CSS iNNOVATION CENTRE

A future vision for learning

Exploring the capability for a new learning space to support improved student learning outcomes through well-designed learning spaces incorporating ubiquitous technologies, supporting pedagogical practices that engage, challenge and equip students with the knowledge, skills and attributes they need to prosper in a complex, rapidly changing world.

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Adapted from the Technology Architecture and Furniture Professional Learning Community (eLearning Branch)
Vision for Learning

The capability for a new learning space to support improved student learning outcomes, depends upon the successful support by the school staff and community for all three concepts; space, technology and pedagogy.

Well-designed learning spaces incorporating ubiquitous technologies, support pedagogical practices that engage, challenge and equip students with the knowledge, skills and attributes they need to prosper in a complex, rapidly changing world.

Including these three areas as important components in the school's 'Vision for Learning' ensures that vital decisions made regarding learning will be effectively implemented and resourced.

When creating a vision for learning, it is important to think of the future for a learning space, the evolving pedagogies and the digital technologies.

The learning space is required to support students actively engaged in their learning not just receiving, creating not just re-creating; students problem-solving; working cooperatively, immersed in project based learning that is interdisciplinary, and with attention to special needs of students.

Consideration is given to:

- What is 21st Century education?
- What skills, knowledge and attributes are needed by students for their future life and work?
- How does pedagogy inform space?
- How will the learning space support pedagogy?
- What technology will be incorporated to make learning more engaging, efficient and collaborative?
- When do we start the process of change?
Who is responsible for change?
Where do we start?
How do we provide the best opportunity for successful and sustained transformation?

**What is the 'Vision for Learning' for our school?**

Preparing our students for their future life and work is the most important goal for schools engaging in the concept of 21st Century learning.

In preparing students for uncertain and unknown futures, schools are placing greater emphasis on creating learners that are creative and flexible, resilient, collaborative both locally and globally, can solve problems and think critically and operate in a non-routine, analytical way. Schools are also seizing the opportunities new technologies provide for personalising student learning and for learning anywhere, anytime as students use mobile ICT tools to interact collaboratively to solve problems in real world contexts.

**Does our school’s ‘Vision for Learning’ -**

- emphasise the skills needed for 21st Century learning such as thinking skills, problem solving, reflection, and critical thinking?
- focus on collaboration and active learning?
- encourage personalised learning and anytime/anywhere environments?
- seek to align curriculum, pedagogy and assessment?

Having a clear Learning Vision that is shared and known within the learning community is the essential starting point for the design process for learning spaces.

The vision can act as an ethical reference point for all subsequent design decisions.

To do this school leadership teams can check whether design decisions:

- reflect the overall learning vision for the school
serve to enhance the learning outcomes for the students

create the environments needed for 21st Century learning.

DESIGN GUIDELINES

Improving the quality of learning spaces is essential to support an improvement in student achievement.

The key to envisioning school and classroom design is to meet existing learning needs as well as imagining the types of learning needed in the future. The following five 'Guiding Principles' are presented as reflective tools to evaluate design decisions for new or refurbishment of learning spaces.

A new or refurbished space is likely to be needed to serve the learning needs of students for the next 10 years or more. During this time the learning spaces will undergo continual computer software upgrades, numerous hardware and connectivity changes and several furniture fit outs. Any design decision needs to take into account the need for long term space flexibility and adaptability.

Designing a space to cater for a particular type of technology (e.g. traditional lab with fixed benches facing one direction to support desk top computers) may not make the space flexible and adaptable for future learning and technology scenarios.

The following 'Guiding Principles' aim to create spaces that will meet future learning needs.

Accessible – to provide access and participation for all and to promote the potential of all learners

Will our design decisions:

• Allow all your learners to participate in learning and have equal access to resources?
• Enable students to participate in formal and informal learning at school and at home irrespective of individual physical and financial resources?
• Provide opportunity for learning to be personalised to cater for individual learning needs including students with learning and physical disabilities?
Collaborative – to enable cooperation, collaboration and community connectedness

Will our design decisions:

- Create opportunities for students to work together in groups and teams to solve problems and generate ideas?
- Provide environments that enable students and teachers to connect with the wider community in a physical and virtual sense?
- Open up learning spaces physically and visually to de-privatise teaching practice and encourage openness and professional collaboration?
- Encourage the creation of local, national and global networks?

Flexible – to support current and evolving pedagogies

Will our design decisions:

- Support both current and evolving pedagogies and the ability to easily reconfigure spaces for different uses?
- Promote a mixture of physical and virtual learning environments
- Accommodate a range of student learning, activities and groupings within the one space?
**Future-proofed – to enable the space to be re-allocated and reconfigured**

Will our design decisions:

- Tend to be under designed as opposed to over designed? Are the spaces more open rather than closed?
- Promote the use of operable walls, furniture and space dividers to create variety in learning spaces and functionality to continually remodel and reconfigure?
- Reflect a focus on learning and not a particular point in time technology?

**Stimulating – to inspire and motivate learning**

Will our design decisions:

- Place student comfort and safety as key factors?
- Look for opportunities to create sense of space ownership for the learner?
- Include colour, signage and branding as key elements in effective learning space design?
- Aim to create spaces that will motivate and inspire your students to learn?
Learning modalities describes how students are physically grouped to facilitate a particular range of pedagogies.

The classroom of the past reflected the factory or production model in which the philosophy of the assembly line with its inherent efficiencies dictated the look and feel of the school. This model also assumes that most learning occurs through the transmission of knowledge from the teacher to student in a somewhat linear fashion.

Note the similarities between factory and classroom structures:
LINKING PEDAGOGY AND LEARNING MODALITIES

New or remodelled learning spaces can support 21st Century pedagogies by:

- catering for small and larger group activities, individual and research work plus student and teacher-led activities
- being open and connected to foster professional collaboration, group and project based work
- supporting a range of just in time technologies that will be increasingly mobile and wireless
- being flexible to support present and emerging pedagogies and facilitate different learning styles and teaching practices
- helping students create social and emotional relationships
Learning Modality – the way students are grouped for learning experiences

Project-based – groups, individual - Preparing and presenting, Group brainstorming, Drafting and editing, Designing and testing, Peer feedback, Comparing and contrasting against criteria, Teacher and student presentations

Whole class – explicit instruction - Group brainstorming, Drafting and editing, Peer feedback, Comparing and contrasting against criteria, Teacher and student presentations

Independent - Individual learning contracts, self-directed - Preparing and presenting, Drafting and editing, Designing and testing, Peer feedback, Comparing and contrasting against criteria, Teacher and student presentations

Research-based – group – small and large - Preparing and presenting, Group brainstorming, Designing and testing, Peer feedback, Comparing and contrasting against criteria, Teacher and student presentations

Team work – collaborative - Preparing and presenting, Group brainstorming, Peer feedback, Comparing and contrasting against criteria, Teacher and student presentations

Discipline speciality - Group brainstorming, Model construction, Drafting and editing, Designing and testing, Peer feedback, Comparing and contrasting against criteria, Teacher and student presentations

Integrated curriculum - Group brainstorming, Drafting and editing, Peer feedback, Comparing and contrasting against criteria, Teacher and student presentations

Learning Space Support – what is required from the learning space to support learning.

Ubiquitous technology – flexibility for ways to connect: floor and wall data outlets, wireless – presentation technology

Ventilation

Acoustics

Access - students with special needs to space and storage

Connection with internet/intranet

Natural light/full spectrum lighting

Furniture to allow for flexible arrangements of students working in groups or individually – movable room dividers, smaller screens, stackable chairs

Specialist resources – experiments – water, resource rich, storage etc

Small and large lecture/discussion spaces

Connection to outdoor areas – wet space, experimental area

Passive supervision - glass walls

Connection to breakout spaces

Display space, gallery, student
Pedagogical Activities

The aim for building new or remodelled learning spaces must be to improve student learning outcomes. Decisions about learning space design must serve to support and enhance current and emerging pedagogies and technologies.

Designing the space requires a school leadership team to make the connection between the school learning vision and the explicit pedagogical activities that are planned for a new or remodelled learning space.

With the constant change in technologies, this has a direct influence on the pedagogy and the space.

Pedagogy for 21st Century - What pedagogies will be in focus in the new learning space?

Frameworks can provide a metalanguage to discuss and define the types of learning activities that need to be in a learning space. In particular, pedagogies such as problematic knowledge, higher order thinking, deep knowledge, connectedness, knowledge integration and problem based curriculum are all examples of 21st Century pedagogies.

- **School leadership teams need to:**
  - Explicitly define the types of pedagogies the space needs to support
  - Make sure the pedagogies align with the school vision for learning and support the notion of 21st Century learning.
  - Consider how the school vision for learning relates to the new or remodeled learning space
  - Explicitly relate the vision for learning to the new or remodeled space to specific types of pedagogical activities that are planned to be a focus for the space
The pedagogy* (the type of learning that will be the focus for the new space): Teaching and developing thinking skills, encouraging collaboration, developing problem solving skills and encouraging reflection.

*Many of these pedagogical activities will involve the use of digital and non-digital technologies.

The learning modalities (how students are physically grouped) that the space needs to facilitate and support.

Well-designed learning spaces incorporating ubiquitous technologies, supporting pedagogical practices that engage, challenge and equip students with the knowledge, skills and attributes they need to prosper in a complex, rapidly changing world.

The design of good learning spaces appears to rely significantly on a good brief that puts pedagogy first. Collaboration between educators and designers is probably the single most important aspect behind good school design.

<table>
<thead>
<tr>
<th>Project Management</th>
<th>Project Forward Planning</th>
<th>Project Delivery Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: Create School Vision</td>
<td>Facility Project Brief Development</td>
<td>Master Planning stage</td>
</tr>
<tr>
<td>Step 2: Focus on Vision for Learning</td>
<td>Project Initiation</td>
<td>Schematic Design and Contract Documentation</td>
</tr>
<tr>
<td>Step 3: Conduct a school audit</td>
<td>Project Delivery Systems</td>
<td>Developed Design and Construction</td>
</tr>
<tr>
<td>Step 4: Prepare a plan</td>
<td>Financial approvals and Cost Limitations</td>
<td>Delivery Systems and Cost Plan Process</td>
</tr>
</tbody>
</table>
ICT Infrastructure

Spaces should be designed for a range of learning activities and not designed to house a particular type of technology.

Ideally, the space should function to support learning and the technological tools brought to or accessed in the space.

How can technology be brought to the space and become ubiquitous as a learning tool?

What will be the mode(s) of ICT connectivity and how will the devices be powered?

Consideration should be given to the fact that:

- at this point in time our wireless connectivity is minimally available in 2 to 3 environments for limited devices
- data and power supply should be considered for under the floor to support furniture arrangements
- devices are becoming much smaller.

ICT General Principles

The classroom is designed for people, not for ephemeral technologies.

The classroom is optimized for certain learning activities; it is not just stuffed with technology.

The classroom allows invisible technology and flexible use.

The classroom enables technologies to be brought to the space, rather than having technologies built into the space.
Functional - How can acoustics, storage, transparency, vistas, flooring, lighting, ventilation, colour Schemes, etc. support learning?

Ventilation

Think about:

- Locate windows in walls with the best exposure to common cooling breezes
- Corridors separating classrooms on either side can often limit air flow
- Considering carefully the number and placement of ceiling fans
- High level windows can function to release hot air from a space
- Choosing windows with maximum opening such as louvers

Acoustics

Think about:

- Placement of a new building with respect to other activity areas in the school
- Distance the learning space is from nearby roads
- Positioning of the doors and windows with respect to adjacent classrooms
- Times and frequency of student movement near classrooms
Reverberation

Think about:

- Carpeting floors
- Curtains on windows
- Hanging displays of student work
- Partitions in open spaces
- Soft furnishings
- Pads on feet of chairs if on hard flooring
- Acoustic tiles on sections of the ceiling and acoustically rated mobile screens

Light

Think about:

- Natural light – eaves, orientation for Winter light and warmth, etc
- Artificial light - adjustable, variety, over displays, high impact spaces
- Ceiling Heights - provide a feeling of space
- Walls - operable, glass, display space, glass covered with vinyl (wordles)
Floor coverings

**Think about:**

Colour - beware that patterns or brightly coloured paths - may concern students with disabilities - autism

Carpet squares

Changes in colour or schemes within a space can influence types of learning

What flooring will be suitable if students are to be lying on the floor, moving furniture around or learning through practical activities?

Will the floor colouring be serviceable or will it require constant cleaning?

Environmental Factors

**Think about:**

Building Orientation

Shading

Lighter colour of roof and wall materials can reduce heat gain

Ventilation of roof spaces

High or raked ceilings in hot climates to improve ventilation

Maximising external wall areas to encourage air movement through the learning space.
These functional aspects of a learning space play an important role in supporting student's learning.

**Emotional**

The way a learning space is presented and how a learning intent is communicated can motivate learners and engender a sense of space ownership.

The use of colour, images, art works, signage, displays can positively influence the learning culture in a space.

**Colour** - lighter colours on the walls and darker tone in teaching space to draw attention and limit light reflection. Many students with autism have difficulty with too many colours and patterns.

**Signage** - having a consistent font adds to the cohesion of the learning spaces. Directions to various areas of the school make it easier for the community to find locations.

**Branding** - choosing a simple brand (maybe not as complicated as a school badge) markets the school in a positive way.

**Vistas** - outlooks towards the natural environments (living things) enhance the feeling of a learning space.

**Entrances** - what will the entrances say to the visitor - welcoming, warm, friendly or a negative 'keep out' ..?