



Education

Building boon

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COVER STORY

A few Australian schools are lining up with the world's best-designed learning facilities, writes Lisa Mitchell, proof of a seismic shift in the way we view education.

SINCE moving her 16-year-old daughter to shiny new Mindarie Senior College last year, Nerida Miles has watched her transform from "a withdrawn, rebellious teenager" to "a beautiful young lady, growing and developing".

Ms Miles says there's no feeling of "I'm locked into my classroom" at the school and that "It's like walking into a really fancy building". She finds it open and welcoming and believes it encourages the students and is uplifting for the teachers too. "The energy there is amazing," she says.

Good design, educators and architects say, can prevent bullying, improve reading and turn disenchanted youth into thriving young adults. But it depends as much on adopting new models of learning that dovetail with design if schools are to be successful. Abundant research now proves the positive impact of these factors on student performance and wellbeing.

Australia is a world leader in the endeavour. Six Australian schools and higher education facilities are among 65 of the world's best designs featured in the 2006 OECD Compendium of Exemplary Educational Facilities, released last month. These are the schools of tomorrow, here today, and Mindarie Senior College is one of them.

Peter Holcz, principal of Mindarie, in Perth, is reeling from the results. Last year the college recorded 75 per cent "very satisfied" students, 24.8 per cent "satisfied" students and zero "not satisfied", in the WA Department of Education and Training's annual survey of year 12 students.

"This college gives our students a feeling of prestige and importance . . . Because it exudes that kind of aura, we have no vandalism, no graffiti in the toilets. In fact, the kids are very protective," says Mr Holcz. When outside vandals attacked the school one weekend, students tapped into the local grapevine to deliver the culprits.

The time has come to discard the "egg-crate" blueprints of traditional schools and with them the "chalk and talk" models of learning.

"The light timber-construction buildings of 50 years ago represent a factory model of schooling," says Bruce Armstrong, principal of Balwyn High School, which has just built a "flexible learning centre". "Now we're saying we understand a whole lot more about how people learn . . . how do we design flexible learning spaces that allow us to cater for an individualised learning process for students."

In his thesis "Secondary School Design for the Knowledge Age", Dr Andrew Bunting, president of the Victorian chapter of the Council of Education Facility Planners International (CEFPI) and director of Melbourne architectural firm Architectus, confirms a worldwide trend towards "personalised learning".

He also notes the massive impact of information and communications technologies (ICT) on learning. With the internet, students can enjoy far greater autonomy of learning, and the class space now extends as far as mobile technologies allow.

For example, Canning Vale College in Perth, also named in the OECD Compendium, has organised its middle school into one, large "neighbourhood" space, within which exist four to five "family groups", says principal, Ron Bamford. Moveable partitions slide along semicircular grooves in the carpet, allowing teachers to apportion space, if necessary.

"The teachers in that area decide on what the timetable is for the day, each day. They might need to do some more maths and can choose to do that or keep going on a problem that kids are really into . . . They can pace what's happening in the learning neighbourhood according to what the kids need," says Mr Bamford. Because Canning Vale is also equipped with wireless networking, students can take their notebook computers down to nearby Bannister Creek for a lesson on the environment or biology. The library, now called an "information resource centre", is where students undertake self-paced, online learning, use multimedia facilities and trawl the net for project work. It's all very student-centric.

Balwyn High School also took a new approach to learning this year by moving its year 9s from traditional classrooms into a multipurpose hall until its flexible learning centre was ready. Built with funding from the State Government's Leading Schools Fund, the centre houses 110 students in a 360-square-metre, ICT and multimedia-rich space for three weeks each term. Here, they take an inquiry-based learning approach, working with a team of teachers on topics of interest and relevance to the students.

Already student performance outcomes have improved. A survey-in-progress of half of year 9s shows increased levels of autonomy in learning, increased sense of choice and relevance in connectedness to their real interest and to the outside world and an improvement in their thinking and learning - "It's fantastic," says Mr Armstrong.

There is also a strong trend in senior schools towards creating "adult learning cultures" within "mature learning centres" that turn out "self-managing students".

At St Michael's Grammar School, in St Kilda, the recently built "Nun's Shack" for year 12 students (officially, The Community of the Sisters of the Church Learning Centre) is so effective that students are staying later and coming in earlier to enjoy it.

The design takes its cues from airport club lounges. Students mill between a corralled study area, an alternative work area with various table-and-chair configurations - including a huge kidney-shaped workbench - a lounge area and a "wet" area for making coffee and snacks. Soon, a rooftop garden with views of Port Phillip Bay will be complete.

"It's an opportunity to assist them in that transition (from school to higher education or the workforce) by giving them a greater degree of autonomy and responsibility," says head of the school Simon Gipson. "If it's had any downside it's that they're not as visible around the grounds any more."

Mindarie Senior College is more like a sleek downtown building than local school. Its learning areas are linked by walkways or courtyards, all held together by a towering, central atrium. There are no tuckshops or canteens here - there is a cafe. And it was a conscious decision to use more expensive padded chairs in the auditorium instead of kiddie-proof plastic ones. The design reinforces the school's cultural ethos.

"We treat these students as young adults and, because of that, we build our whole culture on trust and respect . . . another school might choose plastic seats," says the principal Mr Holcz.

Along with innovative design, new approaches to learning and school culture, add a clean, orderly, uncrowded, well maintained environment to the mix, says Dr Jeff Lackney, an educational planner and architect with Fielding Nair International, a leader in learning environment design. And don't forget the details - lighting, acoustics, air quality and climate control.

A widely publicised study on daylighting conducted in California, Washington and Colorado, with a 21,000-student sample, found that students with the most daylight in their classrooms progressed 20 per cent faster on maths tests and 26 per cent faster on reading tests over a period of one year than students with less daylight, Dr Lackney says.

Poor indoor air quality has been associated with an increase in student absenteeism, and a European study found that increased CO2 levels in classrooms decreased student performance, he says. But research conducted in classrooms with operable windows shows students progressed 7 to 8 per cent faster than those that had fixed windows, he says.

Ah, the magical qualities of oxygen. Research shows the brain requires 20 per cent of what we breathe in order to function properly.

At the St Leonard's College Cornish campus at Patterson River, in Melbourne's outer south, a new "sustainability centre", opened this month, gives students control over their elements. With water walls that cool incoming air and a hydronic heating system, "students will be able to change the conditions very easily by opening a lever or turning on a tap", says head of campus Kerry Bolger.

The centre's sustainable features also feed into the curriculum with highly relevant project material. There is no waste in clever facility design that turns buildings into "3-D text books" too. "We'll be looking at the impact of the internal environment - temperature, lighting, humidity - and seeing how they influence human performance. The building monitors itself . . . so students can monitor all that on a computer program . . . for example, if the maths people were doing some sort of graph or percentage work, they could work with that data," says Mr Bolger.

In the early '80s, we were still building one-size-fits-all schools, says Jeff Phillips, a director on the international board of CEFPI for Australasia. "I've looked at a lot of schools around Australia and the United States and the UK and we're always trying to improve it gradually - it's not an exact science."

Of course, progress depends entirely on the financial commitment of state government departments and parents. While Victoria's Department of Education and Training is under fire for the poor state of school infrastructure, it is visiting groundbreaking schools and planning for new opportunities.

Nine aged government schools in Broadmeadows are about to be replaced by an innovative new configuration of secondary and primary schools. Supervising the rebuild are **Randall Fielding** and Prakash Nair of Fielding Nair International. In 2005, they published a book, *The Language of School Design*, which identifies 18 learning modalities and 25 "design patterns" that include a well-rounded mix of indoor and outdoor spaces, quiet, reflective areas, messy, lab-like spaces and watering holes.

Beyond tomorrow, the next step may be to do away with schools altogether, CEFPI's Dr Bunting contends. In New Zealand and America, schools are already being integrated into the pulse of community life - downtown areas and malls.

"This is probably the hardest thing for people to accept . . . Schools as standalone institutions may not be appropriate in the Knowledge Age . . . now people are saying . . . that they're isolated (in the suburbs) and pretty uneconomic in that they are not used much of the time . . . They could take on board other activities so that they're more alive and being used much more as centres of community."

EXEMPLARY EXAMPLES

The following Australian schools feature in the third international Compendium of Exemplary Educational Facilities published by the OECD Program on Educational Building (PEB). Criteria considered by the international jury include: the ability to accommodate an ever-increasing range of teaching and learning scenarios and technologies; the use of environmentally friendly features and materials to create a comfortable and sustainable learning environment; design that ensures the safety and security of occupants; and the use of alternative financing mechanisms such as public-private partnerships in contributing to good management and planning.

Canning Vale College, Perth (above right)

Mindarie Senior College, Perth

Harmony Primary School, Perth

Mawson Lakes School, Adelaide

Australian Science and Mathematics School, Adelaide

Ngalilwara Study Centre, Batchelor, Northern Territory

Source: The 2006 OECD Compendium of Exemplary Educational Facilities.

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www.oecd.org/edu/facilities/compendium [<http://www.oecd.org.ezproxy.lib.unimelb.edu.au/edu/facilities/compendium>]

10 ARCHITECTURAL TRENDS

These trends were identified by reviewing research on the relationship of school facilities to student outcomes; by performing a general environmental scan of current trends, issues, problems and initiatives in education; and by reviewing demographic patterns emerging out of the 2000 US census.

The lines of prescribed attendance areas will blur.

Schools will be smaller and more neighbourhood-oriented.

There will be fewer students per class.

Technology will dominate instructional delivery.

The typical spaces thought to constitute a school may change.

Students and teachers will be organised differently.

Students will spend more time in school.

Instructional materials will evolve.

Grade configurations will change.

Schools will disappear by the end of the 21st century (or will they?).

Source: Kenneth R. Stevenson Ed.D, Department of Educational Leadership and Policies, College of Education, University of South Carolina, September 2002, for the National Clearinghouse for Educational Facilities, Washington, DC.

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