for Victorian Schools Based on the Principles of Learning and Teaching, **http://www.education.vic.gov.au/about/directions/buildingfutures/default.htm**

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1.4 School Design Preconditions

There are a number of elements that contribute to school design well before plans are created. Before identifying the mechanisms for successfully creating good school (or part school) designs a series of pre-conditions need to be addressed:

1. Transformational rather than incremental change is to be pursued, informed by the latest research about effective teaching and learning.
2. As outlined in section 1.2, the consultation process is vital to the success of the school. The often unheard voices of students and teachers need to be acknowledged to ensure designs meet expectations and requirements, but also to facilitate the eventual transition into the new learning spaces. The ease with which this can be achieved is dependent on student and teacher involvement. Their participation in all design phases can lessen the transitional impact as concepts, methodologies and features are progressively exposed in context. A broad involvement and engagement of parents and the community is also important.

   The development of such 'bottom up' mechanisms promote community understanding of what makes a good learning environment and fosters a sense of ownership.
3. The recognition of good design. Supporting, seeking, facilitating and celebrating good design should be evident through the whole process. By design quality, we mean aspects that go beyond function such as buildings and spaces that are engaging, diverse and inclusive; culturally rich and poetic; and beautiful or inspiring.
4. Designs must be based on the unique pedagogy and curriculum of each school. Each school should have a clear educational rationale from which a clear and concise brief is drawn, supported by a master plan.
5. Adequate budgets, programs and processes. Designs need to take account of the available level of resources and life cycle costs. Processes need to include time to properly develop the brief and the design in detail. Design facilitation and feedback techniques are also integral to building system design capacity.
6. Appropriately qualified designers and assessors are to be used. Individuals and groups should be identified who understand education and current pedagogical directions, or who have shown commitment by participation in education conferences or awards. A design team will be selected based on their demonstrated capacity in delivering high-quality design outcomes. Panels, interviews and best-practice exemples will assist in this process.
7. The procurement and construction process will also support good design.
8. Those involved on the project should be prepared to accept some risk to achieve innovation. This may include the appointment of a design champion.
9. Schools will be encouraged, educated and empowered to demand innovative solutions.
10. Designs should encourage idealistic benchmarks not just minimum standards.
11. Extensive adoption of Ecologically Sustainable Development (ESD) measures to be integrated along with student awareness/involvement in sustainability through links to school pedagogy and design will be encouraged.

In developing proposals for new or modernised school building or facilities, schools must follow the stages outlined in the Building Futures process.

In order to facilitate this process, the Department has identified a number of school design exemples. The exemples have been chosen to demonstrate key aspects of design that, when linked to the school vision and context, promote the creation of best practice learning and teaching environments.

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These are:

- Stage-appropriate learning environments – the school environment reflects the core principles of learning and teaching and the pedagogy and design elements necessary to support the attributes of a successful learner.
- Multiple uses for specialist facilities – more flexible use of specialist resources can be achieved through innovative design.
- Specialist community use – the relationship between schools and their communities can be fostered by school designs that accommodate the joint use of facilities by community users, community access to ICT and training facilities and the availability of meeting and interview rooms for use by specialist providers.
- Community/Cultural context – the design of school facilities should reflect the community context in which the school is located and incorporate into the internal and external design a recognition of the importance of community and cultural heritage (for example, in schools with Indigenous students, the culture of that Koorie community should be acknowledged with a community meeting place and other features agreed by that community).
- Information and Communication Technology (ICT) – ICT is integral to new school design and should support the latest technologies and provide the capacity for new developments over the life cycle of the school.
- Ecologically Sustainable Development (ESD) – school buildings and their environments can play their part in minimising the use of material resources (energy and water), minimising waste and avoiding pollutants using recycled materials, and protecting and enhancing habitats and wildlife.
- Special features – such as the use of indoor/outdoor learning spaces, furniture, display spaces, location of staff work areas and student home bases.

These elements are important in fine tuning the design elements to reflect the educational rationale underpinning the school design.

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1.5 Key Aspects of the Case Studies

This document provides examples of schools that cover one of more of the key aspects highlighted by the Design Support Project Working Group. These design essentials must be wholly or partly represented if the individual project is to be deemed an example of innovation in school design. These elements represent the direction of school design and their presence demonstrates the implementation of a collaborative, well-researched design process.

	Baden Powell P–9 College	Bendigo Education Plan, Bendigo South West 7–10 School	Blair Street K–6 and 7–9 Schools	Echuca 7–12 College	Laverton P–12 College	Point Lonsdale P–6 Primary School	Yuille Park P–8 Community College	The Lakes South Morang P–9	Dandenong 7–12 High School	Wooranna Park P–6 Primary School
Chapter 2 Stages and Spaces	●	●	●	●	●	●	★	★	★	
Chapter 3 Community Use			★		★	★	●			
Chapter 4 Information and Communication Technology (ICT)	★	★		★				●		
Chapter 5 Ecologically Sustainable Development (ESD)	★		★						●	
Chapter 6 Special Features										●

● Design focus ★ Design feature

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Linking principles to place

... pedagogical activities require specific spatial qualities to be effective. Each principle requires specific pedagogical approaches to support that principle, and these pedagogies are applied through the five core activities or modes. These modes have direct implications for learning-settings design.

Figure 1.8: Linking principles to place

(Source: Department of Education and Early Childhood Development, http://www.sofweb.vic.edu.au/facility/pdfs/linking_pedagogy_and_space.pdf)

Principle	Pedagogical Approach	Pedagogical Activity	Implications for Building Design
The learning environment is supportive and productive	Learner-centred pedagogies with multiple learning settings co-located	**Delivering**	Design reflects community diversity, respects and values different cultures Students have access to teachers
The learning environment promotes independence, interdependence and self-motivation	Peer-to-peer learning, integrated problem and resource-based learning	**Applying**	Breakout spaces are provided to allow individual student work Furniture is suitable for cooperative learning
Students are challenged and supported to develop deep levels of thinking and application	Integrated, problem and resource-based learning	**Creating**	Access to ICT, multimedia supports authentic learning
Students' needs, backgrounds, perspectives and interests are reflected in the learning program	Theory linked to practice, problems integrate both aspects, resources used continually and creatively, integrated curriculum delivery	**Communicating**	Quiet spaces Multipurpose rooms that enable students to work on different subjects over longer periods of time, encourage integrated curriculum Teacher spaces that encourage cross-disciplinary teams of teachers working with groups of students
Assessment practices are an integral part of teaching and learning	Continuous assessment, utilising a pedagogy of assessment		Spaces for student–teacher conferencing Intranet facilities enable ongoing monitoring of student progress by students and parents
Learning connects strongly with communities and practice beyond the classroom	Project and resource-based learning on practical problems	**Decision making**	Buildings and facilities that bring the community into the school ICT facilities that support curriculum links to professional and community practice

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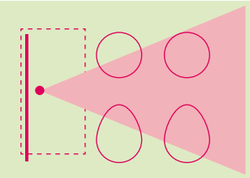
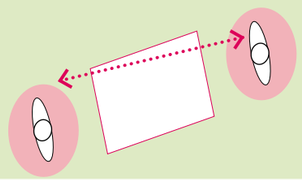
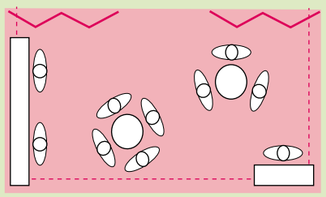
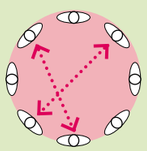
Linking pedagogical activities to spatial settings

... categoric pedagogical practices have associated space types.

Figure 1.9: Linking pedagogical activities to spatial settings

(Source: Scott-Webber)

Pedagogical Activity	Pedagogical Attribute	Process Steps	Behavioural Premise	Spatial Icon
Delivering	Formal presentations Instructor controls presentation Focus on presentation Passive learning	Prepare and generate presentation Deliver to an audience Assess understanding	Bring information before the public Instructor lead Knowledge is in one source	
Applying	Controlled observation One-to-one Master and apprentice alternative control Informal Active learning	Knowledge transferred via demonstration Practice by recipient Understanding achieved	Learner-centred Apprentice model	
Creating	Multiple disciplines Leaderless Egalitarian Distributed attention Privacy Casual Active learning	Research Recognise need Divergent thinking Incubate Interpret into product/innovation	Innovation or knowledge moved from abstract to a product	
Communicating	Knowledge is dispersed Impromptu delivery Casual Active learning	Organise information Deliver Receive and interpret Confirm	Share information Provide quick exchange	
Decision making	Knowledge is dispersed Information is shared Leader sets final direction Situation is protected Semi-formal to formal Passive/active learning	Review data Generate strategy Plan Implement one course of action	Make decisions