linking pedagogy and space

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storyboard outline

... outlines the scope of the storyboard for the planning and design principles in this document

[16 March 2005]

1.00 curriculum context

teaching and learning principles

DE+T essential learning strands and domains

key pedagogical approaches

2.00 pedagogy + space

linking principles to place

linking pedagogical activities to spatial settings

learning settings

learning setting principles:

01 individual settings

02 group settings

03 activity rich settings

04 informal learning settings

05 staff settings

3.00 planning principles

the 'learning hub'

cluster models

clusters and affinities prep - 6
7 - 9
10 - 12

cluster options prep - 6
7 - 9
10 - 12

4.00 suite of spatial concepts

case study 01
australian maths + science school [sa]

case study 02
mawson lakes school [sa]

case study 03
canning vale high school [wa]

case study 04
reece high school [tas]

case study 05
copperfield school [vic]

case study 06
the big rug school [uk]

case study 07
tight urban site . school design [uk]

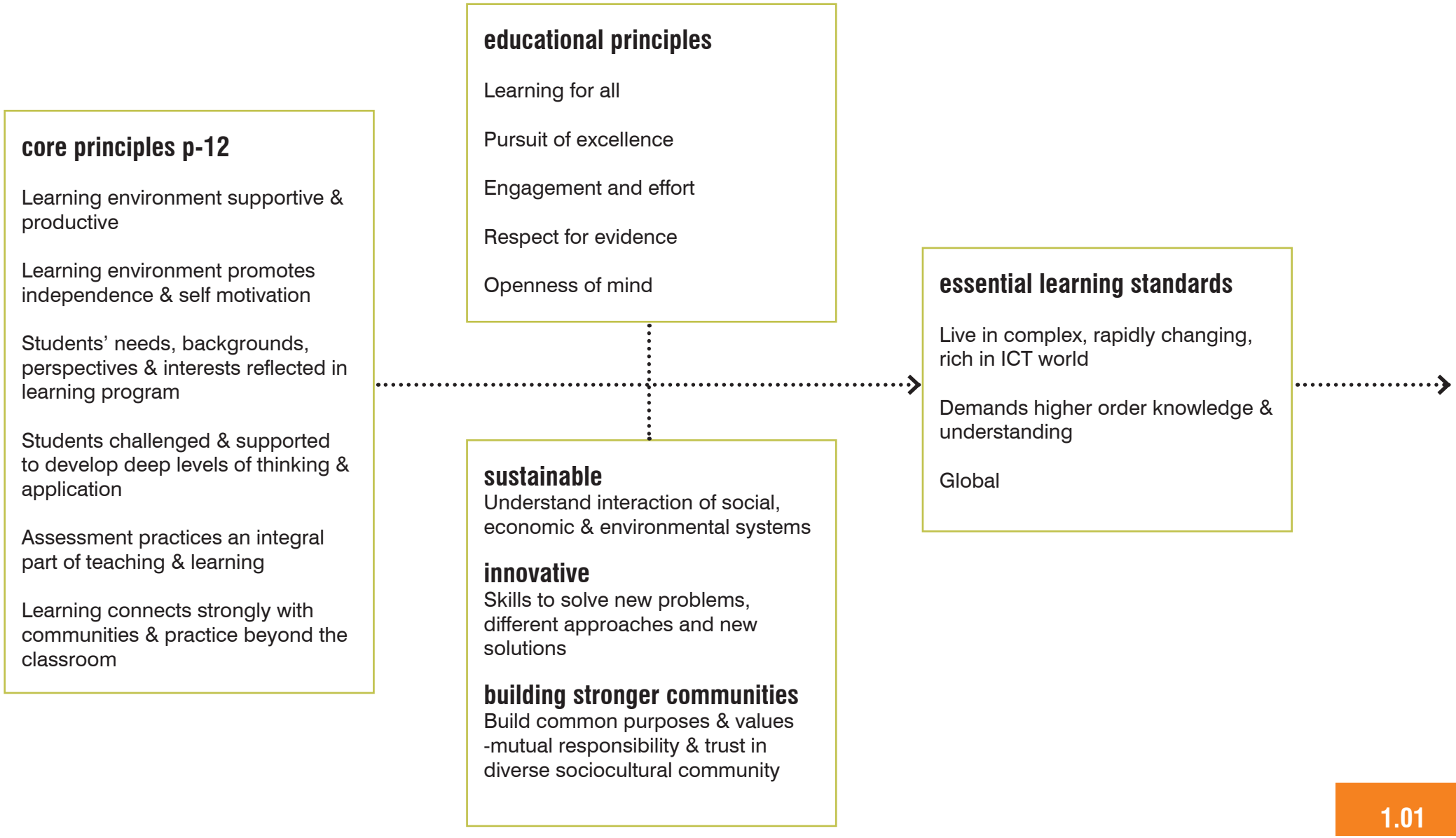
case study 08
'zoo school' [minnesota]

curriculum context

teaching and learning principles

... summary of current DE+T principles for Victorian schools

[source: Dr Kenn Fisher]



DE+T essential learning strands and domains

... current educational strategies by DE+T in Victoria include the attributes of a successful learner and the strands and domains.
The principal activities in achieving these outcomes include delivering, applying, creating, communicating, decision making

[source: Department of Education + Training]

attributes of a successful learner [P - 12]

junior school	- Social skills - Links school & home - Curiosity / encouragement greater interest in learning - Basic numeracy & literacy - simple technical & coordination skills
	- Organise ideas & use language with peers - Master basic literacy, numeracy skills - Awareness of other groups, cultures, times
	- Persistent & prolific in certain skills - Participate in discussion about ideas & beliefs - express informed opinions
	- More complex thinkers - apply problem solving strategies - Participate in / lead small group activity - Learn more deeply through more extended projects
middle school	- Individual sense of identity - consider more complex ideas - Interest in learning more independent / congruent with personal goals - Participate in a variety of physical activities - Understand effects of risk taking
	- See themselves as young adults - independent thinkers, use formal methods of enquiry - Seek to apply learning to the world outside school - Set personal health & fitness goals, undertake activities to achieve them
11-12	- Personalised learning and the application of specialised behaviour - Pathways into further learning and/or employment

strands and domains

physical, personal and social learning
health and physical education
interpersonal development
personal learning
civics and citizenship

discipline-based learning
the arts
english
languages other than english
the humanities [economics, geography & history]
mathematics
science

interdisciplinary learning
communication
design, creativity and technology
information and communications technology
thinking

authentic
authentic, integrated, problem and resource based learning

delivering

applying

creating

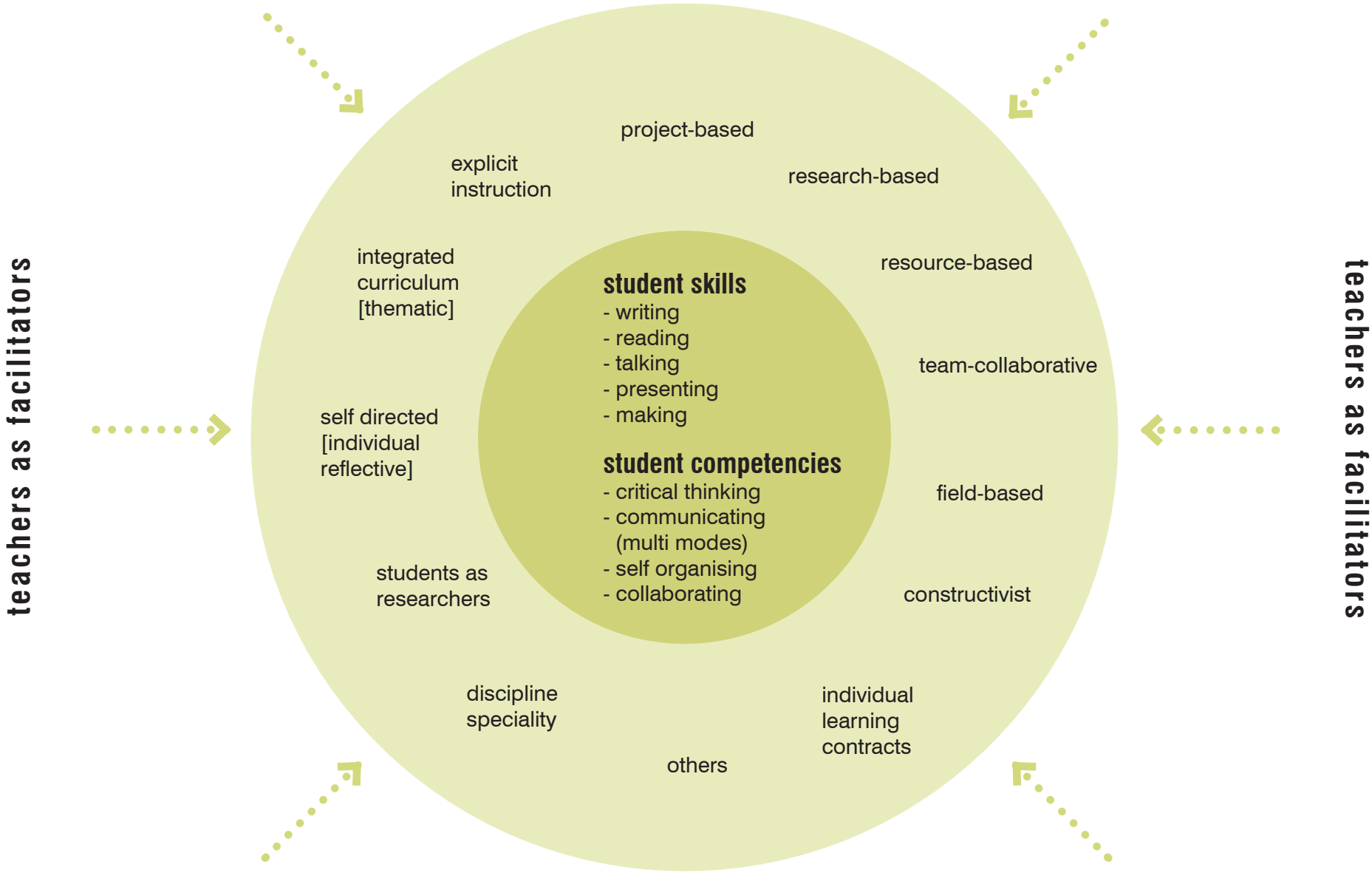
communicating

decision making

key pedagogical approaches

... a range of pedagogies will be used according to subject matter and essential learning forms. These pedagogies will target and support improved student skills outcomes and enhanced student competencies. Students are at the centre of learning, with teachers as facilitators

[source: Dr Kenn Fisher]



pedagogy and space

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

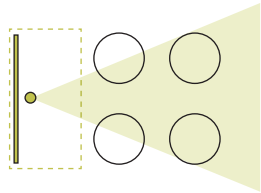
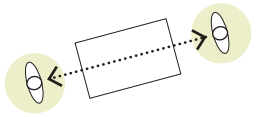
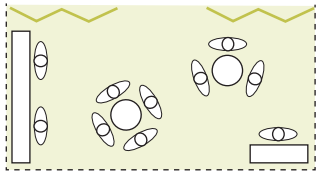
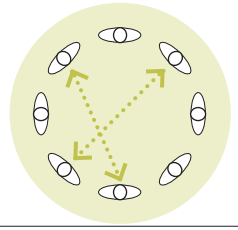
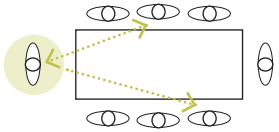
[source: Department of Education + Training]

principle	pedagogical approach	pedagogical activity	implications for building design
The learning environment is supportive and productive	Learner centred pedagogies with multiple learning settings collocated	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	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, multi-media 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 Multi-purpose 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	decision making	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		Buildings and facilities that bring the community into the school ICT facilities that support curriculum links to professional and community practice

linking pedagogical activities to spatial settings

... categoric pedagogical practices have associated space types.

[source: Scott-Webber]

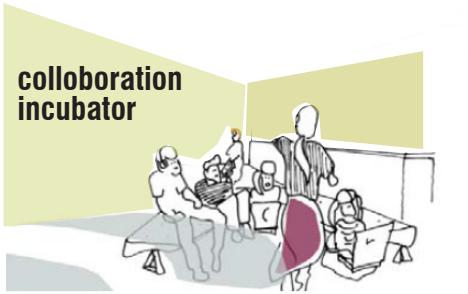
pedagogical activity	pedagogical attribute	process steps	behavioural premise	spatial icon
delivering	Formal presentations Instructor controls presentation Focus on presentation Passive learning	Prepare & generate presentation Deliver to an audience Assess understanding	Bring information before the public Instructor lead Knowledge is in one source	
applying	Controlled observation One-to –one Master & apprentice alternative control Informal Active learning	Knowledge transferred via demonstration Practice by recipient Understanding achieved	Learner-centered 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 & 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	

learning settings

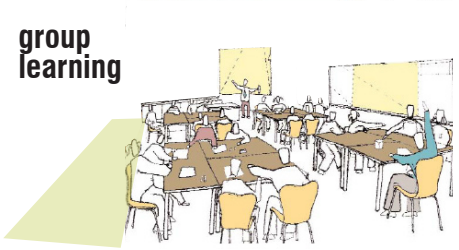
... possible learning settings for various modes and group sizes. These multi-modal learning settings should be collocated and clustered to allow students to move around the various learning environments to suit the particular learning task

[source: Dr Kenn Fisher]

colloboration incubator



group learning



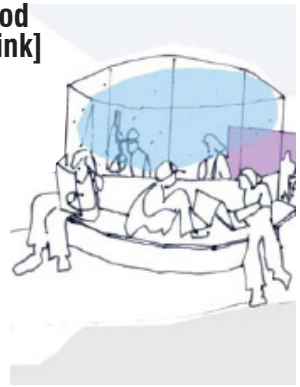
presentation space

teacher meeting space

resources, supply + store

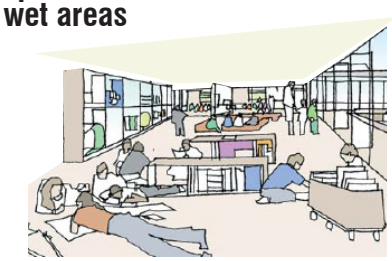
student home base

individual pod [place to think]

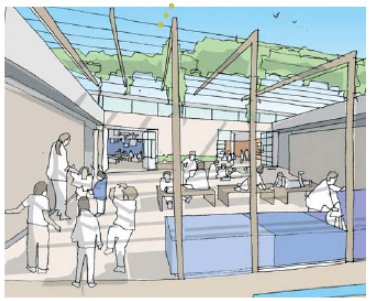


specialised focus lab

project space + wet areas



outdoor learning



display space

breakout space

learning setting principles - 01 individual settings

... describes types of spaces and spatial qualities that support individuals and research/ they are essentially for self-directed learning

student home base

space
Space for an individual to personalise and in which to work and study.
Gathering place for learners and teachers.

pedagogy
Provides sense of ownership and teaches responsibility for one's own learning.
Provides a common space to start a learning activity, seek assistance and resources, share ideas, and hold group discussions.

size
1-2 sqm.

individual pod [place to think]

space
Quiet Spaces for individuals or small groups.

pedagogy
Provides quiet place for work, study, reflection, or rest.

size
10 sqm.

learning setting principles - 02 group settings

... describes types of spaces and spatial qualities that support groups. these should have movable furniture so that the spatial organisation is learner-controlled. These are for small group collaborative and cooperative learning activities

group learning space

space

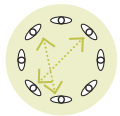
Individual or team spaces for staff that has adjacent material preparation area and meeting space.

pedagogy

Encourages team teaching, mentoring of other faculty, integrated planning, and informal discussions.

size

20-25 sqm.



collaboration incubator

space

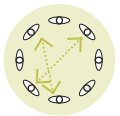
Idea generation space, team meeting space, access to technology and other resources and display space for models and ideas.

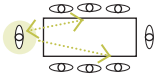
pedagogy

Support creativity, idea generation, teamwork and prototyping of concepts.
Encourages involvement of local employers in the development of projects.

size

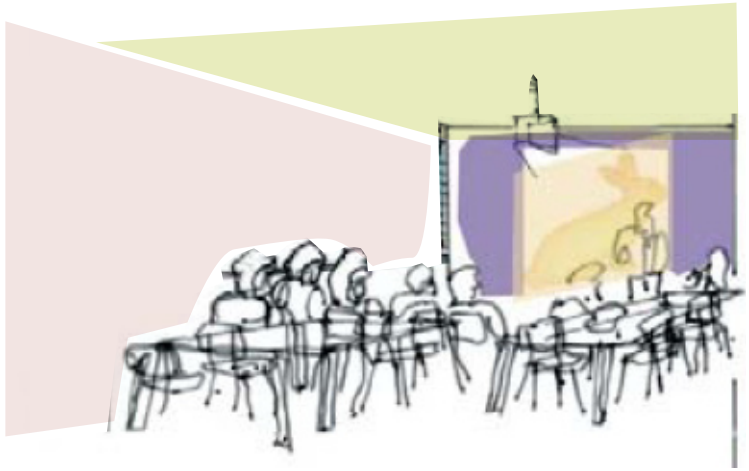
20 sqm.



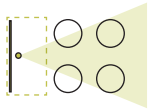


learning setting principles - 02 group settings

... describes types of spaces and spatial qualities that support groups. these are essentially for larger groups where presentations and exhibitions will occur



presentation space



space

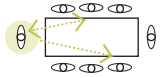
Places for individuals or teams to demonstrate and perform.

pedagogy

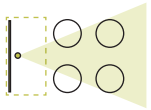
Gives opportunity to practice, share acquired skills and knowledge with learners, staff and the public and receive feedback.

size

40-50 sqm, generally dividable.



display space

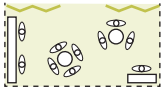


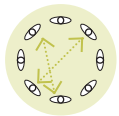
space

White boards, black boards, tack surfaces, and show cases. Place furnishings to display work in progress or completed projects. Can overlap with circulation.

pedagogy

Provides places to show ideas, work-in-progress and finished products.
Supports and shares learning process by showcasing concept development, learning activities, development process and finished products and services.





size

20 sqm.

learning setting principles - 03 activity rich settings

... describes types of spaces and spatial qualities that support activity. these spaces will be technologically enhanced and contain a range of services and other resources according to the studio space type

project space + wet areas

space

Space that provides a variety of work surfaces, cabinets for supplies, storage areas for projects in development stage, access to tools and technology. Specialised lighting, and other infrastructure such as sinks and disposal.

pedagogy

Provides space to produce information, services or products.

Encourages critical thinking, problem solving, and team work.

size

40-50 sqm, generally dividable.

specialised focus laboratory

space

Areas to support learning activities requiring specialised equipment or furnishings [eg. Science, technology, art, music, dance, fabrication, troubleshooting].

pedagogy

Provides space and infrastructure to develop and practice specialised skills.

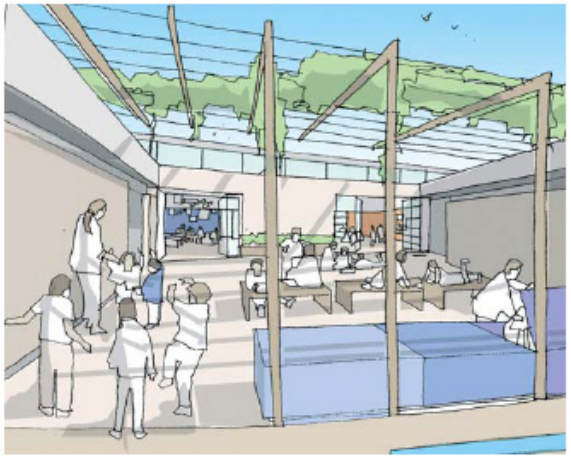
Brings relevancy of work, family and community to the learning process.

size

80-100 sqm.

learning setting principles - 04 informal learning settings

... describes types of spaces and spatial qualities that support informal learning. problem-based learning and collaborative and team activities will occur in non timetabled spaces scattered across the campus in corridors, verandahs, cafeteria and library



outdoor learning

space
Outdoor areas of any scale that are semi-defined by landscape, building edge or lightweight cover, with provision for seating.

pedagogy
Provides informal outdoor area for socialising, private study, reflection or discussion. Can be used for structured small group activities.

size
varied.

‘breakout’ spaces

space
Lounge areas, small study rooms, widened corridor spaces that allow gathering away from formal learning activities.

pedagogy
Provides psychological and physiological relief from formal environments. Allows for individual reflection, informal discussion or social activity for small groups.

size
15-20 sqm.

learning setting principles - 05 staff settings

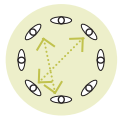
... describes types of spaces and spatial qualities that support activity these spaces and places should not be isolated from students – an adult learning approach supports staff taking 'time out'

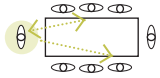
teacher meeting

space
Individual or team spaces for staff that has adjacent material preparation area and meeting space.

pedagogy
Encourages team teaching, mentoring of other faculty members, integrated planning, and informal discussions.

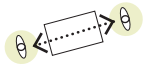
size
20-25sqm.





resources, supply + store

space
Space within or adjacent to the learning activities spaces to provide resources, store supplies for classroom projects, tools, learning products and materials.



pedagogy
Provides ready access to needed supplies, tools and storage for learning projects.

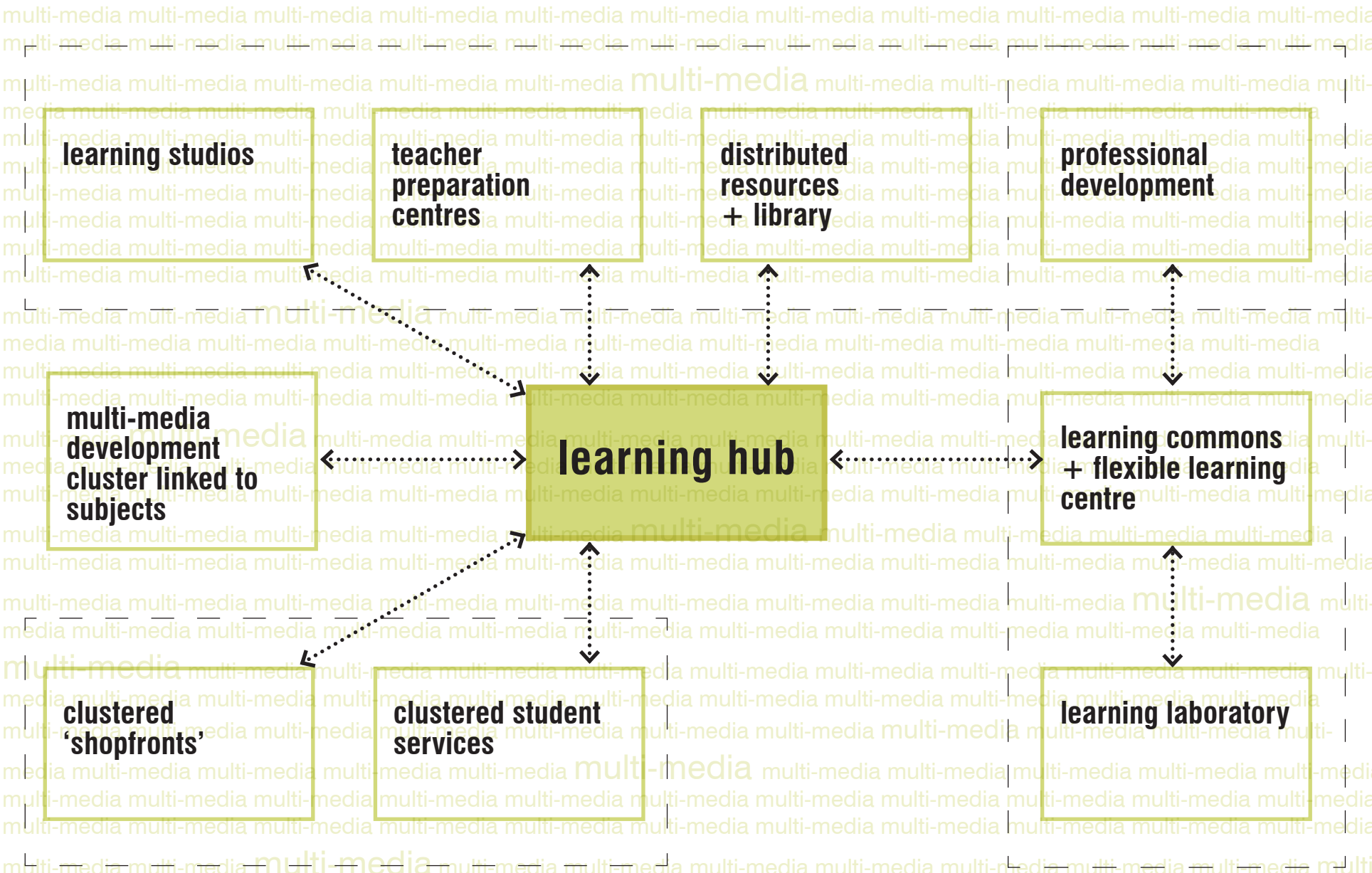
size
20-30 sqm.

planning principles

the ‘learning hub’

... multiple learning settings are clustered so that individuals and groups have easy access to a range of pedagogical settings

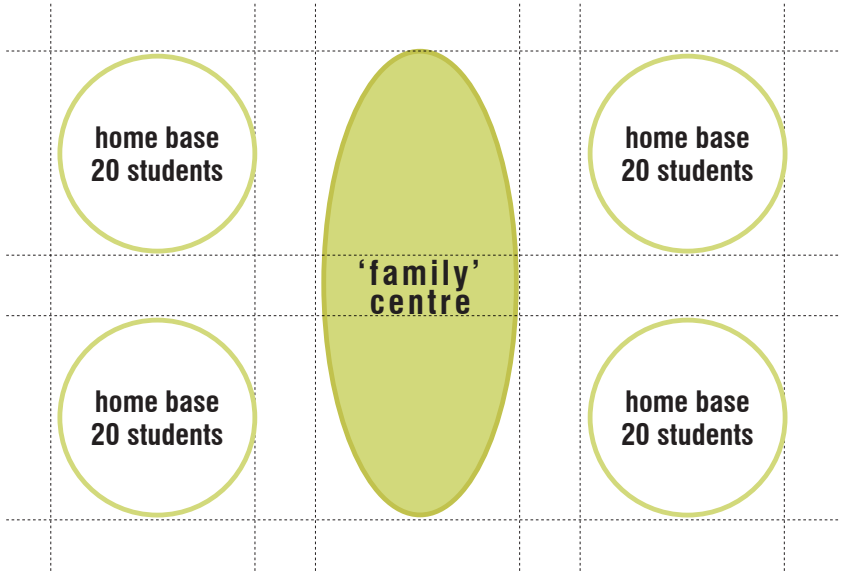
[source: Department of Education + Training]



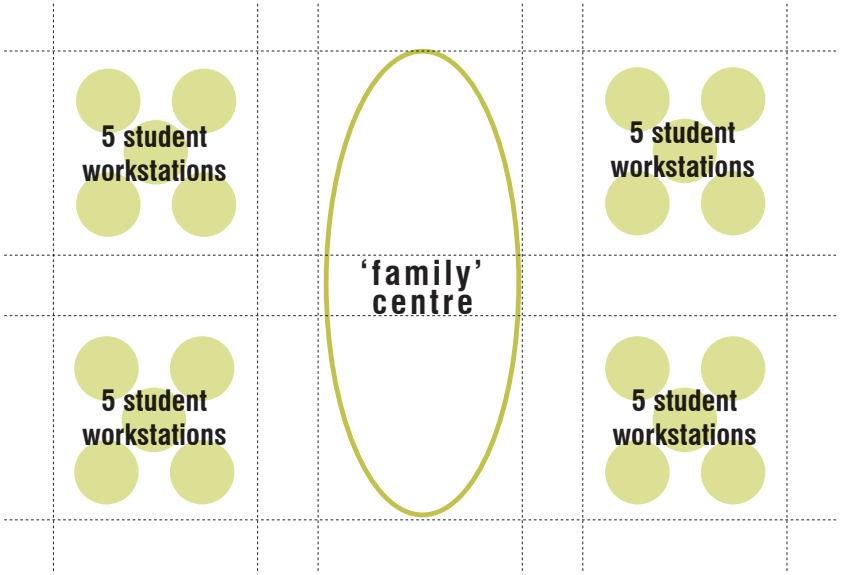
cluster models

... potential alternative models of clustering groups are suggested clusters may be based on syndicate group, or home group, of 'family' sized groupings

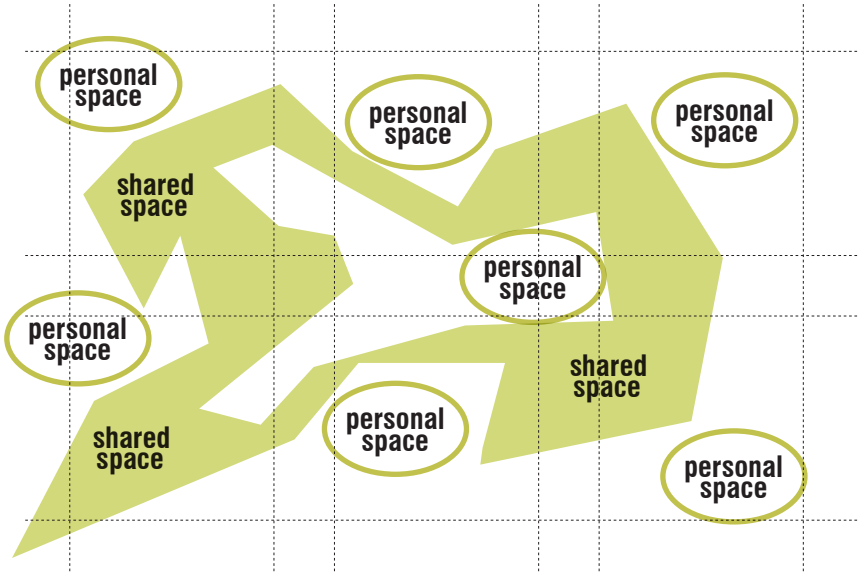
[source: Department of Education + Training]



usual home group arrangement



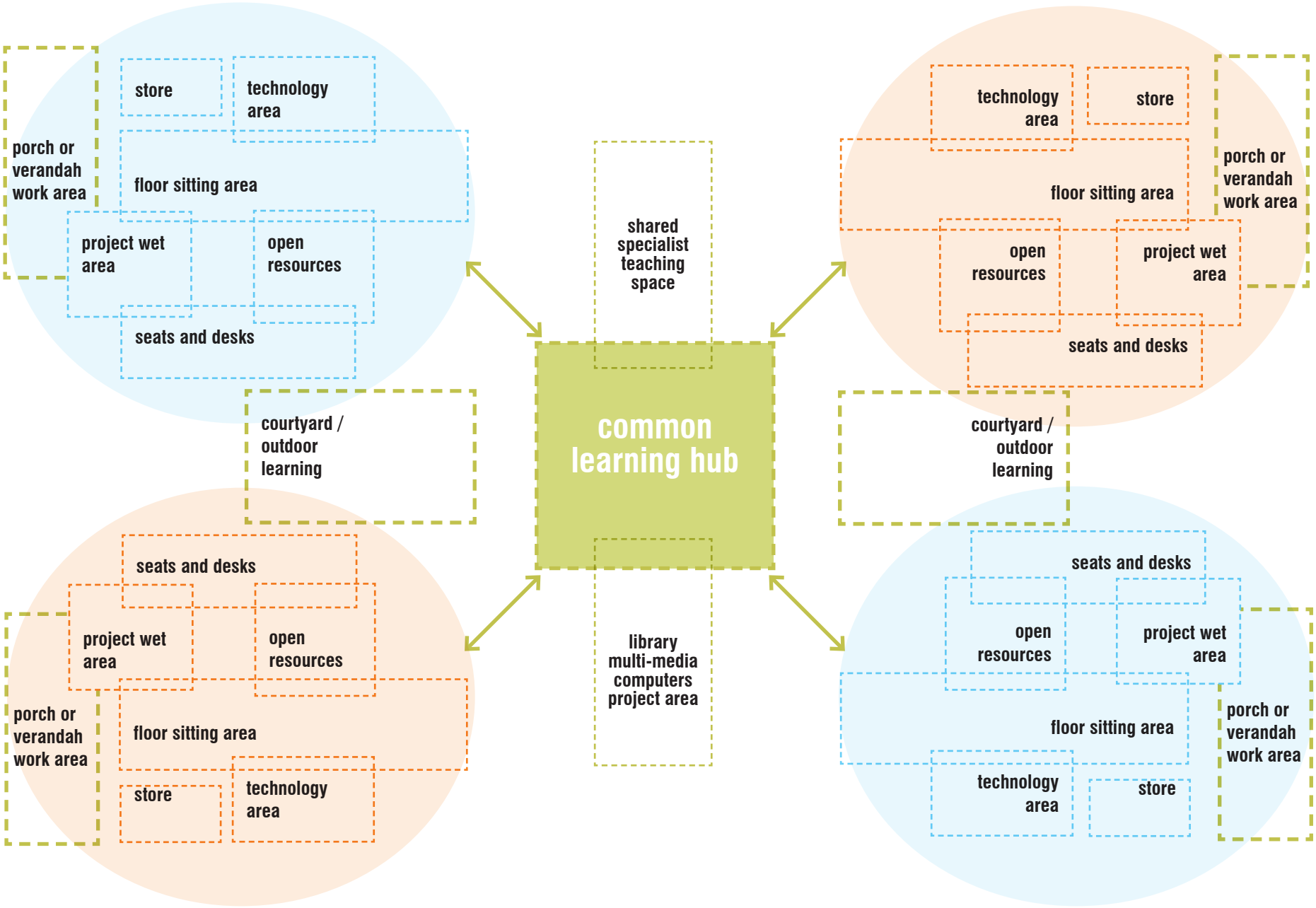
team based arrangement



learner determined arrangement

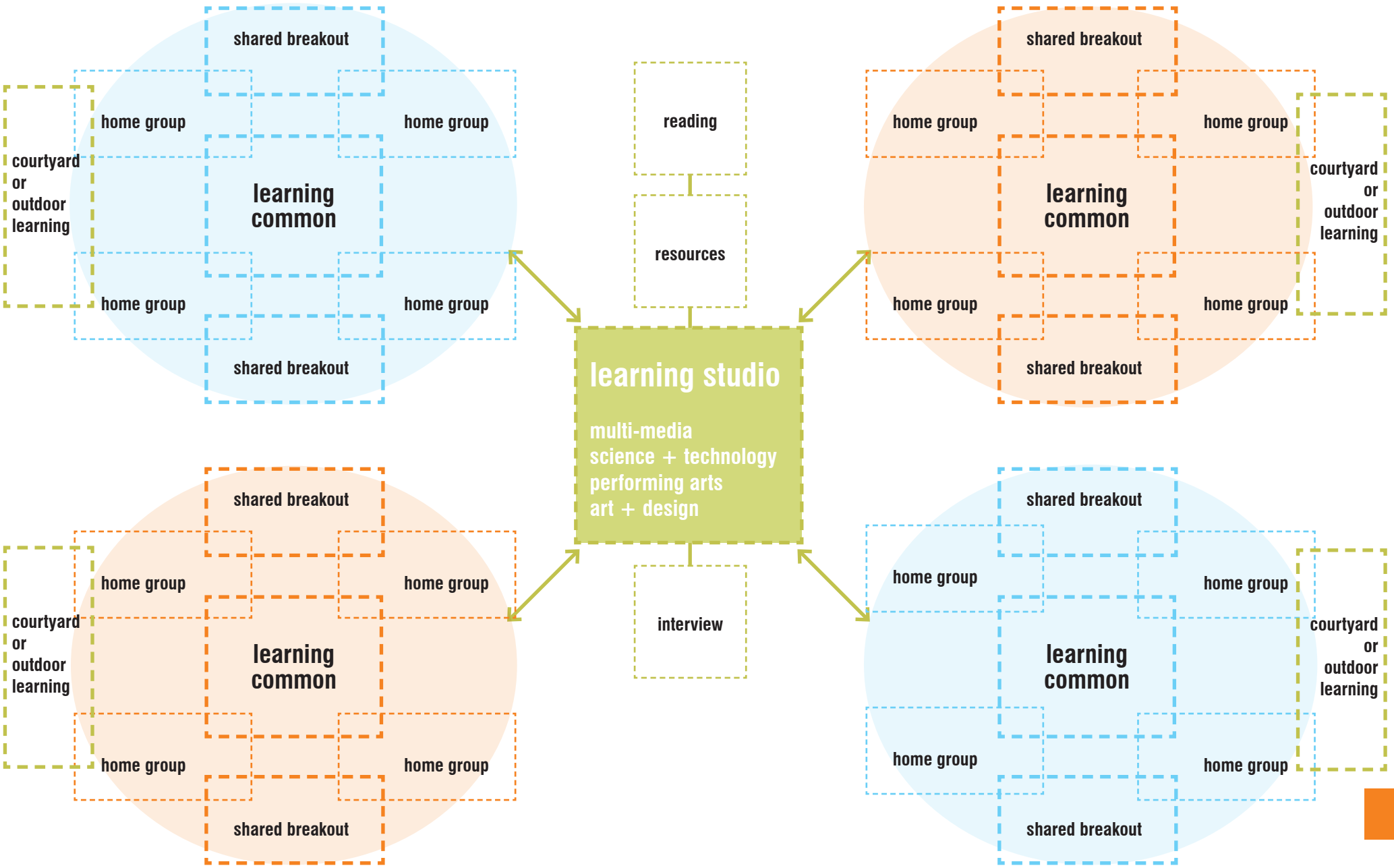
clusters and affinities [prep-6]

... various learning settings are clustered around common space and these are in 'family' groups or clusters



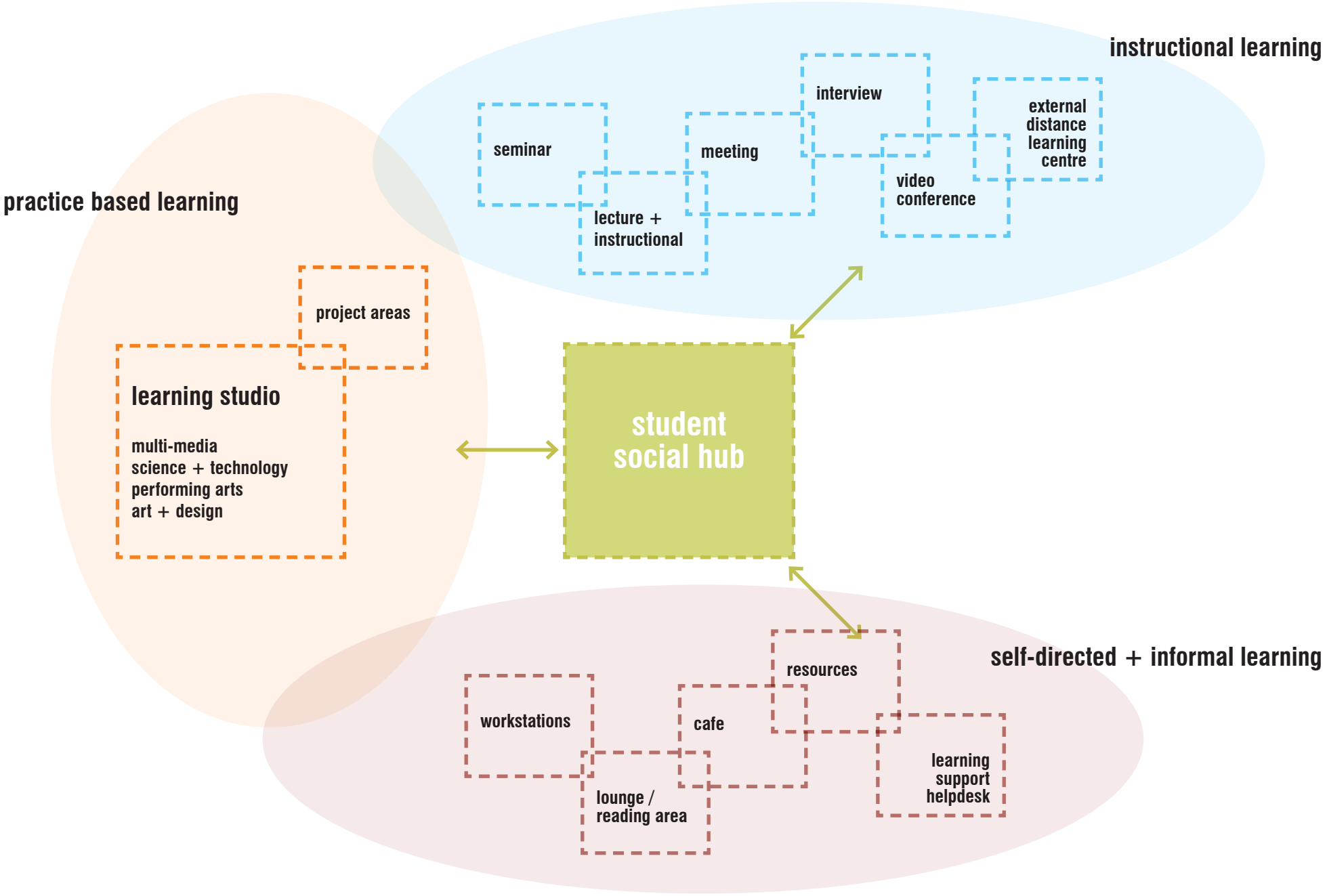
clusters and affinities [7-9]

... clustered learning settings are able to access shared learning studios



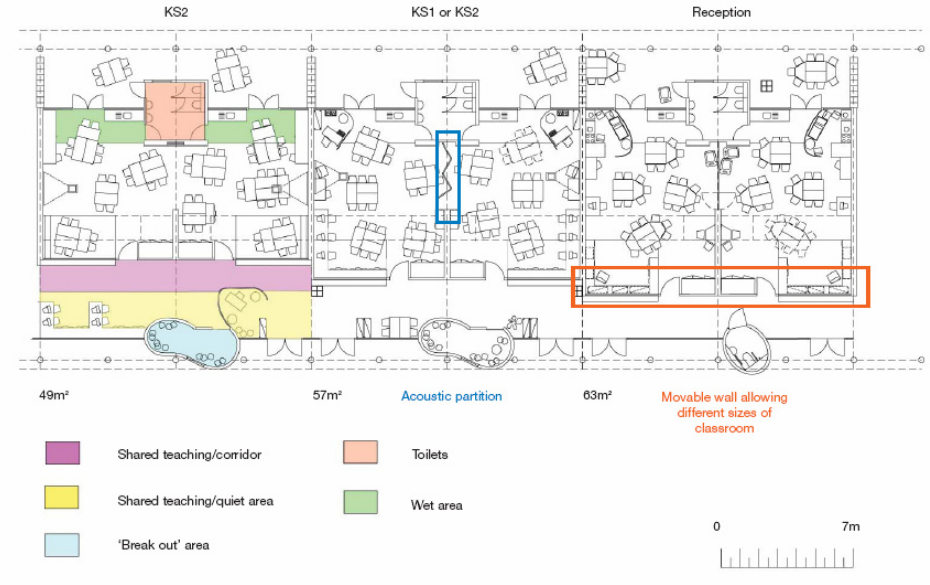
clusters and affinities [10-12]

... these clusters are arranged to conform to VCE requirements and provide three distinct clusters of learning possibilities



cluster options [prep-6]

... various potential options for clustered learning settings



learning cluster

building design partnership

Using a block stacked, hexagonal formal module, these classbase spaces can enclose centrally located share resources, for instance, group social/play space or ict facilities without creating 'unusable' corner spaces. Each space can be thought as if it were composed of a series of trapezoidal activity forms to increase flexibility within the classbase.

linear cloister

cottrell + vermeulen

Flexible classroom spaces spawn from an adaptable size central linear circulation space. Providing increased teaching flexibility within the classroom space [with necessary support facilities] and non-programmed teaching within cloister space, further learning can be programmed through the moveable partitions between classbases.

cluster options [7-9]

... various potential options for clustered learning settings

learning cluster

mace

Flexible learning clusters, each capable of further division or combination, provide further potential expansion to this model as demonstrated above. Social or collective resource spaces separate learning spaces from spiratic activity of circulation cloisters.

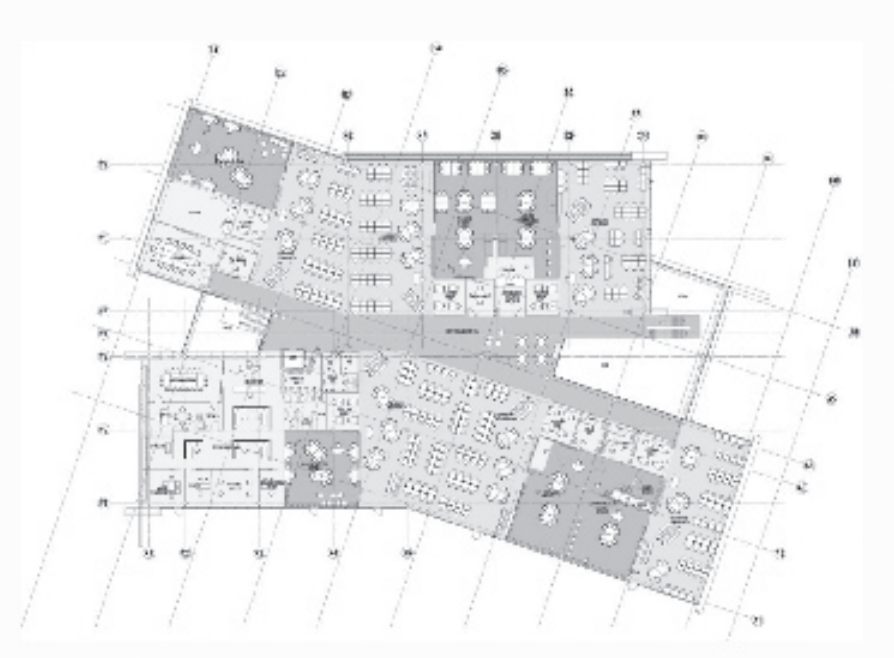
learning cluster

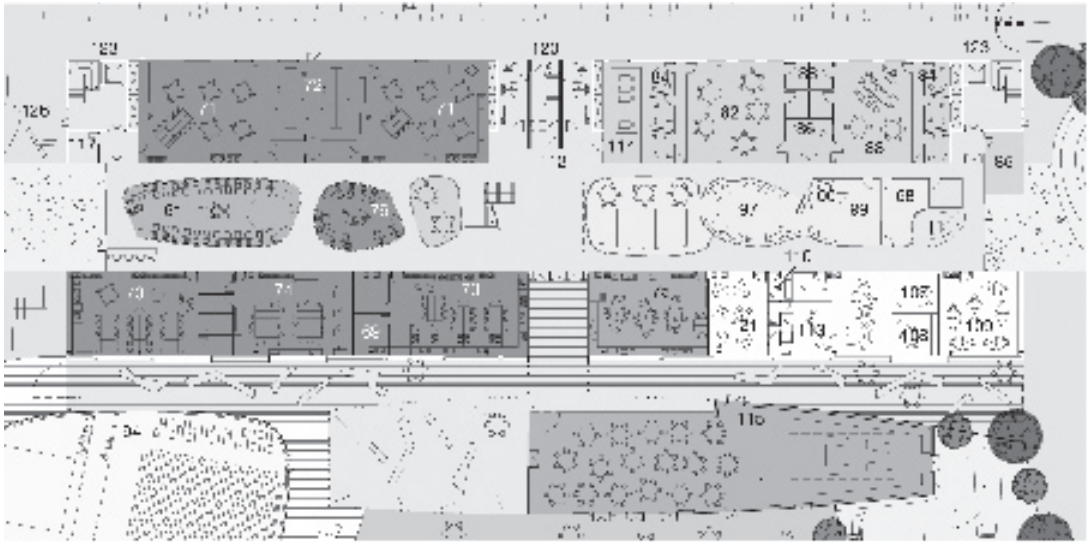
wilkinson eyre

Centrally located resource pods comprise the central space within a large scale learning pod. Traditional classbases are integrated within a flexible learning space and pedagogy.

cluster options [10-12]

... various potential options for clustered learning settings





learning cluster

woods bagot

Providing specialist learning and pedagogy, these spaces emphasize how individual, group and flexible learning spaces can be combined. Central ‘informal’ spaces progress through to task oriented resource rich learning environments.

learning atrium

alsop

Centrally located social/resource pods comprise the central space within a large central atrium space. Traditional classbases form learning wings to vibrant hub spaces for ict or resources. The diversity of such spaces integrated within the tower proposal develops notions of community and living towards a micro-village learning environment.

case studies

case study 01 . australian maths + science school [sa]

theme 1 context of the project in relation to state, school or discipline trends in teaching and learning	theme 2 educational philosophy	theme 3 specific proposed pedagogical activities	theme 4 key planning + design features	theme 5 evaluation of strengths & weaknesses
Conceived as a focus driven science and mathematics school, within the campus of Flinders University. Interdependent upon industry and business partnerships and capitalises upon relationships to other educational institutional facilities. Fostering professional relationships with the Schools of Education and Science and Engineering at Flinders University, the professional teachers associations and the curriculum policy directorate with the SA government Department of Education and Children's Services. Use of 'best available resources', particularly ICT Curriculum development within a series of "BIG IDEAS" rather than traditional subjects: learning in the workplace, community and the university. 	Challenge pre-conceptions of science and mathematics teaching through four principles; "A passion for learning creates inspiration" "Choice is an essential part of learning" "Learning is social and collaborative" "All knowledge is connected" Encouraging learning and problem solving within individual and group contexts, through collaborative working relationships and flexible teaching and learning groups. Development of individual learning plans, containing multiple entry points and pathways, fostered by teacher and student interest, producing understanding. 'repackage knowledge to create new understandings to meet the complexities of the modern world' Interdisclipinary life and learning, promoting the collaboration of theoretical, conceptual and practical knowledge from various fields of study.	Interdisciplinary approach to curriculum design, teaching and learning, supporting an 'inquiry' approach and 'constructivist' learning. Inquiry approach to Learning Encouraging and developing higher order thinking skills and metacognitive processes Learning centred curriculum, informed through; fertile questions, wonderings, problems, issues, emotions, in collaboration with teaching and learning methodologies ranging from student to instructor centred. Use of ICT resources to embody 'a student centred learning at anyplace, anytime philosophy', promoting independent learning and individual learning styles. Focus toward development of generic skills and attributes and how to apply these to specific subjects and the understanding of major concepts and big ideas.	ASMS is designed as a single, two level building, composed of learning commons and learning studio spaces, able to adapt to groups of varying size and configuration. Classrooms and centrally located common spaces to each floor, open to outdoor [learning, recreational and social] environments. Incorporates a range of environmentally sustainable features, consistent with modern 'moral, ethical and environmental issues… associated with 'new sciences'' School physically open for twelve hour days throughout the year, focussing toward longer learning sessions. 	Strengths: Close collaboration with institutional staff and resources Advancement of student centred, flexible learning ideology Integration of advanced ICT infrastructure within curriculum Close links with industry and other institutions Working to challenge and renew approach to traditional school disciplines Weaknesses: 

http://www.cybertext.net.au/tct2002/tour/aus_sc_maths.htm
http://www.cybertext.net.au/tct2002/disc_papers/learning/need_mather.htm
http://www.cybertext.net.au/tct2002/keynote/lake.htm
http://www.aspa.asn.au/Confs/Aspa2004/asms.htm
http://www.asms.sa.edu.au/
http://www.asms.sa.edu.au/student_life/
http://www.woodsbagot.com.au/

case study 01 . australian maths + science school

constructed : completed 2003
location : bedford park, flinders university
architect : woods bagot architects
population : 450 students, staff n/a
building area : 18.4m² per student - 8300 m² total
building cost : $1686/m² - $14.0mil total project cost
year levels : 10, 11, 12

central atrium =

breakout space

+

display space

+

individual pod

opportunity for informal meeting, discussion or display of project work

focus labs =

specialised focus labs

computer labs, quiet or specialist areas for concentrated study

meeting =

staff meeting

formal presentation, meeting spaces for various sized groups

learning common =

group learning

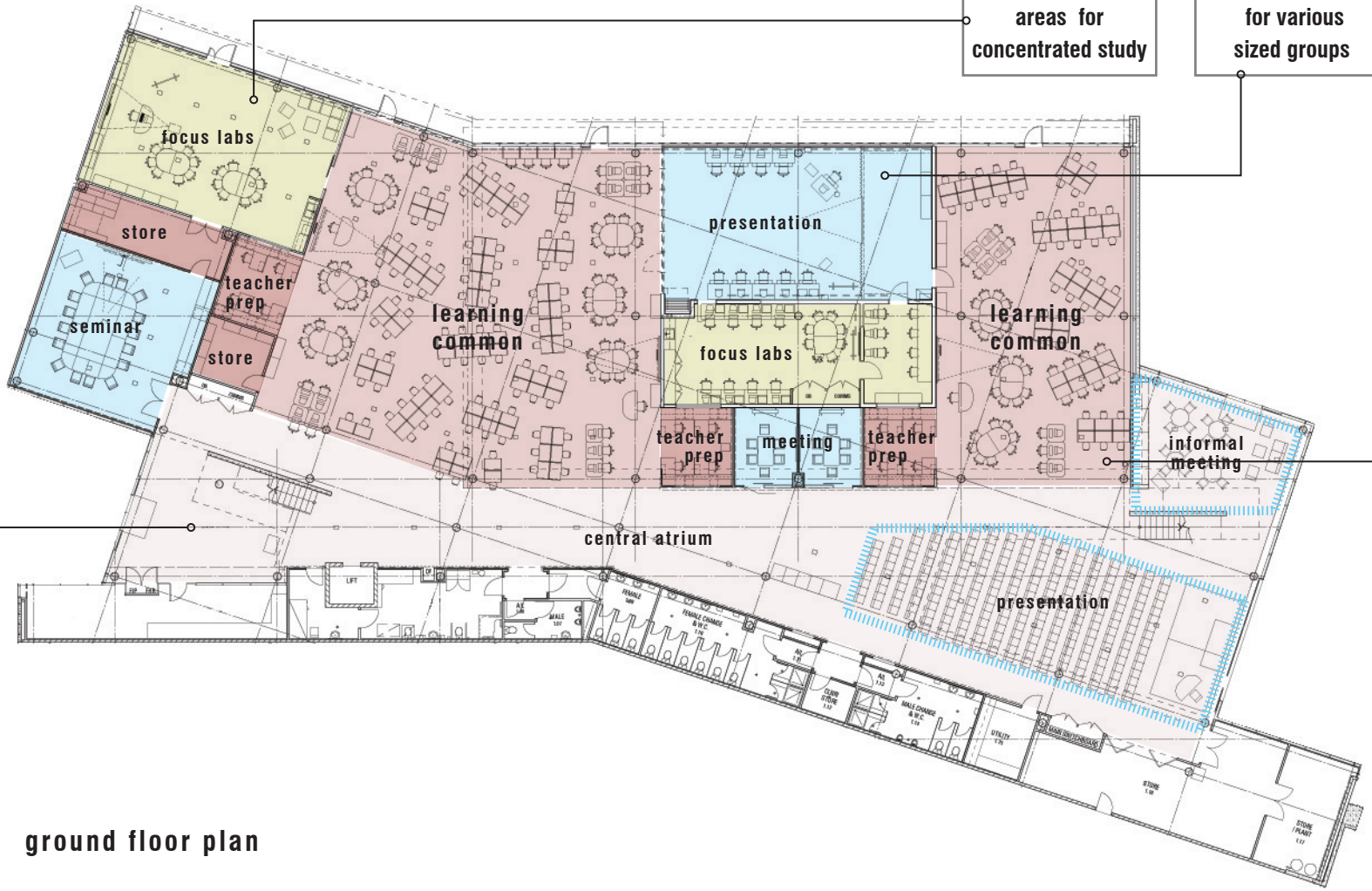
+

project space + wet areas

+

collaboration incubator

multi-modal learning setting conducive to group work, project discussions and collaborative meeting



ground floor plan

case study 02 . mawson lakes school [sa]

theme 1 context of the project in relation to state, school or discipline trends in teaching and learning	theme 2 educational philosophy	theme 3 specific proposed pedagogical activities	theme 4 key planning + design features	theme 5 evaluation of strengths & weaknesses
Utilising a variety of on site neighbourhood learning centres or hubs that are technologically linked to maximise student learning. Complementing the services of DETE [e.g. School of the Future, Open Access College, the Australian Science and Mathematics School, etc] and the directions of State Government [e.g. economic development, export of education services and products] Expanding its curriculum offerings through national and international links utilising online technologies. Use of advanced ICT Creating a Sustainable and Energy Efficient Environment Developing a greater understanding of Aboriginal Heritage and Culture of the Kaurna Plains People the traditional owners of the land 	"learn for a full life" "learn how to learn" "develop higher order thinking skills" " develop the confidence and skills to use advanced learning technologies" "develop an enterprising learning community culture" Create a community where learning is available for everyone, at any time, and in any place. Optimal use of advanced information and communication technologies. Contribute to the economic sustainability of Mawson Lakes and become a catalyst and a conduit for the creation of a community, which continuously seeks to improve itself and the lifestyle of its members. 	Individually and flexibly planned, facilitated and managed learning program. Access to a range of collaborative and supportive processes to support their learning and facilitate the development of their social, emotional, physical, cognitive and creative needs [i.e. development of the whole student] Be amplified, extended and transformed through the use of learning technologies. Have online access to a wide range of national and international educational opportunities. Be a part of a community in which learning becomes an integral part of everyday activity Be able to learn independently, interdependently and collaboratively in a local, national and international context as appropriate.	Four main single storey flexible learning spaces [family units] accessible from a covered spine to the west and abutting the eastern street boundary Varying bays and windows … are primarily places of retreat and small groupings to students within, providing them with unique windows to the world for outlook and display Solar and Thermal ventilation chimneys express the importance of sensitive environmental design. Each unit has its own directly accessible courtyard which in turn links to the open space going down to the creek Various landscape zones encourage different types of play The students… emphasised the importance of natural ventilation, accessibility to outdoors, environmental concerns and the need for different types of play spaces.	Strengths: - Connection to outdoor spaces - Visible ESD design elements - Emphasis on life-long learning - Connection to other institutions and wider community - IT and wireless networks - Individual identity for 'family units' Weaknesses: 

Mawson Lakes School Vision, 2000
http://www.mawsonlakes.sa.edu.au/index.html
Architecture Australia November/December 2004 p76-77
http://www.architecture.com.au/awards_search?option=showaward&entryno=20045012

case study 02 . mawson lakes school

constructed : 2002
location : mawson lakes, south australia
architect : mgt canberra + russell & yelland
population : 360 students, 28 staff
building area : 6.7m² per student - 2350 m² total
building cost : $2021/m² - $4.75mil total
year levels : pre-school – yr 7

family group =

project space + wet areas

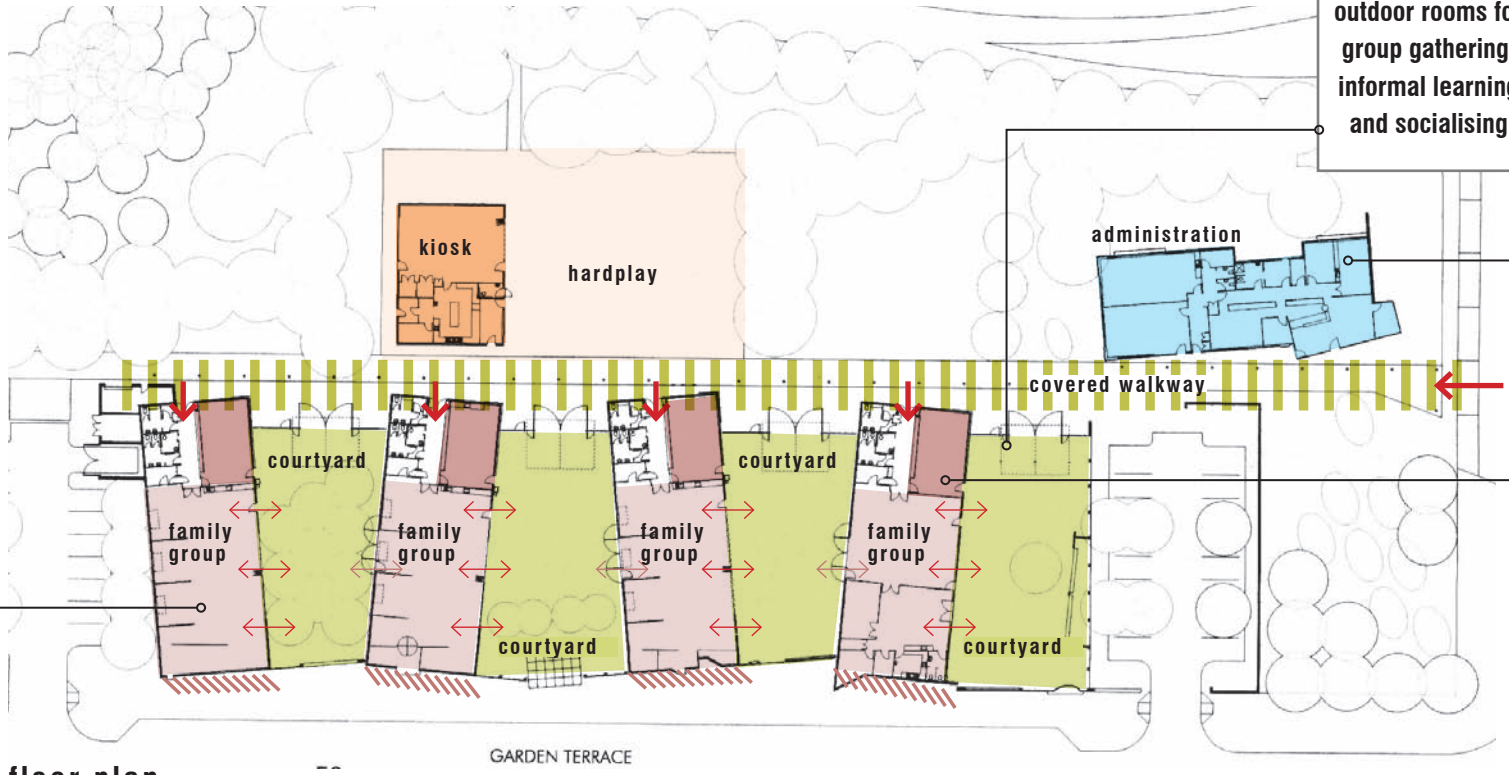
+

group learning

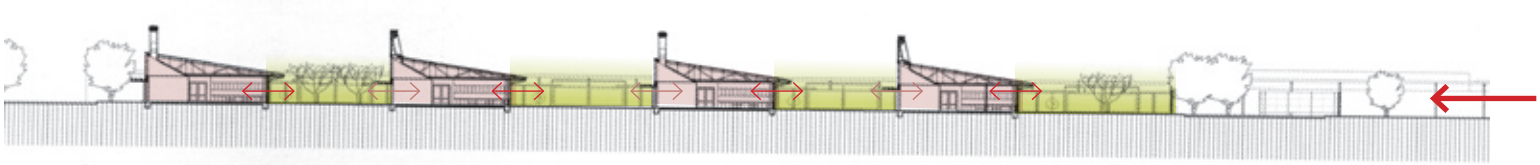
+

student home base

multi-modal learning settings with flexible partitions and integral wet areas



floor plan



cross section

courtyard =

outdoor room

outdoor rooms for group gathering, informal learning and socialising

staff areas =

collaboration incubator

+

resources, supply + store

collaboration zones and resources

focus zones =

specialised focus labs

computer labs + quiet specialist areas for concentrated study

case study 03 . canning vale high school [wa]

theme 1 context of the project in relation to state, school or discipline trends in teaching and learning	theme 2 educational philosophy	theme 3 specific proposed pedagogical activities	theme 4 key planning + design features	theme 5 evaluation of strengths & weaknesses
Implementation of bold shared vision statement: 'putting children first' Collaborative community design generation process that involved the formulation of ten key principles for the schools planning process. Development of a 'town centre' model of schooling: commons block and periphery within the school become the school heart.  	Empowering children to view the world critically, to think and act independently, cooperatively and responsibly. Develops and offers an environment structure on a shared philosophy of fundamental values, beliefs and curriculum engendering young adolescents to explore themselves and their place within the world. Flexible learning spaces provide maximum scope for flexible learning styles. The learning centre will provide a new centre of community.	Learning will be personalised for every student, designed to nurture mind, body spirit. Development of a curriculum framework to supplement prescribed curriculum and syllabus by identifying common learning outcomes for students. Learning will be authentic with a significant project-based orientation and workplace relationship bent. Combining teams of teachers and students within a learning cluster enables curriculum deliver to be learner centred and focussed towards the interests and concerns of participants. Teaching programs that respond to local needs and circumstances, enabling greater student ownership, relevance and interest within their learning. Establishment of non-discriminatory learning outcomes based learning focus. Educational inputs are being replaced by schooling results.	Collaborative design/planning process and community consultation resultant in the organic development of the brief. Development of a range of idiosyncratic design elements to encourage "unprogrammed" learning opportunities, and cross-curricular collaboration. School architecture to allow end user various modes of customisation of learning spaces. It should not limit users, rather empower and stimulate the learning process. Seamless transitions between indoor and outdoor space that reflect the preservation and focus of the environment within the school. Circulation spaces that integrate socialising, student display and large group meetings. Neighbourhoods with individual identities as clusters of 'family' learning groups, along a learning street.	strengths: Integrated and responsive design and strategic educational development of project. Use of urban or masterplanning design guidelines to formulate a school design. Development of inclusive learning outcomes and objectives which implement guidance for the referred curriculum framework. Implementation of cluster or neighbourhood based flexible learning models with additional informal learning settings. 

http://www.cvc.wa.edu.au
www.spowers.com.au
http://www.designshare.com/portfolio/project/details.asp?projid=219&projview=projnarr
http://www.cvc.wa.edu.au/middleschool/program/learning2.asp
http://fieldingnair.com/

case study 03 . canning vale high school

constructed : 2002
location : perth, western australia
architect : spowers architects
population : 1200 students, n/a staff
building area : 11.34m² per student - 13605 m² total
building cost : $2050/m² - $27.9mil total approx
year levels : 8-12

backyard learning =

outdoor room

outdoor room for group gathering or socialising

multipurpose studio =

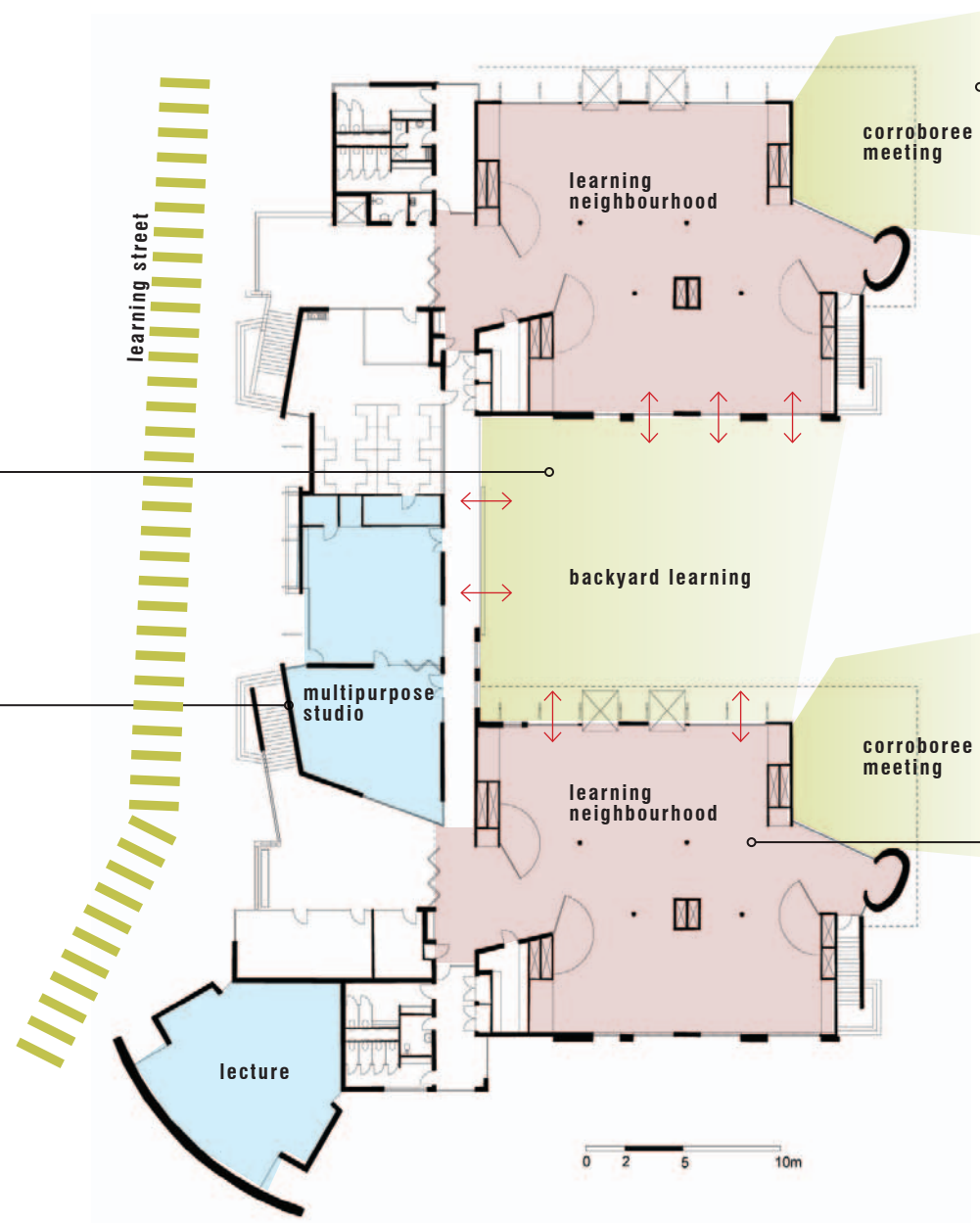
specialised focus labs

+

wet area + project space

area for activity based project work or specialist learning

site plan



middle school building floor plan

corroboree =

meeting

discussion + meeting spaces for various sized groups

learning neighbourhood =

group learning

+

student home base

open plan space enabling clusters of multi-modal learning settings

case study 04 . reece high school [tas]

theme 1 context of the project in relation to state, school or discipline trends in teaching and learning	theme 2 educational philosophy	theme 3 specific proposed pedagogical activities	theme 4 key planning + design features	theme 5 evaluation of strengths & weaknesses
New philosophy of school development; the first within Tasmania to embody a truly collaborative process within school planning. Promote a culture of, and commitment to life long education with a community focus. Recognition of advancements in ICT and ecological building practices and their integration within education settings.  	School's vision of fostering a 'love of learning…through an integrated project-based curriculum'. Fulfil learning ambitions of all community members, realising learning asset potential of these members and benefits to student development. Treatment of the school as a free, creative and enterprising expression of learning community. Develop as an information rich learning community combining current and futuristic ICT resources with effective learning objectives. Foster stronger links between the school and the broader community; promote students as both teachers and mentors to community groups and develop partnerships with local business and industry.	A challenging, relevant and coherent curriculum, with delivery composed of three elements; communication, integration and personal learning. Project based learning, problem solving and practical application of knowledge and skills. Expansion towards individualised learning plans. Incorporate diversity and flexibility to curriculum through multiple teaching and learning spaces and delivery methods. Emphasis of the social dimensions and responsibility of learning through formal and informal means. Community 'peer' tutoring and stimulated interaction.	Variety of spaces and sizes to reflect different learning modalities; Enhanced flexibility (operable walls, internal glass and inter-connectivity of adjacent spaces) Provision of project learning areas and individual workstations; individual space "ownership" - eg a workstation for each student in Grade 9 and 10; Maximizing use of natural light and ventilation and acoustic control; Innovative information resource centre incorporating online learning and vocational education and further education resource information; Community access facilities, eg performing arts/catering complex; Innovative furniture and equipment with the flexibility to re-configure; Seamless ICT provision supporting "anywhere/anytime learning" including a central ICT-rich focal facility and de-centralized wireless and cabled systems.	strengths: Implementation of flexible learning directives to both school curriculum and building facilities design. Student centred learning approach; workstation base for individual students and flexible teaching styles. Integration of community with school programs that goes beyond facilities sharing. Initiatives harnessed from state strategic direction change of education planning need to be further implemented with this school forming new benchmarking parameters for other developments. Successful implementation of ICT. weaknesses: Further exploration of outdoor learning environments could be developed.

http://www.education.tas.gov.au/admin/ffps/comms/buildingworks/reece.htm
http://198.92.126.82/research/nair/lessonstasmania/LessonsTasmania.asp
http://www.cefpi.org/20031023_MacWinner.html
http://www.reece.tased.edu.au/
Education Week, February 4, 2004

case study 04 . reece high school

constructed : completed november 2002
location : devenport, tasmania
architect : glenn smith + assoc with prakash nair
population : 600 students, 42 staff
building area : n/a m²
building cost : $9.775 mil approx
year levels : 7 - 10

building 7 floor plan [nts]

project studio =

focus or specialist labs

+

project space + wet areas

+

project based collaboration

project specific small group activities and discussion

staff areas =

staff meeting

+

resources, supply + store

preparation zones and resources

circulation =

breakout space

+

individual pod

opportunity for informal meeting or discussion

principal work area =

group learning

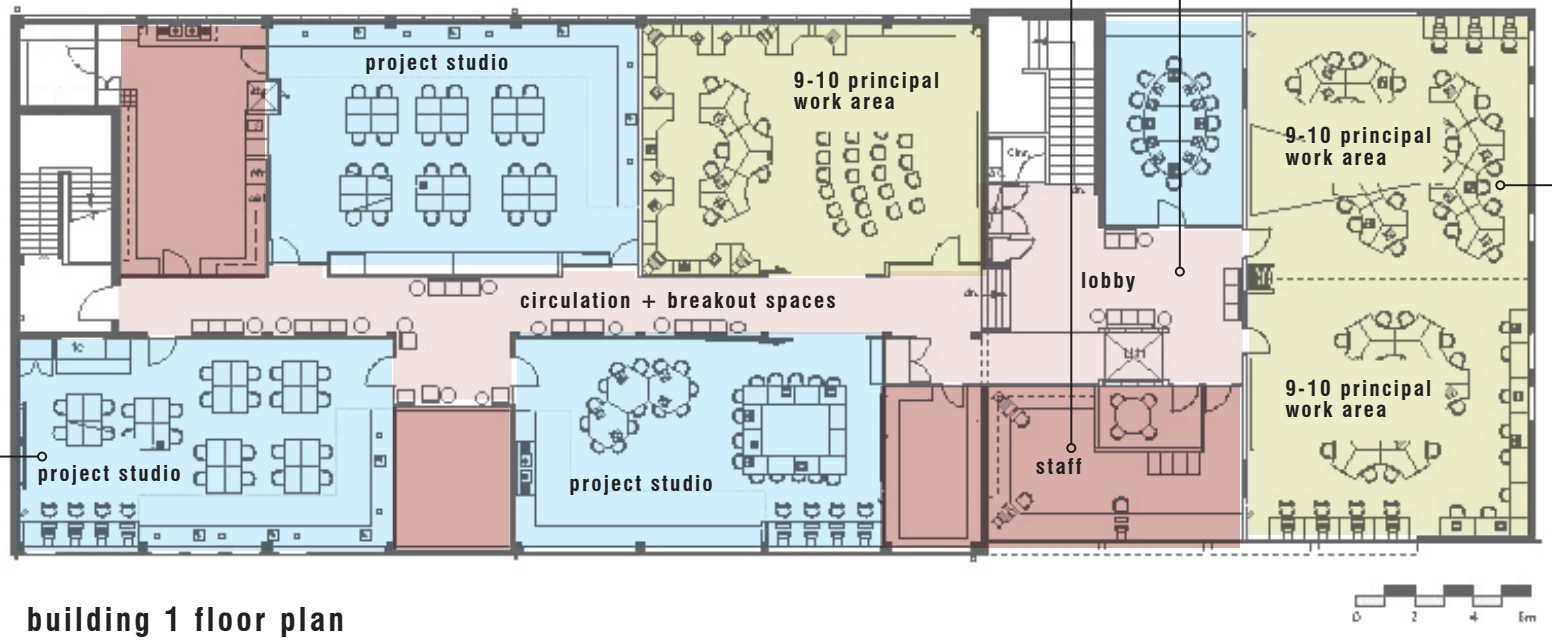
+

presentation space

+

student home base

multi-modal learning setting for general group work, presentations and student individual home base



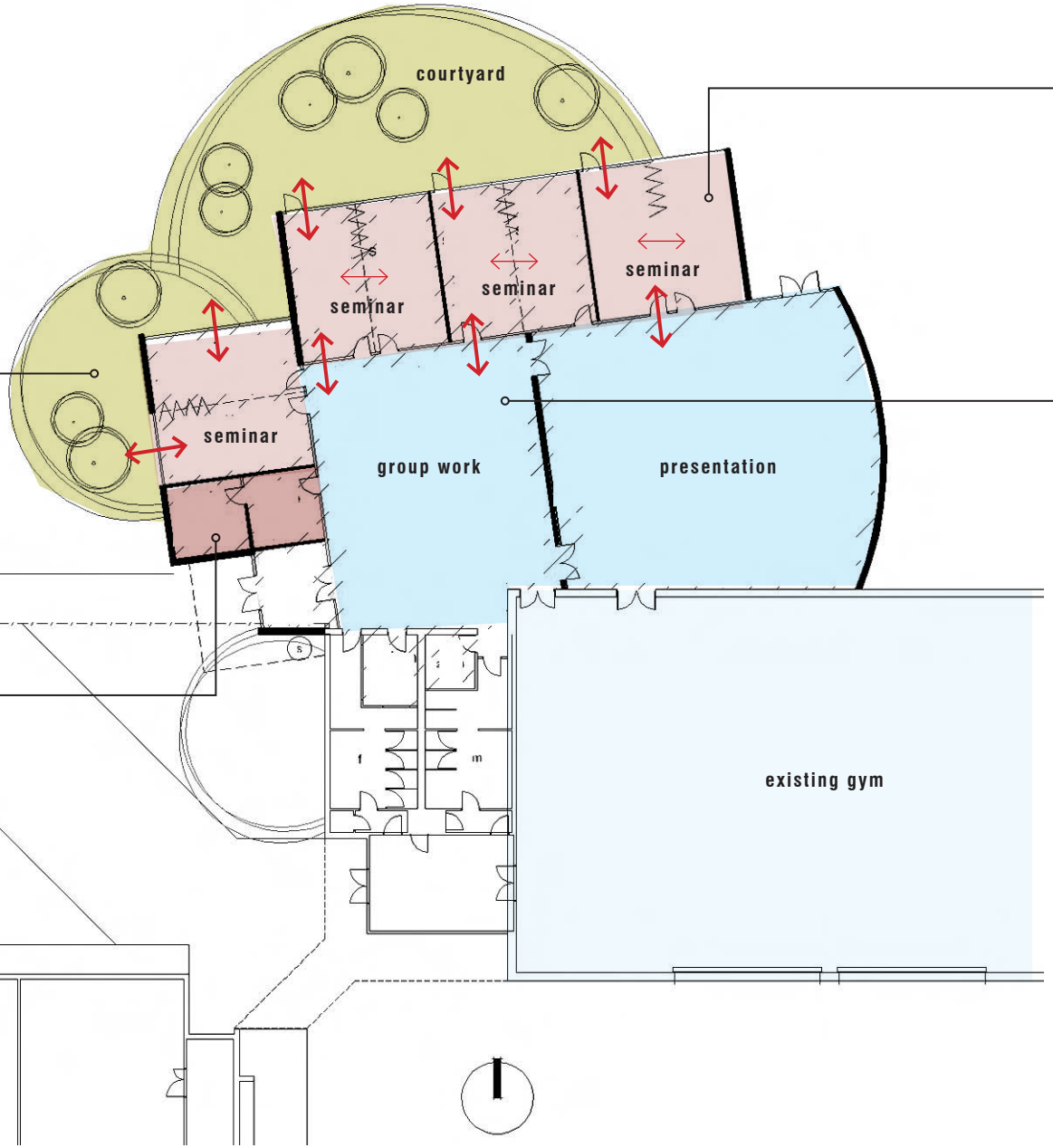
building 1 floor plan

case study 05 . copperfield college junior campus [vic]

theme 1 context of the project in relation to state, school or discipline trends in teaching and learning	theme 2 educational philosophy	theme 3 specific proposed pedagogical activities	theme 4 key planning + design features	theme 5 evaluation of strengths & weaknesses
This is a third campus for Copperfield, built in one of Melbourne's outer west growth areas. The design was carried out during the Middle Years of Schooling Research and Development program – based on the Hill and Crevola research and a key reform strategy at state government level. At the Kings Park campus there was considerable research into Middle Years reform, both pedagogy and structural. Local building projects adapted existing space to facilitate the new structure and year 10 was moved to the senior campus. This lead to a design brief for the Sydenham campus based on philosophy and middle years principles.	Team approach where year 7 to 9 students are grouped with a team of cross KLA teachers for their time in the middle school. Teachers have developed integrated approaches to learning which best suit the learning needs of the students. School's strong belief, based on research and extensive experience is that this structure is the best way to address the middle stages of schooling. Large size of school and rapid growth means that sound pedagogy and appropriate structures need to be in place. As a multicampus school, we are committed to two year 7 to 9 campuses and one year 10 to 12 campus.	Teachers work in middle years teams with up to 200 years 7 to 9 students. There are a mixture of flexible spaces which allows for less traditional teaching approaches such as team teaching, small group, ICT integration. Emphasis on the teacher student relationship as a precursor for optimal learning – the teachers know the students, and increasingly their families as well. This includes their individual learning needs. Emphasis on inquiry based learning	Each team space is totally independent. Each has a group of 6 GPC spaces, a junior Science froom, Technology space, Art space and ICT pods. Four of the GPCs are 'double classrooms'. Each team has their own team office, internal toilets, interview space and internal locker spaces. The design is open, glass used to allow supervision and security.	strengths: Strong sense of belonging, identity and loyalty for students in each team Team toilets work well as an antibullying strategy, as does the glass – safety and security The team office fosters informal discussion amongst teachers Sense of ownership of the design amongst the staff and school community through research and inclusive design process. Building orientation and natural light Weaknesses: Internal lockers are higher than the optimum height of windows into corridors. Winds problematic for gardens. The north side of each building gets hot. Verandahs are designed successfully to provide shade, as well as a program in place to cool computer rooms.

case study 05 . copperfield college junior campus

constructed : 2004
location : community hub sydenham
architect : patrick architects
population : students, staff
building area : n/a m²
building cost : $11.0 mil approx
year levels : 7 - 9



courtyard =

outdoor room

outdoor rooms for group gathering, informal learning and socialising

staff areas =

staff meeting

+

resources, supply + store

preparation zones and resources

group work=

specialised focus labs

+

wet area + project space

area for activity based project work or specialist learning

seminar area =

group learning

+

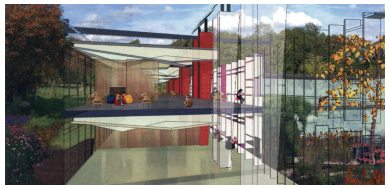
informal presentation

+

student home base

learning setting for general group learning, informal presentations and discussion

case study 06 . the big rug school [uk]

theme 1 context of the project in relation to state, school or discipline trends in teaching and learning	theme 2 educational philosophy	theme 3 specific proposed pedagogical activities	theme 4 key planning + design features	theme 5 evaluation of strengths & weaknesses
'The Big Rug School' operates as a woven textile of integration of pupils, community and staff with the landscape, local conditions and collective aspirations. Ecologically sustainable, low energy school buildings, emphasising design and construction efficiencies and technology advancements.   	Flexible spaces for individually directed 'life-long' learning throughout the school for both children and adults. Inclusivity Flexibility in teaching formats and spatial/furniture arrangements. Involving the entire community in the life of the school Encouraging lifelong learning; ICT integration Traditional delivery method of teaching being employed, 90% of learning conducted in classrooms, with break out individual learning pods/resource, ICT and library spaces. Sequential spaces inviting informal learning, passage, rest and sensory engagement.	Development of formal and informal curriculum Use of the external environment as an educational tool through connections to the 'natural world'.	Sustainable school for both the community resources, composed as a classroom use block and community block, with central divisionary individualistic identity 'pods' Accessible, adaptive and integrated external and internal environments, focussing on both as spaces for learning. Inviting, de-institutionalised learning spaces, preferring rather flexible learning forums. A modular format of spaces remains distinct within the design proposal which incorporates a strong factory pre-fabrication off-site philosophy. Use of low-tech strategies, embodying low energy, ecologically sustainable design: ventilation chimneys, double skin walls, day-lighting controls through use of solar blinds, energy efficient artificial systems	strengths: Connection to outdoor landscaped spaces and the environment beyond Interaction of school hours and out-of-hours ideals weaknesses: Classroom design may not provide sufficient flexibility of spaces

http://www.swarch.co.uk
http://www.teachernet.gov.uk/management/resourcesfinanceandbuilding/schoolbuildings/exemplars/primary/sarawigglesworth/

case study 06 . the big rug school

constructed : not built
location : uk - theoretical site
architect : sarah wiggleswoth
population : 420 students + 26 nursery students
building area : 2244 m²
building cost : GB4.052 mil approx
year levels : prep - 7

classroom =

student home base

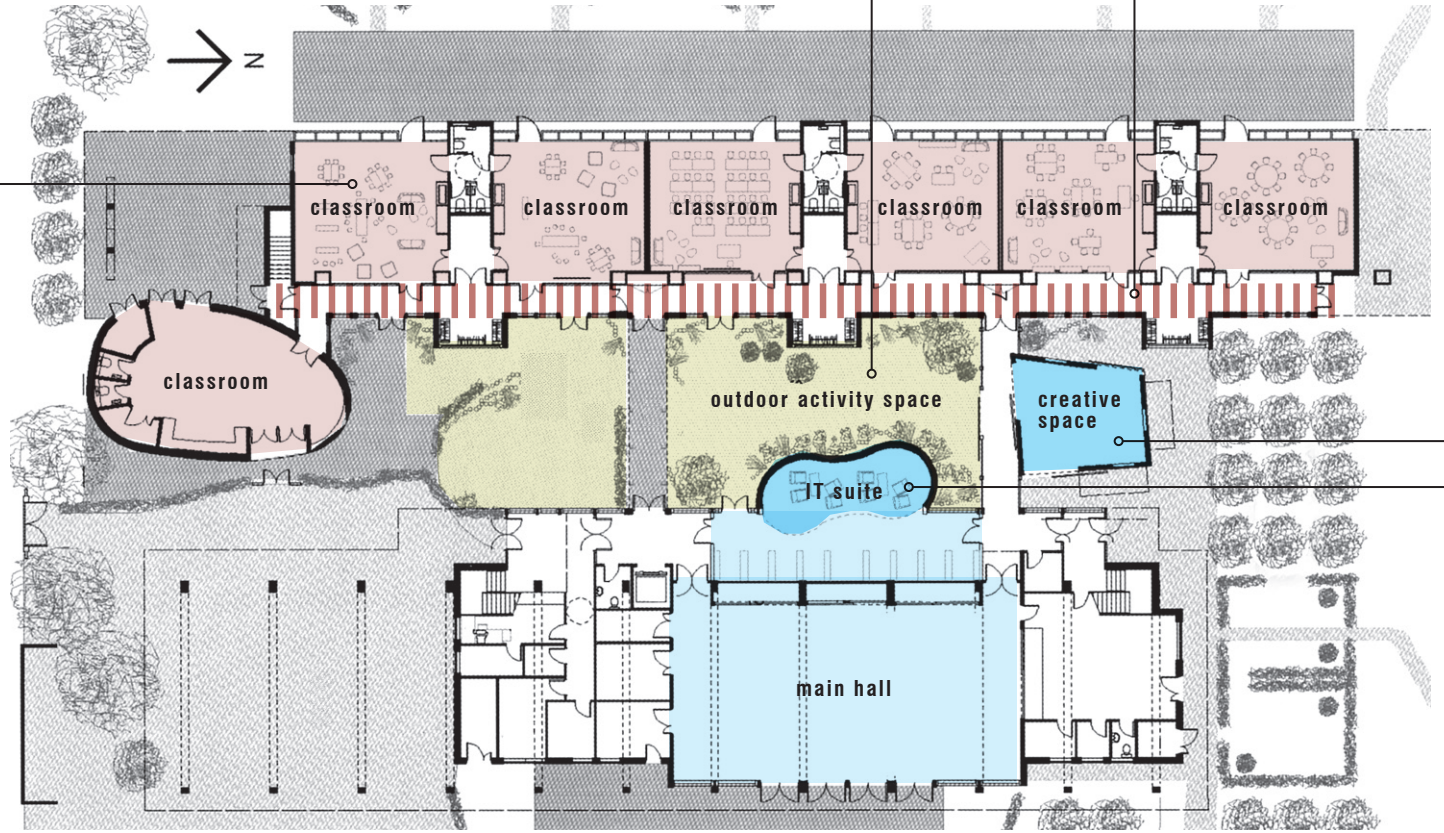
+

presentation

+

group learning

project specific small group activities and discussion



floor plan

outdoor activity space =

outdoor room

outdoor room for group gathering or socialising

circulation =

breakout space

+

resources, supply + store

breakout space + resources provision

creative space IT suite =

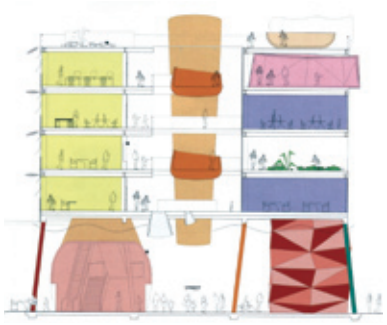
specialist focus space

+

project space + wet areas

focus spaces for specialist activity

case study 07 . tight urban site . school design [uk]

theme 1 context of the project in relation to state, school or discipline trends in teaching and learning	theme 2 educational philosophy	theme 3 specific proposed pedagogical activities	theme 4 key planning + design features	theme 5 evaluation of strengths & weaknesses
Promotion of the integration and advancement of ICT facilities. University teaching methodology may be integrated to later year student education, coupled with the development of 'real-time' virtual classes. Development of a passive ecological sustainability system of building, construction and operation Strong sense of a community campus, a ground level 'street' develops the school meeting spaces as an enclosed piazza Adaptation of 'kit-of-parts' ideology at masterplanning level, incorporating strategic spatial intents of new curriculum delivery. 	'Create a holistic environment, which supports the social well being of young people as well as their education development' School composed of four learning environments, each providing differing delivery methods of the curriculum; the 'bookcase', the 'test bed', atrium and 'pebbles'. Integrated series of centralised informal self-directed learning pods through the building's spine, a break out from traditional teaching delivery used predominantly elsewhere within flexible internal class spaces. 	Integration of advanced ICT facilities within school curriculum and establishing alternate delivery methods. General assumption of teaching spaces adapting in response to curriculum developments, ICT innovation and pastoral care. Predicated upon ICT innovation changing the school's learning environments to develop varying room sizes, more open plan in nature encompassing a varietal of learning activities within a single space or learning studio. Note: Current proposal based upon traditional cellular spaces and teaching methods with flexible 'internalised' outcomes incorporated there in.	All spaces, at micro and macro scale, inside and outside the classroom, are potential learning zones, and places for social interaction Central circulation 'street' atrium framed by a four layers flexible learning classroom zones: the bookcase and practical learning spaces. 'Test bed': four storey series of vertical layers containing different practical learning activity spaces. Architectural expression unique to each learning activity links curriculum ideologies and pedagogy with spatial concepts. Creation of a sustainable environment for future generations, principally formed upon four themes: health and well-being, education for sustainable development, minimising resource use and working with the community. Continually evolving teaching styles and technological advancements enabled by spatial layouts with adjustable partitions.	strengths: Building's ecological adaptability and impact at a macro scale to suit several urban sites. 'Mixed-mode' strategy for all learning areas at the micro level. Central circulation spine and informal or social learning pods and clusters. Passive ecological considerations and response to external environments. Weaknesses Remnants of traditional curriculum delivery methods and cellular spatial arrangements hinder the progression towards flexible, non-structured, a-locale learning and challenges conceptions of student centred learning.

http://www.teachernet.gov.uk/management/resourcesfinanceandbuilding/schoolbuildings/exemplars/secondary/alsop/
http://www.alsoparchitects.com/

case study 07 . tight urban site . school design

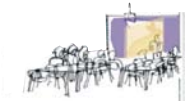
constructed : not built
location : uk - theoretical urban site
architect : alsop architects
population : 1150 students [sixth form 2500
building area : 10167 m²
building cost : GB16.489 mil approx
year levels : 8 - 12

'bookcase' classrooms =

student home base

+

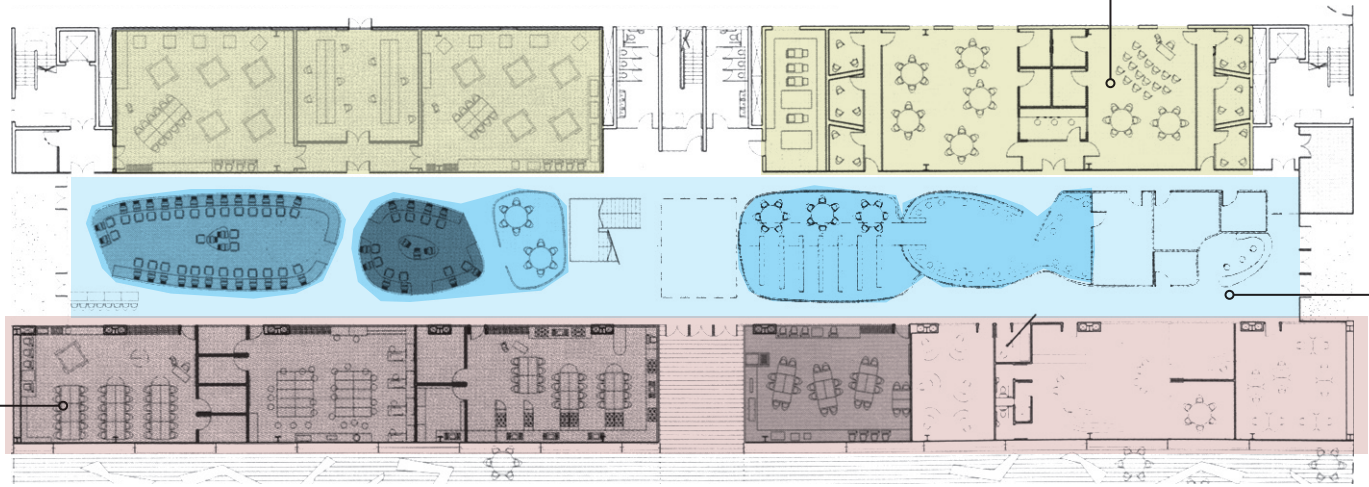
presentation



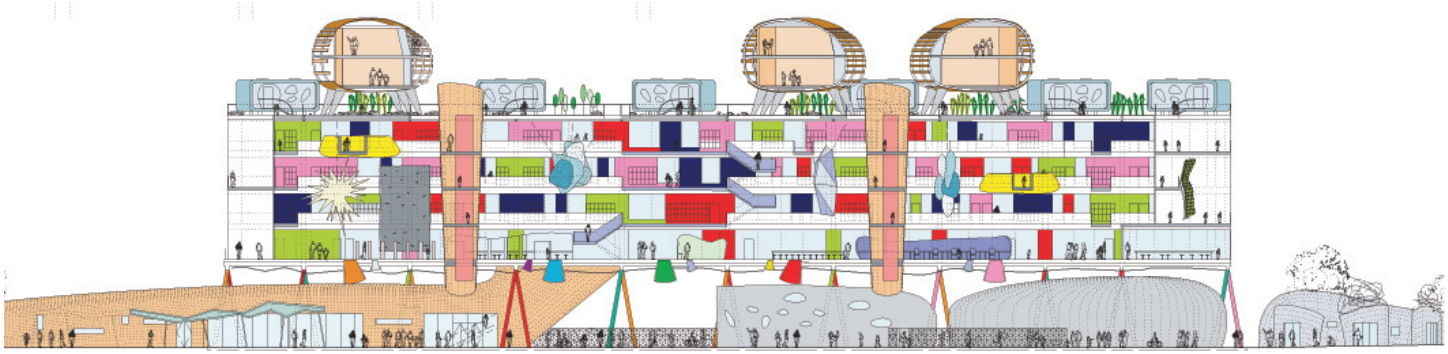
+

group learning

flexible group spaces with opportunity to open out onto circulation



ground floor plan



longditudinal section

'the test bed' =

specialised focus labs

specialist activity based work

the atrium =

breakout space

+

individual pod space

+

display space

informal gathering, socialising with provision of small group pods and resources

case study 08 . school of environmental studies [minnesota]

theme 1 context of the project in relation to state, school or discipline trends in teaching and learning	theme 2 educational philosophy	theme 3 specific proposed pedagogical activities	theme 4 key planning + design features	theme 5 evaluation of strengths & weaknesses
Environmental Studies Specific School located in a regional setting, adjacent the Minnesota Zoo. Strong environmental sustainability concepts used within building design, to be used as a teaching mechanism. Discipline specific learning and focus oriented school in later years of education, serving as precursory to further studies.  	Interdisciplinary thematic curriculum: students shape their needs and interest to focus their education to environmental studies, through thematic learning experiences. Authentic 'real-world' project based learning through collaborative partnerships with industry, community, other institutions, government and primarily the Minnesota Zoo. Self-perpetuating learners, who accept the responsibility of the afforded latitude to their education, to navigate their own learning and identification of resources within the global community. Encourage sustainable environment actions. Promote collaborative relationships among students and staff, fostering student learning to their individual capabilities. Develop active, environmentally informed, self-perpetuating learners and citizens connected with the local and global community.	Active, experiential, access to advanced ICT empowered learning where traditional disciplines are integrated towards the study of the environment. Students to act as workers, teachers maintaining a less central role. Flexible learning with an environmental focus: in-depth, interdisciplinary research using innovative technology that results in practical applications. Coherent structured curriculum and instruction principles, modelling informed thought and decision making through enhanced student needs and directed educational opportunities. Removal of the traditional classroom arrangements by transposing the education setting within the environment.	Fit the building to the academic program: resolution of the school's pedagogy and curriculum intents prior to consultation of architects. Exposed architecture, using the building as a teaching tool to demonstrate how architect's work with materials and the environment. Flexible, permeable and open learning spaces of varying scales, both within built forms and the external environment. Design of building envelope provides direct visual connections to the 'field' Promote sensory elements of identity and community through unique building form. Adaptive learning spaces for unique learning experiences, within clusters for student learning, common workspaces and flexible use rooms. Students should be able to move about, with the development of a central location; 'everyone's group, everyone's house'	strengths: Integration and recognition of pragmatic 'real-world' experience and benefits to flexible learning outcomes and students' curriculum. Use of building envelope as an ecological teaching driver. Development of specialist education stream schooling, focus orientated to future personal and career development of students. Weaknesses Partial implementation of flexible spatial learning arrangements, adaptive or re-configurable internal spaces can only form part of a flexible learning space. Discussion of a lottery draw for student places impinges the active learning of those who strongly desire to attend the school and is reflective in pedagogic intents and strategies.

http://www.designshare.com/HighSchoolLibrary/HSZoo/HSZoo2prog.htm
http://www.isd196.k12.mn.us/Schools/ses/hse/house.html
http://www.glef.org/php/article.php?id=Art_1010&key=189
http://ali.apple.com/ali_sites/glelfil/exhibits/1000610/The_Story.html
http://www.glef.org/redesigning/intro.html
http://glef.org/redesigning/html/zoo.html
http://newdesigns.oregonstate.edu/updates/environmental_studies/section04.html

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constructed : 1995
location : apple valley, minnesota
architect : HGA architects
population : 440 students, 20 staff
building area : 14.35m² per student - 6317 m² total
building cost : US$857.9/m² - US$5.775 mil
year levels : 10 - 12

classroom =

student home base

+

project space + wet areas

+

project based collaboration

project specific small group activities and discussion

conceptual floor plan

laboratory =

specialised focus labs

computer labs + quiet specialist areas for concentrated study

resources =

specialised focus labs

+

project space + wet areas

central resource areas with opportunity for informal discussion in small groups