The traditional concept of schools as places for the transfer of academic and technical learning from teachers to students has been under siege for several years. There have been comments from time to time that the era of schools as physical places is nearing an end. However, the reality of the physical campus is so entrenched in our social fabric that their existence can be assumed for some time yet.

The basis for the challenges to the traditional concept of a school is most evident in published commentary by leading educators, architects, educational planners and some education administrators. Less evident are the forces for change coming from teachers and students, parents and communities. But all of these forces are not all pushing in the same direction.

The predominance of the messages from educational commentators and a number of facilities planners and educational architects has a consistent theme that is driving changes to school design.

The development of spaces in schools where students engage in learning in a range of ways drives school design. ICT in these schools is pervasive and access to information and the means by which it can be stored, processed and distributed has removed the restrictions of the traditional timetable and delineations of subjects.

The means by which students are organised and managed in class and year levels is being challenged, as is the means by which they present and publish their learning and communicate with their peers and their teachers. The means by which students provide feedback, assess students’ work and communicate with parents is moving to real time systems rather than the time-honoured end of term report.

Realties of schools

Schools still exhibit a spectrum of designs and reflect educational philosophies that range from didactic instruction to differentiated and independent learning with students making decisions about their learning and the manner in which they will engage with learning.

Attempts are being made to narrow the spectrum to reflect more the environments described in the contemporary literature. This can been seen as an attempt to drive educational change through building design. But serious questions need to be asked whether or not this alone is a sufficient strategy to achieve the goal. Factors such as teachers’ readiness and their capacity to adapt, the suitability of the model for all students, the expectations of the curriculum and the availability of resources to facilitate the new vision will affect the success of the outcome. Even the capacity of students with experience in learning in more traditional environments to transition to the new model needs to be considered.

These factors must all become part of the planning process in redesigning schools, particularly when the expectation is that the physical environment being provided has an expected life of 40 years.

Curriculum in the current context

Across Australian school systems curriculum has been a state responsibility and is generally based on structured frameworks for areas of study through which schools organise students’ learning. Students’ learning has been assessed and reported to students and parents, and in some states reported on to the ‘systems’ against learning profiles that gauge the levels that students have attained. Comparisons have been made between schools and feedback provided to schools on the basis of the attainments of their student population.

Independent and Catholic schools have to some extent operated independently but in most cases use the frameworks as the basis of their program designs.

In senior years the curriculum is more defined and assessed by independent assessment authorities. The existence of specified curriculum, learning and resources to be used,
provide clear cues to the nature of the facilities that are needed to enable program delivery.

International Baccalaureate programs have seen a growth in recent years as schools seek to establish programs that they see as more attractive to their communities. The detailed nature of the documentation and external scrutiny of these programs provide clear direction for school designers.

This landscape is now changing through the recent federal government interventions in education. These have long lasting consequences for school design and organisation.

**NAPLAN**
The introduction of these tests at Years 3, 5, 7 and 9 and the publication of school by school results on the web, have seen some unexpected consequences emerge. In addition to causing considerable consternation of teachers and the identification of cases of students being helped in the tests, the preparation of students for the tests through practice sessions and ‘teaching for the test’ is being complemented by the emergence of commercially developed practice test books, presumably to appeal to parents seeking to improve their child’s scores.

The results have now grown to the level of significance that parents are seeking enrolments in schools with the best results, and reportedly seeking to buy homes in the catchments of these schools with a resultant effect on house prices in the catchment. There has even been a report in the media of a custody dispute where parents argued the enrolment of a child based on NAPLAN performance of the schools.

This all represents a significant negative drag on the creative use of the new world of open learning environments. In an ideal world, learning would continue to evolve into the new learning environments and students would still succeed in the test. However, the pressure to succeed is resulting in conservative approaches that could be achieved in old model classrooms.

**National Curriculum**
The implementation of subjects in mathematics and the humanities will be well accommodated in the more open school designs, provided that teachers are confident that the pedagogy of the spaces will produce the results expected. There is, however, a high level of risk that the existence of the test and the public comparison of results across schools may see a retreat to didactic content delivery used in the old model of schools.

In resources based programs such as science and technology there are additional facilities implications.

In the P–6 years there is an expectation that practical science and technology learning activities will be undertaken. While some adaption of spaces with water and benches used for activities such as art could be adequate, there will be increased demand on the spaces and the opportunity to design more appropriate space for the delivery of technology and science programs in these years.

Technology also presents a potential problem spanning the P–10 years. Little investment has been made in maintaining design and technology spaces (D&T) and updating the resources for D&T in schools. In a number of schools the program has been eliminated due to the costs of maintaining the program and the lack of availability of teaching staff. A considerable amount of work needs to be done to define a base line course provision that would guide the design and development of adequate facilities and the focus the design of teacher training programs.

**Trade training centres in schools**
The injection of funding to establish trade training centre (TTC) facilities in schools or at sites accessible to clusters of schools, comes at a time when in two states TAFE programs are being wound back, costs increased and VCAL funding cut. At the same time in another state, Certificate 1 and 2 courses are being provided by TAFE with no fees.
Against this background, specifically designed facilities have and are being built to deliver similar programs. The majority of the courses accommodated in these sites are traditional trades and the spaces have been tightly designed for that purpose. The DEEWR requirements are that the facilities are used only for these purposes for at least 10 years.

In light of the future needs of industry to meet changing employment demand there is an urgent need to introduce students to newer and higher added value training programs involving technologies such as CAD/CAM applications, process control, electronic and robotics.

Digital education revolution
The implementation of this program has largely seen schools move from the old model of computing rooms. This presented a welcome opportunity for schools to provide higher levels of access and more personal use of ICT.

In a facilities sense it removed the need to allocate spaces to class sets of desktops. The most common exceptions are the use of rooms for CAD, graphic design, desktop publishing, and in music for scoring and composition.

The impact of large numbers of students using notebooks, net books and tablet computers has challenged the basic provisioning for wireless access and power access. The most obvious change is related to seating access, as there the conventions of students sitting in rows facing the same way is challenged. They all face the same way... and that is towards the screen of their device, whichever way that is orientated!

Instead of the rows in rooms, cluster points have emerged near an interactive projector or interactive TV.

Another consequence is that resource centres are also undergoing major changes to their function and design as more of the printed text materials are digitised and the use of eBooks and tablets computers in reading programs increase.

Teacher training and development
It has been noted rather ruefully that the federal government interventions in providing computers in schools or in the development of TTC programs did not allow for funding to be spent on professional development.

Overlaying this is a dearth of training opportunities on the development of ICT skills in the context of specific subject content delivery and in the development of e-learning resources. Schools are beginning to use their resource centres for training or to establish a dedicated facility for staff training. In a similar vein areas where teachers can collaborate and learn to develop and deploy e-learning resources are needed in schools.

At a systems level there is a need to redress the lack of staff for specialist courses in mathematics, science and design and technology. The lack of specialist skills removes the potential for teachers to fully exploit the potential new spaces and resources, as confidence, knowledge and expertise is necessary to successfully exploit the opportunities these spaces provide. Failure of systems to deal with this key issue will see many good facilities developments and ICT resource provisions under utilised.

The school in the community
The wider use of school sites is becoming increasingly important in planning and design. Increasingly, communities see the potential uses of the site beyond the limited use for conventional classes. This is particularly important in new urban areas as the school may be the first piece of “public” infrastructure. It provides a place for parents to make contact and
talk together. In some cases “coffee spaces” are provided to encourage and facilitate this social use of the school.

Sites increasingly provide out of hours school care and early learning centres. In some cases the resource centre doubles as a community library. The shared use recreation spaces and facilities by the community is a well-established practice.

Facilities that encourage a sense of community for students are also a priority. This is most evident in the development of student café spaces and increased levels of shaded seating areas.

The importance of a collaborative design process

The successful development of places for learning is dependent on many more factors than the external design of the buildings. What happens in the spaces enclosed is the key and that is dependent on a range of internal and external factors.

Designers must take account of the stage of development of the educational community and the full range of issues impacting on education. These factors should guide and inform, rather than drive the application of the current trends and thinking about spaces.

The reality is that while the buildings may be new, the real benefits lie in what could occur inside the new facilities. This change is a process that requires acceptance, planning and implementation; it will not occur at the same pace as a building schedule.

Experience shows that there is more chance for the successful delivery of school development projects when a broad view and detailed analysis of the issues is undertaken. From that stage the developers can effectively engage in a holistic process. The task requires research, planning and implementation support over an extended period of time.

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Chilwell Primary School