SchoolNews

The essential industry guide

GENERATION COVID:

How to prepare school leavers for this economy

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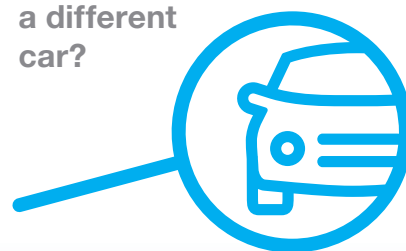INC. **$179** OF RUNNING COSTS

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inside

term three

FRONT DESK

EDITOR
Rosie Clarke, *editor@school-news.com.au*

STAFF WRITERS   Mandy Clarke
Lucinda Dean

PRODUCTION   Richard McGill

ADVERTISING   Pip Casey
advertising@school-news.com.au

CONTRIBUTORS
Steve Francis, Daniela Falecki, Kate Durant,
Adam Voigt, Sarah Parker and Mary Jeavons

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Back to school
but for how long?

As I write this, schools around the country are being temporarily shut down then re-opened like flickering lights in the night sky, because of new coronavirus outbreaks.

Victoria has just gone into six weeks of mandatory remote learning for VCE students.

This is 'the new normal' post-lockdown. The pandemic has raged since our last edition in Term 1, and we now face constant push-pull as governments try to reinstate the status quo without inviting second, third, and fourth waves. Health concerns, economic devastation, and the dreaded complication of remote learning: we will continue to face the consequences of this virus for a long time. Without a vaccine, it is likely we will see continual outbreaks and experience a seesaw of restrictions. Hopefully, our state governments will

Rosie Clarke,
Editor, *SchoolNews*
editor@school-news.com.au

continue to respond quickly and keep numbers low. Victoria has shown us all how quickly community transmission can set in. COVID-19 is arguably the single greatest disruption we have experienced as a collective society since the second world war. It has touched almost every article in this issue. But it is not all doom and gloom! We have seen some amazing achievements from schools like Bobin Public School, rebuilding after the

bushfires, and inspiring ingenuity across the education sector.

In our special report, we discuss how school leavers are coping with disruption this year, and what schools are doing to support their upcoming transition. Later, we speak to families who thrived in lockdown when remote learning met their child's needs. Bobin Public School's very own relieving principal, Sarah Parker takes us through the moving journey her school community has been on, rebuilding after the bushfires and supporting one another through COVID-19. Find her *Principal Speaks* column to read about the challenges and joys she faces.

We hear about the innovative pedagogy and student wellbeing practices in motion at Virtual School Victoria in an exclusive profile this issue. We also receive some insight and advice on boosting student and teacher wellbeing from renowned specialists such as Adam Voigt, Steve Francis,

and Daniela Falecki, as well as psychologist Dr Charles Margerison and Brad Hutchins.

In the technology section, we talk about how educators have now experienced first-hand the dos and don'ts of online teaching. We have all been forced to acknowledge how vital connectivity, digital curriculum development and interactive technology are to 21st century education: we must close the digital divide in our schools!

We also look at the importance of mathematics and discuss how schools need to assess their maths pedagogy and the culture they create in the classroom.

As usual, we provide some practical updates on all the latest products and services available to schools in areas like playgrounds, teacher wellbeing, car park safety, shade structures, classroom acoustics, and CNC routers.

Enjoy this issue of *School News* and stay safe! ■

Ahead of the game but how'd they fare?

By Rosie Clarke, *Editor*

Remote learning has taken the world by storm this year, thanks to Miss Corona.

One school was way ahead of the game and has spent the last few months advising teachers around the country to help elevate the quality of distance learning experienced by students around the country.

This issue, we caught up with two school leaders from Virtual School Victoria (VSV) to find out how the school operates day-to-day and what pedagogy its staff use for effective virtual learning. Readers may be surprised to learn that the school itself is one of the largest state government schools in Victoria, with a history that dates back to 1909.

VSV caters to students who cannot access mainstream schooling for a variety of reasons, along with Year 11 and 12 students in a mainstream school who want to access a subject they would not otherwise be able to access. Learning takes place via online courses, real-time online classes, and some face-to-face communication.

What are the common misconceptions about VSV?

"Where do I start?" says assistant principal project director of DET initiatives, Fiona Webster. "There's a couple of big ones. The first is that VSV is not a real school with real students and real teachers. It is a Department of Education and Training F-12 school where the Victorian Curriculum and VCE are taught. It's the *how* that's different; not the what, the who, or by whom."

Assistant principal of student engagement and wellbeing,

Fiona Webster

Malcom McIver agrees that a common misconception is "that teaching at VSV is somehow easier or not really teaching". He says: "It is true that teaching at VSV is different, but it is definitely not easier. Daily routines are different. Teaching interface is different. There is more curriculum development and much more assessment. On the whole, VSV teachers work as hard or harder than their colleagues in mainstream settings."

Another misconception they navigate is the confusion between virtual schooling and home-schooling. Fiona explains: "This has become more extreme during the COVID-19 pandemic as many people describe 'home-schooling' their children. Their children are learning from home, but they are following a curriculum and they do have a teacher. In contrast, home-schooling occurs when parents or carers set and deliver the curriculum themselves. At VSV, what we do is different again because our students are set up to learn remotely from a set curriculum program based on sequenced learning with their own teacher to guide them and a whole school community they belong to. All three scenarios involve students learning at home with parents/carers who play a vital role in the team

around the learner but there are significant differences."

COVID-19 restrictions saw debates swirl in the media around the importance of physical school environments. As Fiona says: "I heard the view expressed that online learning doesn't work and that brick and mortar schools are the optimal learning environment for all students."

Yet, "every year, a number of our students receive *Premier's Awards* for achieving the highest score in their subject in VCE in Victoria. Clearly, it is possible to achieve at the highest level. We also have many, many students who have become disengaged with mainstream schooling prior to enrolling with VSV and then go on to complete their secondary schooling or gain the confidence to return to face-to-face schools. This too is a huge achievement.

What has the COVID-19 lockdown experience been like for staff and students at VSV?

"The challenge for us has been more to do with the transition to remote and flexible teaching rather than learning!" explains Malcolm, as VSV already had online learning materials in its learning management system, VSVOnline, plus "students and teachers who are familiar with the routine of attending synchronous online lessons, established processes for monitoring and responding to student engagement and wellbeing issues while students are learning offsite".

"It's been our privilege to provide a range of support through the Department of Education and other forums such as CareMonkey to teachers in Australia and internationally," Fiona reveals. ▶

Malcom McIver

EDUCATION

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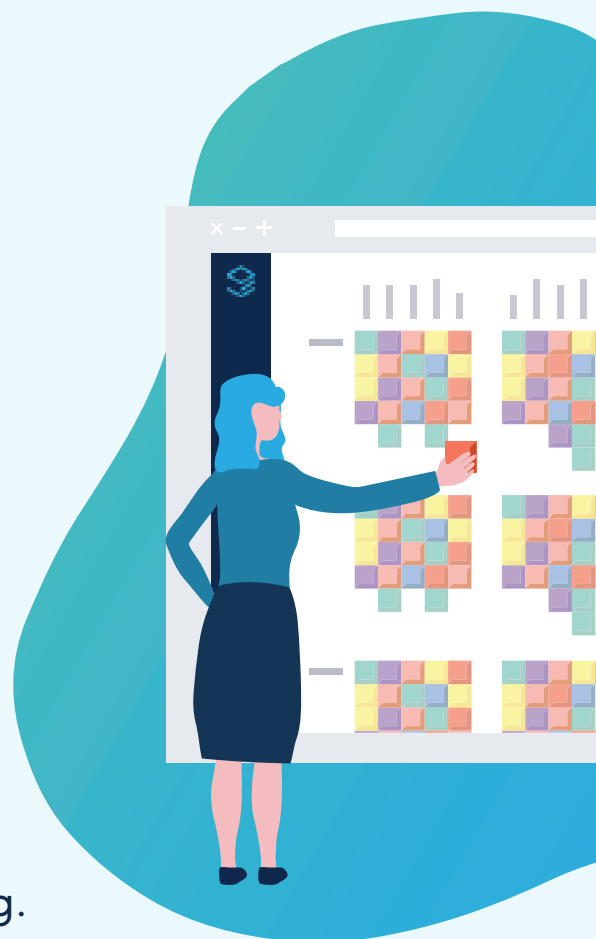Help your student succeed with more

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◄ "This has included delivering webinars to over a thousand teachers, providing various resources and responding to many direct queries. An area of concern for me has been in all the haste, privacy and data security issues may not have been given the due diligence required. There are some amazing tools out there but they're not all the most secure."

Which strategies and tactics have you tried and tested in a virtual educational environment?

"It's all about the three Rs from an engagement and wellbeing point of view," Malcom says. "Relationships, relationships, relationships.

"Strong student teacher relationships are crucial in a virtual school. If teachers want to have a positive and lasting difference on their students, they need to forge positive teacher-student relationships. Advocates of evidence-based education know that students who have constructive relationships with their teachers are more likely to do well at school and teachers who actively build such relationships have a strong impact on the lives of their student.

"The 2019 *Virtual School Victoria Review Panel* found that the newly defined Learning Advisor role provided enhanced support for students," Malcolm adds. "The role strengthened teacher/student relationships and increased personal contact with students. In turn, fewer students were being left behind or falling through the gaps and this was confirmed during student forums, parent forums, and learning advisor interviews.

"At the same time, we have recently started directing more time, energy, and resources into strengthening our relationship with parents/carers using a partnership approach. We appointed a leading teacher of family and community partnerships approximately 18 months ago who has overseen the implementation of an orientation, information and collaboration space in the learning management system, expanded the delivery of parent/carer forums (face-to-face and online) and initiated a parent/

carer representative team (Student Voice) to provide input into the decision making structures in the school.

"VSV is also trialling a virtual approach to Year 8 and Year 9 that combines timetabled synchronous online classes (including Social Emotional Learning) with more formalised attendance requirements, supported by asynchronous independent learning using a Team Around the Learner (TAtL) approach. "Evaluations have indicated that this is significantly improving student engagement in a virtual learning context," says Malcolm.

"In terms of what doesn't work," Fiona shares: "There are lots of parallels with brick and mortar classrooms, but it is heightened online.

"It is even more important in the virtual context to give clear and concise instructions or information. It does not matter what format, video or text; it's the same, so if it's overly complicated or rambles then students will get lost. In a brick and mortar classroom, if students don't understand what they have to do, you will see confusion or boredom on their faces and it cues the teacher in to re-phrase or repeat the information. This

is harder to pick-up online.

"Similarly, if a long passage of text needs to be read (or viewed, if it's a video) it should be broken up or accompanied with scaffolding or guidance around note-taking in order to keep the student engaged.

"The emphasis needs to be on active engagement rather than passive learning."

Can you share some elements of your core pedagogy?

"At VSV we have a polysynchronous delivery model," Fiona says. "This means we use a combination of asynchronous, multimedia-rich course materials in an LMS; synchronous (real-time) lessons online; streamed seminars and demonstrations; and face-to-face opportunities for learning and socialising. In order to achieve this, we use Moodle, WebEx, and G Suite for Education (Google Classrooms). This is supplemented with third-party applications like Mathletics, STILE and Bug Club. We develop multimedia tutorials and learning objects using Captivate and H5P. We also use screen-casting software to provide multimodal feedback on student work.

"Across the school there are

many examples that could go into a showcase of innovative pedagogy. Some of these include:

• Multi-modal feedback

• Year 8 drama collaboration with the Melbourne Theatre Company

• The Year 8/9 program featuring Social Emotional Learning, blending synchronous and asynchronous tools and timetabled classes.

• Use of multimedia tutorials

Do you work very differently to teachers in traditional schools?

"We have Teaching Teams and Collaborative Learning Teams (CLTs). The Teaching Teams focus on the nuts and bolts of the learning program and modifications or differentiation needed to cater to the hugely diverse cohort. Teachers often teach synchronous (real-time) online classes using a team approach. The CLTs take an action-research approach to aspects of the teaching and learning dynamic that they want to learn more about and improve. Currently, all meetings between teachers are taking place virtually using WebEx," says Fiona. ■

Digital divide impacts vulnerable students

An independent report commissioned by the Australian Education Union (AEU) has indicated a persistent long-term gap in digital access, affordability and ability experienced by many public-school students from disadvantaged circumstances.

Addressing digital inc lusion for all public school students, by Barbara Preston Research, found that the change in learning arrangements due to COVID-19 brought into sharp focus a lack of digital inclusion for many students, according to AEU, including access to the internet from home and indicators of possible lack of facilities and support at home that are conducive to home study and school work.

The report found that:

- Approximately 125,000 public school students lived in dwellings that were reported to have no internet access in 2016 (the latest available data).
- Nine percent of students with low family incomes (that is, family incomes in roughly the bottom third of family incomes of all Australian school students) have no internet access at home, compared to only one-percent of students with high family incomes without access to the internet at home.
- Public school students were more than twice as likely as either Catholic or independent school students to have no internet access at home.
- Public school students living in remote areas were much more likely to have no internet access at home – almost a third of the more than 20,000 living in very remote areas had no internet access at home.
- Aboriginal and Torres Strait Islander students were much more likely to have no internet access at home—21 percent compared with five percent for all public school students.
- Low family income is associated with many factors that make studying at home more difficult. These include: a lack of internet access and a lack of appropriate software and hardware; generally less well-educated parents who can help with school work at home; overcrowded or insecure housing without a regular place to carry out school work undisturbed; the psychological stresses on family members arising out of financial stress and a lack of resources.

According to the report:

"Disruption to regular schooling caused by COVID-19 was not the cause of the digital inclusion gap, but served to illuminate the severity of the existing structural problem"

This gap is often accompanied by other factors that inhibit home study such as low income, remote location, English proficiency, disability and insecure or inadequate housing.

AEU Federal President Correna Haythorpe said that the *Preston Report* was a damning indictment of the failure of the federal government to ensure that all students have access to the digital tools and resources that they need for their education. "The Preston Report has highlighted the deep inequality experienced by students from disadvantaged backgrounds in relation to digital inclusion and in particular internet access," Ms Haythorpe said.

"As an immediate priority, the federal government must carry out a thorough digital equity audit to determine the impact on students of a lack of access to the internet and digital resources. Then a comprehensive plan must be developed, in consultation with the teaching profession, and be backed with resources," Ms Haythorpe said.
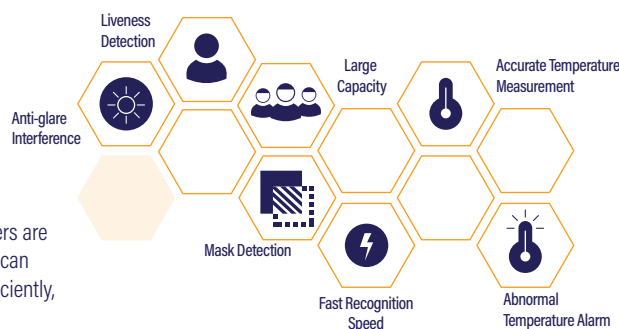
"COVID-19 has exposed the long-term systemic inequality that already exists for Australian students, particularly those from vulnerable backgrounds. This is exacerbated for students who are living in poverty, remote locations and insecure or unsuitable housing," Ms Haythorpe said. ∎

GENERATION COVID

What are school leavers walking into?
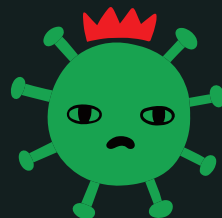
By Rosie Clarke, *Editor*

This is not a drill.

COVID-19 has intensified systemic inequities. When Year 12s enter 'the real world' this December, they face Australia's highest unemployment rate in 22 years.

How do we prepare them?

First, we need to understand the reality. Youth unemployment rates were more than double the national average before the pandemic. Younger workers suffer proportionately higher rates of unemployment and struggle longer to find new jobs. According to Labour Force Statistics, April witnessed Australia's largest ever one-month employment drop and 35 percent of job losses belonged to 15-24-year-olds.

The pandemic has brought the harsh realities of our increasingly casualised workforce to the forefront, with young people (particularly university students) most affected. The number of young people trying to make a living on freelance rates has increased over the last decade while industries that used to hire full-time or part-time employees now recruit contractors and casuals. Not to mention that, according to Per Capita research economist Shirley Jackson, many

entry level jobs cut during the Global Financial Crisis never returned, partly due to the rise in automation. This has kept young people in casual food services and hospitality work for much longer than previous generations and with less upward mobility.

So, school leavers are heading into a slew of, let us be frank, unsustainable industries littered with casual work and fewer promotional opportunities.

COVID-19 has ruled out a gap year for most of our school leavers, and bleak job prospects tend to push people into higher education. The government has pre-empted this by hiking domestic tuition fees to fund an additional 39,000 university spots.

Universities spell trouble for new students

Modelling from Universities Australia projects a devastating $16 billion blow to the higher education sector by 2023. National Tertiary Education Union president Alison Barnes said she expects to see 30,000 university jobs lost and schools around the country have already begun announcing redundancies. More than $3 billion in research and development funding could be lost per year. This is bad news for incoming students, who should expect a very different university experience than previous cohorts. Less staff and less research funding means fewer courses, less contact time with lecturers and tutors, and more debt. The latter, because without international tuition fees to make up for sparce government funding, domestic fees will rise. Universities have been engaging with Year 12s

and undergraduates as part of virtual O-week and open days.

One female student was muted and removed from a Monash University Zoom chat recently, after she questioned the use of pre-recorded lectures instead of real-time contact with staff. A clip of the Q&A went viral on social media. "I recently heard that like almost 300 staff members […] were sacked as well as a bunch of courses being cut," the student asked before querying how universities could "continue to say that the quality of education is the same when we're lacking so much of the experience that we would normally get, like interaction with other students, interactions with our staff". The university representative moderating the chat said she would remove the student if she could not remain "cordial" and ended the Zoom meeting after multiple students chimed in with similar concerns.

Universities are exempt from JobKeeper. Instead, education minister Dan Tehan unveiled a 'cost-neutral' funding shake-up to dramatically hike tuition fees for humanities and arts subjects, while decreasing fees for vocational courses like nursing and teaching. It is a bizarre move: Tehan marketed the fee change as a way to funnel school leavers into 'job-ready' STEM fields but the government let slip to *The Guardian* that it has done zero modelling on "whether university funding changes will incentivise students to study science instead of humanities".

Not to mention, Quality Indicators for Learning and Teaching actually show that arts graduates are more likely to gain employment than those in maths and science, and humanities and social science graduates actually earn more money, to boot.

Hidden beneath the 'job-ready' jargon is the fact that Tehan's package cuts government contribution toward domestic tuition fees across the board by six percent, so students will be paying a higher proportion of their tuition through HECS. Students that opt to study arts or humanities degrees will face up-to 113 percent more debt under the new regime.

Are vocational pathways a better option?

As of July, facing historic youth unemployment, government expenditure on vocational education was 20 percent less than in 2012. The stark cuts were pointed out in the Productivity Commission's 2020 Report on Government Services (ROGS), which also established that vocational education actually has better employment outcomes than universities. The government's $2 billion JobTrainer stimulus package aims to create around 341,000 new traineeships for school leavers and support 180,000 apprenticeships. It is a positive move, although the Australian Education Union notes the funding will replace approximately just one-third of vocational education funding that has been cut since 2013.

HANDSHAKES ✗CANCELLED✗

What does all this mean for school leavers?

Options are clearly more limited for this group of Year 12s. But they should not panic into changing plans completely. Dubbed 'Generation COVID' by the media, these students have proven resilient and adaptable and they need to know how to use these skills in whatever sector they walk into. Notably, the pandemic seems to have been a bonding experience, with students prioritising relationships and shared social experiences over competition. This differs from previous generations and may galvanise change in what has become a 'dog-eat-dog' economic mentality.

"Originally, coronavirus was a huge scare for me and my family, the fear of missing the valuable teacher-to-student interaction was a massive worry," explained Year 12 student Jaxon Pearson. "Online classes were a bit strange at first but after the first couple of lessons it became second nature to log-in, check-in with your teacher and mute your microphone.

"It was great to see the school community come together. I believe we have all learnt a bit about the significance of keeping strong relationships with both our family and friends."

What has helped?

Reducing the amount of assessment this year seems to have significantly benefit students. Queensland mandated that one-of-four assessment items in each subject be withdrawn for Year 12s, while Victoria delayed its general achievement test (GAT) to early Term 4. "Flexibilities in the way that the curriculum could

be delivered and assessed," were applauded by principals. Among conversations I had with staff and students from a dozen schools around Australia, a common theme was determination to ensure that key social milestones take place. Year 12s want to experience the awkward glamour of their very own school formal, damn it, pandemic or not!

Adelaide High School principal Cezanne Green said: "Students worked in partnership with staff to re-schedule the Year 12 Formal to later in the year and introduced a Fun Friday casual day and lunch time band for Term 2, which lightened the spirit of staff and students through challenging times."

Many principals assured me students returned from stay-at-home orders "full of spirit" and ready to "jump back in" and make the most of what remains of their time at school. Enthusiasm for 'normal' activities like sports, drama, and lunchtime was huge, which teachers told me felt bittersweet for school leavers. While such positivity was terrific to hear, reports of significant mental health decline among 18 to 25-year-olds during COVID, are concerning. A tracking study by Swinburne University, for example, found depression scores for this age group are almost four times higher than usual due to COVID-19 pressures. It is clear schools must continue to prioritise student wellbeing so that their current Year 12 students have effective tools to navigate the difficult transition ahead of them.

Understandably, there was a uptick in career and guidance counselling from students. Virtual School Victoria assistant principal of student learning and wellbeing, Malcolm McIver found: "Building positive relationships with students, their family support network and, where appropriate, their health practitioner, in an encouraging,

friendly and supportive manner is crucial when teaching in a virtual school. We have two part-time careers counsellors (Years 7 – 9 and Senior School). Individual career counselling occurs through face to face appointments at the school, over the telephone or using video conferencing software such as Webex."

In terms of remote learning, most said that putting additional support in place once their school re-opened was necessary for some students but none of the schools I spoke to viewed lack of remote engagement as a severe problem and were confident their cohorts would achieve their learning targets. One senior school leader in NSW advised that following up with parents was trickier, and she had worried about students who "might be struggling in more vulnerable home situations".

All-in-all, the problems school leavers now face are not new. They have been creeping along for decades. Workforce casualisation, the privitisation of vocational pathways and stagnancy of tertiary funding, the lack of job progression, and increasing student debt are all symptoms of wider structural inequalities and problems our society needs to solve.

If generation COVID wants to carve out opportunities equitable to previous generations, they need to push for systemic change.

The question we should ask is, *how can schools prepare them to do that?* ■

WASH your HANDS

NO CORONA PANIC

EDUCATION

Bobin Public School:

Rising from the ashes

By Sarah Parker,
Relieving Principal, Bobin Public School, NSW

Re-establishing a school after a massive fire event is not something any of us can really prepare for.

There is the physical task of restocking resources, furniture and equipment; but there is also the emotional task of re-establishing ourselves within a familiar, yet radically altered landscape.

On Friday, November 8, the *Rumba Dump* fire, which had been burning for weeks, almost 15km away, suddenly changed direction and came roaring through the village of Bobin. The fire travelled down the ridges and engulfed the school within an hour of it being seen. The classroom, administration building, shedding and toilet amenities were all lost. Only one building remained unharmed, which luckily was the original school building, housing our precious collection of books and most of our musical instruments.

Amazingly, we were spared the trauma of attempting an emergency evacuation, because our principal, Diane Myer had a 'bad feeling' the night before and had the school declared non-operational for that day. No doubt her instincts prevented further trauma for staff and students.

Staff parents students first day at Bobin

The original sign at Bobin Public School

What happened next was astonishing and only made possible through the network of real human relationships that exist in our district network of schools. Our 17 students and five staff members were invited to create a 'school within a school' at Wingham Public School for the rest of the year. We were welcomed with open arms.

Over the next ten weeks, the whole village of Bobin watched in amazement as the school rose from the ashes. Thanks to the tremendous efforts of everyone involved, students entered the gate on the first day of school this year, with huge smiles of wonder on their faces. They were not only glad to be back but were amazed that it looked so good. Every detail had been lovingly thought of in advance.

On our first day back, a journalist asked me what our key takeaway from the whole experience had been.

'Gratitude' was the first word that came to mind.

If someone had asked me that question in November, that would not have been my answer. But we didn't know then what we know now.

We hadn't yet experienced the tsunami of generosity that was headed our way.

We didn't know that replacement buildings would be ordered within two days of the fire and that a team of willing workers would labour all through the hot, ashy days of summer to

Rick Mrs Parker and Mrs Page in new classroom first morning back

Jack's first day back at school

> Amazingly, we were spared the trauma emergency evacuation because our principal had a 'bad feeling' the night before

rebuild our little school.

We did not know that strangers from all over Australia and the world would start contacting us, offering their help and their resources. Cash, vouchers, books, sporting goods, handmade dolls, games, toys, teaching resources all began to arrive within days, with handwritten letters full of love and concern.

For me, it feels like the fire exposed an unseen dimension which exists in schools - a resonance which comes from their purpose - to nurture innocence with inspiration. That's the feeling I get from strangers when I open their letters and their boxes full of donations, and the impression I got from the beaming faces of the builders, gardeners and cleaners who all laboured for long hours, in temperatures that no one should have to work in -

all to give us our school back.

Term one included the inevitable challenges for staff and students - heightened emotions, mental and physical fatigue – all to be expected after a traumatic event. We planned for and began to implement a curriculum full of creative activities across all subject areas. For example, early in the term we took students to see an exhibition of Australian artist and author Pixie O'Harris.

Her paintings were created to bring enchantment to children. In the days afterwards, we noticed our students began to rename their favourite areas of the school grounds and they returned to their deep play. What a relief it was to see that childhood magic being reborn into the changed scenery.

Just when we were finding our feet, the world changed overnight with the arrival of Covid-19. A quick adjustment saw us grappling with remote-learning for our students. Our parents took it all in their stride however and were highly supportive. There were even some enjoyable aspects for families who were able to spend some quality time at home with their children after such a busy few months.

In a strange way, Covid-19 allowed us all to slow down. With no students on campus for a few weeks, staff were able to further itemise teaching resources lost in the fire, carry out sorting and cleaning tasks, and spend time planning and restoring the necessary teaching resources which were lost in the fire.

It has been eight months since the fire and we are finding that students, parents and staff are still processing the changes. We also have a heightened awareness of the challenges to come in the looming fire season ahead.

After experiencing a natural disaster, we find ourselves asking the bigger questions: what can we learn from this experience? How can we grow within ourselves and as a community to become stronger, deeper, and more resilient? So far, we have learned the importance of taking care of each other, slowing down, and taking each day as it comes.

Re-establishing a school after a fire is hard work for everyone involved. There have certainly been lots of ups and downs, but I have never felt more grateful or more privileged to be part of a school community than I am now. ■

EDUCATION

Why some learners
thrived in lockdown

By Mandy Clarke,
Industry Reporter

Multiple studies have shown that rates of anxiety and depression among the general population have skyrocketed since the pandemic began.

Our pandemic-provoked anxieties might allow us to better empathise with some of the feelings children and adults with Autism Spectrum Disorder (ASD) manage as part of their day-to-day. Recently, I complained to a friend who has ASD about my frustration, having to continually shift my work schedule to meet COVID-19 restrictions. She shot back: "Welcome to my world!"

This got me thinking about how different the experience of remote or online learning is for students with ASD and other learning needs.

As context: For almost two decades I worked with children who had dyslexia, dyspraxia, and ASD, specialising in behaviour management. I remember how a sudden change in routine would dramatically escalate anxiety. The build up to school holidays had to be pre-planned in detail; if we had experienced a sudden pandemic lockdown in those pre-tech years, a smooth transition from carer to teacher would have been virtually impossible. Back then, 'best practice' for educational consistency and communication was limited to an entry in a home/school message book, the odd emergency phone call, and a yearly multi-disciplinary meeting. Technology has vastly improved communication between teachers and parents today! Because of my background, I wondered how the COVID-enforced routine disruption would challenge students with disabilities and prove stressful for parents and carers.

In one ASD Facebook forum, I heard from three parents who

Image courtesy of Spectronics

actually expressed concern about their child returning to school because they had found lockdown so beneficial. One parent described the return to school as "very stressful" and a mother of a Year 8 boy with ADHD told me she was now considering permanently transitioning to remote learning.

Anecdotally, it seems some learning styles suit isolation and the return to 'normality' could prove a bigger source of anxiety. Teachers should consult with their students who have ASD and other learning differences, along with their parents, to find out what has worked (or not) for them. Perhaps bringing elements of their remote learning routine into the classroom will help with the transition.

Technology has transformed special needs education and enhanced communication tools to boost student engagement in classroom settings. The use of computers, tablets, an array of software, teaching and communication aids, games, live content, and streaming platforms have changed the experience for many learners. Children with different learning needs, especially those with ASD,

dyslexia and communication differences, benefit greatly from the level of agency they can achieve with these tools.

I recently read a paper published in 2019, called 'The Impact of Technology on People with Autism Spectrum Disorder: A Systematic Literature Review', which found: "People with autism spectrum disorder (ASD) tend to enjoy themselves and be engaged when interacting with computers, as these interactions occur in a safe and trustworthy environment."

The paper reviewed 94 studies that show how technology used in education helps people with ASD to develop a variety of skills. "Several studies showed that most people with autism show a natural affinity for technology and a good disposition for using technology and learning through the use of computers. This is because the environment and context that these experiences provide are predictable and structured, which helps people with ASD to maintain their routines and repetitive behaviours without affecting their comfort."

As technology continues to advance, there are an

increasing number of tools at our educational disposal, from sensors and augmented reality, to geolocation and video games.

While we navigate remote learning, it's a valuable time to rethink our teaching strategies and cater more explicitly to students with different learning needs by exploring a wider range of teaching tools and aids.

Industry Voices:

Spectronics' Michael O'Leary took us through some of the latest innovations in assistive technology, including mouse access to iOS13 iPads and iPhones.

"Many of the popular, inclusive software titles are now offered as a universal, multi-platform subscription, which works well for schools that have adopted a BYOD (bring your own device) policy. While subscriptions have a recurring fee, they are typically less expensive than the cost of major software upgrades every three years or so. These universal software subscriptions are often bundled with additional content at no extra cost, whereas previously such add-ons were purchased separately.

"Some education departments have taken advantage of state and territory-wide district subscriptions that greatly reduces the cost per teacher/student.

"Tools and programmes that appear most popular with schools include wireless or Bluetooth alternative access options such as keyboard and mouse alternatives, plus switch access. These are popular because they are more portable and less cumbersome to set up.

Schools often purchase inclusive software for students with special needs and then realise all students can benefit from the application, and so they upgrade to a whole-of-school site licence, which of course makes the application truly inclusive! ▶

Image courtesy of Hearing Loop

◄ "Tablets remain popular because they are less expensive, quite robust, and avoid the lengthy boot, charge and login that laptops often have. Even more so now that tablets have a full range of alternative access options for students with special needs, including eye-gaze.

"Students with specific educational needs, such as Autism Spectrum Disorder, ADHD, or dyslexia can benefit from multi-media software applications that offer exciting sounds, video and graphics, with which they can interact.

Shared, wireless, computer keyboard and mouse alternatives allow these students to participate with projected class-room activities.

"Recent online multi-media software applications require significant bandwidth, which makes them frustratingly slow in schools with poor internet access. For this reason, a number of popular software subscriptions offer free application downloads so they can be used off-line as well as online. These are especially important for itinerant teachers and therapists who are not assured of reliable internet access when they travel.

"NDIS is funding many special needs technologies that students can use at home. This has been very helpful during the pandemic as schools opt for distance learning.

A number of software developers are to be congratulated for making their online subscription software available free of charge while schools were closed down."

Advances in hearing systems and technology have blossomed

in recent years. Hearing Loop director Ian Riddle spoke to us about a recent collaboration with St Lucy's school in NSW and the importance of classroom hearing inclusivity.

"As we see the introduction of Bluetooth into more and more hearing aids and the ability of direct connectivity to mobile devices and tablets, we tend to forget about the conversation over distance and noise. While it is great to be able to give access to mobiles and tablets in social situations this does not necessarily assist learners and teachers in classroom settings. On the other hand with children using 2.4Ghz technology; the use of remote microphone technologies with access to multimedia that the teacher plays through a projector and/or televisions in the classroom can be a gamechanger for classroom interaction and student engagement.

"Remote microphones are a crucial tool for hearing assistance in classroom settings. Ian explained that remote microphone systems specifically designed for the classroom provide many benefits. "They have:

- Easy to use microphones with touchscreen display, preferred by teachers and school staff

- Easy connections to multiple students

- Connectivity with equipment being installed by most education departments in the new and refurbished buildings.

- Ability to connect with multiple students simultaneously meaning simplicity for the teacher to ensure the system is being used.

- One microphone for transmission of voice to students' device and speakers, providing a quieter classroom for all.

- Pass-around mic for access to other students' conversation in the classroom when group work and presentations are taking place.

"With all the flexibility and connectivity these systems can provide in conjunction with equipment being installed by education departments now as part of their infrastructure program, students with all learning styles can gain access to the content they need to at school."

Image courtesy of Scanning Pens

Scanning Pens Australia representative, David Campbell told School News about the looming benefits of sensory tools for students with different learning needs.

"The use of assistive technology is just as important in today's COVID-19 environment with many children learning remotely but many students with a diagnosed disability are unsupported, with little or no accommodations at the school level.

For students with dyslexia, the best kind of technique and strategy is simple re-purposing everyday tools to fit their needs. For example, using a paper folder as a reading slope/stand or an elastic band around a pencil to create a good grip (for those whose motor skills are challenged). Ensure their needs are met by carefully paying attention to what that student requires, then adjust your teaching strategies accordingly, even something small as placing students in a good place in the classroom to receive positive peer support.

Speaking to classroom trends, flipped learning has revolutionised the teaching strategy with assistive technology and videography. An example of this is recording a lesson or teaching point for students to take home and revise from. For hearing impaired students, types of scanning pens with voice recognition capabilities are a great tool and can work with a number of hearing aids/hooks as well as headphones.

One of the key *dos* for implementing assistive technology is doing it right. Using the tools that you have to the best of their potential and listening to how your students individually respond to them. A big *don't* is ignoring this assistive technology aspect or handing it over to someone who isn't passionate about it.

A cupboard of shame is common in many schools, where a variety of useful assistive tech tools may go unnoticed by staff over the years. Make sure to look at every device you have at your disposal and you might be surprised at what you already have available. ■

Reading Difficulties: an Australian-wide Problem

Statistics show that millions of Australians have reading difficulties.

Dyslexia is estimated to affect 10% of the Australian population, and this figure increases when undiagnosed reading difficulties are included. Based on a population of nearly 25 million, approximately 2.5 million Australians are dyslexic. It is estimated that 15%-20% of the population has a language-based learning disability.

Other research shows that 46% of adult Australians lack the literacy and numeracy skills to perform simple workplace skills. So portable, easy to use products that help people read are in big demand.

In today's modern world there is a considerable amount of assistive technology that can assist those with reading difficulties. The online space is particularly well catered for with digital books, apps and other technological alternatives. However, it is not always easy to find a solution that will read traditional books, newspapers & magazines out loud. The C-Pen Reader Pen is used as a reading aid by thousands of people around the world – from students through to mature adults. It converts printed text to speech enabling the user to hear words read aloud.

The Reader Pen gives students the independence to read on their own. This improves results and boosts self-confidence freeing up valuable teacher's time.

There is a wealth of research that shows how audio promotes literacy. Hearing the words read aloud improves comprehension by 76% and increases reading accuracy by 52%. 27% of K-12 students are predominantly auditory learners.

The Reader Pen engages students through audio and therefore enables students to access text effectively and efficiently. Being able to read at the same level as their peers promotes a student's confidence and sense of belonging. This also can result in improved behaviour in the classroom.

Scanning Pens Australia offers a free trial of the Reader Pen so that schools can determine for themselves how this assistive technology can benefit students with reading disorders, or a lower than expected reading level. They also offer a trial of their Exam Reader Pen.

The Exam Reader C-Pen reduces exam costs as there is no need for a human reader. The pen has been evaluated by every Australian Curriculum & Assessment Board. For exam access arrangements, teachers should consult with the relevant awarding body. Generally, state exam boards will consider applications on a case-by-case basis.

Students with a disability sitting NAPLAN may use assistive technology that is compatible with the test construct and the platform. The use of C-Pens must be approved on a case-by-case basis by test administration authorities (TAA's). ▲

Free trials are available online at www.scanningpens.com.au or by contacting Scanning Pens Australia on (02) 8855 7100, 0418 800 234 or email auinfo@scanningpens.com

$$(-2) \cdot \frac{5}{6} =$$

$$(-4,2) : (-0,5) =$$

$$\left(-\frac{7}{8} : 2\right) \times (-8) =$$

Assistive hearing technology
- Be heard in the classroom

The awareness of benefits relating to hearing augmentation systems has grown exponentially in recent years, with the realisation that these greatly assist ALL children within a classroom, not just those with hearing aids.

As such, a requirement of all new build classrooms (as part of National Construction Code 9B) is that hearing augmentation is provided whenever there is an amplified system installed.

With an increased focus on importance of classroom hearing inclusivity, it is being discovered that a lot of equipment currently fitted in key areas does not aid those who require hearing assistance, and as such, many schools and education providers are now seeking to retrospectively fit their environments with appropriate equipment.

Advancements have seen Bluetooth technology introduced into a greater number of hearing aids, and this enables a seamless connectivity to devices such as mobile phones and tablets. This is a huge advancement for those requiring assistance in a social sense, however, it does not necessarily translate in the classroom or other learning environments, where hearing impaired students are dealing with the challenge of deciphering messages over varying distances and levels of noise.

This is where Phonak's range of Roger products come into play, providing a solution that is easy for teachers to operate, compatible with equipment used by the hearing impaired child/children, and aligned with assisting the needs of other children in the classroom. Use of this equipment has been described as a gamechanger for classroom interaction and student engagement.

Christine, a visiting teacher from Victoria's northern region can testify to this to this.

Hearing Loop have always provided helpful advice and guidance to ensure that assistive technology solutions for classrooms and school spaces are 'fit for purpose'.

Y-axis: % Correct (0–100)
X-axis: Noise Level (dBA) — Quiet, 50, 55, 60, 65, 70, 75

Legend: No Soundfield (grey) | Roger Soundfield (green)
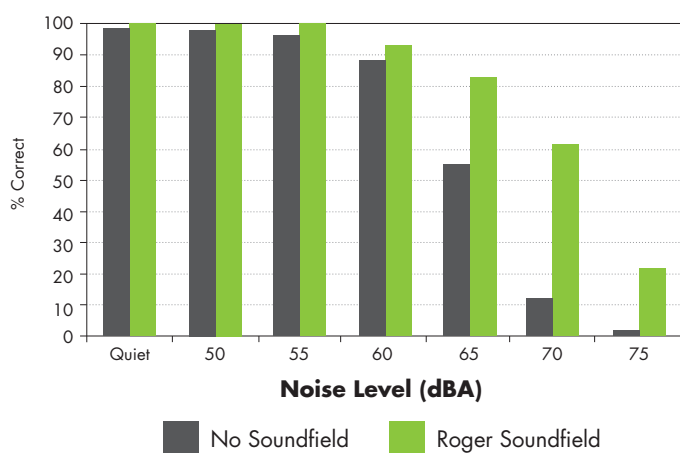
They have been prompt and generous with after-installation support, provided and updated user guides regularly and provided additional technical training for our Visiting Teacher Service (Hearing) team which has been invaluable.

A typical Phonak Roger set up would include a touchscreen microphone that can be worn unobtrusively around the teacher's neck, and a pass around microphone that can be used to project the voice of students during group discussions. These connect to a Digimaster soundfield speaker which dynamically adjusts sound, whilst also enhancing the clarity of the teacher's voice, and the learning experience as a whole. Students with ADHD and Auditory Processing Disorders have been seen to thrive in environments utilising this equipment, largely due to the ability to communicate and focus with greater ease.

The Digimaster soundfield also boasts further benefits including improved classroom management. It offers enhanced voice projection, and evenly distributed voice amplification throughout the classroom, enabling students to be spread across the available space within the classroom. Phonak's Roger equipment has also been shown to improved sentence recognition ability, quicker

acquisition of reading, writing and numeracy skills, as well as increased attention, interaction and participation rates. <Wolfe, J., Morais, M., Neumann, S., Schafer, E., Mülder, H., Wells., N., John, A. & Hudson, M. (2013). Evaluation of Speech Recognition with Personal FM and Classroom Audio Distribution Systems. Journal of Educational Audiology, 19, 65-79. >

It has recently become mandatory that those in Melbourne and parts of regional Victoria to wear a mask in all public settings, and many workplaces where practical to do so. The government have stated that at this point teachers are not required to wear masks in the classroom, however

students in secondary school should; this is not being sold as a short-term measure either. It is likely that there will, however, be teachers in both the primary and secondary systems that will want to wear masks with the view of protecting both themselves and their students from the transmission of COVID-19.

Naturally, there will be some concerns surrounding this, and they are likely to be two-fold. From a student's point of view, will they be able to hear the teacher clearly, and also at a volume that promotes the level of engagement required for optimum learning? And for the teacher, will they be required to project their voice further, and to speak at a higher volume, thus putting them at greater risk of voice disorders? Again, this is where Phonak's Roger equipment can assist, whilst alleviating the concerns of both parties, and ensuring that the safety of all involved is paramount.

For further information or to discuss a package that can be individually tailored to the needs of your environment, contact Hearing Loop Australia, at the link below; it's a decision your staff and students will thank you for. They can also assist children to hear in the hall or auditoriums. ▲

Op-Ed: Why choosing a new school management system is the most rewarding risk

By Kate Damant,
Sales and Marketing Manager,
The Alpha School System

So, you want to improve your school's management system?

A school's management system is central to all operations and changing it represents a significant investment in time, resources, and money.

Before you begin this journey, it is important to unpack what has brought you to this point. Ignore the 'noise' and engage with key stakeholders to learn from the source what is going on.

The second step is to dive into your current system and find out whether it is being used incorrectly. Sometimes it comes down to asking yourself, who owns our school management system?

When there is no clear ownership of your school management system, several issues arise; databases become inconsistent, updates go unnoticed and communication becomes confusing. Chairo Christian School were recently faced with this problem.

"Our system was never really owned by anyone; it was a system that just existed. Each department did their own thing to their own ability, but most didn't know what features were available, maybe lacked the ability or time to implement them and didn't understand how to get the most out of those features," Chairo representative, Trevor Ciminelli told me.

Without clear system ownership and responsibility structure, there is no clear understanding of how everything works together and moves forward. The third step is to research the field. There are countless different software packages available, all touting extensive lists of features and functionality but here are some things beyond the interface that you might want to consider.

Scope

Aim to consolidate as many platforms as possible into the one central system. Consider what you need to fill the gaps that the system has, i.e. does it require additional payroll software?

Integration

In saying that, one system cannot do it all, which means that at some point you are going to need to hook up additional software to it. When choosing a system, it is important to not only consider whether the system can interact with your existing software, but how it will interact.

Look for a system that uses APIs to safely integrate with other software to ensure that your data remains consistent; after all, your system should be the one central point of truth for school data.

Tailoring to suit a school

No two schools are the same, so being able to tailor your system to match your requirements to some degree is essential. When looking at systems, ensure that you look for customisation that is achieved through supported setups and parameters. This allows you to configure the system to your needs while ensuring that your software 'code' is not orphaned from the pack and that there is a reliable upgrade path for your school's software.

Once you have done your research and chosen a school management system, it is time to get your community onboard.

Training and support

User acceptance is the most important aspect of implementing a new school management system. Not everyone can be involved in the selection process, which can cause a certain level of anxiety, and a negative knock-on effect when it comes time to start training and using it.

Some of the most successful projects I have seen, have been those where all users were engaged from the start of the implementation project.

I recommend that you:

- Immediately introduce all staff to the new system with a demonstration. This should be done prior to any training so that staff know what's coming and can look forward to the efficiencies that they will gain from the change; so that they are led with excitement rather than anxiety.

- Involve staff in the data migration and configuration of their patch or area in the new system. Ask them what data they do and do not need, as this way you can declutter your data and get rid of unnecessary clutter.

- Finally, avoid webinar training. It is always tempting to train virtually, especially since the rise of virtual communication due to COVID-19; however, webinar training cannot compete with the collaborative and engaging nature of onsite training, and can cause your users to disengage with the process.

Looking for a new school management system is an exciting opportunity to explore the needs and wants of your users and reach the full potential of your business efficiency. It is not something that can be rushed or done alone.

Remember to involve your community in the process and ensure that your chosen vendor is willing to listen and grow with you. ★

Implementing
a new system

Implementing a new School Management System may seem like a daunting task, but it doesn't need to be. Some of the most successful projects The Alpha School System (TASS) have seen are by schools who follow a similar methodology for project and change management.

Finding the right Project Manager is key!

A school's Project Manager can make or break an implementation.

It's important to consider the experience, knowledge, and availability that this role requires.

Some critical factors include a thorough understanding of:

- The current system, the data that resides in it and user pain points.

- Internal workings of the school and procedures across multiple departments.

- Key stakeholders around the school and who needs to be consulted for what.

- The school's larger business goals.

Bring people with you, do not drag them

Replacement of such a critical system can cause a certain level of anxiety and a negative knock-on effect when it comes time to start training and using the new system, therefore the Project Manager needs to be responsible for change communication and inclusivity.

TASS recommends introducing all staff to the new system early on with product demonstrations and by speaking to each functional area to include them in the configuration and migration of data for their area.

Keeping everyone informed throughout the process will make the transition easier and increase user acceptance.

Focus on the bare necessities

Throughout the implementation, it is important to focus on what the school needs to be operational on day one and then bring in the other functions later. For example, it is unlikely that Parent Teacher Interviews will be run in the first week of operation. Trying to bite off too much can create delays and cause retention issues during training.

Don't create more work for yourself

If you're considering a parallel rollout, where the school operates the old and the new system at the same time - don't.

While it may seem like a good way to ease into things, running two systems simultaneously doubles the workload for your staff, putting undue stress and time constraints on them. This inevitably leads to tasks being completed in one system and not the other, and data integrity issues that can be impossible to wind back.

Staff will also associate the new system with extra work and therefore become more reluctant to change – despite the benefits of your investment.

Review and reflect

Finally, make sure that you formally close your project. A good post project review will help you understand how you went, where you struggled, identify departments that are not fully on board or may require an extra hand, and highlight tasks that are still outstanding.

Moving forward, consider conducting regular internal or external audits every two to three years ensuring the functionality you currently have implemented is being properly utilised. This helps highlight features not currently in use, and can bring potential benefits to the operational efficiencies at your school. ▲

Turning up the volume
on future-forward libraries

By Lucinda Dean,
Industry Reporter

Shhh! No talking in the library.

Drab, institutional and unnaturally quiet, my high school library circa 1980s was a refuge for nerds. The only time I set foot into the school library was on compulsory class excursions. The school librarian looked as antiquated as the musty books lining the rows of tightly packed, towering bookshelves. 'Research' was conducted via catalogue cards contained in sets of pull-out wooden drawers.

Lexicon like 'makerspace', 'learning hub', 'computer labs', did not exist in my day. Fortunately, the 'old school' library is a far cry from today's bright, lively, multi-purpose spaces. Indeed, today's school library is a welcoming place where research, socialisation, collaboration, and play coexist in a space respectfully designed to accommodate each of these learning goals.

Increasingly, libraries are technology hubs, so make sure your wifi network is robust enough to handle students' digital needs. Not surprisingly, 50 percent of initial research is done by phone, while 25 percent is conducted by tablet, so libraries need to make it easy for students to stay powered up.

Having a 'makerspace' (a collaborative zone used for creating, learning, exploring, and sharing) within the school

Images courtesy of Resource Furniture

library is right on-trend. However, future-forward libraries could also be designed to support media labs, music and video production studios, application-focused computer labs for photoshopping or website design, video conferencing and the like.

When planning your library makeover, let design, function, furniture and technology be your guiding principles – and always consult the experts.

Research conducted by Boston-based architecture and design firm CBT reveals the success of future-forward libraries is underpinned by the availability of supporting technology and furniture. While the sample was based on US college students, its learnings could be extrapolated

to the Australian school environment as it found students preferred to situate themselves in seating that provides impromptu collaboration, movement and exchange, with 40 percent of respondents expressing a preference for high-top tables over traditional carrels. They also demanded spaces to huddle... 40 percent of students surveyed expressed a strong need for individual conference rooms that are acoustically separate from the rest of the library environment. Finally, an overwhelming 40 percent said they enjoyed the benefits of having an exhibit space inside the library – areas where not only they can be inspired, but also showcase their ideas and thereby foster cultural exchange. *School News* spoke

to a couple of industry experts to find out how to transform your library into a learning hub that is both contemporary and relevant for all users.

Exciting design trends: Industry secrets

Creative manager at Resource Furniture, Michael Merlino, explains that space is often limited in school libraries, so areas "need to be well considered". He says: "A common request is to create multifunctional spaces with flexible furniture that cater to breakout relaxed reading, collaborative meeting and teaching spaces, all in the one space. Furniture needs to be adaptable, comfortable, and fun.

"We are drawn to furniture that looks funky and these areas will always be better utilised when you create a fun and inviting space. My advice for schools is to choose furniture that integrates cohesively as this helps to create an inviting learning hub. Shelving systems should have the capacity to integrate soft seating."

He argues that "this provides a space that feels connected, as you have a range of furniture and shelving that complements with regards to colour, finish, and design". Ultimately, space planning is key and it helps if schools are able to work collaboratively with design specialists.

Michael agrees: "Plan the space to its full potential. Many schools have to manage budget constraints, so the benefit of

space planning is that it provides you with a great foundation to work with and allows you to stage fit outs over a period of time with a clear end goal."

Vision is the first hurdle for schools to overcome: "Have a clear vision for your library space and ask yourself, what do you want to achieve and how do you and the students want to use the space. It helps considerably to work with someone and plan space properly. It will be well worth the investment but if budgets don't allow you to get everything done at once, stage the fit outs over a period of time.

Advising schools on furniture options for their libraries comes down to practicality. "Choose furniture that is versatile and multifunctional but, ultimately, enjoy the experience!

"Having the opportunity to transform your library space doesn't come up very often. It may seem daunting at the time, but you can look forward to the end-result, knowing that you will be creating a library space that students and staff will love."

Autex representative Michael

Image courtesy of Autex

Tyerman revealed that "School libraries now pivot around collaboration and technology".

In his experience, when working with schools to transform their libraries and other learning spaces, he has found - the most successful spaces have been those where the design is reconfigured to support multiple activities and learning outcomes.

"Proper acoustic treatment not only help the students in the room, but the hundreds of students who might join a class online," he notes. Good acoustics in a library setting "Improve comfort, wellbeing, productivity, and learning outcomes for students as well as teachers".

However, he is cautious about

large open plan spaces that are expected to cater for a large number of students at once. "It is best to treat these spaces acoustically from the beginning of the build project, however acoustic treatment is definitely possible to install in an existing space". Gluing products to the underside of a desk or a chair are not the answer, recommending instead that acoustic treatments should be "specifically designed for each space (regardless of its configuration for a particular class), and also work as workable surfaces to display student projects and artwork".

Autex technical manager Rob Jones also spoke with *School News* to explain how campus libraries can integrate acoustic

treatment into their space. "When we think about the school library, we think of rows of bookshelves towering above our heads, stretching neatly ahead in aisles, perhaps with a few bean bags, tables and chairs hiding in corners. Acoustically, all these bookshelves are helpful as noise barriers, but books also act as noise absorbers, especially when in large quantities and on high shelves.

The reality now is that schools have less books, more screens and are, as Rob intimates, "Closer to a media centre or multipurpose teaching space". To facilitate this, he suggests "High levels of acoustic absorbing surfaces and objects should be used with clever floor planning to keep noise sensitive activities like individual study as far away as possible from group noise".

"To help reduce the build-up and flow of noise, good floor planning that may include pods can create these localised quiet zones or reflection spaces will be required. These pods or systems will not only have absorptive finishes but should be high up to help stifle noise interference." ∎

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Driving positive outcomes
through smart specification of interior acoustic solutions

Image courtesy of Autex

By Autex Australia

Children spend an average of four to five hours a day in classrooms, according to the Association of Australasian Acoustical Consultants, and experts estimate that between 45 and 75 percent of that time is spent comprehending their teachers' and classmates' speech (Mealings).

If students are unable to hear what is going on, they often become disconnected and can struggle to concentrate. The acoustic environment should be a prime consideration for any new classroom design. Modern educational practices and learning spaces have evolved: it is now expected that contemporary learning environments facilitate collaboration and interaction. This often requires high noise levels with lots of conversation. Studies such as collaborative research undertaken last year by the University of Queensland and   Monash University on "the 'acoustic health' of primary school classrooms in Brisbane, Australia", have shown that when it comes to acoustic performance, Australian classrooms are well behind the mark.

However, designers and specifiers can make a difference in this area. Interior acoustic solutions are a high-performance means of reducing reverberation and other noise within educational environments, creating better learning outcomes for children. They are lightweight and easy to install, meaning they retrofit within existing spaces and new projects.

What are the issues around poor acoustics in educational environments?

Excessive noise and reverberation in classrooms can make it difficult to hear what is being said. This results in what is known as a low Speech Transmission Index (STI): put simply, the acoustics of the space make it difficult for students to determine what is being said.

An Australian study found that more than 90 percent of Brisbane classrooms failed to achieve recommended STI levels, meaning that children would struggle to adequately decipher information in these environments (Wilson).

Younger children are particularly susceptible to the harmful effects of unfavourable acoustics: research indicates that poor school acoustics can lead to decreased learning outcomes for students through impaired speech perception and listening comprehension.

In addition, these issues are exacerbated in children with learning difficulties, hearing impairment, and/or English as a second language (ESL).

Noise-induced disruption can also have an impact on students' abilities to perform non-auditory tasks.

Excessive reverberation was linked to poor performance in verbal tasks, and high exposure to ambient noise with a reduced reading level (Berg).

This shows that acoustic issues can negatively affect children's wider cognition and brain function at a time that is crucial for the healthy development of neural pathways (Flexer).

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THE *WORDS* READ FROM A *LIST*,

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AND BE TESTED *ON* IT. SOUNDS RIDICULOUS?

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*Seep, Benjamin., Glosemeyer, Robin., Hulce, Emily., Linn, Matt. Aytar, Pamela. (2009) Classroom Acoustics – A Resource for
Creating Learning Environments with Desirable Learning Conditions. Retrieved from http://files.eric.ed.gov/fulltext/ED451697.pdf

Image courtesy of Autex

Poor classroom acoustics can also harm a teacher's greatest tool; vocal damage from excessive shouting poses serious occupational health and safety concerns. In fact, voice disorders are considered one of the major hazards of school teaching, affecting relationships between staff and students, as well productivity (Mattiskea).

The need for acoustic-focused learning environments

The traditional idea of a theatre-style classroom with students' desks facing a teacher at one end is, for the most part, obsolete. 21st century education practices have evolved to a more immersive style, heavily integrated with technology as a means of preparing students for the realities of the modern world. Classrooms are now 'learning environments' centred around collaboration, problem solving, and interaction. These endeavours are all rooted in the development of strong language and clear communication practices, highlighting the need for good acoustic design.

A detailed 2019 study conducted acoustic surveys of 33 classrooms in Brisbane and found significant deficiencies in their acoustic performance. Unoccupied sound levels are used as an indication of ambient noise pollution. These ranged from 25-50 dBA, meaning 25 percent of classrooms were above the recommended 40dBA maximum, according to the Association of Australasian Acoustical Consultants. In addition, classrooms showed reverberation times (RTs) of up to 1.26 seconds, meaning 79 percent of classrooms were above the suggested 0.6 second maximum. Occupied sound levels were as loud as 64.8dBL, and STIs as low as 0.35 (on a scale of 0-1), meaning 92 percent of classrooms failed in these regards. When compared with similar studies using datasets from Sydney and broader Australia, findings were consistent with the results of the Brisbane study (Mealings). Overall, the high percentage of classrooms not meeting the recommended performance requirements for beneficial learning environments highlights a need for better acoustic solutions.

Regulations and guidelines

The *Building Code of Australia* (BCA) does not offer specific recommendations for educational facilities. It does, however, outline performance requirements as they relate to specific building types: class 9b buildings include public spaces such as kindergartens, childcare centres, schools and universities . This may serve to assist specifiers with specific information relating to minimising airborne and structural noise transfer due to construction elements like heating, ventilations and air conditioning (HVAC) systems, but will not provide guidance with the specific mechanics of acoustic treatment for learning spaces. Specifiers may draw from *AS/NZS 2107:2016 - Acoustics - Recommended design sound levels and reverberation times for building interiors*, which contains acoustic design criteria for building interiors and provides a useful baseline for performance.

Again, this does not speak directly to the specific requirements of educational facilities so should be used as a guideline only. There are, however, state-based guidelines that must be adhered to. For example, the *NSW Educational Facilities and Guidelines* outlines mandatory parameters on acoustic indicators, such as reverb times, impact sound insulation, and more. Similarly, the *Victorian School Building Authority's Building Quality Standards Handbook* outlines deemed-to-satisfy provisions for onsite sound reduction measurements, amongst other things. Specifiers should contact reputable acoustics experts to discuss best practice and what solutions would work best for their particular project.

Interior acoustic solutions: high performance, low fuss

Noise can never be eliminated entirely, and nor should it be. The goal in acoustic design is to create a space that offers a high signal-to-noise ratio; that is, that the signal (in the case of classrooms, most often a teacher's voice) can be heard clearly above background noise.

In the educational context, noise comes most often from four sources:

• External noise intrusion

• Noise generated by building services (such as HVAC systems)

• Noise transferred between individual spaces, including impact noise

- Control of reverberation times to enhance speech intelligibility

Part of designing for optimum acoustics is the shape and design of the structure itself; whether rooms are large or small, have high ceilings or low, and what construction materials are used - for example, wood and concrete have different acoustic properties. However, many Australian schools are housed in buildings as old as 100 years, meaning that structural changes are not possible. Interior acoustic solutions can solve problems in these circumstances, as well as in new builds and contemporary designs.

Interior acoustic solutions absorb noise, preventing it from being reverberated within a room, while also providing a thicker membrane to protect from ambient, airborne, and structure-borne noise.

They provide particularly effective noise reduction in the region of 1kHz-4kHz, which is the region most sensitive to the human ear, and the region most occupied by the human voice.

Interior acoustic solutions are frequently supplied as tiles or panels, making them easy to transport and easy to install. Some are available with simple yet strong adhesive backing, making them possible for people with basic trade experience to install. Where possible, specifiers should opt for 100 percent polyester fibre interior acoustic solutions for education projects. In addition to providing excellent acoustic performance, polyester fibre is non-toxic, non-allergenic and contains no irritants, making it safe for use around children.

Interior acoustic solutions offer a versatile, customisable, functional aesthetic for educational design applications. They are available in a wide range of standard colours, with custom colours available for manufacturing as required. The colours can also be alternated between panels to keep in line with the wider interior design.

Their hook-and-loop receptive surface means they can be used as staple or pin boards, or have things hung from them with velcro - including children's artwork in education spaces.

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Autex's range of interior acoustic solutions are ideal for use in Australian educational, commercial, hospitality and retail applications. Made from 100 percent polyester fibre and backing, they have no chemical binders and are certified low Volatile Organic Compounds (VOCs). They are manufactured using a minimum of 60 percent recycled materials and are resistant to colour fade, making them a durable and long-lasting solution for educational spaces.

Autex's panel and Peel 'n' Stick products are lightweight and easy to install, with a large range of bespoke and customisable ceiling products - such as the Frontier™ and Horizon™ systems - also available. For further information on product ranges, installation, maintenance, or to discuss the bespoke needs of a particular project, designers, and specifiers can contact their local specification manager. ▲

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Image courtesy of Autex

10 things your graduate teacher isn't telling you

Graduate teachers are in every school.

By now, halfway through the year, the ones in your setting have probably blended into the crowd so much you have forgotten they are there.

You would be forgiven if this was the case. It is easy to let these things slip; especially when, on the surface, smiling faces greet you in the corridor and happy students can be seen through classroom windows.

Graduate teachers are often forgotten about because of these things, when on the inside their story is a little bit different. When we look at, prepare for, and reflect on how we support our graduate teachers, we often forget that

Adam Voigt,
Founder and Director, Real School

there are few other teachers we should be throwing into the mix too. A graduate teacher is not just a teacher who is fresh out of university. We have to remember graduate (or beginning) teachers are those in their first three to five years of teaching.

How many teachers in your school fall into this category?

More than you first thought, most likely. Let me ask you then, how are your graduate teachers going? We are halfway through the year, which means by now they have probably found their groove, gotten to know their students and sorted out any tricky behaviours that may have popped up in Week 1. No doubt they are a natural fit with staff, finding their place within their team and around the staffroom table at lunchtime. They have not appeared in your office, either in tears or by word of mouth, so everything must be going okay.

Again, you would be forgiven for thinking so, but I predict this is not the case. Teaching is too complex a job, too demanding, and too unpredictable for all graduate teachers to be cruising like they are taking the scenic drive along the coast. Got you wondering, don't I? Thing is, the reason you do not know about it, is because no-one is talking about it.

Our graduate teachers have watched other teachers, who make it look easy, and they have decided this will be them too. No matter what happens, they are determined to appear happy, strong, and like they have it all together, regardless of what is really going on inside their classroom. Now, I imagine you are not a mind reader, and neither am I. However, *if I was* a mind reader, I am pretty sure these are 10 things you would find your graduate teachers thinking as they walk past you in the hallway, faces plastered with familiar smiles:

1. That last lesson I taught was awful, I am failing.
2. I do not know what to do about that parent…
3. How am I going to teach Nick this afternoon? He is so off today.
4. I am so behind in my marking.
5. I have not been to bed before midnight for two weeks.
6. How long until this ends? I do not think I can make it.
7. I just do not know how I am going to teach these kids to do this.
8. Can they tell that I have been crying?
9. I just want to go home and watch Netflix. Can I watch Netflix in class?
10. Will anyone notice if I go home as soon as the bell goes?

So, next time you walk past a graduate teacher and they smile and tell you they are great, everything is okay, and their class is good; take a minute to look behind the smile, ask a more specific question and get to know how your graduate teachers really are. How are you sleeping? Can I help with any parent communication? How are your students going today? Give me an update on Nick.

The cheat sheet:

1. Get to know your graduate teachers.

2. Do not forget those beyond their first year.

3. Just because no-one is crying does not mean everything is okay.

4. It is only Term 3, they still need help.

5. Ask specific questions.

AITSL standards for teachers (you addressed them by reading):

Leadership Requirement 3 - Personal qualities, social and interpersonal skills.

PP2 – Developing self and others

PP1 – Leading teaching and learning

LE2 – Relational. ▲

How improving character improves wellbeing

By Dr Charles Margerison, *Psychologist* **& Brad Hutchins,** *MComm, Amazing People Schools*

In discussions with teachers, we have repeatedly heard that there is a need for more resources to support the link between character education and wellbeing.

One approach that has proven successful, is to learn from the achievements of influential people from history. In case studies and trials, we have seen students immerse themselves in story-based lessons about the trials and achievements of amazing achievers. Asking students to identify and discuss which character strengths were demonstrated, encourages them to explore characteristics that bolster wellbeing.

As a pivotal exercise in self-development, students are then asked to reflect on abilities, strengths, and weaknesses that they themselves possess. By conducting a self-analysis, students are given the rare opportunity for introspection. Considering how little space exists for such activities in the school curriculum, this offers profound repercussions for character development.

We believe that when people develop their character strengths, they enhance their wellbeing. We base these views on the study of over 500 amazing people who excelled in the fields of: science, mathematics, literature, engineering, music, humanities, visual arts, etc. By developing their character, these inspirational achievers enhanced their own wellbeing and enriched the lives of others.

Action learning to support character development

These theories are put into practice, by encouraging students to take part in self-reflection, discussion, and a range of group activities related to fostering character strengths (mind-maps, Y charts, SWOT analyses, quizzes and presentations, etc.).

We do not claim to provide all the answers when it comes to character development. These case examples reflect subjective and unique experiences for each learner. Instead, this approach is designed to provide inspiring examples and activities, as a catalyst for self-awareness and aspiration.

Such activities are certain to make life easier for teachers. Clearly designed lessons, embedding self-development and awareness of character, cultivate respect and positive relationships in the classroom, allowing school dynamics and environments to flourish.

Supporting teachers and fostering wellbeing in the classroom

We know that teaching is a vastly challenging and nuanced role. While the rewards are immense, teachers also face ongoing pressures and demands. Being a role-model does not mean teachers have all the answers, but by taking part in lessons and facilitating wellbeing learning, teachers themselves can grow as life-long learners.

By providing a nurturing classroom where young minds can learn in safety, teachers foster conducive environments for learning and development. As key role-models, teachers can demonstrate good character each day by:

- Presenting arguments for fairness, empathy, and tolerance

- Demonstrating enthusiasm, kindness, and humility towards others

- Creating and setting collaborative tasks that require perseverance and adaptability

- Encouraging curiosity, good sense and creativity during learning, and.

- Applying systems for self-discipline, gratitude, and initiative.

By establishing these elements in the classroom and using character building resources, teachers can help students get to know themselves better. We believe self-aware students are likely to interact with others on a more considerate and productive level, building better relationships.

The saying that 'happiness is contagious', has been proven by researchers investigating the contagiousness of smiling (Wild, Erb, Eyb, Bartels & Grodd, 2003). The higher the frequency of positive interactions, the more likely people are to feel happy, healthy, supported and uplifted by those around them. This creates a cyclical effect that can be spread throughout the class, school, and wider community, with wonderful repercussions for society.

Examples from the classroom: case studies with primary school students

Using the Amazing People Schools resource suite, students explored the challenges and achievements of Sir Isaac Newton. Then, they collaborated to vote on his top three characteristics: curiosity, enthusiasm and self-discipline.

When asked what character strengths they could identify in themselves, students listed three each to share. Initially hesitant to list characteristics they could improve upon; students quickly found the ability to self-assess.

When asked why we should develop these characteristics, one girl replied, "to make me a better person". When pressed as to why she wanted to be a better person, she responded, "I'll make people around me happier, and they will be kinder back to me".

Students were then asked if this discussion about character linked to their wellbeing lessons. All concurred. By improving character, the class agreed, they could improve their wellbeing and the wellbeing of those around them.

Considering happiness is contagious, at Amazing People Schools, we are excited to support students, teachers, and the community as they strive to overcome challenges and seek success on their own amazing journey. ★

Reference

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Dr Charles Margerison is a Psychologist and founder of Amazing People Worldwide and Amazing People Schools. Inspired when he visited the home of Shakespeare, Charles conducted a virtual interview with the Bard about his life's achievements. It is one of over 500 amazing people interviews. Charles was previously Professor of Management at universities in the UK and Australia. Amazing People Schools supports teachers and students with character education and wellbeing.

Brad Hutchins has experience in physical education, special needs, and classroom teaching, Brad has taught all ages of primary schooling in both Australia and the UK. After completing a Masters in Communications while teaching part-time, Brad now divides his schedule between educational consulting and freelance journalism.

What every school leader must know about improving staff wellbeing

The rapidly changing situation that has resulted from COVID-19 has highlighted more than ever that schools are people places.

The craziness of the 2020 school year has highlighted the importance of staff wellbeing in schools more than ever! The work of schools is important and vital. In response to the question, 'What is the most important thing in your life?' the vast majority of parents would say, their children.

For most parents, their children are more important to them than their house, their car, or anything they own, even if some of them have a funny way of showing it at times. Poor staff wellbeing may impact student wellbeing but working in schools can be challenging and stressful. So, it is vital that staff be at the top of their game if they are to meet the needs (and sometimes unrealistic demands) placed on them. Their physical, emotional, and mental wellbeing is paramount. However, it is not up to school leaders to 'fix' each staff member's wellbeing.

Here are 10 things we know about improving staff wellbeing:

- Sustained success comes through improving your school culture
- Staff also have a responsibility to manage their own wellbeing

Steve Francis,
Creator, Happy School

- Staff wellbeing is important, and it impacts on student wellbeing and success
- There are no 'magic wands' or quick fixes
- 'Bolt on' programs do not work in the long term
- The #1 factor in staff morale is leadership
- Leaders cannot please all of the staff, all of the time
- The fastest way to boost staff morale is to find out what annoys staff, fix what you can and acknowledge the rest
- The priorities are different in every school - the solution is not one-size-fits-all
- It is not 'rocket science'

What is required is a two-pronged approach. Ultimately, 'fixing' the well-being of the staff is not the principal's job. Each staff member must take responsibility for their own wellbeing, the decisions they make and putting in place practical strategies and work habits that are going to support

their own physical, emotional, and mental wellbeing. Individuals need to make informed decisions to get high levels of satisfaction from their work and the other aspects of their life. The 'all work and no play' mentality is not sustainable and has become even more apparent in 2020. However, the principal's key role is to provide a positive school culture that supports staff to do their very best work. It is vital that a school operates like a well-oiled machine. Staff need to feel supported, informed and valued. This is achieved through the three 'P': *processes*, *practices* and *people*.

An important aspect of school culture are the *processes* that operate in that school. Staff need to know what to do when they have a need, whether that need is to order more classroom resources or to seek additional support for a student.

Clear, consistent, streamlined *practices* need to be in place for keeping staff informed, proactively planning the multitude of 'events' that occur in schools, ensuring that time is used well in meetings and that email and admin tasks do not overwhelm and take away the focus on teaching and learning.

While having the right processes and practices in place are

important, ultimately they will not be effective if the *people* in leadership roles do not see that their key role is to support teachers in classrooms to do the very best job that they can. The key focus of the leadership team is to optimise all aspects of the school so that the available facilities, resources, funds, programs, and people have maximum impact on student learning. Staff who feel valued, supported, and appreciated are more likely to be engaged.

It is therefore vital that this two-pronged approach is taken to improving staff wellbeing; inform and empower staff to make informed choices about their own wellbeing, and build a positive school culture where staff can do their best work and learning is optimised.

To support schools to successfully implement practical strategies to embed a staff well-being framework I have developed a simple, step-by-step process that supports staff to take responsibility for their own well-being and guides a staff working party to reflect on the school culture that exists and look at tweaks that need to be made to ensure that staff can do their best work. ▲

Steve Francis is an expert in the complexities of leading effective schools. He works with school leadership teams and staff across Australia and New Zealand and is the author of four books as well as the creator of the Happy School program. This year Steve launched Project: Staff Well-being, which you can read more about online www.happyschool.com.au.
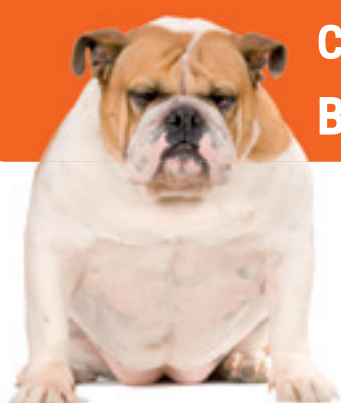
First aid for teacher wellbeing

How can you be a first responder to your wellbeing?

Educators do hours of first aid training every year, but how do we act as first-responders to our own wellbeing? I do not need to tell you that 2020 has been full of change, uncertainty, and stress for teachers. With anxiety high about personal health and demands unprecedented having to juggle remote and face-to-face learning, teachers are suffering from change fatigue and feeling overwhelmed. As if teaching was not hard enough before the global pandemic!

Now, more than ever, the wellbeing of our teachers is crucial. Not only so that we can be available to teach young people, but more importantly, so we can create an environment of safety, security, and belonging within our school communities. Students and their families often look to teachers for reassurance and guidance. For teachers to act as positive role models in these unprecedented times, having basic psychological skills to support their wellbeing may be just the thing we need.

As educators, we have all done hours of first aid training. In this training, it is common to go through the DRABC model as a framework for responding to physical incidents that may occur. This includes looking for *Danger*, checking for a *Response*, clearing the *Airway*, checking *Breathing*, and then *Circulation*. Of course, there are many variations and additions that have occurred over the years too.

What if we could use the DRABC model alongside psychological strategies to act as first-responders to our wellbeing?

These five strategies do not require time, resources, or a committee meeting. They simply require you to stop, reflect, and accept.

The DRABC of teacher wellbeing

D – Divergent thinking. There is no road map to teach during a global pandemic. Instead of looking for linear steps or

Daniela Falecki,
*Founder and Director,
Teacher Wellbeing*

specific answers, try thinking like a mind-map by looking for opportunities and possibilities There is no 'right' way. Be open and curious about new ideas and new ways of doing things. Learn, share, and listen.

R – Rest your mind. Teachers suffer from cognitive fatigue because they have to make nearly 1500 decisions a day. Taking a few minutes, every day, to rest your mind is essential. This could be in the form of a mindfulness activity, creative play, or physical exercise.

A – Awareness of self. As educators we have great awareness of others. We go above and beyond to diversify learning for students and cater to their complex needs, but we must consider our needs too. As I say many times to teachers across the world, you cannot pour from an empty cup. What do you need right now?

B – Believe you are enough. With so much change happening at a rapid pace, it is not possible to keep up all the time. You cannot rewrite an entire year or term's curriculum in one day. We often put so much pressure on ourselves to 'get everything done', but it is not realistic. There comes a time where we must trust ourselves and believe that whatever you get done on this day is enough. After all, you are a human being, not a human doing.

C – Celebrate daily. When we get caught up in the 'busy-ness' of rushing from one task to the next, we lose the connection to ourselves and to others. Stopping long enough to track

the good stuff, hear the 'thank you's, and celebrate small wins, can go a long way towards filling up our cup with a sense of meaning and purpose.

It is my hope that these strategies offer some ways to recognise just how amazing you already are, how brave you are, and how skilled you are to be able to navigate this crazy time in education. It is now time for you to be a first responder to your wellbeing.

If you would like to know more about DRABC, I have created a five-hour NESA accredited, self-paced course that you can find online at www.teacher-wellbeing.com.au. Whether you are a beginning teacher or an experienced leader, the strategies here are applicable to all, drawing on the foundations in positive psychology, cognitive behaviour therapy, acceptance commitment therapy and emotional intelligence. ▲

FIRST AID ᴛᴏ TEACHER WELLBEING

D DIVERGENT

R REST

A AWARENESS

B BELIEVE

C CELEBRATE

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Fostering self-confidence in the maths classroom

By Rosie Clarke, *Editor*

Mathematics is critical not just as a steppingstone along various STEM pathways but as part of a well-rounded education and an important rung on the financial literacy ladder.

The latest PISA results unmasked a decade of declining mathematics performance among Australian 15-year-olds and educators have been rightly concerned. New research shows that self-confidence in maths seems to degrade with age, particularly for girls. A 2019 study published in the *Frontiers in Psychology* journal tackled the issue of mathematics 'self-concept', or self-perception, among students. The three-year longitudinal study found that girls tend to have a consistently lower self-concept in maths than boys, irrespective of ability. Researchers Penelope Watson, Christine Rubie-Davies, and Kane Meissel discussed possible reasons for this, noting that social comparison and teacher expectations hold a lot of influence.

They established that learner agency can help mitigate these trends in the classroom, and positive outcomes were associated with pedagogy that prioritises collaboration over competition in the classroom; self-chosen activities, buddy systems, and mixed ability groups to help discourage social comparison, where students may otherwise compare themselves to their peers. Encouraging a supportive classroom environment is key to boosting a positive self-image in maths but the study also highlighted value in teachers having high expectations for all students, rather than reinforcing stereotypes about mathematics potential for girls or students of diverse cultural heritage.

Responding to concerns from teachers about how to help students 'catch-up' after periods of coronavirus-induced remote

Image courtesy of Maths Australia

learning, Monash University's Professor Peter Sullivan and University of Sydney's Professor Janette Bobis published a paper in *Mathematics Education Research Journal* strongly advocating for schools to focus on rebuilding classroom relationships instead.

"When face-to-face schooling resumes," following restrictions, "there is a very real risk that teachers might seek to cover content quickly and do this by offering longer and faster explanations."

However: "This is unlikely to be productive and might even have negative effects on long-term learning."

They explained: "Approaches that emphasise understanding are likely to be better for learning than rules-based approaches. It is preferable to engage students in thinking deeply about fewer topics over the rest of this year rather than

superficially about many topics."

To reverse low engagement and confidence decay among students in maths, it is vital for schools to assess their pedagogy and the culture they create in the classroom. Choose maths programs that prioritise learner agency and build confidence regardless of ability level.

One University of Queensland study, *Student (Dis)engagement in Mathematics*, collected survey data from primary-aged students (ages 8-12, n = 209) to compare those with experience in inquiry-based learning and those without. In their published findings, researchers Jill Fielding-Wells and Katie Makar noticed: "Engagement scores of students involved in inquiry indicated markedly higher interest, increased attentiveness and decreased frustration; suggesting the potential for inquiry to halt or reverse the pattern of declining interest among students."

The research suggests that developing a whole-school approach to maths education that supports real-world learning, integrates with culturally responsive pedagogy, and prioritises deeper understanding of fundamental topics rather than extensive attempts to 'catch-up' could be central to boosting maths engagement among students post-COVID.

A closer look: What do maths programme specialists suggest?

Maths Australia director Esther White discusses her recipe for effective maths pedagogy with School News…

Q: What are some key considerations for teachers selecting a maths program?

A: Understand how the program works. Find out what evidence-based methodologies underpin the program, to ensure that it

TEACHING RESOURCES

will, first, support students in fully understanding and mastering every lesson, so they do not develop gaps in their learning. Secondly, allow students to learn without feeling confused, frustrated, or inadequate. Third, develop systematic checks to identify when a student needs support. Finally, work out whether the program you are looking at will be easy to teach!

Q: What is multi-sensory mathematics and how does it benefit struggling students?

A: An evidence-based, multi-sensory approach to maths learning allows students to use all of their senses to engage with the subject matter. Concepts should be explored in ways that are kinaesthetic (hands-on), visual, auditory, and verbal (spoken or written). This approach adapts to all learning styles, so that students can understand maths in their own way of learning. A multi-sensory approach also supports maths being taught as language, in a sequential progression like the *Concrete Representational Abstract* (CRA) method. This is a three-step instructional process where students first 'do' by physically manipulating three-dimensional objects, then 'see' by drawing or visualising those objects, 'then finally 'symbolise' by communicating the maths problem in numbers. Hands-on manipulatives are the starting point for every maths concept introduced, rather than being "tacked on" as an after-thought to try to add meaning to abstract symbols or formulae.

Q: What are some tips for engaging students with different abilities and interests in a new programme?

Tip 1. Start where the student is at! Have them complete a placement test to determine where they sit in their sequential understanding of mathematics. Begin here and build on this as lack of understanding fosters boredom and disengagement.

Tip 2. Teach maths in a hands-on way and using the same multi-use manipulative so that the student can gain confidence in the tool being used and focus on understanding the maths content.

Tip 3. Teach sequentially. Maths is a sequential language that requires mastery of certain parts before being able to progress.

I encourage teachers to place value on understanding first: students need to know what '132' actually means, or what the symbols represent. Counting is the next step, being able to add by ones, 1+1=2. Fast counting comes next, where students can calculate 1+4=5, without having to finger count or count by ones. Subtraction is the inverse of addition, where students learn that since they know 1+4=5, they also know 5-4=1. Multiplication is introduced as fast addition of the same number, so 3+3+3+3=4x3=12. Then division becomes the inverse of multiplication, where 12÷4=3. The student understands each and every progression, and therefore develops confidence in mastery.

Q: How should a maths programme develop problem-solving skills and mathematical strategy?

A: Problem-solving skills are developed by integrating life questions throughout a maths program. This is developed by first ensuring that the student has the foundations necessary to be able to understand what is being asked. Taking maths off the page and into everyday life helps students to understand how maths is applicable to them and therefore why they need to be learning it. This assists with the student's natural engagement, retention, and eagerness to understand.

Time and time again, I witness teachers understanding theoretically the importance of hands-on and multisensory teaching. Yet, when it comes to maths, they often resort to using a myriad of simple tools that do not progress a student through to an understanding of maths. Others simply focus on helping students 'get the answer', so they can pass their assessment rather than extend their true depth of knowledge. When teachers implement the CRA methodology of instruction, even with very few tools, they come to understand how maths is taught as a language; progressing students from 3D understanding to mastering abstract symbols that allow them to communicate through mathematics. This approach is rich and fundamental to setting up growing minds well for a bright future. Both students and teachers are encouraged and inspired as they experience the ease of teaching maths in the way students learn. ■
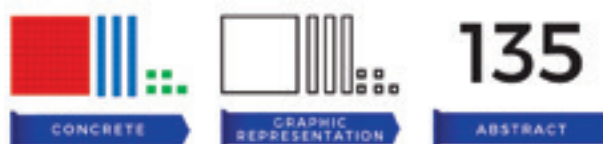
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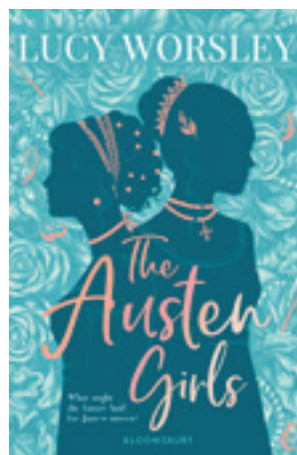
The Austen Girls

For middle-grade readers
By Lucy Worsley
Bloomsbury

Anna Austen has always been told she must marry rich. Her future depends upon it. While her dear cousin Fanny has a little more choice, she too is under pressure to find a suitor. The time will come for each of the Austen girls to become the heroines of their own stories. Will they follow in Jane's footsteps?

In this witty, sparkling novel of choices, popular historian Lucy Worsley brings the delightful life of Jane Austen to life for younger readers, from the perspective of Jane's nieces. ∎

Monstrous Devices

For middle-grade readers
By Damien Love
Bloomsbury

On a winter's day, twelve-year old Alex receives a package in the mail: an old tin robot from his grandfather. 'This one is special,' says the enclosed note, and when strange events start occurring around him, Alex suspects this small toy is more than special; it might be deadly.

With an ever-present admiration for the hidden mysteries of our world, *Monstrous Devices* plunges readers into a gripping adventure that's sure to surprise. This is a cinematic, original page-turner for fans of Indiana Jones or Alex Rider! ∎

Extraordinaries

For Young Adult readers
By TJ Klune
Hachette

In Nova City, there are extraordinary people, capable of feats that defy the imagination... But, being the most popular fanfiction writer in the Extraordinaries fandom is a superpower, right? Instead of fighting crime, Nick must contend with a new year at school, a father who doesn't trust him, and a best friend named Seth, who may or may not be the love of Nick's short, uneventful life.

Rainbow Rowell's *Fangirl* meets Brandon Sanderson's *Steelheart* in this heart-warming, laugh-out-loud LGBT #ownvoices superhero story by LAMBDA award-winning author TJ Klune. ∎
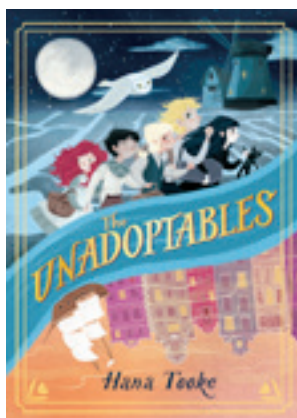
The Unadoptables

For middle-grade readers
By Hana Tooke
Penguin Random House

In all the years that Elinora Gassbeek has been matron of the Little Tulip Orphanage, not once have the Rules for Baby Abandonment been broken. Until the autumn of 1886, when five babies are left in outrageous circumstances: one in a tin toolbox, one in a coal bucket, one in a picnic hamper, one in a wheat sack, and finally, one in a coffin-shaped basket.

Equal parts adventurous and weird, this debut novel is funny and suffused with spooky gothic magic and gem-like story details that middle-grade readers will love poring over. Who doesn't like the sound of baby barn owl pets, fresh hot stroopwafels and abandoned windmills? ∎
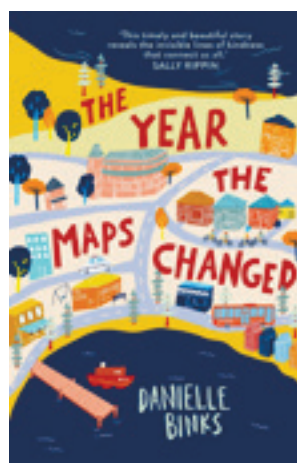
The Year the Maps Changed

For middle-grade readers
By Danielle Binks
Hachette

I was twelve when everything started and thirteen by the end. But that's another way maps lie, because it felt like the distance travelled was a whole lot further than that.

When 400 Kosovar-Albanian refugees arrive in the middle of the night to be housed at one of Australia's 'safe havens' on an isolated headland not far from Sorrento, their fate becomes intertwined with the lives of Fred and her family, as she navigates one extraordinary year that will change them all. This is a middle-grade coming-of-age story based on real events in Australia's not-too-distant past, for fans of *The Bone Sparrow*, *Wolf Hollow* and *The Thing About Jellyfish*. ∎

How Victorian College for the Deaf uses Clevertouch and ASI Solutions to enrich learning

The Victorian College for the Deaf is a specialist school that teaches the Victorian curriculum to deaf students.

Through a rich, deaf-specific educational program, the college equips deaf young people with the skills, knowledge, and experience for a prosperous future in the hearing world.

The only bilingual college of its kind in Australia, VCD focuses on developing strong communication, literacy, and numeracy skills, with AUSLAN as the instructional language and English as the language for reading, writing, and speaking.

The college has occupied the same vibrant and verdant St Kilda Road campus since it was founded in 1860. But today, it is a modern teaching establishment that utilises all that technology offers to help its hearing and deaf staff provide a safe and engaging learning environment for its 60 students.

Keeping students safe

The college, like all schools, places student safety as a top priority. They have to be able to manage potential evacuation and lockdown situations and communicate safety information. They also have to signal to students and teachers when lessons start and end. "Most schools have auditory PA systems", says Brenton Wade, the college's IT manager. "But with all students and many of the staff here being deaf, traditional PA systems, alarms and a 'school bell' don't do the job." The college was looking for a way to get important information rapidly to classrooms.

Immersive learning

VCD aims to actively engage students in lessons and make learning an immersive experience. With deaf students, all teaching is via visual media, so whiteboards, projected

> ASI supplied not just the technology, but support throughout the entire project: consultation in designing the solution; the hardware; professional development and training for our teachers; and building the solution into the school IT and teaching ecosystem.
>
> **– Brenton Wade,** *IT manager*

PowerPoint slides and worksheets are crucial. "You can never have too much whiteboard space", says college Principal Marg Tope. "But we wanted to make our teaching tools less clunky and more engaging."

The college saw ASI demonstrating Clevertouch interactive panels at an education technology conference, and knew they were just what they needed.

Brenton explains: "ASI supplied not just the technology, but support throughout the entire project: consultation in designing the solution; the hardware; professional development and training for our teachers; and building the solution into the school IT and teaching ecosystem."

The technology consists of 75 inch, 4k resolution panels, mounted on portable, height adjustable stands. Features include dual pens, connectivity to the college's network and the ability to instantly save documents to the school's Google cloud platform. The panels have 20

points of touch, which means that several students can interact with them at once.

Every teacher has their own style, and the success of technology in the classroom relies on teachers being able to adapt it to the way they teach. Based on their 35 years' experience providing technology solutions for education, ASI gave VCD's teachers the confidence that they could use the panels to complement, not dictate, their style. They provided training for the teachers, showing them how to use the panels to get the best learning outcomes.

Safety management

Safety information, such as notice of an evacuation or lockdown situation, can immediately be sent to all staff from any associated device.

Information messages

The Clevertouch panels act as a 'visual PA' system, with all panel content managed from a central point. During the pandemic, the college plays handwashing reminder

videos to the classrooms. The panels also perform the important role of 'school bell', signaling the end of lessons.

Engagement

ASI helped teachers understand how to engage students via the Clevertouch. Teachers now use the pens, for example, to create a 'vocabulary competition' with students writing their words on the panel.

Digital learning records

The panel allows teachers to take real time digital records as evidence of student work or to share with parents.

Consistent delivery

Teacher notes for PowerPoint presentations ensure all teachers deliver the same material. The panels allow the notes to be visible on the teacher's laptop, but not to the students. It is easier for teachers to use notes, improving the consistency of teaching.

A long term, fully integrated solution

ASI's technology and education experience ensures the college has a solution for the long term and which will integrate with and enhance their entire teaching program.

Next lessons

Once the teachers are comfortable with the fundamentals of using the panels, ASI will provide additional training to show them how to build more of the curriculum around the panels. They'll look at the software that comes with the panels, such as the Lynx lesson builder, and Snowflake, a teachers' community for sharing curriculum linked lessons, building bespoke quizzes and other interactive activities.

"We're just at the beginning of finding out how to be clever with Clevertouch", says Marg. ▲

CLEVERTOUCH®

Lighthouse Academy Program offer

2 Clevertouch displays

50% OFF

*Freight & Intro Training

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With this amazing offer you will also recieve

FREE Onboarding Pack & Scheduled Web-based Onboarding Program

Clevertouch Schools expectations and recquirements:

Lesson Collaboration

The Lighthouse School(s) need to attend a minimum of 3 online webinars.

Case Study

The Lighthouse School(s) will take part in a case study. Participating means the school needs to answer questions and allow pictures and videos to be used of them implementing Clevertouch technology.

Professional Development

Potentially attend PD Clevertouch Champion Sessions with our Product team.

Customer Events

The Lighthouse School(s) will be open to host 1-2 customer events with other local schools to attain and learn about Clevertouch schools throughout the school year. This can be hosted as a virtual conference call.

One size no longer fits all

By Mandy Clarke,
Industry Reporter

The basis of formal education historically started and ended with a bell and a teacher stood at a blackboard asking questions and leading discussions.

Modern classrooms have moved far beyond this: the introduction of interactive technology to the classroom unleashed the power of multimedia and forced educators to shape-shift from uniform teaching towards a variety of newfangled learning environments and immersive classroom technologies. Teachers are now facilitators and ongoing learners themselves. Interactive technology has transformed classrooms and blurred boundaries between teachers and learners.

Not too long ago, a TV on wheels plonked at the head of a whole-school assembly was considered a normal occurrence! Today, it would be strange to walk into a school that did not have interactive projectors, whiteboards, and a plethora of student-friendly devices to boot.

In 2020, we witnessed an unprecedented shift forward towards interactive technology; not just because of COVID. Vice-President of Education at Microsoft, Anthony Salcito, argues that schools are actively morphing into "learning hubs". He addressed the global education conference, Bett 2020: "When you think about the three big investments that schools make, they're constantly thinking about what's happening with instruction in the classroom, what's

Image courtesy of Viewsonic

happening with the operations of their school, and also learning beyond the classroom.

"Over the past few decades, the focus has been heavily weighted on the classroom experience. I think we will see a shift where schools will create a foundation of inclusive, flexible, data-driven buildings and spaces that will enable students to learn beyond those walls."

Yes, the surprise pandemic shines a light on how technology has and will transform teaching and learning, but interactive technologies will continue to thrive, even after the viral threat has vanished. Lockdown, school closures and the possibility of extended restrictions in the future force us to consider how vital connectivity, digital curriculum and interactive technology are...

Industry Q&A with Michael Zhang, Product Manager for Australia and New Zealand. ViewSonic.

Q. How does the use of interactive technology improve learning experiences?

A. This style of learning allows students to engage with presentations in a variety of different ways and this helps them retain more long-term information. It also offers personalisation because students are more involved in the presentation and where it is heading, therefore participating in their own learning outcomes.

It allows learning to be more fun, it's a break from routine and it is also more efficient because it provides instant interactive feedback for both teachers and learners.

It allows students to be able to vocalise their ideas more easily and this helps them to internalise the concepts, likewise they can review and summarise their own main points while completing activities, meaning less need for repetition.

Q. How can solutions be used to engage students and promote collaboration?

A. Teachers can:

- Build a scale up classroom, assign group tasks and use software to distribute lesson materials and assignments to student devices.

- Encourage group discussions, where students work together on their devices and mirror to their larger display. This allows students to share without sending files by email, wires, or USBs.

- Enhance active discussion with live annotations and whiteboarding tools.

- Present and collect feedback. Student's work can be easily and quickly shared to the main display and there are multiple methods of providing two-way feedback.

See the difference the right educational displays make

ViewSonic's on-going innovations uniquely positions the company to be both a trusted advisor and provider of cutting-edge display technology, promoting student engagement and collaboration from inside and outside the classroom.

As technology plays an ever-growing role in education, ViewSonic has committed to keeping pace with the needs of modern students, teachers, and schools. At ViewSonic we have the philosophy of "People first. Technology second." We first look to the problems face by real people and we use technology to find solutions.

A better monitor means less eye strain, better picture quality, and more accurate colours. And adding touchscreen functionality to a monitor is like a superpower. Put at the front of the classroom, a touchscreen replaces a podium while allowing lecturers to interact with both their class and lesson content on a front-of-class display. Or for educators delivering their lessons via distance learning, a touchscreen monitor at home is a smaller, more economical facsimile of the whiteboard in class.

A better classroom display makes lessons easier for teachers and learners alike.

Digital displays of all kinds allow more media in lesson materials, opening up learning opportunities to a wider range of students. Wireless presentation displays provide easy connectivity with a high-resolution LCD flat-panel display which are powerful additions to lecture halls and auditoriums.

ViewBoard fully modernises the teaching and learning experience with full interactive whiteboard functionality. A multi-touch panel allows teachers and students alike the ability to interact with teaching materials and lessons as never before.

And then to tie it all together, the myViewBoard software provides educators with a digital teaching toolkit.

As a purpose-built software ecosystem, myViewBoard perfectly complements teachers from material creation though teaching to saving lessons to share with students or peers.

Every feature of our unique software is designed for preparation, presentation, and participation. And as a hybrid learning solution, myViewBoard bridges physical and digital learning with cloud-based collaborative tools like digital whiteboarding, screen recording, easy drag-and-drop media, and always more to come.

To learn more about ViewSonic's education solutions, visit www.viewsonic.com/au. Or learn more about myViewBoard at www.myviewboard.com. ▲

Laser technology enhances learning experiences at Scotch College

By Mandy Clarke,
Industry Reporter

Trodat Trotec Group is a world leader in the field of laser technology.

As part of the group, Trotec develops, manufactures and markets laser systems for marking, cutting and engraving, as well as the engraving materials. Trotec supplied and services a *Speedy 400* laser cutter machine to one of Australia's leading schools for boys, Scotch College in Western Australia.

The Scotch College design and technology curriculum leader is Steven Scotti, he spoke to *School News* about their laser cutter machine and how it is used. He told us that his department has integrated the use of the laser cutter machine into a variety of design related subjects from Years 6 to 12, including Product Design, Materials Design, Digital Design and STEM.

The speed and accuracy of the laser

Images courtesy of Trotec Group

allows students to rapidly produce prototypes and gives them time to identify and correct errors prior to producing a final product.

"Design students need a rapid turnaround because it gives them the opportunity to test, assemble and redesign promptly. In other words, it allows our students to make mistakes and learn from them," Steven said.

As well as expediency, the laser cutter is a versatile tool for creating individual design projects, from mechanical parts and lighting design to artwork. However, the one project that really engages every student is when they are asked to design and make their own musical instrument.

Steven revealed: "When our students complete their own ukulele or cigar box guitar, we invite a musician into school to teach them to use their instrument, and finally they all work towards writing, playing and performing a song."

But, according to Steven, the laser cutter is not just for design students: "At Scotch College we have established cross curricular links with other learning areas to create entrepreneurial opportunities that prepares students for the real world."

The use of rapid prototyping technology is a key component of the design process and allows students to improve and develop their ideas and get instant feedback about their designs to achieve a better result. ▲

- Use software that has built-in tools to create polls, surveys, and quizzes along with assignments, communication, and other educational features.

- Grade instantaneously and results can be easily shared to the individual student or group.

Q. What is the difference between interactive whiteboards and projectors?

A. There is a growing array of classroom technology aimed at replacing projectors due to issues such as costly maintenance, colour degradation, lamp replacement and that is where interactive whiteboards and displays come in.

Interactive displays provide crisp, future-proof 4K resolution. The benefits of interactive displays in the classroom are the immersive, touch-based technology, digital whiteboarding software and the ability to deliver incredible interactive capabilities for 21st Century classrooms.

Q. What features should educators look for in interactive whiteboards?

A. A digital whiteboard platform that connects teaching and learning and is built upon on a technology-agnostic philosophy, allowing it to integrate easily with other ecosystems and existing platforms. The tech should bring people, technology, and tools together in your interactive space.

Choose tech that prepares your materials, adds text and graphics, drags videos, and make notes. Look for features that allow you to open from the cloud, annotate as you go, search the internet in real time, drive participation, and add pop quizzes or polls. Seek the ability to create small groups instantly, encourage multi-user participation and secure your digital whiteboard's advanced video assisted learning. Finally, it should facilitate and share content through interactive touch and wireless

Image courtesy of Viewsonic

sharing, while also promoting more engaging interactions and critical thinking.

Q. What new interactive technologies should educators be excited about?

A. Analysis tools with AI technology will help educators better understand the responses of their students. AI functionality employs a built-in sensor with USB-C connectivity. AI can sense the mood of students at any given point during a lesson to provide educators with valuable feedback on how to improve lectures. Sensors will also monitor the ambient conditions of the classroom, including temperature, humidity, lighting conditions, noise levels, and motion. I believe hybrid learning will be the future trend for education, combining face-to-face teaching with distance learning.

Final thoughts: Michael says, to adapt to the new normal for education, "we need to fulfill the needs of teachers and students during hybrid learning by helping build environments that enhance learning and achievement with real-time collaboration, so that each student is equally included and teachers can provide tailored support over a distance. ■

Tomorrow's engineers are our pandemic heroes: cutting edge tech in schools

Unrelenting and unforgiving is how the COVID-19 crisis has been described but surprising heroes have stepped up across the globe to help produce and supply protective clothing, masks, and PPE equipment using 3D, CNC routers and laser cutting equipment.

From libraries in Christchurch, New Zealand, to an inner-city school in London UK, and an Australian University; even budding engineers quarantining at home have used machines to make a difference and save lives.

Not all schools have this equipment and when they do it is usually reserved for design and technology lessons or after school craft and hobby activities. However, throughout

Images courtesy of Darkly Labs

the pandemic enterprising teachers and pupils with the means and the drive, have been making PPE for front-line staff and community groups. Likewise, libraries with the technology have been helping out by making masks for community groups and medical workers.

Not taking into consideration the lifesaving abilities of

these machines, they are an incredible addition to design and technology learning spaces. Students vastly benefit from being able to plan and design their own projects, make prototypes, and produce original, marketable products. The creative potential is limitless, and some have even been able to patent their creations! Music students can make their own

instruments, art students their own jewellery, and engineers can create unique tools that help a local community venture or business. See a need, fill a need, is the problem-solving approach these machines instil in students. They provide real world opportunities to enhance creativity and entrepreneurial skills. ▶

Images courtesy of Darkly Labs

◀ The flexibility and speed of this equipment and the variety of ways it can be used has been highlighted during the pandemic, with schools now viewing these machines as investments in their wider community.

CNC router or laser cutter: what is the difference?

Laser cutters, or engravers, were once only affordable for industry but they are now much more affordable, compact, fast and accessible. Depending on need and price-point, anyone from an 'at home hobbyist' to a design and tech department in a school or university can use laser level accuracy to cut into all sorts of materials (depending on laser power) from leather and wood to glass, plastic and even metal.

A CNC router is a machine that cuts hard materials like wood, stone, and metal; though it can also be used on softer materials like plastic and foam. The machine is controlled by a computer and users can input their designs. CNC routers do not utilise a laser and instead cut directly through the material.

Industry-makers in-the-know…

Industry supplier Stephen Heusz from Multicam talks us through all things CNC routers.

They can create a vast array of products ranging from simple cut-out shapes and engraved signage to 3D models, such as boat hulls and faces. This ability is derived from the fact that CNC routers can simultaneously move in multiple axes (planes) and can use an almost infinite range of tools and cutters. CNC routers can cut most materials available: timber, plastic, aluminium, and composite materials.

CNC routers continue to evolve, with the latest technology centering around greater flexibility and integration with other processes. Modern CNC router interfaces make controlling the machines as simple as operating a tablet device. The software used to create cutting files for the CNC routers has evolved to the point where it can automatically examine a shape or part and determine the best way to cut the job out based on the available tooling. Many modern CNC routers offer remote access, camera recognition and even remote control.

CNC routers are built with a lot of inherent safety features, but in the end, they are still mechanical devices capable of causing injury if not treated with respect. The safe use of these machines is no different to the safe use of a hand saw, drill press, lathe, or chisel. Students must always be supervised when using the CNC machine and should not be allowed to operate the machine on their own.

CNC routers should be able to have specific user levels set, thereby restricting access to more complex functions on the machine and reducing the opportunity for students to access functions or controls on which they are not trained. Basically, students need the same competency requirements that they need for using or operating any other similar equipment your facility may already has.

CNC routers are widely used in many different industry sectors. Teachers can gain a greater understanding of the construction and manufacturing process involved across industries and apply this understanding to their curriculums or projects. Skills are enhanced in design, software operation, machine operation and construction when using CNC Routers. ▶

Image courtesy of Trotec Group
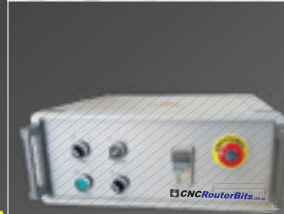

Image courtesy of Multicam

Domenic Di Giorgio from Darkly Labs also offered School News readers some advice about purchasing laser cutters for learning spaces.

When we are asked to supply a laser cutter to a school, the most important factor we consider is safety. Laser safety is paramount because lasers work by burning materials and if the machine is not of a high safety standard it poses a huge threat, not only for an environmental fire but there is also a risk to eyes and fingers of both children and educators. So, for us, the safety standard of the machine is vital.

After safety, educators should consider ease of use. Always choose a machine that is simple to use for everyone and offers a fun learning experience. The machine and software must also integrate well. For size and laser power you need to look for one that is up to the task but compact, rather than complex and industrial.

Regarding future trends, we have seen a growing market in educators wanting laser machines for textile and soft material work, there is an interesting growing demand to use them in quilt making and dressmaking. Educators are no longer thinking *we need to choose between a 3D printer, a laser cutter, or a CNC Router*, now they want to have all three machines. I predict that this trend will grow, and schools will provide all of these technologies so that students can choose which machine works best for their project.

They will think of each machine as a tool not a total solution, and this better reflects the real world.

In addition to safety and design Reece Moore, managing director of Trotec, advised schools to look for quality extraction capabilities and good after-service.

He said: "Look carefully not just at what extraction is provided with your laser but look at how the laser is designed to work with that extraction. Many lasers are just a metal box that contains a laser system inside. Look for a laser that has been correctly designed to extract air from all the most important places.

Darkly Labs supply laser cutter for popular workshops in regional Library

Darkly Labs is a company dedicated to making cutting edge technologies available to the everyday hobbyist, maker, and artisan.

Two years ago, they supplied a library in regional Victoria with one of their laser cutter machines.

School News spoke to Scott Mundell, the reading, learning and community technician in charge of the popular design workshops at Yarra Plenty Regional Library Ivanhoe Branch. He explained that they purchased one of *Darkly Labs Emblaser 2* laser cutters for use in their design and hobby workshops.

He said: "Mostly, members of public use our 3D printers, electronics, computers, and laser cutting machines to turn abstract art, jewellery and craft designs into final products during the two-hour workshops that we offer.

"Most of the participants have no design experience and we have found that the *Emblaser 2* cutter is perfect for our needs. We decided to purchase this laser cutter above other machines because of its ease-of-use, versatility and price point."

Other library users who take advantage of what the *Emblaser 2* can do include small local businesspeople who want to create a one-off prototype for their own use, or students for their school projects.

Images courtesy of Multicam

"Lasers like cars, need maintenance and servicing. Look for a laser provider that can guarantee they will be there when you need them, today tomorrow and in the future. Does your Laser supplier offer on-going training? If the teacher moves on, can your supplier offer training to the new replacement? The laser needs of a school will change with time: will your supplier still be there to assist with service, on-going maintenance, training, and future upgrades?" ■

The main materials that can be used in this laser cutter are wood and paper, and many of the creative results from the free "booked out" workshops are displayed in the library foyer

According to Scott, the service from Darkly Labs is also impressive, and the company has even partnered with the library to present some community workshops.

He said: "We are very happy with the laser cutters. Users enjoy being able to create from computer to cutter to end-product; they learn from the experience, are happy with their designs, and our IT workshops using laser cutter machines have proved very popular. We are currently having a new library built and I am excited to see its makerspace dedicated IT training area unveiled.

"The new library building will be called 'The Ivanhoe Library & Cultural Hub'. ▲
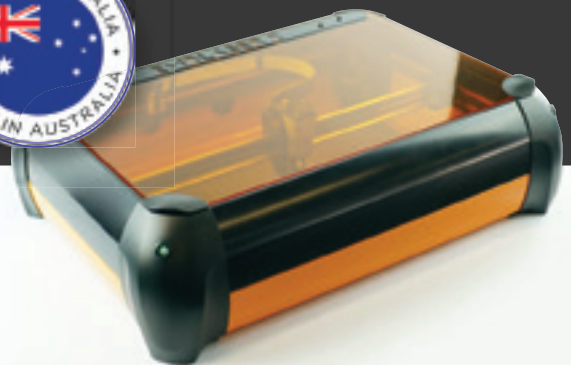
Drinking water
should be safe as houses

By Rosie Clarke, *Editor*

The duty to provide a safe supply of drinking water in your school is fundamental.

So fundamental, in fact, you might not have thought to check it too recently. But student health and wellbeing should be continually risk assessed, managed, and maintained. We tend to take access to clean drinking water for granted in this country, but contamination does happen and can have extremely serious consequences.

Your tap water supply can become contaminated after a storm, bushfire, drought, or flood, or even if your school has been closed for an extended period. Water filters should be installed to your drinking water supply to prevent bacteria like E. coli which can cause very serious illness in children and those with weaker immune systems.

Other unwanted contaminants in water include chlorine, pesticides, sulphur, rust algae, odours, asbestos, aluminium, lead and sediment and cysts such as Giardia and Cryptosporidium.

Most schools are on town water supply, but some are 'self-supplying'. In a self-supplying school, the school itself is responsible for ensuring that drinking water is safe, and that clean drinking water is freely available to staff and students. In town schools, the responsibility for provision of safe water lies with local authorities.

Schools harvesting rainwater from the roof can become contaminated by birds and animals as well as corrosive materials from flaking paint or other environmental sources. Advice on keeping the risk of contamination low includes cutting back trees from your roof, keeping your roof and guttering clean and repaired and using lead-free materials

If your school's water does

Images courtesy of Galvin Engineering

become unsafe to drink, you are required to stop people drinking it! This means taking active steps by putting up 'unfit for drinking' notices and taking immediate steps to make the water safe. This may mean contacting your local council or correcting the issue yourself if you are a self-supplying school.

Most schools have water bubblers or fountains, but this water can also become contaminated and the fountain itself can become an effective way to transmit germs and viruses. This is especially concerning post-COVID-19, which is why handsfree options are becoming more popular. Students should fill their own bottles with water and never drink directly from a tap. Of course, all units must be frequently cleaned as well.

Heavy metals can make their way

into drinking water through metal pipes corroding and building up as water sits in the pipes. To protect students and staff from higher concentrations of copper and lead, school staff should flush their drinking water outlets just before the start of each school term or after extended periods of closure.

The *Australian Drinking Water Guidelines 2011* – updated in 2017 (published by the National Health and Medical Research Council and the Natural Resource Management Ministerial Council) provide a foundation for assessing drinking water quality. It suggests a "multiple barrier approach" is used from catchment to tap, to ensure safety of the water.

Industry viewpoint

Nick Siddle

Galvin Engineering national sales and marketing manager Nick Siddle advised us that a couple of things schools can do to prevent water contamination include choosing lead-safe or lead-free plumbing products, including tapware and ensure that the tapware is self-purging

meaning water is regularly flushed through the tapset reducing water stagnation.

"When it comes to drinking water, lead-safe or lead-free materials should be prioritised, along with hands-free options to avoid cross contamination. Schools can also opt for automatic hygienic rinse options to remove stagnant water, minimising the potential for metal leaching from the plumbing system and helping to minimise bacteria growth, i.e. legionella).

"Self-closing options can reduce water wastage, i.e. push button, lever action, cam action, or electronic activation; while rubber mouthguard options are available to protect children's teeth; look for high quality AS 4020-approved products with high fungal and bacterial attack and high UV resistance."

What are the current Australian standards that schools must adhere to?

Nick advises: "For plumbing products, *WaterMark, WELS, AS/NZS 3718, AS 4020, AS 3688, AS 4032.1, AS 4032.4.*"

How can schools make sure their drinking water offering is COVID-safe?

"By choosing self-purging hands-free operated systems, timed or sensor options are more optimal, and high quality, AS 4020 approved rubber mouthguard solutions with high fungal and bacterial attack resistance. Schools may also wish to upgrade their water bubblers to bottle filler style units." ■

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No such thing as a healthy tan:
Shade structures for schools

By Mandy Clarke,
Industry Reporter

Australia has one of the highest rates of skin cancer in the world.

This message is not new: horrifically, one in three Australians develop some form of skin cancer before age 70. Getting scorched in childhood (even once or twice) can significantly increase the risk of skin cancer in later life and this makes the provision of sun protection vital for children in Australian schools.

The Royal Children's Hospital Melbourne's health advice states: "Ultraviolet (UV) radiation from the sun can cause sunburn, skin damage, eye damage and skin cancer. UV damage accumulated during childhood and adolescence is strongly associated with an increased risk of skin cancer later in life."

Image courtesy of Spantech

Skin cancer is one of the most preventable cancers and so by protecting your students from the sun and modelling good sun protection habits, alongside providing plenty of shade you are investing in their long-term health. UV can damage skin even when it is cloudy and overcast, which is why it is important not to rely on temperature to decide whether sun protection is needed.

It is easy for students to forget that UV rays can make their way through cloud and can even be stronger because of the reflection factor. Despite schools imposing rigid hat rules, studies do show that older children are more prone to removing their hats and therefore putting themselves at a high risk of sun damage and cancer.

Schools can help reduce this risk by providing a system of both natural (trees) and shade installations around the property so that students can both seek shade and be shaded as they walk from class to class or participate in outdoor activities such as swimming and sport.

Assess your property and create a shade plan. Trees, bushes and overhangs may already provide welcome shade, but a variety of other installations may be required to block the sun, especially at the most dangerous time of day and don't forget it will also cool the space. Sails and canopies can provide easy and fun solutions

when creating additional protected outdoor space, especially outside classrooms. Umbrellas are a cheap quick and easy portable solution for occasional events, perhaps afternoon tea with parents? But they are not an effective long-term solution.

Shade structures make avoiding the sun a no-brainer for students

We asked industry expert, Spantech's Craig Lucas some questions about installing shade structures on school grounds.

Q: Are there pros and cons to different types of shading? I.e. canopies, shade sails, umbrellas, natural shading like trees, etc.

A: "I love that you have mentioned trees. Many schools forget the benefits of natural shade.

"But it takes time for trees to establish and the type and placement of trees needs to be carefully considered in the master plan. The wrong type of tree or poorly placed trees can be an expensive liability. It is also worth noting that a build-up of leaves or sap from some gums and pines can void the
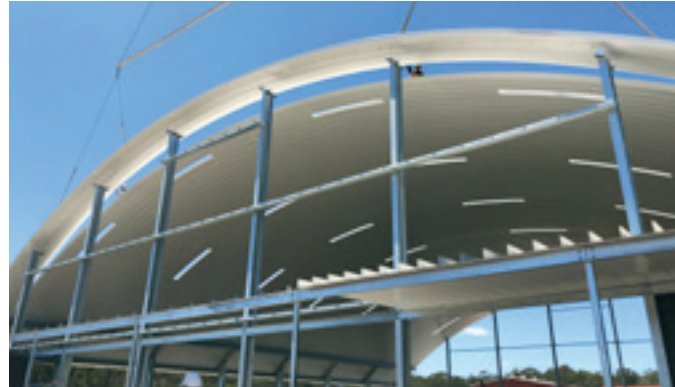
warranty of many roofing and a shade sail material. My advice is to keep trees and shade structures 'socially distanced'.

"I think that after trees, a metal roofed shade structure offers the best value for money and longevity. If well planned and designed, some larger shade structures can be designed to be fully enclosed as the school grows and funds become available.

"For example, some schools have constructed shade structures over one or two basketball courts, then enclosed them to create a complete indoor sports complex. This gives the school excellent facilities in the short-term while future proofing the structures or the long term.

"For any school considering

building a shade structure that could be enclosed in future, discuss all the options with the design team at the inception of the project to ensure the engineering design is suitable to be enclosed. The size of footings and structural supports may need to be increased slightly.

"If this is an option, the school should ensure the roofing system they select works initially as an open structure, with no places for birds and vermin to or nest, has natural light and good ventilation. Enclosure should be possible without reworking the major structural elements of the building. The roof should be able to be thermally and acoustically insulated. The roof and structure must be able to support fixtures such as sports equipment (i.e.

basketball backboards), air conditioning, and lights."

Q: Are there any school-specific standards or regulations you are aware of that schools need to know about?

A: "Queensland's Department of Education published a comprehensive standard for buildings, including shade structures, which schools can find online."

Q: Have you completed any exciting installations lately?

A: "St Joseph's Catholic College, in Coomera, added two separate covered multipurpose sports courts to their new green field school. They used a deep profile metal roofing system due to the distinctive design; the main office and library separates the two partially enclosed sports shade structures.

"Livingstone Christian College, in Pimpama, used a curved free-spanning metal roof to cover two basketball courts. The shade structure was partially enclosed on two sides to protect against the prevailing weather, and this design allows for the structure to be fully enclosed in the future." ∎

By Mandy Clarke,
Industry Reporter

In an ideal world, cars and schools would not mix and 'free range' kids could stroll or cycle to school every day, reaping the health and environmental benefits.

School migration might help slow rising obesity levels and improve independence skills; but it is never going to be possible 100 percent of the time, for all families, and increasing foot traffic around school carparks poses a few of its own dangers.

Sorry to bring up the dreaded c-word, but because of COVID-19 restrictions, the number of cars rolling in and out of your school may even increase. As we continue to navigate this global pandemic, social distancing will continue to come in waves, as we are currently seeing across NSW, Victoria (and possibly now QLD). Parental anxieties may increase to the point that they feel more comfortable dropping their kids to the school gate rather than allowing them to use a crowded bus or walk with a group of friends.

At peak parking times, dangers around the school site and parking areas can escalate quickly, with tens to hundreds of stressed adults, cars and children thrown together, vying for a park, or weaving through a pick-up zone. It really is a melting pot for potential disasters. However, risks can be managed with simple planning and easy-to-introduce measures.

Distracted drivers, cyclists, pedestrians, or children. The school run is the perfect time to become distracted because so much is going on. Studies also

School parking pitfalls:

Is the run, walk, or roll to your school stressful?

show drivers are more likely to use their phone while driving through a car park or waiting in traffic. On top of this, during hectic times (like pre-Christmas), drivers and pedestrians are in a rush and less careful on the road.

Victoria's new Transport Accident Commission (TAC) road safety campaign states: "Keeping your eyes on the road is essential for safe driving. But when you look at your phone, you're oblivious to what's around you. In fact, at 50km per hour, even a two-second glance at your phone means you'll travel up to 28m blind. What will you miss?"

De-escalate distractions. Have well-planned and clearly marked traffic flow with lanes in and out of your school property. Warning signs can help, as can well-designed walkways to deter students from wandering into roads and carparks. Use signs to check bad behaviours and to remind drivers, pedestrians, and cyclists to 'Think', 'Be Aware' and 'Look Out' for dangers. Bollards and barriers can also be used to direct cars and block off areas to decrease risks to pedestrians.

The NSW Government introduced a *Safer Behaviour* campaign, to engage the whole community and help change unsafe behaviour on the roads. A variety of education and awareness campaigns are aimed at all drivers, bicycle riders

and pedestrians to encourage everyone to respect each other's space and stay safe.

Ease congestion. At high-use times you might consider introducing slightly staggered pick up times for varied year groups. Have cycle lanes, walking paths and bus parking zones.

Improve visibility. Parking areas are riskier than you think especially when visibility is poor and congestion is bad, do you have well signed lanes and prevent cars from cutting across parks? Use a one-way system alongside 'STOP' and 'No-Parking' signs, plus reminders to be mindful of other vehicles, pedestrians and aware of small children and parents with baby strollers using the area.

Speed reduction. Research shows that driving below the speed limit and tough weather conditions reduces death and trauma on roads. The Queensland Government's *StreetSmart* emphasises that 50 percent of speeding crashes happen at just 1-10km/h over the speed limit. A small decrease in average speed, could make a big difference so it is vital that drivers in and around your school property slow down to a snail's pace.

Speed bumps. The sole aim of speed bumps is to slow down cars and traffic, installing speeds bumps can slow cars down up to about 8kmph going over the humps and about 30kmph between humps depending on the distance between each.
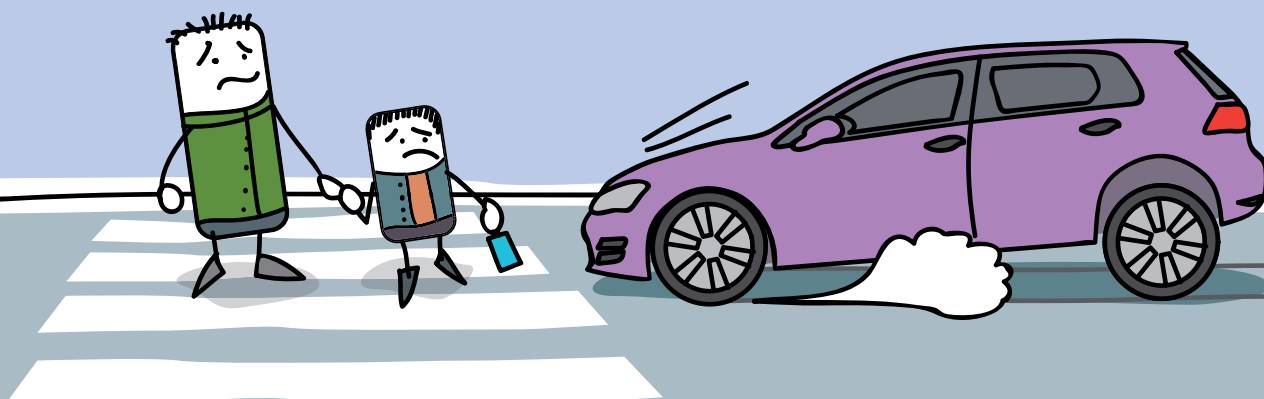
Slower speed means drivers have more time to spot hazards and react accordingly to prevent any accidents or collisions.

Of course, even at slow speeds, there is a chance that accidents can still happen, but speed bumps reduce braking distance and reduce energy transfer upon impact and this will greatly reduce the risk and damage to any person or vehicle involved. Speed bumps can be sourced in a variety of heights to minimise inconvenience to drivers and you can even get portable speed bumps, these are easy to install and remove and could offer the most flexible solution to your needs.

Repairs. Maintain and update your property and repair potholes or cracks in pavements and roads, keep your grounds clear of debris, improve lighting, and beware of any surface that is prone to developing puddles, snow, and ice. Remember that slips, trips, and falls are also common accidents in car parks.

Expand or re-vamp your parking. Decide on the minimum number of parking spaces you need and check with your local council for specific requirements relating to your school size and zone. Make sure you provide sufficient parking for people with disabilities and if your school roll has grown make sure you also have funding to provide new car park spaces.

Develop your own car parking policy. It is recommended that you develop a parking policy about the use of car parks on your school site. You should have a sound management strategy in place, not only for the school run but also for visitor parking, staff parking and student parking. Likewise, have a policy for managing special events like school fairs and work towards effective management of these problems, solutions may include encouraging people to walk to school, carpool, use public transport or introduce a park and ride system. Some electronic management systems can even provide live updates on your school website about how many spaces are available, or how congested the school gates have become. ∎

Control the drop off

Dropping children off at school especially now, where with Covid -19 parents are not allowed access to the school has presented new challenges on how and where the drop off and pick up points are.

Carpark directional signage is now more important than ever.

Access by visitors or parents to staff only carparks, or vehicles entering school grounds where pedestrians are walking has seen some serious or close call incidents happen, where with the appropriate signage this can all be avoided. Signpac have been custom making drop off and pick up zone fence banners or more permanent signs, with times these zones are in use for more than 25 years, has seen a more orderly and safe experience for the parents, students and the teachers on carpark duty.

Signpac supply schools with digital signs at the entrance to the school, with messages to parents, set for specific times of the day relating to school safety at drop off and pick up times.

Schools should be ensuring that their school is Seen & Safe with regulation signs at key points all around the school grounds. We offer a no obligation site assessment or phone consultation with a School Sign assure specialist to make sure that their school is Seen & Safe. ▲

Image courtesy of Duracube

Scrubbing up
on school washroom needs

By Rosie Clarke, *Editor*

At this stage in the game, if you don't have some form of germaphobia, you're probably doing something wrong.

When the federal government moved to re-open schools, teachers were rightly concerned they were being put at risk. While the rest of the country is still social distancing, teachers are expected to be in a confined space for much of the day with 30 children and teenagers. I scrolled over a meme this week that said, 'anyone who thinks kids aren't going to run around the playground chasing each other with licked hands, yelling "corona!" has never met a kid'.

Pre-COVID, maintaining high standards of cleanliness in school was never easy but it also was not *life threatening*. Now, COVID-19 is part of our daily consciousness; hygiene and disinfection is a matter of life or death and if cleaning standards fall below hospital grade, we are at risk of an outbreak. Just this week, as I write, a Brisbane school has been shut down because a cleaner tested positive for COVID-19.

One of the main things we have learned from this pandemic is just how many people do not wash their hands properly, or at all. Not washing hands after using the toilet is the easiest way to pass on a virus and a quick flick of fingertips under a tap is a common habit for kids, no matter how much time you spend teaching them to wash properly or how many WASH YOUR HANDS signs you put up.

To reduce risk there are some basic things you can do though: assess washroom facility design, review your cleaning protocol, re-train staff and students, and supply plenty of COVID-19 killing disinfectant, soap and hand sanitiser. For younger children, turning it into a game may help, while washroom monitors might be necessary to make sure older students are sanitising their hands as they exit the facilities.

The very best line of defence is to wash hands frequently with soap and water for at least 20-30 seconds and this should be a ritual and routine to children. When teaching good hand washing techniques UNICEF suggests an easy way to time it with children is to sing the full happy birthday song, twice.

Remember that soap and water are always best, so make sure that your washrooms and sink areas always have a plentiful supply of soap, running water and fresh towels, a dispenser or hand dryer. Also note that cold water and warm water are equally effective at killing germs and viruses if soap and water are used, and hands are properly washed.

HEALTH & SAFETY

Image courtesy of Duracube

Ask yourself whether there could be another way to prevent cross infection.

You could try increasing cleaning maintenance in high touch areas, adding more hand sanitiser units around the school, replacing bins and emptying them more regularly, and upgrading washroom facilities altogether. Replacing absorbent flooring and automating high-touch features go a long way. Appliances like auto flushing toilets, auto handwashing units, taps, dispensers, dryers, and even doors would be very beneficial going forward.

"Wash, wash, wash your hands." What do the washroom experts suggest?

Duracube Sales Manager, Harry Simpson, said there are two important factors to consider in a washroom design:

1. **Minimise porous surfaces where bacteria can infiltrate and breed.** In traditional bathrooms, cement-based tile grouting and particle board is used, which is notoriously hard to clean and harbours germs. Using antibacterial 13mm compact laminate surfaces is the perfect way to overcome this, especially where timber substrates are not required for support.

2. **Reduce touch points for bathroom users to minimise opportunities for bacteria to spread.** When redesigning facilities, doorless entries are ideal for overcoming the bacteria spread on entry/exit touch points. Exit touch points are the most obvious concern after a child's hands have been washed. Touch-free dispensers can also help with this, and where a redesign is not viable, installing a hand sanitiser station outside the bathroom block will help reduce germs entering the bathroom and going back to the classroom.

Electronic, hands-free soap and paper towel dispensers, along with hands-free hand dryers and tap sets are all good way to further reduce surface touching.

However, school students are often carrying personal items into the bathroom, so they need a clean, antibacterial surface to temporarily store these items when washing their hands.

An antibacterial 13mm compact laminate vanity bench, or antibacterial 13mm compact laminate lockers outside the bathrooms can solve this problem and will reduce hygiene risks when students carry their belongings back to the classroom.

A successful way to achieve the balance between student privacy and safety supervision is to create bathrooms with full-height toilet cubicles but ensure the handwashing areas are fully visible to teachers and staff from outside the bathrooms.

Schools should aim to make sure their chosen cubicle systems:

• Are designed to maximise privacy with little or no gaps under panels. They have an option to include privacy rebated edge on the doors to eliminate the common gap between the doors.

• Have nibs and divisional panels fixed directly to the floor and ceiling.

• Include gravity hinges which means that allow the doors to be lifted from the hinge, making emergency access possible for adults. This saves dismantling the entire cubicle or cutting any locks to access students inside.

Keeping maintenance and cleaning regular in school bathrooms will also promote an atmosphere of care and responsibility.

Custom graphics can be printed on cubicles to make them more attractive to students and encourage them to respect these spaces and keep them clean. ■

Communicate better
with IP audio and PA systems

By Mandy Clarke,
Industry Reporter

Student safety and wellbeing is, and always will be, top priority for an educator.

Working within a budget to risk assess and prioritise tasks around a school, with as much foresight as possible, is a responsibility that we all recognise and no-one takes lightly. However, none of us could have predicted the 2020 pandemic. To hasten the safe return of students to classrooms, certain tasks skipped to the top of the collective to-do list…

Budgets have been squeezed, cleaning intensified, and signage and communications system upgrades have become more vital than ever.

Emergency warnings, pre-recorded announcements, alarms, and lockdown drills are obviously vital to bolster safety during threats like fires and intruders. Until now, we all massively under-estimated the importance of fast, clear, and consistent communication across a school environment in the event of a pandemic.

When it comes to an effective communication system, broadly speaking, you have a choice between traditional amplifiers and speakers or an 'IP audio' or network-based system. Public address systems traditionally consist of input sources (e.g. microphones), amplifiers, control and monitoring equipment, and speakers all linked by cabling. IP audio sends sound over the internet or a network. Using your existing network is a very convenient and cost-effective way to broadcast a bell sound, an announcement, breaking news, COVID-19 update, or other alert.

School News consulted an array of industry experts to find out more about IP audio and PA solutions and systems of the future.

Images courtesy of Audio Brands Australia

Jonathan Neil, CEO of Edwards Sound Systems, explains how IP audio solutions can be used to augment existing school systems:

If you already have speakers and the existing system is reasonably reliable you can use IP technology to add or link extra zones, or other features to the existing system. The cost of implementing an IP-based audio system (or a 'hybrid' combination) might rival or even slightly exceed an analogue system but this is negated when you decide to add a new block, a new room, or want to change a zone.

It is software-based so you can almost drag and drop the new configuration on the fly, instantly editing it.

In emergencies, alerts can be sounded by a button on the wall, microphone console, or a wireless remote.

Alarm messages can also be triggered by external fire or burglar alerts. If a person is detected entering a restricted area the IP audio system can warn staff about unauthorised access.

Not just for emergencies: An IP-based audio system allows you to communicate everyday communication from a central area to individual classrooms, groups of rooms or to the whole school. You can send pre-recorded content, like wet lunch or lunch order reminders, change your old bell to the school song, or start a school radio station and broadcast that during pre-programmed hours.

Both one-way and two-way systems are available and two-way systems can operate like an intercom.

Future-focused: There will be ongoing integration with smartphone control, interfacing with access control systems. Remote management and support are already there.

Portable PAs: A good quality portable (battery powered) PA sound system is perfect for indoor and outdoor speech or music use, sports, pool areas, meetings, school fields and assemblies.

The built-in battery can cover more than 2000m2 and you can add extension speakers to extend coverage.

Warning! Make sure someone is responsible for keeping these charged up between usage as there is nothing more annoying for the user, and it also damages the built-in batteries if they are stored flat. ▶

It is to make use of the school's current network to enable paging to each area of the school that needs to be addressed, or to hear school bells or emergency messages/announcements. As schools typically have a network point in every room, IP-based systems greatly save on installation costs as the cabling to each area is already there. An IP Paging system can therefore be scaled to suit the exact needs of the school.

It is important to find a system that is an end to end solution, where the front office staff can make all the changes needed. For example, to change the bell schedule, remove rooms from bells and paging during exams, be able to change the bell sound to music for special days or emergencies. All this functionality should be available to the front office staff without needing to bring the installer and programming team back.

Here is good example of the system working well in an

Image courtesy of Altronics

emergency... A primary school teacher notices a person entering the school during lunchtime carrying what they think could be a concealed weapon. The teacher presses an emergency button

causing a calm piece of music known as the 'lockdown song' to play throughout the school. Students and staff recognise the music (from prior training) and quickly return to their classrooms,

locking the doors. On hearing the song, the principal looks out of his window, sees the man sitting on a seat under a tree. Meanwhile, the lockdown song continues to play while students

and staff remain safely locked in their rooms. The police arrive and deal with the unauthorised visitor. Once the school is deemed to be safe again, the principal presses a button on his smartphone that stops the lockdown music and plays a pre-recorded message advising students and teachers that the school is now all-clear and that they are free to return to what they were doing.

The control of select functions from a smart phone is secure, and with a password the principal and senior staff can activate certain functions. Campus security threats are always changing, so the systems need to be able to change with them and this is a key advantage of IP-based systems, where new requirements are typically a software update rather than new hardware. They can be tailored to the school's emergency procedure(s), which are:

- Easy to use by non-technical users in times of duress
- Can interface with digital signage to provide supplementary visual information and to inform hearing impaired people

Don McConnell, Director of Audio Brands Australia says that portable PAs start with a simple classroom device that can sit on a desk or a stand or be wall mounted:

With a head-worn, handheld or clip-on microphone, the teacher can be heard clearly, which both makes it easier for the students to listen and concentrate, and also prevents the teachers voice from being strained in larger or noisy rooms.

Lightweight shoulder-strap systems are also available for playground duty or pick-up lines. Perfect for addressing a small group of people while on the move. Larger systems normally used on a stand are perfect for assemblies, presentation days and sporting events. These can support one or more wireless microphones and have Bluetooth streaming so the teacher can play music through the system from the phone or tablet.

When looking for a Portable PA, it is important to select an all-in-one system designed for schools. These sorts of systems have integrated rechargeable batteries and support multiple

Image courtesy of Altronics

wireless microphones without having to buy external hardware and cabling.

A PA system needs to be reliable and easy to use, so ask other schools for recommendations, or talk to dedicated school AV and PA suppliers about what brand and model suits your requirements. ▶

Images courtesy of Edwards Sound Systems

◀ *Ben Lowe from Altronics told us about PA solutions, noting that schools often require a variety of PA solutions to fit different uses:*

Including those for protecting the safety of students and staff on the school campus. Multi-zone paging is an essential requirement, allowing centralised distribution of important day-to-day messages around the school and within classrooms.

Paging systems are available with up to 32 zones, multiple paging consoles allow staff flexibility of paging from different offices if required.

A separate evacuation system complements the paging communication system, which provides fire, evacuation, alert, and lockdown messaging with Australian Standard tones.

A dedicated lockdown controller is an important piece of the PA system puzzle for schools; these events require students and staff to remain within the confines of the school rather than be evacuated due to a threat or violent intruder, siege, hostage incident, robbery or severe storm. Every school should be fitted with appropriate lockdown controls and PA systems to ensure student safety. Having a system with many control points is important, particularly on large campuses.

A PA system should be integrated to provide communications from multiple points, whether it be voice or by alarm control signals from remote control plates. A classroom can be fitted with remote lockdown and alert/ evac triggers so that trained staff can issue a school wide notification if required.

Automated device control is becoming a trend in commercial environments and is now starting to emerge in the education sector. This typically comes in the form of a touchscreen control wallplate within the classroom, gymnasium, or assembly area.

These wallplates can be programmed to activate equipment, select required AV sources, and play back media at a single button press. These products use a mix of serial and infra-red control to bring together a host of audio and video equipment into a single touch-controlled interface.

We expect that more centralised control of PA, alert and AV system functions will come as automate control systems start to roll out in the education system. This will offer true multi-zone capability in every classroom providing better communication to staff and students and make it easier to operate equipment – which means more time spent teaching!

Portable PA systems are an ideal complement to any school PA system. They offer the flexibility for instant set up for small and medium sized events. Some models can even be used in a network fashion using multiple PA systems to provide coverage for large outdoor events such as sports carnivals.

Schools should seek to find a reputable supplier of PA units and demonstrate the models on offer for sound quality and features. Speech clarity should be the focus for schools who seek to use portable PA's for assemblies, music, and choir vocalists.

Schools have many needs when it comes to portable audio including student instruction of physical education classes, meetings of parent representative groups and teacher training days.

A robust portable audio solution which includes features such as Bluetooth audio streaming and multi-channel wireless microphones can fill the gap where large scale PA systems are less flexible. ∎

A principal looks out of his window and sees the man sitting on a seat under a tree: the lockdown song plays while students and staff remain safely locked in their rooms and police deal with the intruder

Investing in play
as well as play equipment

Images courtesy of Jeavons Landscape Architects

By Mary Jeavons ,
Founding Director,
Jeavons Landscape Architects

Photography by Andrew Lloyd

When you think about outdoor play at school, is play equipment the first thing that comes to mind?

This article encourages schools to invest wisely in play equipment, with carefully thought out opportunities, well suited to the needs of particular users. Schools can deliver considerable extra value by taking time to plan where the equipment is located, what is adjacent to it, and how it contributes to the school's overall set of outdoor opportunities for play and learning.

Master planning and how equipment fits into a bigger whole

Before diving deeper into the topic of play equipment, ponder for a moment the other qualities offered on your school grounds.

Every school has students with a wide range of age-related interests, capabilities, and needs. School outdoor environments need to offer opportunities for students to explore and engage with nature and living things; to extend their imagination and develop social skills through pretend play and gatherings, to engage their senses and creativity, and to test physical skills in a variety of ways such as ball games, climbing and agility, balance and overall fitness.

A *Landscape Master Plan* for a school ensures that the play equipment is just one of many considerations. Planning positions 'big ticket' items like courts, play equipment, and shelters in the right place.

Planning also helps align the philosophy of the school with the qualities of the school grounds and ensures that more vulnerable spaces and activities can flourish. Students, staff, and families derive much of their wellbeing from a high quality, welcoming outdoor environment, and schools are increasingly using the outdoors for teaching and learning.

The relationships between each of these spaces, and with the overall layout of buildings, doors, and paths really matters.

Engaging children in the planning is essential.

A *Landscape Master Plan* is the best way to optimise every corner of the grounds.

Now back to that play equipment... ▶

Images courtesy of Jeavons Landscape Architects

◀ Purchasing play equipment

This should not just be a random selection of catalogue items with bright colours.

Equipment makes a major contribution to children's strength, agility, balance, overall fitness, sensory awareness, skill development and mastery. It is also important for social interaction and supports a range of play behaviours, including pretend play. It can include children with a range of disabilities and can be a great focal point in a new school. But play equipment can only do this if it is:

- fit for purpose, and
- positioned with the best connections to adjacent landscape features.

Reduce injuries and enhance play value with the following ideas:

Ergonomic use for intended age group

Forget one-size-fits-all. The size of children varies significantly between Prep and Year 6 or older. The lack of small-scale equipment contributes to injuries where younger children have to use equipment unsuited

to their body size, grip strength, and play interests. Schools need at least two, preferably three, gradations of height (in upper body equipment, especially) to develop the skills needed to deal with higher, more challenging equipment.

Tease out fast and slow activities

Design carefully to minimise conflicts between activities such as agility (turnover bars, horizontal ladders, balancing) and chasey/ games (fast moving) and aim to protect cubby play areas underneath from all of these.

Ground level

Cubbies housed underneath

higher, larger decks (1800mm2) can be large enough for wheelchair users and offer better play value than tiny decks.

Progressive challenges should enable use, rather than prohibit use. So, allow for choices by including multiple ways to access a slide, with extra challenge available as an option for when children are ready.

Anticipate crowding

Design a few routes through structures; some fast, some slow, to avoid children pushing each other off equipment. Add longer landing decks for popular items; and add more activities to designs for more crowded schools.

Positioning

Schools derive better value from play equipment when it is carefully positioned to connect roleplay or pretend play elements to items in the surroundings (such as trees and logs) while avoiding conflicts. For example, sand play does not benefit from a noisy chasey game on equipment, or a ball game passing through, but a protected underdeck cubby facing a sand pit can work very well.

In summary

Every element within a school ground, whether it is a bike shed, oval, forest, ball court or a sand pit, has particular design criteria that, like play equipment, need attention on two levels. Having a good and detailed design makes sure your plan is fit for purpose, and the 'big picture' will ensure it is well located within your school.

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***Mary Jeavons** is the Founding Director of Jeavons Landscape Architects and believes people of all ages and abilities should have access to engaging and quality outdoor landscapes. Find out more online at www.jeavons.net.au.*

Work smart, play smart

By Rosie Clarke, *Editor*

Equipping students for the future is a bit more fun when it involves playground design.

Children learn through play, so you should take as much care planning their play space as you would their classroom or curriculum. Investigating innovations across the playground sector, *School News* spoke with three playground specialists who supply play and fitness equipment to schools to uncover their perspectives on the latest and greatest new designs.

"People do not take play as seriously as it should be taken," said playground consultant John Kelsey from Adventure+. "It is easy to view play as something to entertain children before serious learning begins, but play has a vital role in children's development."

Alternately, a_space managing director Dean Joel argued that teachers and parents do take playground design very seriously as part of a learning environment. He said: "I find that, in many schools, they are passionate about providing great play spaces to help children learn, socialise and develop. The positive biproduct of effective design is enhanced physical activity. I feel that with the disturbing decline in physical activity across our community, playgrounds in schools need to encourage and promote opportunities for children to build their strength and fitness."

Managing director at AustekPlay, Glenn Williams, confirmed that "a well-designed playground will motivate children to actively engage with their peers while developing physical, social, and emotional skills". He listed skills children can learn in a playground setting, such as risk assessment, negotiation, language and sharing, self-confidence and teamwork. He pinpointed customisable obstacle courses as particularly

Image courtesy of a_space

beneficial for learning. "Students will be physically challenged as they navigate through the obstacles, specifically designed to improve upper and lower body strength, dexterity, balance, and coordination. Besides all the physical and psychological benefits that fun outdoor exercise brings, the challenging aspect of obstacles encourages perseverance to practice and improve students' abilities in getting through the course – a valuable life lesson!"

Design trends for smarter play

"To promote increased physical activity, designs have moved toward is the creation of circuits that have a clear path with a mix of challenging obstacles," Joel revealed. "These circuits can emulate a child's fascination with television shows like *Ninja*

Warrior where participants strive to complete the range of activities in the playground effectively. Once they have mastered the activities, it becomes about navigating the circuit as quickly as possible.

"Another growing design trend is the adoption of innovative play nets that provide less prescribed paths of play and instead promote experimentation and creativity of movement. Larger net structures house horizontal cargo nets at different heights that also serve as great places to hangout and socialise."

For Kelsey, "Some of the most exciting school playground designs today are created on a theme that represents a style or heritage. Themed equipment provides a massive opportunity for imaginative and creative play, as well as active play, which is

engaging for younger children. In the same vein, customised playgrounds that reflect things like school colours or have the logo incorporated into the design are becoming more popular.

He added: "Ninja courses are an exciting development as they comprise a range of challenging activities that are fun, but also provide much needed physical development."

"The question is, how do we maximise developmental learning and engagement with a playground upgrade? It is the little things that matter: how age-appropriate is the design? What is the sizing of components? Has traffic flow been considered?"

For Williams, inclusive playground designs are a vital consideration: "As a father of children with special needs, I am passionate about creating inclusive play spaces that can be enjoyed by all members of society. I was also fortunate enough to participate within the advisory group in the formulation of the 'Everyone Can Play' guidelines for creating inclusive spaces by the NSW Government. It is exciting to see the passion within our industry for creating inclusive play spaces within our schools and communities.

"There is no one-size-fits-all playground ideal for all ages. In general terms, playground equipment for younger age groups should have a greater emphasis on imaginative play with a lower risk level that also requires a lesser degree of strength, agility and gross motor skills. As the user age group increases, there should be a greater focus on providing challenging equipment that promotes the furthering of risk assessment skills, strength, and agility."

Joel elaborated on different playground designs for different age groups: "Activity panels and sensory items combined with lower climbing, scaling and sliding items are valuable for the development of younger children. ▶

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For older children between 7 and 12, climbing, scaling and sliding remain key elements but at greater heights to build challenge and excitement."

Installation process and for playground upgrades

Installing custom playground designs should begin with a thorough preparatory process, according to Williams. He said:

"Ask the following questions to gain a better understanding: number of users and age range; site-specific details including measurements and gradient, orientation and accessibility to the site; desired functional outcome for the playground; acceptable risk and diversity of equipment in terms of existing and planned infrastructure; type of materials for both equipment and softfall."

In terms of upkeep, Kelsey stressed: "The typical life cycle of a playground is around 15 years but does depend on the location and use. Schools need to consider replacing old equipment, once the cost of repairs become unviable. A playground consultant can come to site to help assess this. It is important that your playground is compliant to the current standards, which is something a playground auditor can help with."

"The installation process varies among providers in the industry," Joel confirmed. "To work closely with schools and develop tailored designs, you have to consider the area available, the age of students, any special needs requirements, colour preferences and budget."

Kelsey noted: "A playground does take up more space than you think. This is because every playground must comply with the Australian Standards and Education Department Standards – the size of the equipment, plus the impact area around the playground. At a minimum you need at least 50m2. Freestanding equipment, like a monkey bar, would take less space than this. The advantage of partnering with a playground company that customises is that they can design something to suit a small budget and still comply with all relevant Standards."

Budget and cost considerations

"Playground budgets vary," according to Williams, "usually from the range of $30,000 to $250,000 but the price heavily depends on the scope of works required to build the new play space as well as the desired size of the playground. Typically, a playground project with a larger budget would allow for more variety, a larger number of users and use of different materials, such as timber, which may suit a nature-themed playground."

For Joel, "Size and budget variants are infinite with smaller playgrounds starting at around $15,000 going up to mega playgrounds of more than $150,000. The process of installation and associated site works can range from a day to a month. The average project size we work on is generally completed within a week. The typical budget for a school playground is around $30,000 to $60,000, but some schools spend over $100,000. In selecting a company to deliver projects, it's always valuable to look at their past school projects and speak with those schools to ascertain their level of satisfaction.

Kelsey added: "Budget has the greatest impact on size. A smaller budget means a smaller playground with fewer play activities than and a large budget playground. Skilled designers can achieve excellent results even with restricted budgets, but clearly the best outcomes will be achieved by committing appropriate funds.

"A large budget will allow for something more iconic, a spread-out playground spanning up to 20m wide or a tower up to 6m tall!" ∎

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