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TECHNOLOGY + INNOVATION ACHIEVEMENT AWARDS

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Technology & Innovation Awards 2015: meet the winners

FROM THE PUBLISHERS OF teach SECONDARY

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Welcome...

... to this issue of Technology & Innovation magazine.

Now, I'll admit that I cannot back this up with solid research, but I have a strong suspicion that the Venn diagram of 'ways to describe people that begin with the letter T' would feature a pretty fat ellipse where the circles for 'teachers' and 'technophiles' overlap. Part of it, perhaps, is based on the fact that I've yet to meet anyone working in education who doesn't love learning as much as teaching – and the ever-changing landscape of new technologies certainly offers endless opportunities for exploration and discovery; everyone's a pioneer, and for once, we really are in it together.

Then, of course, there's the question of facilitation. Great teachers are always looking for ways to save time and energy spent on mundane, routine – but necessary – tasks both for them and their students, in order to free up as much space as possible in the timetable and beyond it for experimentation, challenge, discussion and practice; the processes that ultimately lead to real mastery. Every day, it seems, there is one more technological development that can help with this, and given the increasing pressures placed from outside and above on those we trust to prepare the next generations for life after statutory schooling, it's not really surprising that they are frequently amongst the first to take advantage of such innovations.

CPD is another area in which technology can work brilliantly for teachers – enabling them to take their career progression into their own hands and share thoughts, experience and concerns with their peers at any time, regardless of geographical barriers. For some, Twitter is a chance to find out what the celebrities have for breakfast; for pedagogues, it represents the freedom to ask essential questions and debate issues of crucial importance with people who really care and understand. It means professional and personal empowerment. No wonder #ukedchat is one of the most popular hashtags around.

Above all, though, I reckon that it's hard to spend any time at all around young people these days without becoming enthused by the apparently natural way they interact with, adapt and enjoy the gadgets, apps and connectivity that are now such a significant aspect of their existence – and wanting to get involved.

Technology and Innovation magazine is a celebration of all these things. It's a chance to find out about the latest, brightest resources; to hear from developers, innovators and some of the UK's most respected educational thinkers about trends and possibilities; to pick up ideas and improve your own practice; to get a glimpse of the future and, perhaps, take your first steps towards it. Technophile or not (and we know there are plenty of you outside that ellipse, too), we hope you'll find something to inspire you within these pages.

Helen Mulley, editor @Teachsecondary

MEET THE EXPERTS


Sir Bob Geldof is a musician, businessman, author, activist, and founding partner of Groupcall.


Tom Starkey is a teacher in an FE college in the north of England (@tstarkey1212).


John Dabell is a teacher in Nottingham, the author of maths, English and science books, and a trained Ofsted inspector.


Rachel Jones is a Google Certified Teacher, who has also curated a book for teachers, Don't Change the Light Bulbs.


Richard Green is Chief Executive at The Design and Technology Association.


Oliver Quinlan is an education researcher and author of The Thinking Teacher. He manages research projects for innovation charity Nesta.


Mark Chambers is CEO of Naace; he is a former school leader and local authority school support service manager.


Mary Palmer is director of Techknowledge for Schools.


Christina Preston is the founder of The Mirandanet Fellowship.


Drew Buddie is Chair of Naace.


Caroline Wright is director of the education sector's trade association, BESA.


Matthew Grimley is Senior Communications Executive at the British Security Industry Association.


Dr Joanna Rhodes is a teacher of science at Shelley College, Huddersfield.

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In this issue...

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DIGITAL LEADERS

The results of this year's Technology & Innovation Achievement Awards, in association with SAHARA are in...

Sahara Presentation Systems Plc

The Technology & Innovation Achievement Awards are dedicated to celebrating those individuals who are playing an important role in developing teaching and learning for the 21st century, through outstanding practice, significant innovation and exceptional creativity. There were some tremendously inspiring nominations this year and it was a struggle selecting a winner in each of the four categories – but it had to be done, so here they are!

BEST SCHOOL

AWARDED TO:
Clevedon School, North Somerset

Clevedon is one of only a handful of Apple Distinguished Schools in the United Kingdom. As you would expect, technology is central to every aspect of school life; Clevedon has been using iPads for more than two years to encourage digital learning among students.

But technology isn't just confined to accessing resources in the classroom. Clevedon's philosophy is to give pupils the technical resources that will spark their creativity and ingenuity, and students are encouraged to develop and support technology that will be helpful for their peers and their teachers too. For example:

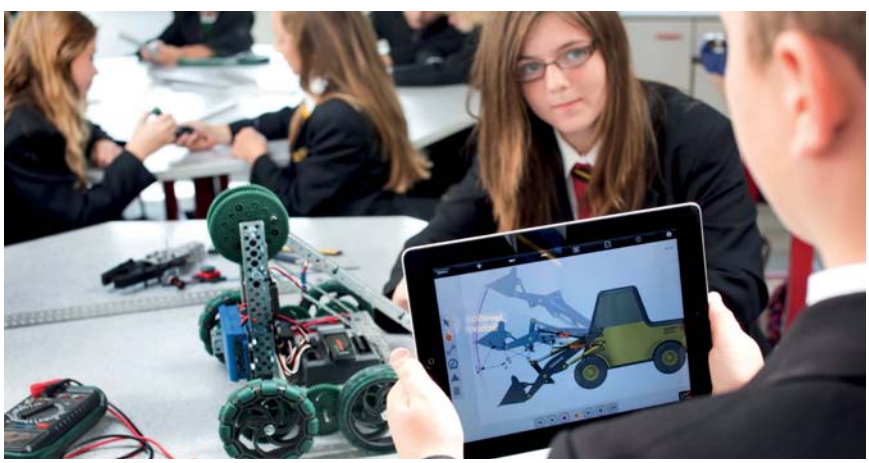
+ Clevedon School has one of the youngest app developers in Europe; one of its Year 9s built a comprehensive school guide and student handbook, containing all the information that new pupils needed, including timetables, contacts, maps, and how to access homework and resources, which is available on the Apple App Store.
+ The school appoints 'Digital Leaders'; students who run drop-in centres for their fellow pupils and for teachers too, helping them with any aspect of technology.

At Clevedon tech is thoroughly embedded in the fabric of the school. Central to the school's technology strategy is having iBeacons (Apple-based Bluetooth transmitters) located around the school. Whenever students come within range of a particular iBeacon their device will be automatically updated with a range of relevant learning resources for a particular lesson or activity.

Clevedon is also leading in the field of Augmented Reality (AR). Posters, pictures and QR codes are dotted around the school, and integrated with apps from Clevedon's extensive app library. For example, a corridor might have a poster of an historical figure; when a pupil points an iPad at the picture, the character will 'talk' back to him through his device.

These are some of the more original uses of technology at Clevedon. Other capabilities - such as providing centralised access to learning resources, online homework submission and marking, and parental visibility of their child's progress - are now so ingrained that they have become unremarkable... which is in itself, remarkable.

Clevedon's philosophy of education is perfectly summed up by data and communications manager, Jennie Redwood. "Of course it's important to give pupils the opportunity to use technology that supports their learning," she observes, "but we think they should be able to shape their education and the school environment as much as possible. All the technology at Clevedon is integrated with our centralised school technology platform that's available to staff, pupils and parents. We don't 'lock out' any of the capabilities from any pupil at the school, so everyone has full visibility of school life - from schools plays to our radio station to the KS3 curriculum in any subject – and can be inspired to learn about and contribute to Clevedon."



AWARDED TO:

Learning with Mobile and Handheld Technologies,

by John Galloway, Merlin John and Maureen McTaggart (Routledge, paperback, £24.99)

Currently there is a lot of interest in the use of mobile technologies in the learning environment – but too often, schools are investing in tablets and only then questioning how to integrate them effectively into the learning activities. The potential for stress, fatigue, wasted time and, of course, money is significant. 'Learning with Mobile and Handheld Technologies' addresses this situation with forceful reflection and consideration.

The authors spent many months visiting schools to collate stories to share with other teachers to help them recognise and avoid unnecessary mistakes. Written in an accessible, reportage style, the book that will not only makes lives easier, and learning more effective, but it will also undoubtedly save schools a significant amount of money.

"This is a wide-ranging, well-researched and thought-provoking book, worth buying just for its variety of case studies, including perspectives from Norway and Chile, and the range of apps it covers."

Sal McKeown, author of Brilliant Ideas for Using ICT in the Inclusive Classroom (runner up, T&I Achievement Awards 2014)

AWARDED TO:

Rob Chambers, Lead Practitioner

ICT Across the Curriculum and Head of the Geography Department, St Ivo School, Cambs

"Before his recent promotion to head of geography, which recognises his huge impact on St Ivo school, Rob was a lead teacher for technology in the curriculum," says Andrew Flower, who nominated him for this prestigious award. "Rob has long used technology to inform and improve teaching and it was an honour to work with him. Rob was instrumental in bringing iPads into the Ivo and converted me, as a sceptic of their usefulness, to the cause. Rob has also used blogs and wikis to motivate students and staff. His twitter account is frequently a source of inspirational resources for geographers and those in other subjects. This award could not go to a nicer, and more deserving person."

"It is a privilege to be nominated, let alone win this award. I have long been interested in the development of online resources to support my students in their learning and I enjoy experimenting with new mobile technologies and apps such as Quick Key and iDoceo to facilitate other pedagogical aspects of teaching and learning such as AFL. New technologies have a vital role to play in the 21st century classroom."

Rob Chambers, winner

"As a form tutor Rob displays a pastoral sensitivity and attention to individual needs which is second to none. Many parents have commented on his excellent communication skills and how he knows and understands everyone in his 30-strong tutor group as an individual.

As a classroom teacher Rob excels in all areas. His preparation, assessment and feedback is so outstanding that, coupled with his use of ICT (web page, blogs et al), it would give his students every chance of success even if it was a distance learning course. However they have the additional benefit of actual face-to-face lessons and these are something to behold. There cannot be any of the 5 senses that are not stimulated when you attend one of Mr Chambers' 'learning opportunities'. They are amusing, engaging, enthralling and hugely educational. The occasional lesson of this standard would be a treat but to receive this sort of diet as standard is a veritable feast!

In addition to all of the above, Rob manages to train hundreds of members of staff in the use of technology (interactive whiteboards, video, links to teaching sites, blogs, software, hardware, etc.). His educational use of blogs has been use as a model by other departments and other schools throughout the land. We all benefit as educationalists by having Rob in our school and, through his inspiration, all of our students benefit and become more skilful and independent learners."

Martin McGarry, Headteacher

AWARDED TO:

Angela Davis

As the CSR officer for technology company, PCA Predict, Angela has made a sterling contribution to the progress of technology and innovation in education this year. From managing a school's engagement programme to organising local community events her efforts are boundless. She has arranged technology taster days for G&T and EBD and recently held an event for New College Worcester, an establishment for blind and partially sighted students. Angela is wholly committed to promoting technology and education and has this year joined the local sixth form's governing body. Angela has also helped steer PCA Predict to volunteering and sponsoring nationwide events such as Young Enterprise and Code Club – and has even organised events within her local area to encourage more companies and volunteers to support these initiatives. Angela has also helped the founders of PCA Predict to set up their own technology foundation to promote and encourage computing in education.

"I'm firstly shocked and secondly delighted that I've won this award. In all honesty I wouldn't be accepting it without the fantastic support I receive from PCA Predict's developer team and their enthusiasm for mentoring young people in South Worcestershire. Our schools' engagement programme wouldn't be possible without the dedication of teaching professionals in our catchment area that continue to go the extra mile."

Angela Davis, winner

Q&A

TECHNOLOGY & INNOVATION ACHIEVEMENT AWARDS

Sahara Presentation Systems Plc is sponsoring this year's T&I Achievement awards; sales and marketing director Shaun Marklew explains why...

VISIT: 020 8319 7700 **CALL:** WWW.CLEVERTOUCH.CO.UK **EMAIL:** SHAUN.MARKLEW@SAHARAPLC.COM

T&I: T&I Why did Sahara decide to get involved in the Technology & Innovation Achievement Awards?

SM: Over the last few years we've been lucky enough to work with fantastic schools and teaching staff who have helped us to develop innovative educational technologies through their feeedback and suggestions. Given the speed of change, it's amazing how quickly children and teaching staff have adapted to using technology in the classroom – not only is it benefiting learning outcomes but it's equipping the next generation for a future that will be dominated by technology. As a company we wanted to sponsor an award that championed technology champions in schools – the teachers, schools, developers and writers who are passionate aboout technology realise the importance of it within education.

Your company has existed in its current form for over 35 years; what are the major changes you've seen in the way schools use technology over that time?

The use of technology in the classroom has changed enormously in the 35 years we've been in business and especially so in the last 10-15 years. Life without technology is unimaginable to children born during that time. As a distributor and manufacter we've seen an enormous growth in the touchscreen market, with projectors and whiteboards sales declining in many countries. Children are using a wide range of technology in the classroom from tablets, apps, front-of-class interactive touchscreens to creating their own technology in coding clubs across the UK.

Is it important, do you think, that teachers should be innovators? Why/why not?

It's very important – teachers are innovators, even without technology in the classroom they always try to find innovative ways to capture young minds. For example, the Clevertouch Plus was born out of an innovative comment by a teacher who wanted to be able to use their front-of-class interactive touchscreen like their smartphone or tabet. By bringing technology into the classroom, schools are equipping the next generation of innovators.

The UK education system is sometimes criticised in In comparison with what is happening in other countries. Are you proud, as a UK business, to celebrate excellence on your 'home turf'?

We are very proud to be part of what sets the UK education system apart. As a company that works across Europe, the Americas and the EMEA you can see the countries where the uptake of educational techlogies are higher, lower or nonexistent. Generally speaking learning outcomes are better in the countries where there has been greater adoption of technology in the classroom – the establishment tends to be more open to engaging students using a variety of innovative techniques and tools to compliment the learning process.

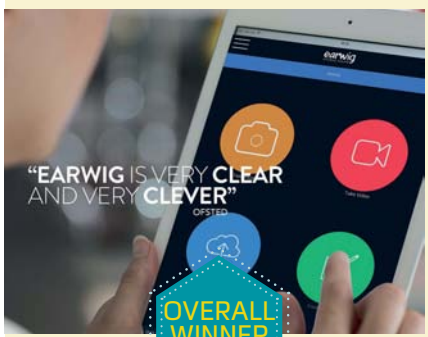
What message do you have for our four T&I Achievement Awards winners?

Keep innovating and don't be afraid to talk to manufacturers if you have a comment, complaint or a great idea!

EXCELLENCE IN ACTION

The judges have spoken and the scores have been counted – it's time to announce the winners of this year's Technology and Innovation Resources Awards...

Technology & Innovation magazine is delighted to bring you the results of this year's T&I Resources Awards; once again, the standard of entries was superb, but our panel of dedicated judges was finally able to select a winner and four runners up – and we are also able to share a longlist of products that didn't quite make it to the final, but are all thoroughly deserving of the title 'highly commended'. From a brilliantly simple evidence management app to intuitive smartboards, a fascinating, immersive science resource and much more; whatever the size of your school (and budget) we're pretty sure you'll find something on these pages to inspire you.



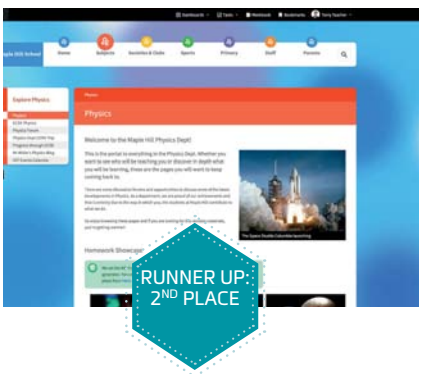
AWARDED TO:
Earwig
(earwigacademic.com)

One in 5 teachers leave the profession after qualifying and most of them cite stress caused by workload as the main reason. Earwig (it stands for 'Educational Achievement Reporting With Illustrative Graphics') was developed by educators to solve the problem of the enormous task of managing teaching evidence. The Earwig app, launched in early 2014, allows teaching staff to acquire, save, organise, filter, share and present teaching evidence digitally and automatically, saving hours of paperwork. Earwig allows all media – reports, documents, photo and video – to be used in this way, and the evidence can be filtered into timelines for every pupil, class, subject, group – anything at all. Then when the inspectors come, they are just given a coffee and a login; it couldn't be easier.

Parents are also offered a login to view their own child's timeline, which greatly improves parental engagement (a key Ofsted requirement). And then comes the really clever bit: proud mums, dads and carers can even purchase photos and videos, making money for the school!

The system is completely secure, and it saves schools a fortune on server space. It has been described by Ofsted as "very clear and very clever"; used in a promotional film in March 2015 by The DofE as an example of innovative education technology; shortlisted for a BETT award 2015 as ICT company of the year and referred to by The Daily Telegraph as "the app that is lightening the load for hard-pressed teachers". And now it has capped all that, by scooping the title of Technology and Innovation Best Resource, 2015/16 – congratulations to everyone involved!

"As someone who thinks that recording and tagging pupils' achievements should be as easy as pie, I feel that Earwig has been really well thought out."
Terry Freedman, judge



AWARDED TO:
Firefly
(fireflylearning.com)

The Firefly platform is a virtual learning environment, a teaching resource library, homework and assessment portal, app library, online pupil portfolio, school administration centre, and parental communications platform – all rolled into one powerful yet intuitive interface. It enables schools to set up profile pages for each pupil showing their attendance, behaviour, tasks set, tasks outstanding, tasks marked (with feedback and mark/grade) and reports. Pupils can hand in work directly from their mobile device, and access the course materials they need when outside school, including their timetable and homework list.

Teachers, meanwhile can manage their students and access notes about them and their full profile, and mark pupils' homework online. The parent portal gives families a window onto their child's learning, including their child's profile and personal section, as well as school lesson resources, and they can even comment on their child's work. And for the SLT, there is much greater oversight of the work done in their school. They can comment on excellent achievement, intervene early if there's a problem, and show evidence on demand of how they fulfil inspection criteria.

AWARDED TO:
Clevertouch Plus
(clevertouch.co.uk)

The Clevertouch Plus is unique in the interactive touchscreen market. It's extremely easy to use, with an inbuilt Android operating system and simple user interface, which effectively transforms the screen into a giant iPad. This means that teachers can instantly make notes, browse the internet, plan or deliver lessons, and easily find and open files and apps. It can also be used without (or with) a connected PC. A custom app store is preloaded on every Clevertouch Plus, providing teachers with a range of educational apps, which have been cleansed of advertising, in-app purchases and are free to use. Teachers can make use of all the activities and functions they expect from a personal tablet/iPad/smartphone – the difference is that, with Clevertouch Plus, these individual activities are opened up to the whole classroom, to enable genuinely collaborative learning.

AWARDED TO:
Into Science
(intoscience.education)

IntoScience is a leap forward in secondary school science education. Through hugely engaging 3D environments, virtual experiments and deep contextual activities, all fields of science are brought to life. From playing basketball on the moon to discover differences between weight and mass to crashing a car to learn about friction, IntoScience offers experiences for learning which are out of this world, yet remain true to the principles of science. It is not designed to replace experiments but brings the enthusiasm and passion which pupils have doing experiments to the learning of the theory behind those experiments and the scientific concepts involved. Hundreds of HD videos support the content; engagement with this resource is second to none.

AWARDED TO:
MINTclass
(mintclass.com)

MINTclass replaces time consuming and inflexible paper-based seating plans with a quick, user-friendly solution for the entire school. Academic and pastoral SIMS data is displayed alongside individual student profiles in one simple interface. This helps teachers build their relationship with students, and makes covering lessons easier for new and supply staff. MINTclass enables teachers to create customised seating plans in minutes; moreover, by facilitating better classroom management, it can influence attitude – improving achievements and behaviour, as well as helping schools meet Ofsted requirements. A showcase innovation, MINTclass can help all teachers build more functional, creative classrooms.

MEET THE JUDGES


Debbie Forster is UK managing director of Apps for Good CD.


Terry Freedman is our outgoing T&I Ambassador (2014/15).


Simon Pridham is education & performance director at Aspire 2Be, and author of Freaked Out (Crown House).


Anthony Coxon is co-founder and director of GCSEPod, which won the T&I resources awards in 2015.


Mary Palmer is director of Techknowledge for Schools.

HIGHLY COMMENDED

Tango Teach tangoteach.co.uk

Tango Teach is designed to revolutionise the way interactive touch screens are used within education; transforming your touch-enabled large format display or multi-touch table into a powerful teaching tool.

Pi2Go tts-group.co.uk

Pi2Go is a Raspberry Pi controlled floor robot, which can be programmed using Scratch or Python. It provides an imaginative way to use Raspberry Pis in the classroom and supports teaching and learning of the new computing curriculum.

Tectus learnpad.com

A revolutionary and cost-effective wireless charging unit that simplifies the process, removes the headache of bulky, expensive trollies and reduces damage to tablets and lost chargers; just place a compatible device onto the shelf and charging starts automatically.

iObserve iobserve-app.com

iObserve uses the video and audio recording features of your tablet to record observations, and time stamp qualification criteria against it in real time – saving time, improving efficiency, and offering transparency for the observation and professional discussion process.

Collins Connect connect.collins.co.uk

This innovative online learning platform supports learners at all levels, and currently offers courses for KS3 English, French, Maths and Science, plus GCSE Maths and English. GCSE Science will be available in 2016.

WriteOnline cricksoft.com/writeonline

WriteOnline is a talking word processor designed to support secondary school students with low literacy levels. It can be used both at home and at school; giving learners consistent access to the literacy support they need wherever they are.

HUE HD Pro huehd.com

The new big brother to the hugely popular HUE HD classroom camera, the Pro is capable of viewing a full A4 sheet, it has a longer neck for more flexibility and brand new camera management software "HUE Intuition" – at just £44.95 (+VAT) per unit.

Share IT out

Since 1984 he's been urging us to feed the world – now **Sir Bob Geldof's** attention has turned to tackling inequality through technology for education...

Groupcall, the education communications and solutions company of which I am co-founder, works very closely with schools throughout the UK and Europe to develop our products. Because of this, we have been privy to invaluable insight from heads, teachers, governors, SLTs, parents and students, and we know that today's children have a natural affinity for technology and gravitate towards it. In my experience, children in developing countries are no different. When I first went to Africa, over 30 years ago now, the first thing kids would ask you for was a pencil. They understood what these things meant: a chance to learn, an education! Today, one of the first things they will spend money on is a mobile phone, for the exact same reason: they understand its potential.

Indeed, one of the greatest inequalities in the contemporary world is technological inequality. It's the new 'haves and have nots', the new 'know-hows and know nothings'. It deprives vast numbers of people from the 21st Century. In many areas of life, Africans are making the leap from the feudal age directly to the technological age, by-passing the industrial one en route. They are developing their own software appropriate to their own specific needs. They are building a mid-21st Century economy. It becomes imperative, therefore, for the children of Africa to be technologically adept if they are to participate in this massive opportunity.

So technology is king then... or is it?

Undoubtedly, technology can play an important role in transforming education, however, what good is the best technology to students without a teacher who understands it and can explain its fundamentals? Or a teacher, period. The biggest stumbling block when it comes to education in the developing world is the lack of teachers and the sub-standard training provided to those in post. That's the real issue. So, in my opinion, yes, technology is important, but teachers are vital; high quality teachers are king.

I recently read about a guy whose younger cousins were having trouble with maths, so he created some simple video tutorials, and put them online. That was Sal Khan – what he started evolved into the Khan Academy, now hosting countless educational videos that have been accessed millions of times, for free, with two-thirds of those watching them located in areas of the world where education is less than wonderful. The point to note here is that children in the developing world *want* to learn, but in school, their needs aren't being met.

Feeding the need

The two biggest needs in education in developing countries right now are an increase in the number of quality teachers available to students, and equality in the use of technology. Thankfully, there are numerous charities out there that have opened the door to IT education for millions of children in the developing world. Take for example Computers4Africa; providing good quality, affordable IT equipment in Africa is an easy way to begin to level the playing field and impact whole communities at every level. Computers4Africa provides refurbished IT equipment to schools, colleges, and humanitarian and community projects in over 23 African countries. By supplying computers to schools and colleges, students can be taught IT skills which broaden and increase their education and career opportunities. There is increased earning potential of up to three times the national average; this helps lift them and their entire family out of poverty forever. To date, 1.5 million children have accessed IT with one of the charity's computers, and this month, 345,000 students will be using one.

In addition to establishing charities, we can help to level the playing field through initiatives, awareness events and collaboration. There are a number of high-profile technology companies that, over the past number of years, have launched global initiatives to increase access to technology for children in the world's poorest countries. Dell's Youth Learning programme, for example, believes that 'access to education and technology is not a luxury, but a necessity' and as such, works directly with non-profit organisations around the world to close the learning gap.

Awareness events such as the Education World Forum (EWF) are also incredibly important. Here, education ministers are tasked with new thinking, and can set about creating a whole new generation of sentient, intelligent human beings for their respective countries.

As freed Greek slave, Epictetus, once said: "Only the educated are free", and although that was over 3000 years ago, and has become somewhat of an educational cliché, it is, nevertheless, incredibly and increasingly pertinent today. Epictetus was allowed to learn and in doing so, worked his way to freedom. The same is true in our worlds: both the developed and the developing.

ABOUT THE AUTHOR

Sir Bob Geldof is a musician, businessman, author, activist, and founding partner of Groupcall, launched in 2002. Visit www.groupcall.com for more information.

"One of the greatest inequalities in the contemporary world is technological inequality"

CLEVER THINKING

Shaun Marklew, sales and marketing director at Sahara Presentation Systems Plc, talks about the importance of collaboration and listening to teachers when it comes to developing new technologies for the education market...

At Sahara we're particularly proud of Clevertouch, our own range of large, interactive touchscreens. The success of Clevertouch and the Clevertouch Plus, which comes with a built-in Android operating system, simple user interface range and an app store full of upscaled, ad free business and education apps, has been astounding. It was developed based on user feedback from end-users like teachers who wanted a responsive, easy to use display that could be used in the same way as a smartphone or iPad and without the necessity for an attached PC.

Keeping our eye on what's new or adapting products to make them more functional for our end-users is what sets Clevertouch apart from its competitors. For example, a few years ago one of our resellers came to us with a comment from an early years teacher who wanted to soften out the curvature of hand written letters on her display in order to teach her pupils about letter formation. We took notes, went away and wrote some code that eliminated the problem, updating our software to include the modification. Sometimes it's the little things that count.

Familiar approach

Because touch devices and apps are second nature to children and teenagers, the Android operating system features a simple, recognisable user interface that's available with the Plus screen. It has been specifically developed around multi-touch so that it can be used instinctively and with little or no training. We've also added functionality that you won't find elsewhere like the Cleverstore for example. We are able to offer Clevertouch Plus users leading apps from respected developers such as StoryToys, Daydream Education and MindMeister, which can now be used front-of-class and to compliment pupil led activities and lessons on iPads and personal tablets. Cleverstore, which is available exclusively on the Clevertouch Plus, was designed to give teachers instant access to a library of interactive apps they can trust to help bring lessons to life and improve the learning experience for their pupils.

When we set out to develop the app store we didn't want to just white label an existing solution – it had to be as robust and user friendly as Google Playstore or the Apple App Store. We worked with closely with a leading provider of app ecosystem management solutions and services, to build a customized app store.

For large format wall-mounted interactive displays there's the need to reformat apps to fit the larger screen size and we've had to cleanse apps of ads and in-app purchases so that they are suitable for use in schools or the boardroom and to enable us to offer apps to our users on a free basis. GCSE Revision Buddies have just launched their full range of apps in Cleverstore across a number of subjects including French, RE, Geography, Maths, Physics, Chemistry, Biology and History. This is a great addition to the Key Stage 4 and Higher Education level apps in the store.

Still listening

As a company, we're committed to working in partnership with developers and educators to create a suite of apps for interactive screens as well as teaching resources, which can be used with the Clevertouch range, making it an even more effective and intuitive solution for our end-users.

We have a strong history of bringing innovative technologies to market, particularly within education, and that comes from keeping our minds open as well as our door, which has led to us form great partnerships with well-known technology, software and app providers. Working in partnership with other likeminded brands means we're continually developing technologies that are innovative and relevant within education.

MORE INFO

Sahara Presentation Systems Plc offers the market leading range of large, interactive touchscreens for classrooms - find out more at saharaplc.com

FOR YOUR CLASSROOM

Fantastic ideas for teaching and learning with technology across the curriculum

EVERYDAY IT

Rachel Jones, e-Learning Coordinator at King Edward VI School, Southampton, sends a short, daily email to all staff with a timely tech tip that can be used in any classroom, instantly. Fancy a taster? Here's a week's worth of examples to get you started...

Monday

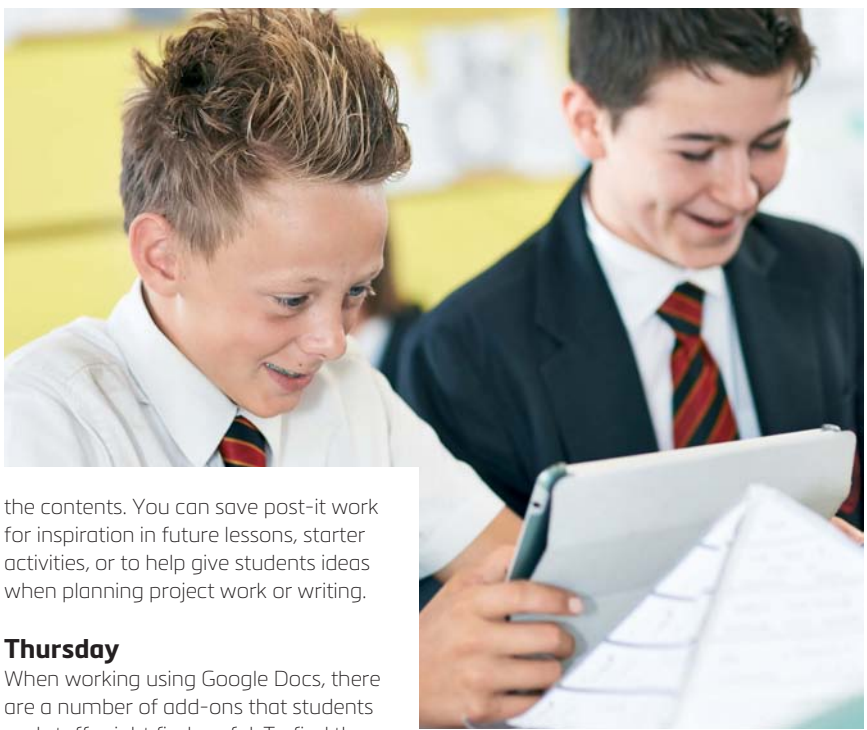
You can use the Explain Everything app to deliver high quality feedback on digital student work. This can take literally minutes and really help to highlight the points for improvement with the pupils. You can import an image of student work, and then provide an oral commentary of how they can improve, with highlighted key sections and written comments. This is especially useful for students who have dyslexia or similar issues as they can easily replay feedback. A really good example of a teacher doing this can be seen on this video [https://www.youtube.com/watch?v=V6OvMIHNTDw]

Tuesday

Dragon Dictation is an app that lets you dictate to your iPad. You can even use it for email, and with practice, it's meant to be five times faster than the average typing speed. Could be useful for draft report writing, especially if you find typing on a tablet or iPad tricky.

Wednesday

Post-it Note is an app lets you take a photo of actual post-it notes, and then digitises the contents. You can save post-it work for inspiration in future lessons, starter activities, or to help give students ideas when planning project work or writing.



Thursday

When working using Google Docs, there are a number of add-ons that students and staff might find useful. To find these look along the toolbar in a Google Doc – there is everything from music annotation to MFL dictionaries.

Friday

Videonot.es is a website where you can import videos (from sources such as YouTube) and then you can as a teacher annotate them on a timeline. These annotations are saved in Google Drive, so that you can share them with your class and give the video more depth.

10%

of 15-22 year olds claim to be "worried sick" about something they have posted on a social media site

THE 'JUST IN CASE' CURRICULUM

The 'just in case' content laden curriculum model seems less meaningful and expedient in a world where just about any knowledge can be found on the Web.

My belief is that schools should be places where students can learn things that cannot be taught, or discovered alone. 'Content as curriculum' is easy and inexpensive to deliver, and that is what most governments require and impose. Yet, as many teachers know, this is not necessarily the best or the most effective approach.

When I went to school, content was presented to me, and my job was to organise it in my head in such a way that when exams came around, I could represent it in a manner acceptable to the experts. How much more effective would my time in school have been if I had been given more problems to solve and challenges to meet, instead of content to consume?

Extract taken from 'Learning with 'e's: Educational theory and practice in the digital age', by Steve Wheeler (Crown House)

RULES OF ENGAGEMENT

Technology has helped guide Madely School's evolution over the past few years, says deputy head Jonathan Boyle – and he hopes this creative innovation can continue...

One of the most game-changing technology initiatives we've run at Madeley Academy so far has been the capture and sharing of lessons in Design and Technology. We realized that a great deal of the content teachers created during class time was of genuine value, and was something both teachers and students wanted to return to later on. In order to make this possible, we aimed to create a bank of online resources that were readily available to students on a 24/7 basis, and that could be also accessed by teachers or even parents.

The shared materials would allow parents to get a first-hand look at what and how their children are taught at school. In short, it would create an 'online curriculum' for students to follow at Madeley, so we sought technology that would capture the information being created and then make it easily accessible on our online systems.

Since we implemented it, we've found the online curriculum has brought a number of benefits to our students and Madeley's community. To develop it, we use Camtasia, a screen capturing tool from TechSmith, to record lessons so that they

could be streamed or played back later on. When screencasts are created they are uploaded to the Academy's internal intranet, allowing students, teachers and parents to access them. This is especially valuable for parents, as they can see exactly what their children are being taught in school, and are better able to help with homework and coursework outside of school. Plus, not every student learns at the same rate, so a rich mix of independent learning has aided many students.

Additional benefits include the number of staff in the department that regularly review the screencasts to learn how to do Computer Aided Design work in the classroom. In turn, this CPD is an efficient way to ensure that students not only have a reference video, but a staff member who has been taught by the expert in a particular project.

The online materials support everyday tasks, allowing students to review lessons exactly as they were delivered, and this can really help when – for instance – they are completing tasks at their own pace. There are also clear advantages in the run up to exams. Students can use screencasts to revisit lessons that took place several months ago for revision, as if they had been delivered the same day.

Screencasts also enable students to learn, even if they're not physically able to make it into school, due to illness or injury for example, meaning they can continue with their studies using the uploaded lesson notes and recordings. This can be especially important for pupils in the run up to key milestones in the student's academic calendar, such as GCSEs or final year coursework, when the pace at which topics are covered increases.

A BYOD policy built on trust

Another technology trend Madeley has adopted in Design and Technology, and witnessed notable improvements with, is

Bring Your Own Device. BYOD is a tech initiative that's often underutilised across many British schools - despite being fairly easy to source. Students of today are more than comfortable with their own technology and when called on to use it, can do so swiftly and with ease. When using devices in their own time, they may well fill their lives with time consuming apps, but the smartphone by itself can actually offer the opportunity to record, review and progress.

For example, the recording of images for that all-important moment of practical evidence can be saved to Google Keep or Evernote in a flash and sequenced for recall later. Students record their practical development and can demonstrate progression. Coach's Eye from TechSmith is another app able to record, analyse and help to make improvements to a sportsperson's technique. Find me a parent who would object to their child bringing home evidence of progression and success in their project work – its powerful stuff.

Many schools are nervous to introduce BYOD initiatives or reluctant to encourage students to spend any more time on their mobile devices than they already do. As a rule of thumb, I've found there has to be an existing degree of mutual respect within the classroom before teachers can start to promote the use of smartphones during lesson time. Students who enjoy learning will use their technology productively. It is definitely worth spending some time to make sure students know the boundaries of what can and cannot be done with their mobile devices. I would consider the recording of learning experiences in D&T using a camera or video as absolutely sound progress if the teacher has engendered a culture of trust and mutual respect. If that is not present, then it's best to keep the technology out of the equation altogether.

To enable and empower

While all of these initiatives are exciting changes for our students, we are keen to ensure there is an undercurrent of technology in everything we do – both in one-to-one teacher student situations, but also in a whole school context. In this vein, we have introduced a state-of-the-art broadcast system and produce a professional broadcast for the students to watch each week. There is always a curriculum focus where a video is taken of students learning in each of the different subject areas, for example one week the video could provide an overview of the latest work being crafted by students in A Level Product Design, and the next week could show some of the productions from the Music Technology lab. The recordings are then dubbed or presented by staff and students in an assembly. The cultural impact of revealing progress from the students or displaying excellent work cannot be underestimated. When the video is shown to the wider student body, we see an almost immediate reaction from the students aspiring to do work of a similar calibre. Through making these short, engaging videos we've learnt how the positive influence of tech has worked beyond improving grades and exam results. With proper, smart use, digital software can provide new methods of motivating students who are growing up in a constantly connected world and capture their attention.

When it comes to long term projects, electronic feedback is highly efficient. I regularly use Snagit to grab a page from an e-portfolio and highlight areas to address, before sharing back with the Sixth Form students via the school email. It is immediate, relevant and easy to understand for the student. In the same way that you might ask the students to use demonstrate their application of colour and tone in a sketch, why not record it and the work done of another so they can compare, contrast and reflect later? Often, teachers find that moment to delve into a piece of electronic work on the network and prefer to use electronic feedback to reply with either typed or another screen grab of an alternate approach. Why wait for the next lesson at all?

Teachers here have been on a technology journey. I have witnessed the rise of hardware and content authored for schools and watched as teachers savvy in tech produced their own, often better solutions. I like to consider that I have been a part of this. However, schools are changing rapidly to meet the rigorous demands of Ofsted and this, I fear, may redirect creativity. My focus has always been on the progress of the children I teach. Technology now has to work alongside me (and sometimes take a back seat) as we meet head on the key judgements by which schools are judged successful.

ABOUT THE AUTHOR

Jonathan Boyle is deputy head teacher at Madeley Academy– a specialist Sports College based in Telford, UK. The school educates over 1200 students each year aged 11-18.

Staying afloat

Worried you're at risk of drowning in a sea of ever more complex technology? Tom Starkey has a few words of wisdom...

I like to think that I'm 'savvy' when it comes to technology. I know my way around a projector, can email with the best of 'em and even integrate a few mobile apps into my learning when the mood strikes. I can do a bit of coding if someone puts a pistol to my temple (they'd have to, I bloody hate it); I've created audio and video learning and feedback, used online classrooms, augmented reality, and I've got QR codes up the kazoo. I like to think that I'm a pretty hip cat when it comes to the shiny things that go beep.

Then I look around. I see teachers that have done things with technology that I couldn't even have conceptualised a couple of years back. I see classes using 3D printers to create art and tools; I see teachers modifying games to use as learning tools; I see kids building controllers out of fruit. And it absolutely blows my mind.

But it is also fairly disconcerting if I'm going to be brutally honest. I try hard to keep my skills the closest to current as I can given my meagre resources and complete lack of self-motivation. But technology moves like a mad bugger and it can often feel like it has left you way, way behind. This in turn can add to that anxious little voice in the back of the teacher's mind that says you might not be doing the best for your charges if you don't try to at least get a handle on every new thing. After all, the next one could be the game-changer, the paradigm-shifter or, and this is when the ears of those above really pick up, the grade-improver.

Here's the thing: trying to keep up with every single development in educational technology is like trying to match speed with the Eurostar when you're on a skateboard – give it a go and you'll quickly end up sweaty, knackered and looking thoroughly daft. The industry is now so large and encompasses so many different facets and features that to keep your finger on the pulse you'd need to engineer an army of robot fingers. This, of course, would inevitably lead to a robot finger uprising with lots of metallic pokings and extremely rude gestures – and no-one needs that. Also, it's not just technology that's specifically created for the classroom you'd have to keep abreast of, it's the developments that can be utilised but weren't necessarily designed for education in the first place (which is a deep thread of gold if you come at it with a bit of imagination). To put it simply, there is just simply too much stuff to keep tabs on.

If you feel the bleeding edge slipping away from you, then, I don't think it's necessarily time to panic. It's not a race to get the newest idea or machine into the classroom - that's a mug's game, which ultimately shifts focus away from the most important thing in there, namely the students. Because if it's all about the technology, then it's not all about them, meaning it can't be the best place from which to start.

So, with that in mind, here are a few tips for you whizzkids who might be worried that you're getting behind the curve:

1. DON'T CHASE THE TECH, CHASE THE IDEA

Like I've just said, you shouldn't be starting with the technology, you should be starting with the learning. The question shouldn't be 'How can I get this into the lesson?' it should be 'What do I want them to learn?' If that's first and foremost in your mind then it can give you a starting point and a focus which will allow you to be a bit more discerning when making choices as to which piece of tech will best aid you in that task (or, in fact, if one is needed at all). Rather than trying to grab a bit of every dish at the buffet and ultimately ending up unsatisfied, it means you can hone in on the very best and fill your boots. Speaking of which:

2. LET THINGS PASS YOU BY

Sometimes the worry is that when it comes to technology, you'll miss something that's truly useful leading to a mad scramble to try and master absolutely everything. This type of mastery is a pipe-dream and I'm afraid that the chances of it happening are the same as the chance of me getting to lunchtime without three cups of tea. Absolutely nil. Sometimes you have to let things go. Time is a precious commodity and it's better spent really getting to grips with and mastering a small number of

things that you know will make a difference. But then again:

3 HOW DO YOU KNOW WHAT TECHNOLOGY WILL HAVE LEGS?

No, I'm not on about robots again. I'm thinking of the evaluation of technology for long-term gain. Because, let's be honest, a lot of this stuff doesn't last. Is there any point to learning how to use something or including something in your lessons that will be virtually obsolete this time next year? Keeping ahead of the game is all well and good but you may find yourself wasting considerable time and resources coming to terms with kit with an incredibly short shelf-life. Going through a process of evaluation as to whether you think that something is here to stay or a flash in the pan might go towards lessening that feeling of panic at the thought of missing out. Unfortunately, there's no guarantee that you'll back the right horse on this, but with a moment to stop and consider and with a bit of experience you can usually take an educated guess. And finally:

4 DON'T PANIC

OK, so you might not be using VR to Minecraft a reconstruction of the Great Wall of China. You might not be using a Raspberry Pi to control the lights in the gym. You might not be flying drones to map the school's playing field or whatnot. But then again, who says you have to? Those things would undoubtedly be extremely cool... but so are the things that you're already doing in your classroom.

Every. Single. Day. Keep an eye out for new things and opportunities; but remember that you always have to work within certain frameworks and limits such as time, money and institutional attitudes that may not be the most supportive. Concentrate on what you ARE doing, rather than what you might be missing.

So there we have it. You might not always be forging ahead with the early adopters but that doesn't mean what you're doing has any less merit. Focus, take it easy, and concentrate on what you're doing in your classroom, and all will be well.

That is, until the robot fingers start knocking at your door.

"Trying to keep up with every development in educational technology is like trying to match speed with the Eurostar on a skateboard..."

ABOUT THE AUTHOR

Tom Starkey is a teacher in an FE college in the north of England. He blogs at stackofmarking.wordpress.com (@tstarkey1212)

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CODING CLUB

Contact: **www.cambridge.org/ukschools/cs** Reviewed by: **John Dabell**

Coding Club is a series of brighter thinking books from Cambridge University Press, written for Key Stage 3 pupils; acting as a guide for aspiring programmers to produce their own versions of well-known games and apps and challenging them to modify and investigate with programs. There are four lively creative coding books on offer as well as a cracking coding novel.

The first of the coding books is Python Basics, which is a level 1 introduction to coding and to Python 3 – a programming language that is fast, friendly and easy to learn. This book helps students to write simple programs including a random suggestion generator called My8Ball and MyEtchASketch, a small graphical application. There is also another book providing more level 1 material, which helps students learn how to use a turtle module to produce some brilliant art and shows them how to build an awesome art app.

The Level 2 book continues the Python journey building several short applications including students' own customisable, programmable calculator; whilst the Level 3 book introduces learners to Object Oriented Programming, featuring a big project called MyPong.

The books are extremely well written by a practising teacher who makes each page very friendly and accessible without losing the technical know-how needed. Colourful and easy to navigate, the books are dotted with fun characters who pop up over many of the pages to offer advice, facts, and humour along the way.

There are fun challenges and quizzes too, as well as key information and a glossary in each title. Full support, source code and answers are provided on the companion website (www.codingclub.co.uk); at around £7-8 per title, this is marvellous value for money. As well as the printed titles there are digital editions available via the rather brilliant digital teaching and learning subscription service Cambridge Elevate.

The series also comes with a short novel called Black Flag; a coding club mission where students join 'Cal' on a hazardous adventure into an underground world of anarchists. With puzzles to solve via the FREE companion website (www.cambridge.org/codingclub-blackflag) this is an interactive adventure students will love to read.

This wisely planned scheme not only systematically teaches the text based programming component required at Key Stage 3 but it also helps students gain skills in computational thinking, problem-solving, planning, designing and collaboration. The demand for people who can code is urgent and growing every day so thank heavens for this resource – coders have to learn by coding and this series will help students do exactly that.

COMPUTER SCIENCE

Contact: **www.cambridge.org/ukschools/cs** Reviewed by: **John Dabell**

For Computer Science, Cambridge University Press has a full set of digital resources that really are a must see, including an impressive collection of free (for now, at least) GCSE Practise and Prepare materials developed for the current OCR GCSE Computing specification. These are quite something and contain over 30 revision worksheets full of interactive questions which have been planned to support students as they revise and consolidate their knowledge. A 'show answer' button allows them to check their responses and address misconceptions; they can try as often as they like with no time limit, and a self-assessment page at the end helps them judge how well they think they understand something, and whether they should return to it later.

There are also six programming mini-projects, with model answers, at different levels of complexity to be worked through in order in order to help prepare students for the controlled assessment aspects of their OCR GCSE. The real-world scenarios and activities are excellent and really test students to think creatively, innovatively, analytically and logically. These challenging and inventive resources offer real depth and breadth.

Key Stage 4 resources for the new curriculum are currently being written and will be available early 2016; for Key Stage 5 Cambridge has produced a fine collection of bespoke digital resources for A/AS Level Computer Science, with a really strong focus on independent learning, computational thinking, programming and problem-solving skills. The student editions have a solid structure and include a delightfully varied presentation including videos, audio, images, and interactive exercises. You will find tip boxes, computing in context, further reading, activities galore, checklist summaries and end of chapter questions, all written in clear and straightforward way to enhance learning.

The digital resources for teachers include some fabulous content including brilliant animated tutorials, slideshows and images all of which puts the computer science into focus and context so that students get a tangible view on professional applications of the skills they are learning. This enhanced online learning masterpiece is customisable, which allows you to add annotations and enables assessing, tracking and reporting on students' progress. Questions are auto-marked at the end of each chapter and progress is easily monitored via the analytics function. In short – accessible, student-friendly and robust, these materials showcase computational thinking at its best.

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COMPUTING WITH CONFIDENCE

Introducing students to engaging STEM based activities is a breeze with the range of education kits from CBiS Education...

A global demand for engineering and computing skills has contributed to a national curriculum change that dictates computational skills such as programming should form part and parcel of every pupil's core skillset.

So, what is the best way to deliver the curriculum with confidence, engaging all of the pyramid, not just the top 10%?

A great way to start, is to build students' interest by providing STEM based activities; this provides core skills which help them as they progress through school and as a bonus will provide insight and opportunities for them to consider a career in either engineering or computing.

But how do you engage with a class of 30 students, with mixed aptitudes and levels of capability?

Rich robotics

More and more schools are discovering that robots are highly effective tools for engagement and reward mechanisms – they provide a quick reward, cater for live coding which provides a speedy impact, and appeal to students and teachers alike because they can be designed into challenges which as a consequence teach the basics of computing.

For example, with a remote control car kit from CbiS Education, you can split students into two groups: the first designs and builds an assault course, while group two programs the car to navigate the course. By using this method you can engage whole classes of KS2-3 students who learn Python programming, without previous knowledge, because they want the car to get to the end! This also helps to identify students who have natural ability in this area – the G&T students who become your digital leaders.

"I have found working with the starter kits from CBiS really useful in my computing club," says Simon Simon Kuznetsov, Head of Technology at Skipton Girls' High School. "Chris and the team have opened my eyes to new possibilities, experimenting, hacking everyday products to build amazing projects with my students. The girls have had a great time building their ideas and the club has made them much more confident in their computer science GCSE."

> "Links to real world applications that were inspiring and which students could relate to, which created such a buzz that echoed throughout the rest of their day's lesson. Other students were asking teachers, did he really control the car with his mind? Two words summed up the experience: AWESOME & UNFORGETABLE!"
>
> **Penny Cater (Head of ICT/ Computing & Business Skill Area, The Boswells School)"**

Progression with programs

As computing is rolled out, students are all getting the chance to program using a drag and drop language such as Scratch, but the goal is to transition to scripted programming such as Python, typically from KS2 to KS3; this is when engagement and ownership is never more important. The experts at CBiS suggest using an innovative process like Cardboard2Code to maximise participation.

Cardboard2Code is one example that starts with building robot arms out of cardboard, combining different aspects of computing unplugged with engineering and allowing students to realise their idea – once they are hooked, the process consistently introduces them to a 'virtual' robot arm from Scratch, before making the leap to a scripted programming, in this case using Python to control an actual robot arm.

Innovative inspiration

When it comes to career choice, by removing constraints and limitations you can get across the message that "anything is possible". This is core to inspiring students, and in schools that are already working with CBiS, is leading to an increase in take-up of computing and D&T at KS4.

This ethos doesn't have to be just about students making choices; what is most exciting is when it is a theme for curriculum enrichment or for those students with whom engagement is a challenge. This has led CBiS and its partner schools to projects such as the life size Dalek shown here, designed, built and programmed by Queen Ethelburga's School in York.

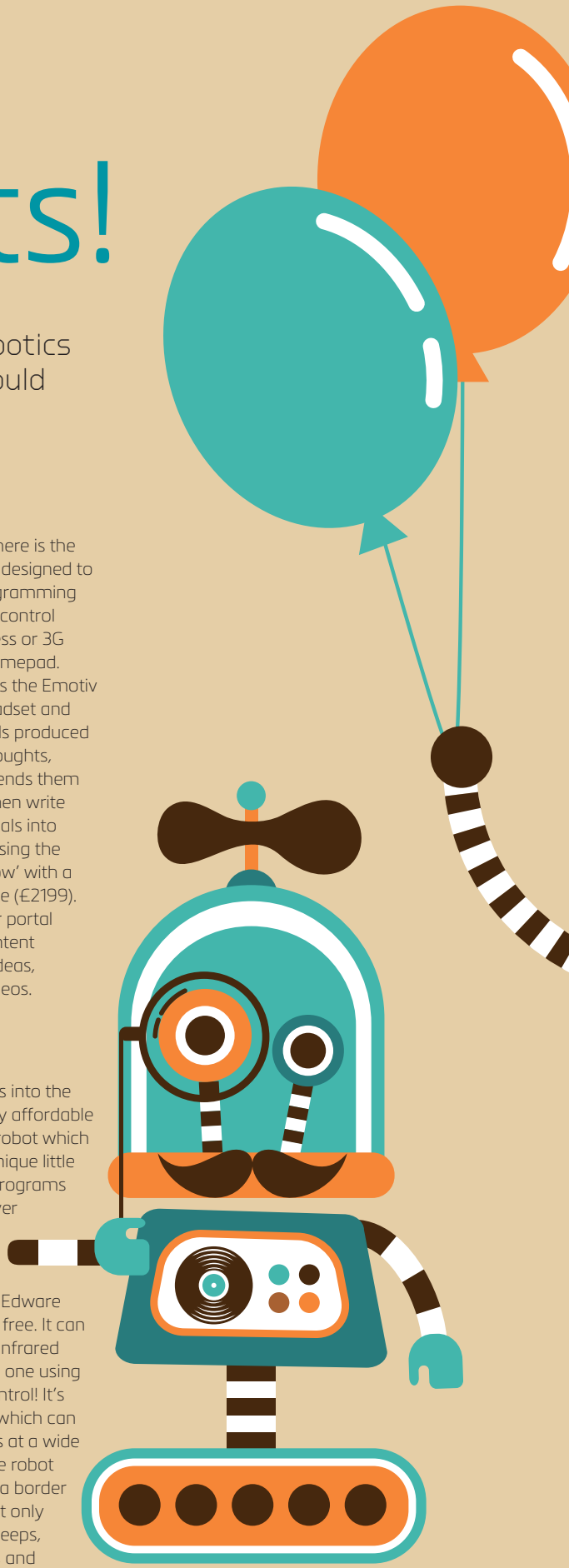
CBiS Education's "Open & Get on with it" robotics kits work to bridge the digital divide and fulfil the global skills demand using 'real world' examples.

MORE INFO

www.cbiseducation.com
@cbiseducation
#cardboard2code
#mindcontrolrobotics

Ay, Robots!

John Dabell looks at some of the latest robotics kits available, and considers what they could bring to your classroom...



It's official: interest in robots has reached the stratosphere. And beyond that, in fact, because they are now driving on Mars (without a licence too!) Robots elicit curiosity from people of all ages and this natural attraction can open up opportunities for inspiration and learning like no other resource. Far from being a passing fad, robots have sustained their pulling power for many years now and their popularity looks set to rise rather than wane. Anyone that has ever worked with students and robots will tell you that the former are energised, motivated and challenged. They gain valuable experience in managing projects, analysing systems, accessing information, working in teams, and problem solving. Their scientific literacy increases and they become better communicators and creative collaborators, as well as designers, builders, and trouble-shooters.

Robots in classrooms serve an incredibly important purpose by providing an entertaining platform from which to learn about design, programming, electronics, and mechanical engineering. And to truly get to know what a robot is and what it can do students have to build one themselves, which is why self-build robotics kits have become so popular. There are some delightful options available for the education market, and the invention and creativity behind them is breath-taking.

Education Kits

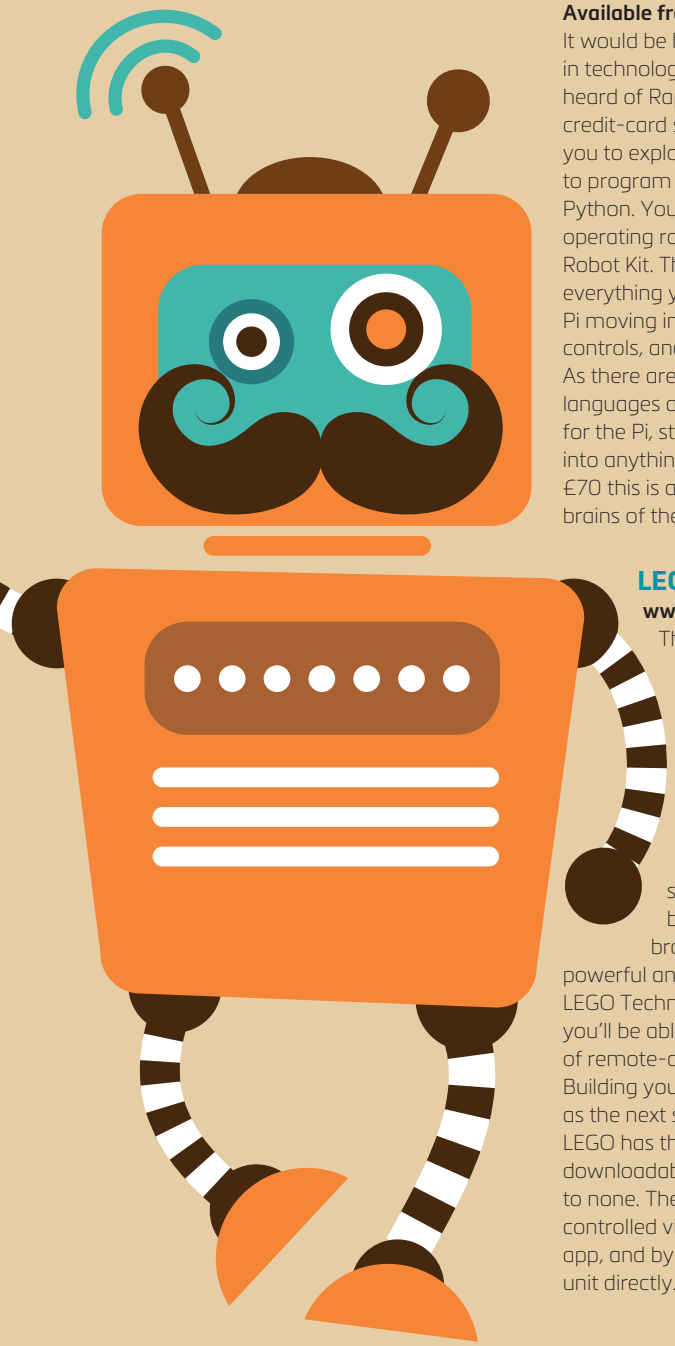
www.cbinfosystems.com

If you are looking for 'open and get on with it' kits then you probably will struggle to find anything better than those provided by CBiS Education. The £300 Robot Arm kit is an excellent introduction to robotics as it provides a real world example of a robot used in manufacturing. Then there is the Remote Control Car kit (£349), designed to provide an introduction to programming in Python allowing students to control an aluminium car over a wireless or 3G network using an Xbox 360 Gamepad. Taking things to the next level is the Emotiv Education kit, which uses a headset and sensors to tune electrical signals produced by the brain to detect users thoughts, feelings and expressions and sends them to a computer. Students can then write a program to interpret the signals into commands to control robots using the power of thought. That's a 'Wow' with a capital W but it comes at a price (£2199). CBiS also has a brilliant teacher portal online that is rammed with content and resources such as lesson ideas, worksheets, hand-outs and videos.

Edison

www.meetedison.com

One of the best stepping stones into the world of robots is Edison, a very affordable and engaging programmable robot which is LEGO compatible. This is a unique little device because it has built-in programs that are activated by driving over barcodes. Edison is programmed using a drag and drop graphical programming language called Edware that is easy to learn and is also free. It can navigate its way around using infrared light sensors and you can drive one using a standard TV/DVD remote control! It's driven by two wheels, each of which can move forwards and backwards at a wide range of speeds. This great little robot can follow a line or stay within a border using a line tracking sensor. Not only can it play musical tunes and beeps, it can also respond to clapping, and



communicate with other Edison robots using infra-red lights. With just three buttons, the Edison robot is very easy to control. Buy one for £32 or a class set of 30 for £637. There are free books and lesson plans to download too.

GoPiGo Robot Kit for Raspberry Pi

Available from www.robotshop.com

It would be hard to find anyone involved in technology and education who hasn't heard of Rapsberry Pi, the low cost, credit-card sized computer that enables you to explore computing and learn how to program in languages like Scratch and Python. You can easily turn one into a fully operating robot too, using the GoPiGo Robot Kit. This lovely kit comes with everything you need to get a Raspberry Pi moving including a robot body, motors, controls, and a robust power supply. As there are so many programming languages and USB accessories available for the Pi, students could turn their GoPiGo into anything. And at a few pennies under £70 this is a great kit for unleashing the brains of the Raspberry Pi.

LEGO Mindstorms

www.lego.com

The market leader for years now, LEGO Mindstorms is an amazing robotics kit that combines sensors, motors and an electronic brain with LEGO Technic components to make robots with the wow factor. The EV3 isn't cheap at over £200 but it stands out as being one of the best ways to learn robotics. The brain of the EV3 is remarkably powerful and functional and with the LEGO Technic pieces you receive in the box, you'll be able to make a massive number of remote-controlled and robotic devices. Building your first robot is only half the fun as the next step is programming – and LEGO has this covered with some amazing downloadable software that is second to none. The robots you create can be controlled via Bluetooth, WiFi, smartphone app, and by programming the command unit directly.

VEX IQ Super Kit

www.vexrobotics.com

Last, but by no means least, if you are looking at buying a robotics kit with some serious punch then the comprehensive VEX IQ Super Kit is a powerhouse. It comes with over 850 structural and motion parts, which is easily enough to build a variety of exciting robot designs. This tool-free masterpiece is the perfect introduction to classroom robotics at a penny shy of £250.

A robot charmed the Queen on a recent visit to Germany – because that's what robots do; they also intrigue and inspire. Robotics is an enormously fast-developing, wide-ranging field with virtually unregulated creative freedom. Although it may seem an exotic topic, look closer and you will see it provides a natural fit with good pedagogy that engages students in complex, strategic problem-solving and higher-order thinking. Above all, robotics introduces students to knowledge, concepts, and skills that are needed for understanding the intelligent information-based technology of the future – introducing it into the ecosystem of a school is therefore, in my opinion, a must.

TEACHING ROBOTICS...

1. creates excitement and kick-starts student motivation
2. is hands-on heaven and naturally cross-curricular
3. accelerates learning and teaches computational thinking
4. is a vehicle for collaborative learning and creative problem-solving
5. subconsciously introduces students to possible career paths they may well have never considered.

ABOUT THE AUTHOR

John Dabell is a teacher in Nottingham with 20 years experience teaching in primary and secondary schools and higher education settings. He is the author of maths, English and science books and is a trained Ofsted inspector.

Rapid education

INTRODUCING THE 2015/16 VEX IQ CHALLENGE

VEX IQ CHALLENGE

BANK SHOT

KS2 & KS3

2015 was an extremely exciting year for VEX IQ with the first full competition season drawing to a close in March. Teams from all over the UK took part in the Highrise challenge but now it is time for a new game – Introducing....."Bank Shot". Paul McKnight, Head of Operations for VEX Robotics in the UK, explains the task.

"There is always some similarities between the VEX IQ Challenge and its bigger brother, the VEX Robotics Competition. This means the design challenges that the younger students are facing are just a scaled down version of the ones that the older students are tackling. In last year's game, Highrise, the robots needed to build towers of coloured blocks which required similar solutions to the cubes in Skyrise. Bank Shot has a lot of similarities with Nothing But Net with teams needing to collect balls and fire them in to a goal which is out of reach of the robot. One of the biggest challenges teams are going to have to cope with is the movement of the balls. In Highrise, the movement of the cubes was quite predictable but with Bank Shot the balls can roll and accuracy is going to be key."

Teams will compete in three categories which will test their design, programming and teamwork skills:

ROBOT SKILLS

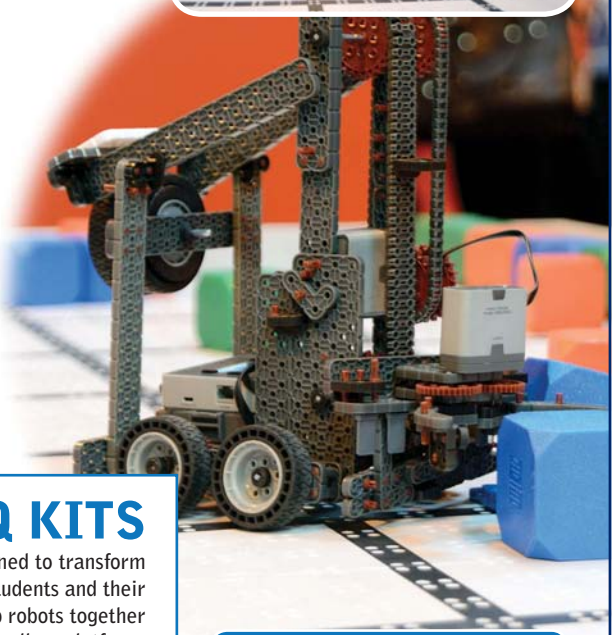
Teams have 1 minute to score as many points as they can whilst operating their robot by remote control

PROGRAMMING SKILLS

Another solo round – score as many points as you can in 1 minute but with the robot programmed to move autonomously

TEAMWORK CHALLENGE

Two robots work together to score as many points as they can in 1 minute. Communication is key!



VEX IQ KITS

VEX IQ is a robotics platform designed to transform STEM learning for KS2, KS3 and KS4 students and their teachers. Students can quickly and easily snap robots together using this intuitive, toolless platform.

Description	Order code	Price
Starter Kit with Sensors	70-7901	£199.99
Super Kit with Sensors and Controller	70-7902	£249.99

Bett 2016
Visit us on stand
B430

To learn more about Bank Shot and to find out how to take part, visit

www.rapidonline.com/VEXIQ

• Rules and introductory video • How to register • Regional Event Dates • Hints and tips for starting a VEX IQ Team • Resources and links

THE VEX IQ ROBOTIC SUPER KIT

Contact: **www.rapidonline.com/VEXIQ** Reviewed by: **John Dabell**

Robots really are on the rise in all walks of life and in schools, they can play a revolutionary role in any thoughtful STEM enterprise. The sticking point is finding a high quality and reliable product for a price that doesn't offend. The undeniable market leader has for many years been LEGO's range of robotic systems – but now they have a challenger in the shape of VEX IQ. This genius robotics platform is comparable to LEGO and a bit cheaper too, making it a serious contender for classroom roboticists.

VEX IQ is a complete modular robotics system positioned at a user audience of 8 years and over and marketed as 'simple, flexible and powerful'. There are three kits to choose from: a Starter Kit with Sensors, a Starter Kit with Controller and the one I'm testing, an all-encompassing Super Kit. The good news is there are no tools, all the parts are plastic and they are quick to build.

Getting started

Opening up the box to my VEX IQ produces a power surge of excitement and trepidation. It's up to me to turn the bits in the box into a robot, but it looks daunting. Good job then that it comes with a build instruction user guide, a control system user guide, and a personal VEX IQ helper called Quey. I think as a teacher this process is important. Build one yourself and you will go through the experience and feelings that students are likely to encounter. Beyond the excellent documentation (including troubleshooting flowcharts), VEX also provides training, either in person or via webinar. Follow the online tutorials and you can't really go wrong.

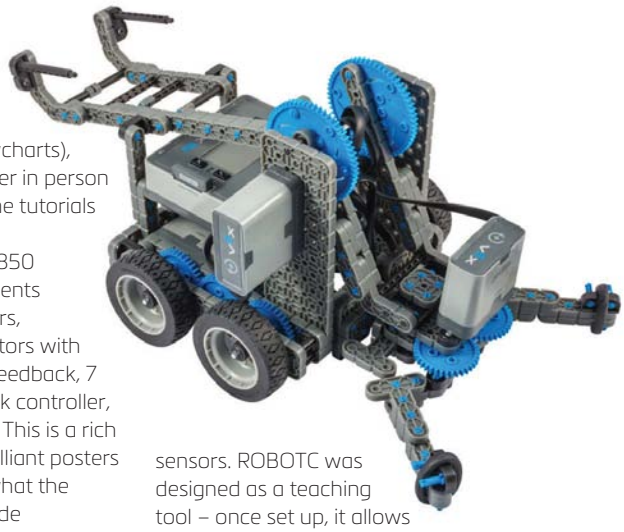
The Super Kit contains over 850 structural and motion components with radio, various wheels, gears, chains and pullies, 4 smart motors with built-in encoders and current feedback, 7 sensors, a robot brain, a joystick controller, batteries, storage bin and tray. This is a rich kit. It also comes with some brilliant posters that explain what robotics is, what the component parts do and provide building tips.

Building the VEX IQ demands patience and perseverance but it is a very 'doable' project build. It uses about ten different types of joining pieces to connect plates and beams, which come in different lengths and a wide range of angles. Following the user guide, I made a slow and cautious start, but soon gained speed. The parts feel like quality pieces; you know that you are building with something decent. The VEX IQ comes with a brain and sensors connected by cables, which is controlled remotely using a joy pad. It has an impressive 12 ports which can be used to connect and control smart motors and sensors using auto-identification to recognise what's plugged in. It has a backlit display too. VEX IQ sensors, including a colour sensor, gyroscope, potentiometer, allow for advanced robots and fantastic teaching opportunities.

My first attempt at building was to make the Clawbot IQ. And after a few hours of following the easy to understand instructions there it was: my first, fully functional teleoperated robot. Proud as punch, I decided my next projects will include an Armbot IQ, a V-Rex and an Ike. It's highly addictive and deeply motivating.

Next steps

Robots can be programmed via a computer using graphical or text based programming software. The VEX IQ brain uses ROBOTC as its programming language and this basically controls the movements of the robots and reads the sensors. ROBOTC was designed as a teaching tool – once set up, it allows you to program your VEX IQ robot using a graphical drag and drop programming interface, which means you can get up and running using simple commands such as 'forward', 'turn left' and so on. ROBOTC also includes the fully-featured text-based C-Programming software, which would suit advanced users.



There is a free VEX IQ Curriculum, offering a dozen flexible units of instruction that can be used in order, in portions or as individual lessons. These superb supporting materials are currently written for and mapped to US educational standards but UK content is under development; four lessons are currently online with 20 planned in the short term and a further 30 after that mapped to D&T, computing, maths, science and other relevant subject areas – all free of charge.

VEX IQ Super Kit is a very affordable robot at a penny under £250 and there are add-on kits too so you can buy extra pieces to advance your building potential. Following requests from users, the new Super Kits have more plastic shafts, capped shafts and motors shafts – it's refreshing to see such a prompt response to consumer feedback.

This is a robotics kit that impresses on every level. Not only will it kit introduce your students to the world of robotics but it will foster creative problem solving and open up their minds to the deeper principles of science, maths and engineering. Given its functionality and high potential learning platform, VEX IQ should certainly become highly valued in classrooms.

Ask the AUDIENCE

Sharing students' work via the internet might seem a bold step, but done with care it can boost confidence, engagement and attainment suggests **Rachel Jones...**

Innovating your practice has to come from a core understanding that what you are doing will benefit those in your classroom. In terms of digital practice, all teachers can benefit from developing some key skills that will enhance core pedagogical principles. However, before you innovate you need to look to consolidate the cornerstones of your teaching: questioning, feedback, differentiation and assessment for learning, so that you have the confidence to know when using technology will have a positive impact, and is not just a gimmick.

Before I go any further:

Myth: You have to be IT savvy/had special training to use IT effectively in lessons.

Reality: The majority of teachers, and this includes learning technologists like me, have had no/little IT training at all. All you need to get it to work is time and a sense of optimism. Anyone can use IT in lessons - it might just be that you need to seek the support of others in your school, but trust me, everything I use in the classroom requires no expertise or super powers... or else I would not be able to get it to work.

Sharing student work is one of the powerful things you can do as a teacher. Making work public gives it a wider audience, which can be transformative in terms of learning. It will probably come as no shock to be told that as a rule, pupils do not consider a teacher's opinion as the be all and end all. An essay or piece of work written on a piece of paper will only be read by one teacher; this is a wasted opportunity. Sharing student work with the wider world tends to up the game of even the most reluctant learner. Who is going to read little Algernon's poem now? Not just Sir or Miss, but actually maybe the head teacher, maybe his parents, maybe anyone in the world. Nothing encourages a child to proofread like knowing his or work is going to be read, widely and perhaps by strangers. Standard of literacy shoot through the roof, and suddenly everyone starts to care about their writing.

The right platform

Sounds good, right? There is no teacher in the land who doesn't want students to develop and improve their work in school. The answer is not magic, it is in fact using the internet to give students' work a wider audience. You can do this is a number of ways, the simplest of which is blogging. There are a number of blogging platforms that you could use. If you are a Google Apps for Education school, then Blogger is probably easiest as it falls within the Google family and children will already have logins. However, if you are not, then there are a number of free blogging platforms. Edu-Blogs is much used in schools, and is basically WordPress with a more 'school friendly' skin. I like WordPress itself, as you are able to add the learners as authors, but also moderate their posts before they go online. You can also do a fair bit to adjust

the theme (the template that dictates how the blog looks) so that it is stylistically pleasing and appropriate for your subject.

The easy bit is setting up the blog and adding the students as authors. The aspect that is slightly more tricky is finding them an audience for their work. Obviously you will be blogging with the knowledge and support of the school (I am very much one for asking for forgiveness rather than permission when it comes to innovation – but this is not one of those times). Make sure that your head of department and SLT are aware of (and support) what you are doing. With this framework in place you can send home a URL website link to parents where they can see their offsprings' work, and ask them to leave comments. In parallel with this, a fantastic homework to set is to ask the class to read each other's posts and provide peer feedback. Having said that you need to create the right climate in your classroom for this to be productive. Students need to be trained in how to provide 'FiSH' type feedback (Friendly, Specific and Helpful), so that they avoid any inappropriate comments. In my experience, however, if children have been used to providing feedback they can become very effective at doing so.

Sticks and stones

This perhaps leads to the importance of every teacher being a teacher of esafety. It is not enough in a school to leave this work to those who teach IT; it must be embedded across the curriculum, especially if you as a subject teacher are planning to make use of online technology. Esafety and being a digital citizen need to be a part of a whole school concerted effort where there is a consistency of approach in every lesson. With that in mind, you also might consider sharing your students' blogs on social media, for example on Twitter, Instagram or Pinterest to attract a wider audience. You could either do this from your own (teacher) social media account, or ask to use the school's account if there is one. This will probably see the work getting an audience, and some lovely comments.

Hang on, though – what about any comments that are not positive or constructive? Well, as the blog admin, how you deal with this inevitability is up to you. You can have settings that will check with you before any comments are posted, and it is within your power to delete them before a student sees them. For me, however, it is more powerful to discuss the comments with the pupil concerned. In four years of blogging my students have only had one silly negative comment, and when I talked to the student concerned (and after a good discussion of trolling) we decided it was a bit sad that this person felt the need to try and attract attention to themselves in that way. This is actually not a bad life lesson to learn in school: not everyone is nice, but we need not pay attention to them. It's a question of building resilience.

Sharing student work digitally is an extension of what is possible in the classroom, but raises the stakes in terms of the expectations that you can have in terms of young people's work and learning. As a teacher, the IT skills required to run this are minimal, but you can really seek maximum impact in terms of raising aspirations and attainment.

ABOUT THE AUTHOR

Rachel Jones is a Google Certified Teacher interested in creativity and innovation in the classroom. She thrives on trying new things and engaging and empowering students. Her blog was a finalist in the 2013 EduBlog awards and was recommended by The Guardian as a must-read for 2014. Rachel is a regular blogger for The Huffington Post and a lively contributor on Twitter @rlj1981. She also curated 'Don't Change the Light Bulbs' (Crown House); a must-read anthology of mantras, lists, aphorisms, advice and activities from some of the UK's most switched-on educators.

Keep up with Rachel at www.createinnovate explore.com

A NEW DIMENSION

3D printing could revolutionise education across the curriculum, says **Richard Green**, but innovation needs to start with the D&T department...

Although 3D printing has been around since 1984 it is still a relatively young technology. Media interest and coverage would tend to suggest that anything and everything has the potential to be 3D printed – from busts of Beethoven and novelty items to prosthetics, not to mention whole buildings and aircraft. One thing is certain: 3D printing is an emerging technology, which is undeniably going to revolutionise aspects of industrial manufacturing.

So what will be its impact in schools and why should students learn about its potential? In 2014 the D&T Association managed a 3D printing project on behalf of the DfE, which aimed to develop the use of these technologies in STEM subjects in primary and secondary schools.

The over-riding message to come out of this programme was that if 3D printing is to be used for anything other than printing out pre-drawn, downloadable files from the internet, it requires understanding and expertise in the use of 3D CAD. Competence in using this software is essential if students are to be able to draw and then print their ideas. Consequently, teacher knowledge of 3D CAD is also essential. Although CAD software is getting easier to use it still requires a significant investment of time in order to gain mastery. In most schools it is in Design and Technology departments where this takes place in the curriculum - and it is difficult to see the use of 3D printing spreading to other subject areas in secondary schools without the involvement of the D&T department.

A second message was that managing expectations is essential. Many teachers entered into the project with little or no knowledge of the technology. In these cases the expectations of what was achievable from 3D printing in schools was often unrealistic. For example: the print process is slow and, once you have seen it once, not particularly interesting to watch; pieces produced tend to be relatively small; and, in most cases, the technology is better at producing component parts of larger objects rather than complete objects themselves; finally, if you can produce the desired outcome more effectively using other manufacturing processes then do not 3D print it. Why, for example, bother to draw and then print a DNA helix when you can

purchase one from any supplies catalogue? As with all tools there will be occasions when it's more appropriate to use different techniques. Here are just a few examples:

When not to 3D print

+ You need lots of the same parts – 3D printing is not very fast so check other methods such as CNC moulds and vacuum forming or injection moulding.
+ For secondary manufacture – 3D printed parts can be used to create CNC machined hard tooling for large quantities or soft, silicon tooling for short production runs.
+ You need lots of different parts – you may not have the capacity to 3D print class sets of individual designs. Hand techniques or hand operated machines may be the only way you can do this.
+ Flat shapes – it might be better to laser cut or profile flat shapes.
+ Material is not the best – the materials for 3D printing are limited so what manufacturing processes do you have for the 'ideal' material (e.g. Nylon, PTFE, acrylic, solid timber, plywood, metal)?
+ Boxes – would it be better to laser cut and assemble a box or create one using folded sheet techniques?

(From an article by Tim Brotherhood and Stuart Douglas, D&T Practice 2:2014, D&T Association)

These factors also caused schools to reflect on how they would develop the use of 3D printing in the future. The general feeling was that having multiple, cheaper printers was a better alternative to one or two more expensive machines. One school actually equipped its 3D design lab with 12 printers so that students, working in pairs, all had access to a device.

The most successful schools were those who were enthusiastic and not afraid to innovate. This meant that on some occasions the work being undertaken failed, but still provided significant learning as a result. In schools where the D&T teachers leading the project engaged colleagues from other subjects it resulted in higher quality work which also helped demonstrate the inter-relatedness of STEM subjects. Often in these schools it also allowed the D&T department to emerge as a curriculum innovator and to demonstrate the true value of the subject as a contributor to STEM.

The primary schools involved made excellent use of entry level CAD software, often using tablet computers. Pupils were able to make high quality, realistic outcomes whereas the previous norm has been to use modeling materials such as paper, card, small section wood and Plasticine with the results often being of low quality. As a result pupil motivation and engagement was enhanced and the schools also reported a positive impact on numeracy and literacy when projects were recorded.

In secondary schools the use of simple CAD software enabled staff in subjects other than D&T to use the printer and engage students in all ability ranges. In addition, students with good experience in the use of 3D CAD were able to make more complex products than was possible using existing manufacturing processes and GCSE and A-level coursework projects were improved through the use of 3D printed parts. The use of 3D printers in extra-curricular STEM clubs also worked well because there was less pressure linked to curriculum requirements and innovative projects and approaches could be tried out with smaller groups and less fear of failure than if this had been attempted in curriculum time.

3D printing is revolutionising industrial manufacturing and in schools, used wisely by confident and competent teachers, it has the power to engage and motivate students across a wide range of subjects, demonstrate 21st century manufacturing processes and so help modernise teaching and learning in D&T and other subjects.

ABOUT THE AUTHOR

Richard Green is Chief Executive at The Design and Technology Association (data.org)

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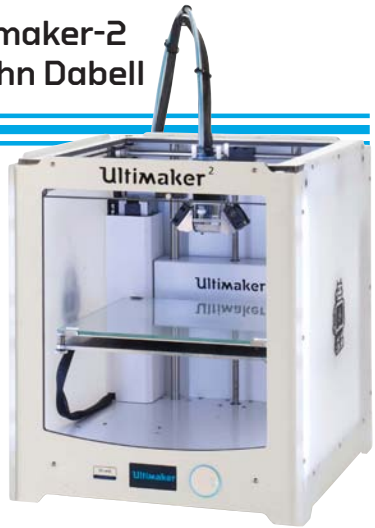


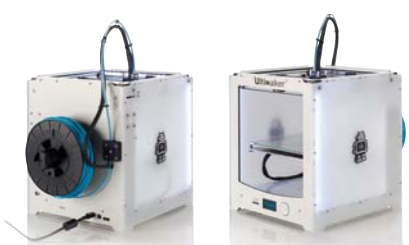
3D printing is insanely exciting and genuinely one of the most revolutionary advances us humans have ever made. At the Science Museum in London there's currently a free exhibition devoted to 3D printing, which ends in January 2015 and showcases over 600 objects. It's absolutely mind-blowing and incredibly inspiring; I highly recommend it.

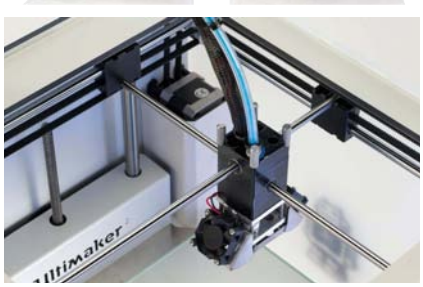
Schools are in the early adoption of 3D printer technology and the potential is massive. There are lots of important considerations to factor in when choosing a printer including the speed of printing, the interface between the printer and the files to be printed, cost of consumables, ease of use, compatibility of firmware with school operating systems and networks and quality and accessibility of aftersales support. One award winning DIY printer definitely worth a look is the Ultimaker 2, the brainchild of Ultimaker BV founded by three Dutch entrepreneurs. This attractive robot has been designed for novice and skilled users and is ideal for school use. It has an open front, translucent sides and interior that is splendidly lit up by strings of lights and a generous build volume. It measures around 38cm x 35cm x 34cm, weighs about 11kg and is built out of premium parts and materials to world class specifications. It comes with cables and user manual and the full starter package, which includes filament reel, SD-card, glue stick, grease and hex wrenches.

The Ultimaker 2 brands itself as an easy and very reliable printer that everyone can use to start printing right away, so I put that claim to the test without delay. There is a fair bit of setting up to do but the excellent user manual guides you through each step, and it's not too complicated. It's a fantastic looking box when powered up and looks like something from a state of the art lab. Now the obvious aim is to design your own 3D model but to get started there are some models already loaded onto the SD Card such as an earring circle and stackable cup. I chose to print a mini-robot. Once I had selected my model and after a bit of heating up the printing started. I was mesmerised. Bit by bit layer by layer, a robot was built before my very eyes and the detail and precision was very impressive.

The results? Well, my expectations were high but the printer exceeded them by a mile. I was impressed with how quiet it was. I expected a fair amount of noise but it hummed no louder than a quiet conversation. It wasn't as fast as I thought it would be – the model took 45 minutes to build, which is worth remembering for lessons when more complicated builds are planned. But it is the precision that really impresses. I can't get over just how accurate it is. My robot was crafted in detail and to a very high standard. This got me thinking. I could create my own 3 dimensional visual aids. I could challenge any class to produce realistic 3D mini-models. Think what you could do in science. How about creating a model of the human heart for example? If you are not afraid to experiment and innovate then Ultimaker 2 is a teaching resource with enormous potential.

You can also download ideas from the online community YouMagine.com. I chose the Champions League Trophy, but other options included an obelisk, maracas, glasses and even a Star Wars light saber. Before this though, I had to run some software from Ultimaker called Cura, which includes everything you need to prepare a 3D file for printing. What the intuitive Cura does is slice a model in layers so that the printer knows what to print. It's easy to use and you can resize and move things without a problem. My trophy is just as impressive as the robot and is made to such a high standard I'm using it as a reward for good behaviour.





I did encounter problems with the Ultimaker 2. After a couple of models the nozzle got blocked and that meant the melted plastic didn't squirt out the way it should, which was hugely frustrating because it wasn't easy to resolve and involved a lot of time getting things back on track. The models I did create sometimes got stuck to the glass plate as well, but that was more user error than anything as you apply some glue to the glass to stop this happening. I am puzzled by the fact that Ultimaker doesn't support printing over a USB connection. Instead there is an SD card slot and the Ultimaker 2 comes with a 4GB card and some test files loaded. There is a USB port on there but apparently this is for firmware updates only. I thought the robot was Wi-Fi ready but it isn't and requires an accessory at extra cost to connect wirelessly. There are some lesson plan ideas, plus other support materials, to be found at createeducation.co.uk. At the moment the balance tips in favour of quality over quantity – over time it will be interesting to see the site and community develop.

3D printing is on track to change the shape of lessons forever. If you can jump over the usual barriers of access, funding, teacher awareness and confidence then the Ultimaker 2 could be a giant leap for your school. Stick one in your fab lab, see what digital ideas students can produce in 3D form and watch their creativity and independence grow.

VERDICT

+ Solid success

The Ultimaker 2 is the ultimate, out of the box 3D printer, with a reliability and durability that schools will love.

UP WE GO!

Inject some real fun into STEM teaching and learning with an innovative range of 3D printers...

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3D printing is a fun and engaging way to help young people develop a wide skillset – from art & design to mathematics - and with this in mind, Denford Limited supplies high-quality, easy to use 3D printing technology, nurturing an interest in science and engineering at an early stage.

Whether at home or in the classroom, the UP range of compact, portable, desktop 3D Printers makes it easy and affordable to bring ideas to life with precision prints; and our 3D Printers are used in classrooms around the world, alongside industry-leading brands, in high-profile educational projects.

UP 3D Printers are small but mighty, with 'click and print' technology for fast and accurate printing, and easy-to-use UP 3D Printing software. The Printers are durable and safe, and you can keep running costs low with the confidence that every 3D part will be finished to a high standard – whether it be in ABS or PLA filament.

The smallest of the UP range, the UP mini, at a price of £465 + VAT, is safe for children over eight years old and will encourage them to think, design and make in 3D from an early age. They will be able to create and customise their own designs with ease and build one-of-a-kind toys and models, literally at the touch of a button!

UP 3D Printers provide affordable, user-friendly 3D printing. They work straight out of the box and come with everything you need to allow you to start printing your 3D models straight away: UP 3D printing software, a spool of ABS filament, perforated build platforms, and a tool kit and manual. Each printer in the range is easy to set up and use, and is accompanied by a full 12 month warranty.

Robust, safe and reliable, UP 3D Printers give young people the tools to develop strengths across the curriculum. Let them make what they love and love what they make, with the UP mini, the UP Plus 2 and the UP BOX!

MORE INFO

For further details, visit up3dprinters.co.uk or contact Denford on 01484 728000

Q&A

TECHNOLOGY SUPPLIES LTD

Product management team leader, Jamie Smith, has some great news for D&T departments...

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T&I: Why do you think so many schools choose you as their D&T equipment, tools and materials supplier?

JS: Like you, we're passionate about Design and Technology. We're here thanks to Mike and Roger, two D&T teachers. Their vision was to make it easier to find all the things you need, for less. We've been doing just that for nearly 30 years. Being around that long, people learn to trust you. We work hard to find the best equipment that schools can afford. And that leads to long standing relationships.

Is your product range entirely compatible with the latest D&T curriculum?

Yes. We hold more than 7,000 products in our warehouse. From reliable D&T tools that stand the test of time, through to innovative project kits and programmable components. We try to offer something for everyone. Be that a simple electronics kit, or a complete STEM project.

We recently visited the DATA summer school, where we learned about the exciting changes to the curriculum. I know it's not going to be easy. But we are set up and ready to support teachers every step of that journey.

Are you able to offer schools advice before they purchase, and support afterwards?

We love to talk about what we know. And we're always happy to help. Be that some advice on tech like 3D printers, troubleshooting, or just a good old chat about what's new. Our Technical Support Team is available to you over the lifetime of all of our products. We also offer training onsite or at our head office, whatever works best for you.

What can you suggest to schools by way of affordable 3D printing technology?

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Jamie Smith leads the product management team at Technology Supplies and has over nine years' experience in design and manufacturing of plastics, machinery and natural products.

SWITCH **OVER**

Flipping your classroom could result in some seriously exciting teaching and learning, says Oliver Quinlan – but there will be challenges to overcome along the way...

How should digital technology be used in schools? Should it just support teachers in time tested ways of teaching? Or should it completely change the way learning happens? I've spent time over the past year looking at what takes place when teachers use technology to flip their classroom. This is a fundamental change to how they work, and can present a challenge. Despite the hurdles, however, I've seen several schools find that a different approach to learning and teaching can have many benefits.

Nesta's 2012 report 'Decoding Learning' found that in 2009-10 we spent £487 million on ICT in UK schools. However, it is not clear how this spending improved learning. We know many teachers are using technology to enhance the experiences, progress and achievement of their students; the web is full of powerful anecdotes of success from individual classes and schools. To make the most of this potential, though, we need to better understand how this can happen at scale; how it can spread across larger numbers of schools.

The Khan principle

In the last 18 months, I've been running experiments for Nesta and NFER on technologies that could have potential for

5 RESOURCES FOR FLIPPED LEARNING

1. The Khan Academy (khanacademy.org)
2. Hegarty Maths (hegartymaths.com)
3. Brix (brixlearning.com) (A level Maths focus)
4. BBC Bitesize (bbc.co.uk/bitesize)
5. YouTube (youtube.com) (Lots of videos exist in different subjects, but extensive searching is needed to identify what you need)

impact. One of these is flipped learning, an approach made popular by the Khan Academy. The founder, Sal Khan, began by making video tutorials to teach maths to his younger cousins and putting them on YouTube. Alongside his cousins, millions of people discovered them when looking for help with their own skills.

The central idea of flipped learning is that we can use technology to rearrange how teaching takes place. Advocates argue that teachers often spend much of their lesson time teaching new concepts. Homework is usually used to practise and reinforce these concepts. With flipped learning this process is reversed, facilitated by lectures and tutorials hosted online so they can be watched any time, anywhere.

Rather than a teacher spending time lecturing on a new concept at the start of a lesson, then, the students will already have accessed a similar lecture at home, in their own time, and as many times as they found necessary to grasp the idea. They arrive to lessons ready for active tasks practising, applying and refining their understanding. This frees up more lesson time for active learning. Teachers have more time to coach, solve misconceptions and challenge pupils. It can also allow for more personalised tasks. Rather than a whole class trying to work at the same pace, individuals can complete different challenges depending on their level of understanding.

Trials in the US found that although the Khan Academy is based on flipping the classroom, teachers making use of the videos were routintly simply incoporating them into normal lessons. This may have enhanced their teaching, but it doesn't change how learning happens in lessons and homework time as intended. We were interested in whether this was inevitable. Will technology will only work in schools if it supports existing practices? Can it alter the dynamics of teaching and learning?

Tried and tested

To investigate further, we took the Khan Academy resources to five schools in Scotland and asked teachers to flip their classrooms – genuinely. By way of support, we mapped the American resources to the English and Scottish national curricula. We also wrote a guide for teachers on how to flip their classroom in practice.

For many teachers this approach presented a challenge. There is always some initial work in getting to grips with the technology itself and making sure all students have access. The greatest barrier though was cultural. If students haven't engaged with their homework then it can be impossible for them to access the activities in the following lesson. The thorny issue of making sure students complete homework becomes vital.

There is also the not insignificant challenge of changing your role as a teacher. Losing that sense of leading the whole class forward together through teacher led activity was a challenging shift for many. The system provides data on how well students have done on practice questions before the lesson. Yet, looking at data just doesn't feel the same as seeing the looks on their faces as you explain a concept. How we keep this personal connection while making the most of technology is a perennial question for teaching.

The challenges of change are not insurmountable and getting through them can lead to great benefits. Several schools in our trial significantly changed the teaching and learning in their classrooms. I observed a lesson where learning from home continued as soon as students walked through the door as they chatted about where they had struggled as part of their homework. Some teachers noted that this approach led to their students learning more independently than they had before.

This opens up another side of trialling technologies – that they can have effects beyond those of just academic attainment. Such is the complex nature of schools; while it is important to achieve academic results, we are also aiming to encourage a wide variety of skills and attitudes.

ABOUT THE AUTHOR

Oliver is an education researcher and writer. He manages research projects for innovation charity Nesta. His book 'The Thinking Teacher' makes the case for teachers questioning the purpose of education, using ideas from psychology, business and technology. It is available at thethinkingteacher.com.

NEED TO KNOW

Thinking of trying out Flipped Learning? Here are some questions to ask yourself before getting started:

+ Do your students all have reliable access to online resources at home?
+ Do you have a way of pointing them to the right resources such as email or a learning platform they use? Some resources such as Khan Academy have built in ways of setting work, others such as YouTube require you to devise your own way.
+ Can you offer them time out of lessons but in school to do their homework such as in a library or computer room at lunch time?
+ Are you fully comfortable with different students learning different things at different times?
+ Do your students have some independent learning skills, or do you want to use the approach to develop them?
+ Are you prepared to shift your focus from explaining new concepts to coaching and mentoring students?
+ Do you have the right resources for your students? The Khan Academy can be challenging for lower attaining students; Hegarty Maths and BBC Bitesize cater for different ranges of students.
+ Are you prepared to make a change and stick with it for a while? Big shifts in teaching and learning take time to embed, and you need to be able to develop your approach and for students to get used to it. Shortly before high stakes exams is not the time to start, although resources designed for flipped learning can be useful for revision.

Fit for PURPOSE

Is there really a place for technology in PE and sports? Yes, says **Crispin Andrews** - and ignoring it could prove costly for today's young people..

Today's school children have no experience of what the world was like before smartphones, the internet and social media. In its report 'Class of 2035', Global trends consultancy the Future Foundation claims that by 2020, there will be 40.9 billion connected devices in conversation. The study, which was carried out for school sport charity the Youth Sport Trust, also found that young people spend on average thirty to forty minutes a day active - but more than three hours using technology.

The report cites a 2014 survey, which identified that 46% of 7-15 year olds owned smartphones, rising to 75% of 12-15 year olds. The same survey showed that 51% of 7-15 year olds owned tablets, 74% had access to games consoles and 51% hand held consoles. Seventy percent of 7-11 year olds surveyed said they used YouTube. So did 89% of 12-15 year olds. Seventy two percent used Facebook.

In the past, technology has been seen as the enemy of physical activity. Why get all hot and sweaty - or worse still play sport in the rain and mud - when you can sit on the sofa and play FIFA 15 on the PlayStation? However, The Future Foundation researchers spoke to a range of education and sports development experts, who told them that wearable technology actually has a great deal of potential to enhance physical activity. The researchers further argue that ignoring its capacity to empower young people, could, in the future, lead to PE and school sport becoming irrelevant to technology mad youngsters, whose physical and mental health would suffer as a result.

Free range

Today's young people aren't just digital natives – technophiles, unresponsive to non-technological forms of communication. Neither is it the technology itself that youngsters crave, but more the freedom it offers them to interact with friends, unsupervised, or unrestricted; freedom that has been curbed in the outside world, as modern day culture becomes more fearful and risk averse. Within this culture, the report states, children aren't just the objects of fear and concern, but the cause of it. There are paedos and asbos on every street corner, even when there's not; that's what fear does to public perception.

The report suggests that schools should integrate both technology and physical activity into the everyday lives of pupils. The question is, how best to do it?

Action stations

PROFESSIONAL SPORTS TEAMS AND PLAYERS ALREADY USE TECHNOLOGY TO GET, AND KEEP, AN EDGE OVER THEIR OPPONENTS:

+ International rugby coaches track players' movements in training, using GPS sensors placed in their shirts. They can tell how hard a player is training and whether they're following tactical plans.
+ International cricket teams use programmable bowling machines that give batters realistic practice. The machines can replicate the style of bowling used by opposition bowlers.
+ Borussia Dortmund Football Club in Germany has a footballnaut training room to improve players' passing skills. Balls shoot out from four different parts of the room and the receiving player controls and passes to one of the many surrounding targets.
+ The Women's Tennis Association allows coaches to use performance management software on court. Four high-definition cameras set up on a tennis court provide coaches with real time tactical management support. The system tracks the height of the ball over the net, serve speed, form and the depth of balls on the court. It also has a workout function, which tracks the amount of calories burned and the distance a player has covered.
+ McLaren Formula One Team, the San Francisco 49ers and the National Hockey League are just a few of the big time sports clubs using software to send send real time information to fans at matches and events, and to homes all over the world.

Dr Ashley Casey, lecturer in pedagogy at Loughborough University, says that it's not the technology itself that's important but how teachers and young people use it. "Gorillas can take photos with iPhones; but it doesn't mean they know what they're doing or why," he says. 'Often, we come at technology from the wrong direction. My favourite app would always be something boring, like a PDF reader, because it helps me do my job as an academic."
"You don't go to the shop to buy a drill, because you need a drill," Casey adds. "You buy a drill because you need a hole and shops don't sell holes. Depending on how you use it, technology can be very important way of filling gaps in teaching practice." He suggests that teachers identify the holes in their teaching practice, then decide on the best way of filling them. This is where technology can help. "Technology can do things we can't do," he explains. "An iPhone can record a photo finish at a sports day race, accurately, and enable participants to determine, without doubt, who came where in the race. With time delay video on an iPad, a teacher can record kids doing an activity, play it back and provide immediate visual feedback."

Winning ways

Casey adds that this sort of thing accelerates the learning process. Without the technology, teacher and pupils rely on memory and interpretation; both are subjective, neither reliable. The teacher could spend more time explaining what she has seen, than it took for the young person to actually do the activity. And there's no guarantee at the end of it that the teacher would persuade the young person that she'd seen things accurately, let alone interpreted what had happened, fairly. Show them the footage, however, and even the most egotistic or stubborn person can't argue.

And there's so much technology out there. Gamified sport such as Run An Empire combines a video game-style smartphone app with running challenges. A tennis racquet created by Babolat uses data collected by electronics in the handle to measure metrics about technique and relay the information to a smartphone app. Ashley Casey adds that technology could also be used to enable teachers and parents to effectively monitor and analyse the activity and fitness levels of children and young people.

Teachers don't need to be technology experts to do this sort of thing, just creative users of simple innovations. Used well, technology enables and facilitates, as Ashley Casey suggests, "Like a good football referee, who remains in the background, almost unnoticed, while the players go about their business to the best of their abilities".

RISKY BUSINESS

Teachers are used to being observed and assessed, says A Benjeddi – but to unleash real innovation, they need to be allowed to make mistakes along the way...

With more and more technology being poured into most schools, the question remains: what to do with it all? Can this technology influence a school's expectations or change its direction? How can schools take advantage of what's available? Sometimes it seems that we assume teachers have some kind of innate gift and affinity with technology that just happens overnight – and of course, this is simply not the case.

For a successful implementation of ICT across the whole school, I believe there are three areas to be looked at. A good and reliable ICT system (hardware and software) is just the first of those areas – you need to have well designed infrastructure with good quality devices. The second one is appropriate use of the ICT (there is currently a lot of use of technology, but it can tend to be basic and monotonous). But in my view to compete the picture – and most importantly – you need to have creativity and innovation throughout the whole school, and you can only get this if you have confident teachers and supportive leadership, which leads to motivated students. So how can you acquire that?

I have spent most of my teaching career building ICT-confident teachers in the schools I worked in, because I believe that creative and innovative use of ICT will automatically have a positive impact on learning, and raise students' academic achievement. RiskITWeek.com is a strategy I devised that has been tried and tested by many schools in and outside the UK, allowing them to have a holistic approach to training. In a nutshell, RiskIT strategy is about all staff using ICT as a means to improve teaching.

How does it work?

RiskIT gives teachers an opportunity and framework within which they can experiment with new technologies and ideas that they have not tried before in a lesson and with a class of their choice. Success or failure of the activity is not relevant, the main

purpose of the risk-taking is to throw themselves in the deep end, knowing there is someone with them to support them and that they are not being judged. Just like a child learning to swim or a teenager playing a computer game; if you fail, you just pick yourself up and try again, as long as you learn from your mistakes

What do teachers do?

Staff members take a risk and use a piece of technology they have not used before with their class; this can be anything from trying out a new interactive application or camera to simply making use of the IWB.

There are only two requirements for teachers:

1. It needs to be your first time using the piece of ICT with students.
2. You must be willing to receive visitors during that lesson:
   A. The visitors must not be judgmental; they are not there to evaluate the lesson or the performance of the teacher. Their visit is purely to observe how technology is being used and learn any lessons from the session which they in turn can take to their own classroom.
   B. The SLT's visit must be planned; it should be about giving maximum support in building the teacher's confidence (risk-taker). The SLT must give 'positive only' comments in writing as this is not an observation but fundamental steps in changing the culture and the mind-set of the whole school.

What happens during the RiskITWeek period?

+The strategy needs to be published throughout the school, so that during the week the whole school will be celebrating innovation and creativity. Teachers will engage with students and discuss ideas and even get help from them if necessary.
+ A timetable of the risk-takers should be shared and SLT allocated and reminded to visit.
+Photographs and videos must be taken for future reference and also shared on the RiskITWeek website.
+Risk-takers' feelings must be nourished and encouraged, to keep momentum and build confidence.
+Some kind of acknowledgment must also be planned: a dvd of all activities with after-event interviews or even a printed book with their photos and a description of the session.

This strategy is intended to take all the teachers out of their comfort zone and turn them into 'learners', with the added safety net that allows them to deliver the same lesson using a piece of technology (software or hardware) for the first time. Teachers always rise to the challenge and become more enthused and energetic; suddenly they see things differently. Students who are informed about the event are always supportive, they enjoy seeing their teacher learning the same way they are, by trial and error, leading by example. Teachers need to be reassured that taking part in the scheme does not mean abandoning the content of their lesson; as a matter of fact they should try as much as possible to stick to their curriculum but with the added twist of the innovative delivery.

ABOUT THE AUTHOR

Mr A Benjeddi is a teacher, ICT advisor and trainer, and the founder of RiskITWeek. com @benjeddi

RISK BENEFITS

During one RiskITWeek, a food technology teacher created a series of videos that we put on the school's VLE. The following week a student came with some bread cooked at home to show her teacher and she said: "Look miss, I cooked this with my mum yesterday and we did it by following your video".

Prior to that initiative, the teacher could only demonstrate live to a crowd of students around the table, where most of them couldn't even reach the table or see the teacher, let alone learn. Now with the use of a visualiser on her desk, she can ensure that everyone takes part in cooking, and those who need to practise at home can use the videos to guide them.

It is simple but effective way to deliver a curriculum. This teacher also uses the VLE to inform parents about various foods, healthy eating and advice; the education therefore is extended beyond students.

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Q&A

LASER & LED PROJECTION

Time and money are often in short supply for schools – Phil Clark, Head of Projector Division at Casio UK, explains how lamp-free projection could save both...

VISIT: WWW.CASIO.CO.UK/PROJECTORS CALL: 020 8208 9453 EMAIL: PROJECTORS@CASIO.CO.UK

T&I: Why is laser & LED projection such a potentially exciting technological development for schools?

PC: The Laser & LED Hybrid technology presents a new way of generating an image from a projector, removing the lamp and hazardous mercury and replacing them with laser & LED. This has a number of benefits including a consistent image over the product life time with minimal drop off in brightness, due to the fact that there isn't a lamp. This negates the need to ever pull blinds or draw curtains so that students can see. The lifetime is also increased compared to a standard projector, with consistent brilliance ensured for well over 10,000 hours.

How does a hybrid light source projector compare with a traditional, lamp-based option in terms of cost?

Laser & LED projection presents a cost effective and environmentally friendly option vs lamp based competitors. Operationally, making the switch to Laser & LED will save on average 35% of the power cost, significantly contributing towards wider sustainability initiatives. The user will also never need to purchase replacement lamps or filters for very little maintenance, saving both time and money. We recently received feedback from Lipson Academy, which has replaced its 73 projectors with Laser & LED models and following a few other updates to the lighting and IT infrastructure has saved £1,215 in electricity across the display portfolio.

What products does Casio have to offer with especial benefits for the education sector?

Our Ultra Short Throw (UST) model is extremely popular, generating an image of over 80" from a distance of just 27cm. This is so close to the screens that it removes the traditional problem of a light shining in your eyes. As there are no parts that need to warm up the projectors start instantly, so lessons can begin promptly. They can also be placed on a timer to shut down so no one needs to physically turn them off. Casio's RJ45 LAN based projectors support free room management software allowing you to control up to 256 projectors at once.

Can schools have a no-obligation chat with a Casio specialist, to ascertain whether or not this technology will be suitable for their needs?

Absolutely, we even go one step further and will come to you at a convenient time with a selection of our projectors to provide your team with a complete demo. This lets you get your hands on the products, see them in your own environment and really get an understanding of how they will work for you. All you need to do is get in touch to let us know what time will work for you. We also provide samples on loan if a school would like to have one in place to compare with the other units

How can warranty be maximised within an investment of this kind?

We understand that making the switch to a brand new technology platform is a big step so we offer a five year / 10,000 hour warranty to make it a little easier. This equates to eight and a half hours of use every school day for five years. This really proves how confident we are at Casio about the reliability of our technology and is far beyond the lifetime of any lamp, so you're on to a guaranteed winner.

What level of ongoing support does Casio provide for customers?

If we look at the whole customer journey, Casio supports customers with a site visit alongside a reseller, so we can help establish exactly what the requirements are, from room size through to ambient light levels. We make the warranty process really simple and easy for schools ensuring that in the unlikely event of a unit needing to be serviced by Casio, the process is smooth and efficient. Casio even supplies loan units whilst an existing projector is repaired, reducing any classroom downtime to a bare minimum. In short, at Casio we pride ourselves on offering excellent support to our customers.

Clicker Apps

From the makers of Clicker 6

Combining classic Clicker support features with the latest classroom technology, our Clicker Apps give learners with special educational needs access to proven literacy support tools developed specifically for the iPad.

Clicker Books

What really sets Clicker Books apart from other book making apps is the customisable reading and writing support it offers, which empowers students of all abilities to independently demonstrate their knowledge of a particular subject or showcase their creative writing ideas. Clicker Books is particularly effective when used to support learners with dyslexia and struggling spellers.

"I am currently using Clicker Books with a high school class. One of our lower level students, who has a tremendously hard time reading and writing, took to the app like a fish to water. I was surprised and encouraged to see how engaged and excited he was... To be able to complete a project as his peers are, and have something to share, has really boosted this student's confidence."

Donna Schneider – Assistive Technology Specialist

Clicker Docs

Transform your iPad into a student-friendly word processor with Clicker Docs. Watch your students' skills and confidence grow as they use the range of writing support tools on offer to create accurate, flowing documents and achieve writing success across the curriculum.

"Clicker Docs incorporates a wide range of support features for students who have challenges with the writing process, including auditory feedback as sentences are punctuated and phonetic, speech-supported word prediction...It's also a huge benefit for both teachers and students that you can simply copy and paste text from any source and create an alphabetised Word Bank with just a few taps!"

Dr Brian Friedlander – Assistive Technology Consultant

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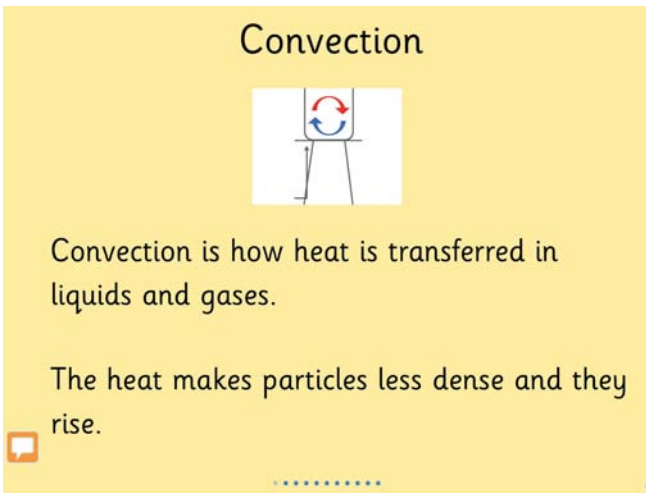
CLICKER: AN INCLUSIVE SOLUTION

Teacher Jon Hickman tells T&I how he uses software and apps to help EAL students and learners with special needs access the science curriculum...



I work as a science teacher at Kelvin Hall, a secondary school in Hull. I also have a specialism in SEN. I recently completed my OCR Level 5 course in becoming a specialist teacher for students with dyslexia, and was introduced to Clicker by one of my course mentors. I felt it had real potential for helping students with special needs to access the science curriculum more effectively.

I trialled a couple of the Clicker Apps on my staff iPad and really liked them. We use a combination of laptops and iPads in school, so we decided to also buy some Clicker 6 licenses for five of the computers to ensure that students could access Clicker support on either device.

Clicker 6 has been particularly useful for the children I work with who have dyslexia, and also those for whom English is not their first language. I am able to provide them with vocabulary banks and opening statements specific to the experiment or topic we are studying, so when it comes to writing up the experiment or commenting on how changing a particular variable might affect the result, they have all those useful words and phrases at their fingertips. The fact that their work is read back to them means they are able to check what they are writing and independently edit their own work.

The outcomes have been very positive – all of the children have demonstrated significantly improved literacy skills, and overall attainment has improved by at least a couple of sub-levels per child. Their work is much easier to read and they are able to get their ideas down much more quickly, and achieve a lot more within the timeframe of a lesson. What's really important is that with the help of Clicker, they are encouraged to use that key subject-specific vocabulary in context and produce more detailed explanations.

Targeted resources

The ability to be able to quickly make differentiated resources that are subject specific is a huge benefit. For example, in the 2014/15 academic year I worked with a student in Year 7 who has severe learning difficulties and is also learning English as an additional language – he has various learning barriers to overcome. His target was to be at level 2A before entering Y8. It's very difficult to find appropriate science resources for the KS3 curriculum that are aimed at students working at less than a level 3 or 4; with Clicker, I can make them myself.

The student in question predominantly uses the Clicker Apps; he finds the iPad very motivating and easy to use. I use the Clicker Books app to create talking books containing the key information for that particular lesson or experiment – these include pictures and simplified vocabulary. If there are any words he struggles to read, the app will read them to him. I then include some questions at the end for him to answer; again, he has support features like the speech feedback, vocab banks and word prediction to help him do this.

He is now able to really engage with the curriculum, extract the relevant information from the books and demonstrate his understanding via his answers. I have a much better gauge of where he is at now, and am pleased to say that he is already exceeding his target and working at level 3A. His tutor recently told me that this boy, who really struggles in his other lessons, becomes incredibly animated and excited when asked about science – it's his favourite subject. We are planning on providing this support in other lessons now so that he is able to make the same progress in other areas. Clicker makes it possible to create personalised lessons for him, and this really does make all the difference.

In the past, it would have taken me hours to create differentiated resources and worksheets for all these learners, now I can do it in a matter of minutes. Clicker is creating a generation of independent learners who for the first time ever, don't need an extra member of staff in the room to support them. It is possible for them to achieve and succeed all on their own, which is very exciting for them, and for me.

MORE INFO

Find out more about Clicker and other educational software solutions from Crick Software at www.cricksoft.com

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READY FOR ANYTHING

Discover how an award-winning technological innovation could make your next Ofsted inspection a much less daunting proposition...

The new Common Inspection Framework will bring about some major changes to the way in which Ofsted inspects and assesses schools. With timeframes for inspections so tight, savvy schools will be ensuring that they are always Ofsted ready, armed with robust evidence for when the inspectors arrive.

GCSEPod is well placed to help schools better prepare for this new wave of inspections, arming schools with undisputed evidence and reporting tools to satisfy the most stringent of inspectors, whilst providing a resource that students and teachers alike want to use.

Launched to the schools market in 2010 and targeted at Key Stage 4 students with easy to use, content-rich audio visual podcasts to support GCSE learning and revision across the whole curriculum, GCSEPod has won numerous education awards and last year the product took a massive step forward with the launch of GCSEPod 2.0.

Specifically designed to take advantage of both the rapid increase in the ownership and use of smartphones and handheld devices amongst GCSE students as well as this group's increased expectations of what they can do with mobile devices, it also provides a safe and easy to use platform for teachers who are unfamiliar with mobile technology and encourages the profession to embrace mobile learning, beyond the use of GCSEPod content alone. So how can it help with the new wave of inspections?

Closing the gap

Recent government figures show that only 37.9% of disadvantaged students achieve 5 or more A*-C grades in GCSE examinations in comparison with 64.5% of other students; it's little wonder that one of the key things inspectors will be looking for is how schools are closing the gap between disadvantaged students and others.

The software provides the reporting and evaluation tools for schools to clearly demonstrate the impact of their investment amongst specific target groups and has been designed to help schools track the use and impact of GCSEPod amongst individuals as well as whole year groups.

Improve outcomes

Schools all over the country report significant improvements in outcome as a direct result of GCSEPod. With the introduction of the new inspection structure from 2015 and Progress 8 from 2016, schools will have to demonstrate how they are raising the standards of each individual. Exam results at Toynbee School in Hampshire jumped a staggering 15% in one year since the introduction of GCSEPod. The school's RAISEonline report confirms the huge leap in exam success, bucking the trend against a national backdrop of falling results. Derryn Hinks, Deputy Head Teacher at the school attributes much of this success to the introduction of GCSEPod. "The pupils here love 'podding,' as we call it," she says, "and it helps them to learn where and when they want as the bite sized chunks of learning are just right for them. Usage stats certainly support this and usage has progressively risen since we introduced GCSEPod in January last year, but we witnessed a huge spike during last summer's exam period and could quite clearly match downloads to our students' revision plans and their results."

"Usage amongst some of our specific student groups has been remarkable," she continues. "Ofsted's RAISEonline report shows that exam results across the board rose, but particularly amongst our pupil premium students. GCSEPod has helped us to meet the specifics needs of this target group with a resource that benefits the entire school. We can also see that usage amongst some of our harder to reach students continues to rise; in fact some of our higher users are members of our internal exclusion groups."

Ofsted ready reporting

Last but not least, GCSEPod is introducing a new layer to its software allowing users to produce Ofsted Ready Reports at the touch of a button - going a long way to helping schools demonstrate how they are helping their students to achieve their best and making that dreaded call to say the inspectors are on their way so much easier to swallow!

MORE INFO

Find out more at www.gcsepod.com

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"Mathletics has been an invaluable independent learning tool. Students enjoy maths when they get questions correct or can see where they went wrong. The instant feedback with the available help options given by Mathletics are the features that make this a very successful product."
Peter Manns, The Heathland School

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BRING SCIENCE TO LIFE

Discover a stunning resource that can put the whole universe in your students' hands ...

IntoScience is a ground-breaking leap forward in secondary school science education. Through hugely engaging 3D environments, virtual experiments and deep contextual activities, all fields of science are brought to life. Learners can expand their learning through inquiry, knowledge, application and reasoning.

IntoScience brings the theory of science to life in a way no book or other resource can. From playing basketball on the moon to discovering differences between weight and mass, crashing a car to learn about friction or exploring virtual Asian woodland to learn about the taxonomy hierarchy, IntoScience offers experiences for learning which are out of this world, yet remain true to the principles of science. It is not designed to replace experiments but brings the enthusiasm and passion which pupils have doing experiments, to the learning of the theory behind those experiments and the scientific concepts involved.

For teachers, it offers 140+ curriculum activities with detailed lesson guides for every activity; diagnostic mid and end challenges to measure student progress; live feedback on student and class results and profiling across key areas of knowledge application and reasoning. It also offers formative assessment with knowledge, application and reasoning questions and live science quiz competitions between students.

For students, IntoScience provides personal avatar customisation and each student accesses his or her own research lab, observatory and biodome. There are 140+ engaging science activities, simulations and experiments (e.g. Crash Test Zone, Cell Explorer, Energy Island, the Aswan Dam and many more engaging learning spaces); hundreds of HD videos; a live science quiz game against other students in addition

to inquiry point tracking and mid and end topic challenges.

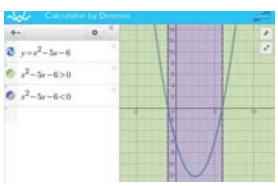
IntoScience is accessible via web browser, desktop app or on iPad (coming soon to Android tablet devices), offering the same great experience and features across all platforms. It is also compatible with Smart boards and interactive whiteboards for use at the front of the class. IntoScience is ideal for whole class teaching and independent learning and for homework, consolidation, flipped learning and revision.

FACING THE CHALLENGE

Hannah's sweets gave us a taste of things to come for GCSE maths – luckily, there's a resource on hand to help...

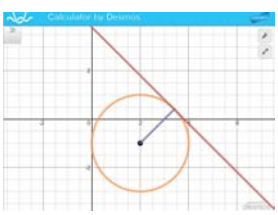
You won't have failed to miss the uproar caused by the Edexcel GCSE maths paper this summer; students took social media by storm to vent their frustration at the question that had left them flummoxed in the exam. Anxious faces could be found in the staffroom too, as teachers were faced with the reality of the types of questions that the new maths GCSE could bring.

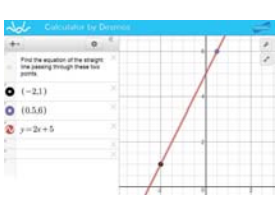
3P Learning is committed to supporting teachers through this transition and helping them prepare for teaching the new maths GCSE from September, and the company is proud to launch its Mathletics Graphical Calculator powered by Desmos to help teachers and students in understanding some of the more challenging new content introduced in the new GCSE, for example:



the graphical representation of quadratic inequalities

the equation of a tangent to a circle at a given point





the equation of the line through two given points

In addition, new GCSE courses are available in Mathletics, combining activities, eBooks, videos and interactives to help year 10 students prepare for their GCSE whilst year 11s can continue on the old GCSE course.

The recently released comprehensive Reports tool enables teachers to view strengths and weaknesses, and track pupil progress. Student performance in assessments is mapped against curriculum expectations to identify and address knowledge gaps. Also, 3p Learning is now developing a tool that will enable teachers to create their own assessments, either using a bank of ready-made questions or by writing their own... so watch this space!

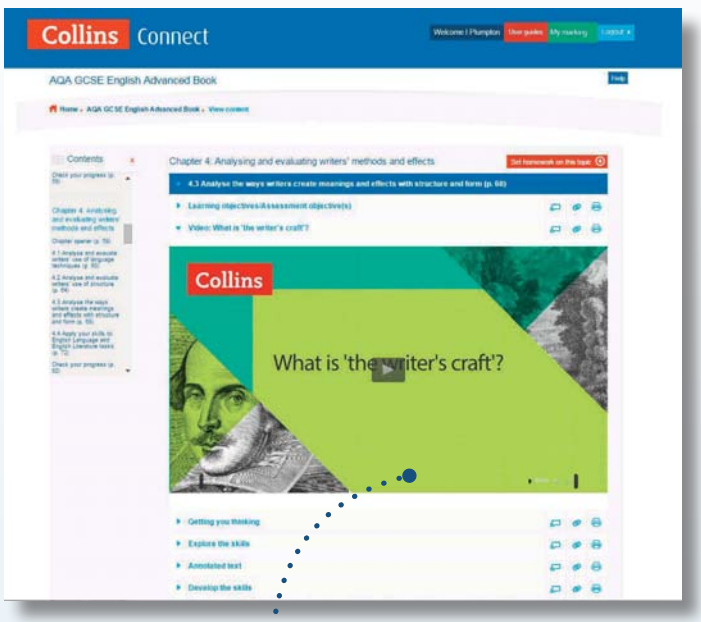
MORE INFO

www.intoscience.com
www.mathletics.co.uk

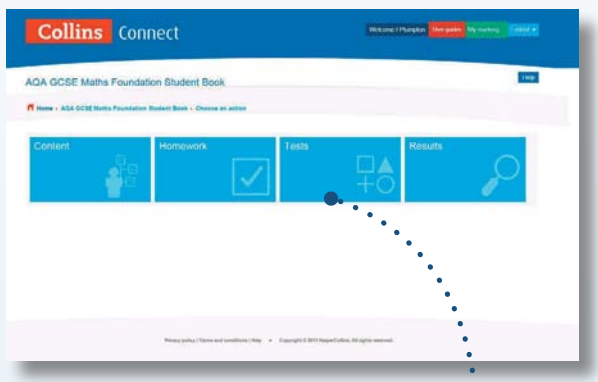
Collins Connect

Collins Connect is an online learning platform, designed to support teachers to manage homework setting and assessments while providing a wealth of content and interactive activities - ideal as a front-of-class learning tool and to support independent learning outside lessons.

- Quick and easy to get up and running in your school
- Use SIMS SYNC to import all your student data and track assements and homework in one place
- Display digital content on all devices, from whiteboards to smartphones
- Identify strengths and weaknesses amongst individuals and the whole year group with the homework feedback function



Currently available for KS3 English, French, Maths and Science, plus GCSE Maths and English. GCSE Science will be available in 2016.



Easily launch videos, quizzes, interactive activities and more straight from the page

Clear navigation enables students and teachers to quickly access key features

HOW DO I FIND OUT MORE?

View free samples at **http://connect.collins.co.uk/secondary-teaching-resources**

Email **education.marketing@harpercollins.co.uk** to be kept up-to-date with the latest news

Contact **education.support@harpercollins.co.uk** to request a 14-day trial

COLLINS CONNECT

Contact: **connect.collins.co.uk** Reviewed by: **John Dabell**

At an inset session once I heard someone say that a teacher can make over 3,000 nontrivial decisions every day. Is that all? I thought. The guru continued by saying that learning platforms can help reduce this complexity through providing onestop shops for teachers to access lessons, digital content and set assignments all with a single login. My noggin agreed. Yes, they keep you organised – but there are many benefits to VLPs beyond that.

There are plenty of online learning platforms out there and one well worth considering comes in the shape of Collins Connect. This has been designed to support teachers and pupils by providing miles of content and piles of interactive goodies that work well for front line teaching to the whole class or to support independent learning and homework. Collins has gone to great lengths to ensure this platform delivers what teachers want by consulting with schools and testing it extensively so that it is easy to use and straightforward to implement. So, does it live up to the claims?

Well, what I immediately like is the simplicity of setting it up and of its course selection dashboard. Once you log in, you are presented with a clean and crisp home page with options to choose a course that your school has subscribed to, 'My Homework' and 'Notifications'. When you have clicked onto the subject you want then you are faced with three areas on the action dashboard: content, homework and results. Click into the contents tab and you will have access to all the course content and quickly be able navigate to any topic. Click again and this will reveal the sub-topics.

Digging deeper

The content I viewed within KS3 science is impressive and contains a whole menu of ideas and things to do such as quick starters, introductions, video clips, topic information and creative homework tasks. The layout and design is uncomplicated and mirrors that of the whole site itself. It is well-dressed, breathes authority and looks as reliable as a Grenadier guard.

If you want to set homework on a particular area then click 'set homework on this topic', make your choices and click finish and assign. Enter a name for your homework and any instructions you want pupils to follow – they'll even get alerted as deadlines approach so there are no excuses. You can also give feedback to one another on assignments and see detailed results by class, assignment or pupil. Yes, it's that easy.

If you have SIMS in your school then it makes perfect sense to integrate it with Collins Connect using the software provided as this will import pupil and teacher data and offer you the full functionality of the site. You can easily see your groups as these will have been imported from SIMS. Click on a tile, see all the names and easily subdivide them if needs be by simple click and drag. As SIMS data is synchronised each day then any changes are captured immediately. Think how easy it will be for reporting and setting tests. If you don't use SIMS then Collins Connect can still be used as a standalone version.

If you have set any homework or tests the My Homework screen shows you what pupils have submitted and what it is you have to mark. These are ordered oldest deadline first. Click on a tile to launch the test screen and you are off. You have your own set of Notifications, too, which remind you when you have set homework or a test, when a deadline is about to expire, when a deadline has expired and results are available, or when a deadline has expired and answers are ready to be marked. A good learning platform has benefits for all who participate in the learning and teaching process. It enables those with management responsibilities to have access to up-to-date learner data thus improving on efficiency and effectiveness; Collins Connect does this. It enables teachers to access learning resources, deliver the relevant content, set work and monitor pupil progress; Collins Connect does that. It enables pupils to access the curriculum and support, and submit homework, assignments and tests electronically in a way that is secure and tracked; guess what? Collins does this too.

Value added

Financial issues clearly have to be prioritised when considering investing in a learning platform, and schools need to consider the total cost of ownership, the intended use, organisational savings and what the potential is for helping the school improve. Prices vary by subject with Collins Connect, but GCSE Maths is £250 for a 1 year subscription and £700 for a 3 year subscription and this includes content, homework and assessment. I'd say that's cracking value.

For many, the technical issues will be the next major concern but this is an intuitive and simple platform to use. Very little training is going to be needed and comprehensive user guides, video tutorials and a dedicated helpdesk are there if you need them. As things stand schools cannot collaborate and share best practice using Collins Connect, but I am assured that the company is looking at establishing a community where teachers will be able to do just that. The decision on adding new content is made on a case by case basis – and something else that's in the pipeline is the possibility of schools adding their own.

VERDICT

+ get connected

If you know you want to invest in a learning platform, then this intuitive and easy to use option has to be a serious contender; Collins is running a 14-day free trial, so you can be sure that the materials are right for your classroom.

THE BIG PICTURE

Discover a new camera that could change teaching and learning in your classroom...

The HUE HD Pro classroom camera and visualiser is the latest addition to the HUE range of USB cameras. This clever gadget can view a full A4 and project it onto the whiteboard via your PC and projector – what's more, at only £44.95 + VAT you can afford one in every classroom, especially if you take advantage of the current limited offer: buy 5, and get an extra one absolutely free!

Go to www.huehd.com/schools/hue-trials and register for a free, 30-day trial

Available in four striking colours, this incredibly user-friendly camera has all kinds of appealing features, including:

+ The length of the neck, making it perfect for viewing a full A4 page
+ The built-in LED lights, which will help illuminate your subject
+ Compatibility with Windows and Mac OS X
+ Bags of character – just like its older brother the HUE HD camera, but with a new design for the head and base

The HUE HD Pro also comes with specially designed software, HUE Intuition, so you can master the full functionality of the camera with ease.

HUE Intuition allows you to:

+ Record video and sound and save movies locally, email or upload to YouTube
+ Annotate images and save as JPG/BMP /PNG/GIF
+ Take snapshots
+ Take multiple images over time

Use the HUE HD Pro for:

+ Demonstrating a science project
+ Taking snapshots of students work
+ Recording a technique or experiment and replay it to the class
+ Stop motion animation
+ Time-lapse photography
+ Chatting with remote schools in other countries with software such as Skype™

"A HUE Pro Camera is ideal for getting together, getting focused and getting down to the business of learning. Use the HUE HD Pro as a basic microscope, use it for student presentations, Vlogging, video chats with other schools, or whatever you like... but above all just use one – it offers more than a fixed webcam ever could and it could open your eyes to the possibilities of teaching things differently."
Review – John Dabell, Teach Secondary magazine

MORE INFO

Web: www.huehd.com
Enquiries: sales@huehd.com
Free 30 day trial: www.huehd.com/schools/hue-trials

YOU'VE GOT MAIL!

When it comes to your school's mailing system, a little technology can make a huge difference...

Postal mailing processes can often be a time consuming and costly task, particularly for secondary schools requiring a diverse range of mail to be sent out. The equipment used during the process can make a real difference when looking to dramatically save time and money.

AMS is a leading UK independent supplier of mailing equipment, specialising in the supply of desktop mail inserter systems and envelope printers for over 20 years. Its products add processing speed, enhanced performance and a professional appearance to postal mail.

What is a mail inserter system?
The AMS range of mail inserter systems can collate, fold, insert and seal your postal mail in one single process. Whether you send out direct mail campaigns, invoices, statements, letters, brochures or other documents, there are so many benefits to using these office systems.

How can a mail inserter system benefit your school?
The average person can fill 100 envelopes per hour by hand; this is a costly process if you send out thousands of school letters per month. As well as taking employees away from the role that they are actually paid to do, the task can often be long and tedious. Mail inserter systems save money by letting employees get on with something far more productive. With an AMS mail inserter system, users simply load their documents and envelopes then press a button to go. Even its smallest system can process up to 1,350 envelopes per hour, leaving users free to complete more valuable tasks.

How can an envelope printer benefit your school?
Envelope printers offer an exceptionally quick way to print addresses, postage marks and logos on to envelopes. As well as saving you money by dramatically reducing the time it takes to print addresses, mail is processed quickly to reach your recipients sooner. The printers can even print on to window envelopes and work perfectly when used for overprinting postcards, flyers and brochures for mailing.

Call AMS today on 01992 460 111 to arrange a free on-site demonstration or visit the website on www.ams-gb.com.

Studica

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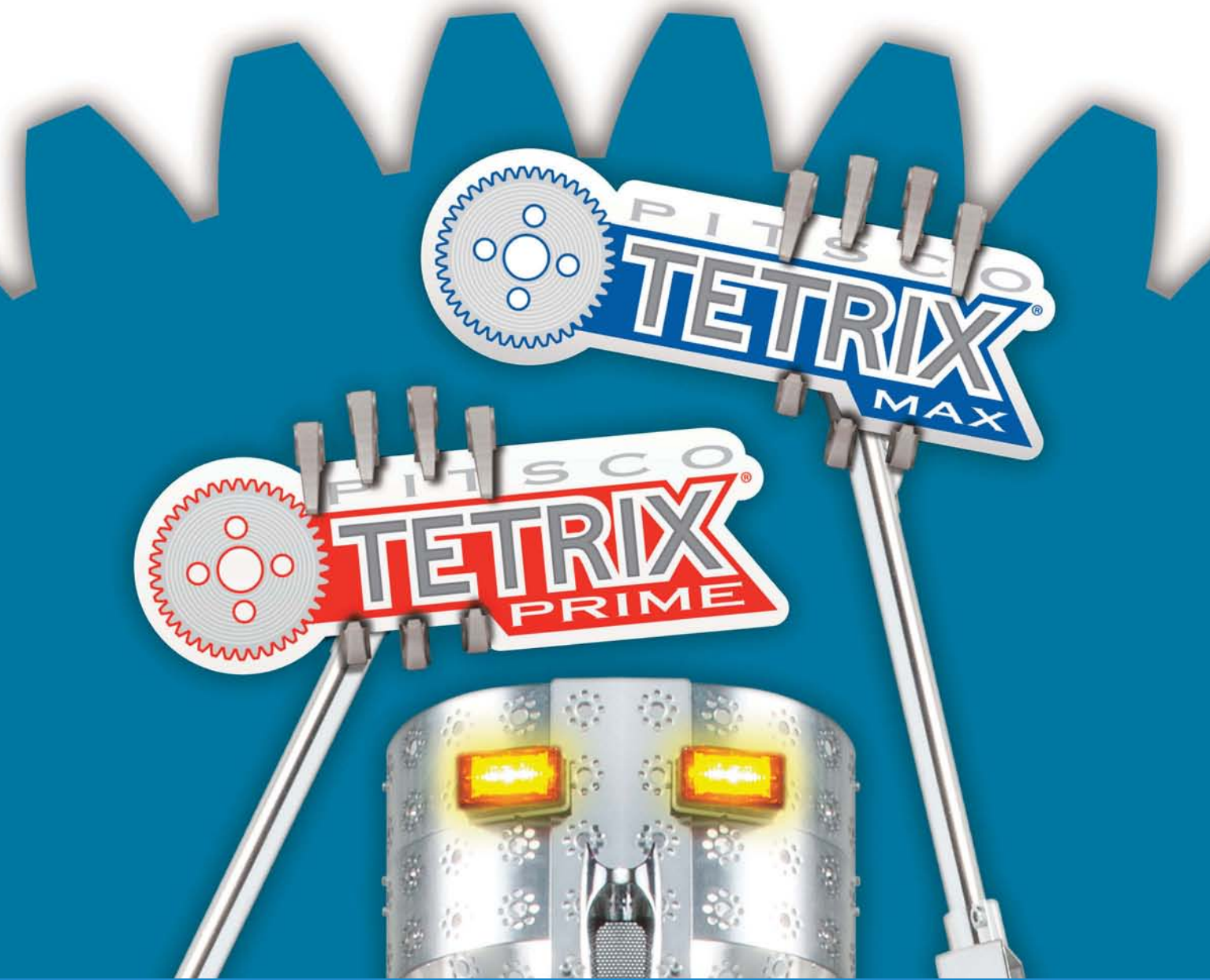
Teaching STEM concepts in the classroom or engineering a robot to beat the competition, TETRIX® Building Systems can help you reach your goals.



Place an order online or Call us for a school quote. We accept school purchase orders.

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"TO LEARN, GROW AND SUCCEED"

Explore a range of STEM learning solutions that is bound to excite students and enhance learning across the curriculum...

Studica
The Education Source for Software & Technology Products

Hands-on STEM learning solutions are the best way to help your students excel in science, technology, engineering and maths. Pitsco Education is dedicated to producing products and curricula with the sole purpose of allowing students to learn, grow and succeed. Each year, these products make a lasting impact on more than eight million students around the world. Now it's your turn to discover how Pitsco Education can make a difference in your classroom. Teachers can find curricular offerings and engaging kits for students at every grade level. Explore robotics, engineering, sustainable energy, physical science and so much more!

Tetrix® Max and Tetrix® Prime

Tetrix Max and Tetrix Prime are the latest in robotics innovation from Pitsco Education. Built with versatile features and rugged durability, these robotic systems have incredible compatibility with other control systems, including LEGO Mindstorms, Arduino, NI myRIO, Raspberry Pi and more. Tetrix Prime can instantly integrate into existing Tetrix Max, or LEGO Technic systems. This offers your students exponential opportunities for robotic designs and construction.

+ Increase Student Engagement with STEM Concepts
Tetrix Prime and Tetrix Max convert excitement and engagement with robotics into learning outcomes. The builder's guide will help you construct three robots that can be built with parts included in the Starter Set. It delivers interconnected STEM concepts.

+ Quick Assembly and Disassembly
Both of these robotic systems feature a patented Quick Rivet system, allowing for quick assembly and disassembly of builds. This system uses common tools and materials, so your students will be comfortable completing tasks on their own or in a team.

+ Affordable Options for the Classroom
Purchase the Tetrix Prime Starter Set and the Tetrix Max Starter Set individually or in a Class Pack to fit your needs. These systems can be re-used again and again. It's an incredible value for your school and your students.

Pathways to STEM Success

Let Pitsco Education's years of experience work for you. Since 1971, Pitsco has been an industry leader in creating relevant, standards-based learning solutions.

Place an order online or call for a school quote. School purchase orders accepted.

PITSCO EDUCATION Hands-on STEM Learning

Find your ideal pathway to STEM success with one or more of its many student-focused activities. Not sure where to start? Take a look at some of Pitsco Education's proven classroom products available at Studica Ltd...

Pitsco Education Aerospace

Choose from four different types of rockets: straw, air, water and solid fuel. Pitsco Education Aerospace delves into the world of rocketry and other aerospace activities. It includes a selection of hot-air balloons, kits and parachutes to help you demonstrate thrust, lift, buoyancy and similar STEM related concepts.

Pitsco Education Dragsters

The long standing tradition of building and racing CO2 cars has stood the test of time for a reason. Allowing your students to design, produce and test a model car will help them understand friction, aerodynamics, force and so much more. Pitsco Education Dragsters has a variety of products to help you re-imagine this fun, engaging classroom activity.

Pitsco Education STEM in the Gym

STEM in the Gym is an amazing, integrative way to experience STEM concepts during physical education. This approach introduces concepts behind simple machines and addresses kinesthetic learners – learn by doing!

These are just some of the many product lines that Pitsco Education offers. There truly is something for every classroom! Delve into the various offerings for yourself, and don't hesitate to contact Studica Ltd with any questions you may have.

MORE INFO

www.studica.com
020 8569 8036

READING CLOUD

Contact: **www.microlib.co.uk** Reviewed by: **John Dabell**

Reading Cloud is a blockbuster of a new resource; it's an online, cloud-based literary community that aims to encourage reading for pleasure – and if you dip your toes in the water and experience it for yourself I think you'll find it does this with consummate ease. In fact, it's hard to come up with a stronger resource than this for searching, reserving or downloading resources – not only from your school library but from across the cloud, too. You can chat online with fellow users about books and authors, blog about them, recommend resources, and write and record a video book review. Reading Cloud even lets you share your home library with friends. Clearly, it's rather special.

Reading Cloud is attractive to look at – colourful, fresh, and friendly. The colours stand out for the right reasons, the fonts are clear and consistent, and the pages are easy to navigate and quick to load. Everything feels right. It has the feel of an established social media destination – funky and creative; in short, it's a site learners won't be embarrassed to say they are using.

Home run

There is plenty to inspire on the Home Page, such as a Star Review segment, a Featured Author section, and Post-it style notelets that feature word of the day, fact of the day, news, and feeds from Twitter and Facebook. The brilliant Meet the Authors video link is a place to head to for seeing real-life authors in the flesh talking about their books, and if you want to find a particular author then Who's Next? will help you. The Trending box contains words, authors and titles that are the most searched and at the foot of the page you will find a collection of the 100 most popular books to click on and read.

The big hitters on the home page, for me, are the author videos and the 'most popular books' reports. The former would be great for kick-starting a literacy lesson or inspiring a writing workshop; the Reading Cloud automatically selects a random author video each time it is loaded but you can access others from a huge list. Meanwhile, the most popular books section can be searched according to fiction and non-fiction, or gender-target, or new titles only. You can also specify whether you are looking for the most popular in your school or across the whole Reading Cloud community.

Of course the idea of reading a book on your tablet isn't new – but this site enables students to feel part of a real reading community. It's a meeting place, a sharing place, a creative space and a quiet corner if you want it to be. I wish my library service gave me the option to reserve a book, take a quiz, write a review, and watch an author video as well as make my own.

It's not all about school though. Parents get a piece of the pie too, where they are able to take a peek at reading choices made by their young ones, track progress, join in discussions, access e-books and take pride in their child's reviews, as well as find hints and tips from experts with useful links covering topics like bullying and schoolwork.

Personal touches

The home page is one thing but if you are logged on as a user then you'll notice the screen changes to an interactive personal homepage with further features to enjoy. There is a popular What's on Your Mind? box where you can post a short status message for others to see and there is a timeline that displays all your personal activity on Reading Cloud, a well as the activity of friends. The personalised Who's Next? section contains suggestions based on previous reading activity.

I like the My Info area and so will pupils. It shows information on friends and their online status, notifications of friend requests, home library loan requests and the guaranteed-to-bea-hit instant chat option; Microlib has really tapped into the student world. The My Profile section hits the back of the net too, because it enables users to enter a mini-autobiography, create their own avatar and view books, authors and profiles that they have liked.

Blogging is popular and it's also a great way to get students writing. With Reading Cloud, students' blogs are protected from public access but can be viewed by other users. Users can also add their own personal collection of books/DVDs/games to their Reading Cloud account so others can request to borrow them. Finally, surely one of the finest features on offer is the option not only to write a book review but record it as a video too. Once one student starts, watch the snowball effect as creativity is inspired to new heights

VERDICT

+ Anything's possible

With Reading Cloud you get to elevate reading to dizzy heights of popularity; create dynamic new lessons using the books and features on offer; and provide a safe network of enquiry based learning. Also, not only are you able to provide a literacy centred online social network, you can even collaborate with other schools, and integrate public libraries into the Reading Cloud.

FOR YOUR SCHOOL

Getting everyone connected for the digital age

OPPORTUNITY KNOCKS

Here in the UK we have an international reputation for being ahead of the game when it comes to using digital technology in the classroom, says **Professor Cathy Lewin**. However, whilst there are many innovative teachers who have already embedded technology fully in their teaching and learning, its use is still patchy (for a variety of good reasons).

Increased access does not necessarily translate into increased use, and despite the potential benefits, technology has not necessarily changed the learning experience for the majority of students, both in the UK and internationally.

Shifting the scene

What we know from decades of research is that professional development is essential for change to happen at large-scale. It's a no-brainer. But really making the most of technology requires much more than this. The teacher's role needs to change from a disseminator of knowledge to a facilitator of learning. Senior managers need to be supportive of this shift and an openness to professional learning and risk-taking needs to be welcomed at all levels.

This is what happened in a recent European project designed to make more effective use of digital technology in the classroom (iTEC, itec.eun.org). Teachers were overwhelmingly enthusiastic about their experiences as were their students. They tried new approaches to teaching and learning, using technology to enhance the student experience and making it more engaging and enjoyable. Students engaged in active, authentic and independent learning. Teachers used new ways of assessing learning and that tracking student progress became easier. They also felt there was a positive impact on both student attainment and the development of soft skills: communication, creativity, collaboration, critical thinking and digital literacy. Both teachers and students found the experience more enjoyable.

A matter of priorities

Digital technology is here to stay. Infrastructure is still improving despite the economic recession. There are lots of opportunities to make learning and teaching more engaging and rewarding through the adoption of technology both within and beyond the classroom. It's not always easy. Lack of time is often cited as a major barrier but this is really down to prioritising what needs to be done in a busy classroom. It's worth having a go; there's not much to lose and lots to be gained for teachers and students alike.

24%

of all parents have no plans, whatsoever, to educate their children about online risks
source: AVG

Professor Cathy Lewin is Director of the Technology and Learning Research Group at the Education and Social Research Institute, Manchester Metropolitan University

LEARNING THROUGH QUESTIONING

All children are naturally curious. As they grow older, they ask questions about everything. Teachers should know that if they tap into the natural curiosity of children, they will inspire them to want to know more.

One strategy is not to give answers, but instead present questions, puzzles and challenges from which more questions will arise. Sending them out confused may sound counter-intuitive, but it will ensure that they will want to find out more.

Encouraging them to go and find the knowledge they are unfamiliar with is enquiry-based learning for the digital age. Their mobile phones are the tools they carry around with them – and they will undoubtedly use similar tools when they enter the world of work. Enquiry through interaction with their digital world will mould them into independent learners in preparation for the challenging times ahead.

Extract taken from 'Learning with 'e's: Educational theory and practice in the digital age', by Steve Wheeler (Crown House)

KEEPING IT REAL

T&I visits a Studio School where professional standard technology is helping prepare young people for success through KS5 and beyond...

Most teachers would vehemently agree that there is more to education than simply preparing young people to enter the workforce; however, equipping students with the appropriate skills and understanding they will need to build a successful and happy life for themselves once they have completed their years of statutory schooling is a crucial part of what every school must do – and it seems that at the moment, and for a variety of reasons, many establishments are failing in this regard. In fact, in 2014, a survey by the British Chambers of Commerce revealed that an astonishing 88% of businesses considered school leavers to be unprepared for the workplace – with over half of them (54%) thinking graduates are not work ready either. Its conclusion was that stronger links need to be formed between educators and businesses, in order to address the so-called 'skills gap'; building the kinds of relationships that Studio Schools have been nurturing since they were first added to the state system in 2010.

Situated within an 19th Century workhouse near Blackburn, Lancashire, Darwen Aldrige Enterprise Studio (DAES) is just one example of such a school, having opened its doors in September 2014 to provide 14-19 year olds of all abilities with a new and exciting, professional way to learn.

The studio school, part of the wider Darwen Aldridge Academy, offers a range of education qualifications such as GCSEs, BTechs and A Levels in a variety of subjects, with an emphasis on the creative and digital sectors – two areas of massive growth within the UK economy, yet both increasingly marginalised in many standard secondary schools.

Assistant Principal Colin Grand proudly emphasises DAES's objectives in relation to professional learning, work experience, and life skills. "We focus on developing our students' employability and life skills through work experience and work placements, providing intensive personal development and coaching," he explains. "We have close connections with local employers, who are involved in all aspects of the curriculum; our students spend a

significant amount of time each week in unpaid and paid work placements linked directly to employment opportunities in the local area."

State of the art

During the £4.1m renovation of the Grade II listed building in which it now resides, DAES's visions for a state of the art 21st Century facility in terms of building design and technological equipment were clear. "We wanted a professional, industry standard media recording studio so as to enable our creative, media and photography students to gain hands-on experience of the equipment they will use in their potential workplaces upon completing their education," says Grand. "We felt it was pertinent to ensure that they aren't just learning 'about' the industry, but how to do the job in hand using the actual equipment that they would be faced with when the time comes."

To this end, DAES engaged educational AV specialists, CDEC, to bring to fruition a fully installed, industry standard media production studio on site. Including two Panasonic AG-AC8 full HD cameras, a control booth and full HD vision mixer with ability to record and stream the output, the studio can incorporate the use of live green screen and virtual sets. A metaSETZ TLC-4S Tally Controller camera tally lets the presenters know which camera is live and also includes basic communication between the control booth and the camera operator... this is every bit the setup of a professional TV studio.

"It's the exact equipment, if not better, than what you'd find at creative production companies, TV studios and so on," confirms Grand. "This enables our students to gain real life, hands on experience and results in them being more employable once their education is completed – as potential employers will recognise they are already trained and skilled in the area."

Real results

There's clear evidence as to how DAES's recording studio facility, and the way in which it is used, is supporting the delivery of the curriculum in regards to creative digital media whilst allowing students to obtain employability skills.

"We have lots of projects running within the creative digital arena such as stop motion, 2D animation, and so on and this facility enables us to do so in a much more professional environment," Grand points out. "One of the main benefits of the media studio is that we engage with local businesses to help them to create professional films and photography to promote their businesses. This helps us to promote the school within the local area and promote the facilities that we've got here, but more importantly it allows our students to work on real projects for real businesses and get first-hand work experience whilst completing their studies."

Grand believes without the expertise of a professional firm with proven experience, these outcomes would not have been achieved as effectively. "At every stage of the way, CDEC really supported us with this transition of creating our media studio," he observes. "Right from the initial concept , where they were very open to listening to our ideas and our vision. We did not want this to feel like a school facility, we wanted it to be an industry standard facility. CDEC helped guide us with advice and information as to the best and the most appropriate equipment to meet our requirements, and they helped us plan and focus on what would be essential. They offered an exemplary service, with fantastic expertise and guidance delivered in a very personal approach."

"I think our media studio is brilliant and no other college has got anything like it around this area. The way we can use it for filming with the green screens to get any background that you want, any setting, is brilliant. We can use it for photography as well with the model in front and then edit it in multiple different ways. I think it's really good compared to what other colleges have got."

Melissa Lambert, 17

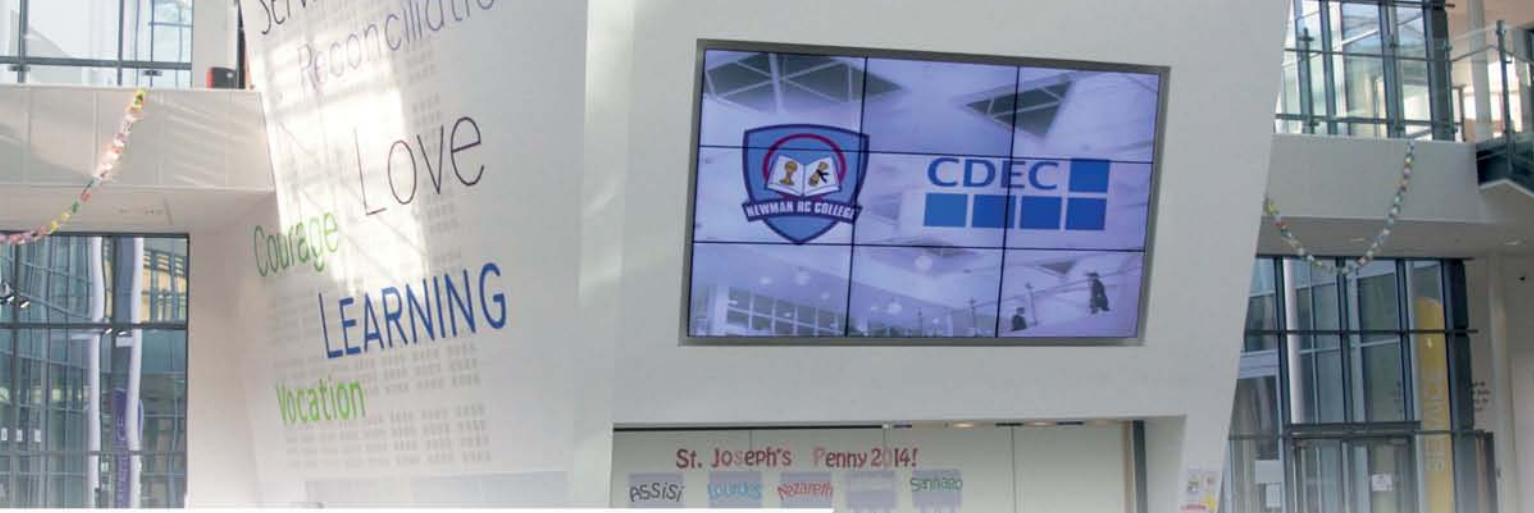
OFTSED APPROVED

DAES celebrated a "Good" rating from Ofsted in March 2015. The inspection report highlighted that the studio school is performing well in every headline category.

As principal Ruth Bradbury points out: "This is proof that the unique nature of the Studio school curriculum, which allows our students to study the subjects that they love and therefore excel in, is the way forward for many young people. As the aim for the Studio school is to make students more work/ university-ready than traditional educators, statements such as 'Almost all students have secured university places or work for when they leave the studio' and 'virtually all students have a clear and realistic idea of what they want to do in the future and the steps they need to take to realise their ambitions' will make the parents of prospective students understand we can make a difference."

MORE INFO

Discover more at www.cdec.co.uk and www.daestudio.biz



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DYNAMIC DISPLAYS

The UK's first school LED video wall is enabling performing arts students to create and work with beautifully impactful backdrops...

St Paul's Catholic School, Leicester, is a mixed comprehensive school for students aged 11-18. As a result of Leicester's Building Schools for the Future funding, the school benefited from a new building housing a learning resource centre, dedicated Sixth Form provision, a new science faculty and a drama theatre space. St Paul's wanted a dynamic display solution in the theatre space that would enable them easily to create impactful backdrops for their performances and assemblies.

Special features

Believed to be the first of its kind within an education establishment in the UK, St Paul's 6.1m x 2.3m LED video wall was supplied by MessageMaker for CDEC. The 14.16 m2 screen is made up of internally bright full colour LEDs, has a 1024 x 384 resolution and is housed by a frame and black bezel.

Playback compatibility includes: Full HD camera feed / DVI / AVI /HDMI SD, SDI, S-Video, CVBS, YPrPb scaled playback and BluRAY / DVD playback with a seamless, high brightness option and adjustable brightness up to 1500NIT, the screen is bright enough to compete in a fully lit environment with stage spotlights landing directly on it. A 16 bit video scaler puts content on screen, easily controlled from the tech desk in the theatre.

Clear benefits

The LED video wall is easy to control and load content. This ease of use enables students to instantly create a background for their performing arts sessions, including moving graphics and videos in addition to still images or ambient colour changes. It also has capability for backdrops similar to those used on the 'X Factor' to give the school's performances that added edge.

Due to the flexibility of LED displays, CDEC was able to create a very specific size and ratio which matched the dimensions of the stage. In addition to drama productions, the screen and theatre space is used for assemblies and parental meetings.

The video wall benefits from a substantial decrease in running costs in comparison to traditional projectors. In terms of energy use, the wall's total consumption is as low as 400kwh, compared to the likes of 2 x 2300 kwh bulbs in a projector. The LEDs used in the wall have a typical test life to half brightness of 100,000 hours plus (11.4 years) continually on, in comparison to a 2500 hour projector bulb life.The video wall has a projected life span of 20 years and was designed to perform on a no, or very minimal maintenance basis. Due to the lifespan of the bulbs there should be no maintenance required other than it will simply need to be cleaned / dusted occasionally to remove surface dust from the LEDs.

"The LED screen has had a hugely positive impact on our young people. It gives us a more holistic approach to theatre, in that our students are able to design a set and easily place it right on the video wall with the touch of a button. The addition of the video wall has been hugely advantageous in regards to meeting learning outcomes, engagement and behaviour. The instant impact of using the screen for set designs allows our students to take ownership and see the results of their work. In terms of the Performing Arts faculty, the wall allows us to use live video and moving backdrops mixed with naturalistic theatre which has really added a new dimension and level to our theatre and performance."
- David Hayes, Assistant Head of Performing Arts

"The video wall creates a tremendous impression for students, audience members and visitors to the school. Its size and the range of possibilities it offers for dramatic performance are the two most impressive elements. As a Performing Arts Specialist College in years gone by, we have retained our very high level of performing arts. What the screen gives us is the ability to use fully interactive sets – the digital interacting with the physical. This has been very powerful and has enhanced our productions considerably"
- Neil Lockyer, Headteacher

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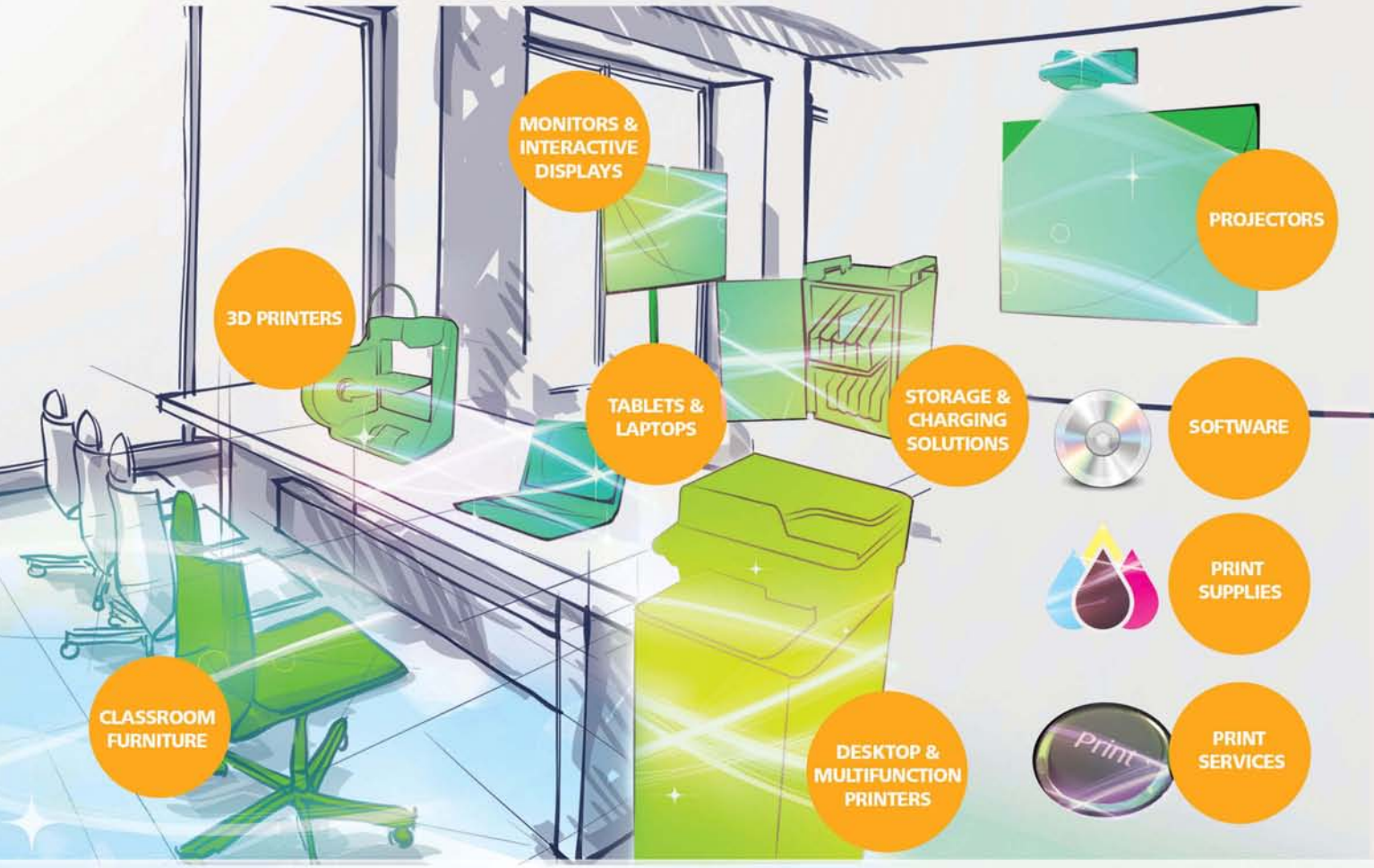

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Q&A

COMPLETE CLASSROOM SOLUTIONS

Rod McCarthy, Printware's MD, explains how the company has evolved from a print reseller to providing the complete office or classroom solution...

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T&I: How can Printware help schools or universities?

RMcC: Printware has a long history of supplying tailored print and AV solutions to the education sector. We give impartial advice on a wide variety of manufacturers and will always endeavour to understand the specific needs of each and every school, college or university.

We have been suppliers of print solutions and consumables for over 25 years and have recently responded to the diverse needs of our customers by developing a more holistic approach to our product range. We can now cater for a whole range of office and classroom related requirements at very competitive prices and can supply everything from charging stations to software and classroom furniture. Printware has worked with many academic institutions in the UK, increasing efficiency, improving productivity and lowering their carbon footprint.

What sets Printware apart from other suppliers?

From dedicated and experienced account managers to an easy to use and informative website Printware customers have a wealth of knowledge and impartial advice at their fingertips.

Unlike many other print suppliers Printware's customer commitment goes beyond just selling products. Instead we can ensure you have the support you need long into the future, from installation to service and maintenance. We employ 300+ engineers who make 11,651 onsite visits a month to keep our customers printing. Although printing is at the core of our business we have evolved to best suit our diverse customer base by catering for all of their office or classroom needs. We can recommend anything from Epson projectors to tablets with Office 365 compatibility to interactive SMART boards.

How can software improve school processes?

There is a wide variety of software solutions by different manufacturers that can enhance efficiency and make a real difference when it comes to cost savings. One such example is Kyocera, a SIMS Accredited Technical Partner. Kyocera has developed its SIMs.net Connector to help UK schools maximise SIMS to ensure the simple, fast and secure storage of documents and information in schools. School staff needn't be overwhelmed with hard copy student records when they can now scan them directly from their multifunctional device into the easy-to-use SIMS.net database, offering them centralised storage, simple retrieval and enhanced document workflow.

How can Print Services help schools?

A nil commitment print service or MPS involves the installation, management and service of printers and print consumables, predominately inks and toner. By agreeing your usage with Printware we can provide you with a cost per page tariff, much like that of a mobile phone pay as you go contract. You are then billed monthly for what you use, enabling you to budget your print costs more efficiently. The vast majority of UK schools or universities do not have any idea how much they spend on printing and copying, yet it is likely to be a very substantial part of their overhead, and is a prime area for cost reduction. With our extensive knowledge of printing, Printware is well placed to assist you in your search for a better and more cost-efficient print solution.

What future trends can educational facilities exploit?

There are endless possibilities for learning and development that educational facilities can tap into. Technology skills are some of the most important a child can learn in the digital age. Now there is a way to bridge the gap between the screen and the physical world, by introducing 3D printing into the classroom. Printware have been selling 3D printers since they were introduced into the consumer market and can advise you on what model is best suited to your institution. Print and AV technology is constantly evolving, from 3D printing to developments in inkjet technology, from software apps to Android-powered devices. Printware is proud to have an ongoing commitment to keeping up with the constantly changing developments of the industry.

Read more on our blog:
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Win WIN

More schools than ever took part in the Apps for Good programme this year – **Sal McKeown** finds out why...

The stats are amazing: Apps for Good 2015 involved 22,987 students, 766 Education Partners and 1,229 industry experts from more than 40 countries who volunteered their time to support the programme. While the numbers are impressive, you still might wonder why a secondary school would want to get involved. After all, even if you are lucky enough to get to the final, the students will have to endure a Dragon's Den style grilling with eight judges and then have to do a Market Place event, trying to sell the concept of their product to over 100 strangers to win votes. Why put yourself and a group of students through that much stress?

"We spent a whole day at Facebook," says Richard Williams, Computing and IT Subject Lead at Bradley Stoke School in Gloucestershire. "You don't get many opportunities like that. It was even better than we imagined." Richard has found that Apps for Good has been a very effective lever to get more girls taking computing GSCE. Staff did a skills audit and then divided the 180 students into 30 teams making sure the members had complementary skills. They worked through the Apps for Good course and students had to identify a real issue they felt was important and then build a mobile, web or social app which would target the problem. They used AppShed, which Richard describes as, "Brilliant - an easy to use platform."

It is a long haul from first bright idea to final product and the students had to ensure it would be technically feasible to build their apps. As well as the programming aspect they had to think about how they would fund the app and produce business models and marketing plans, so they were delighted when a team of five girls made it to the finals of the Connected Communities category with an app called Pen Friend. The problem they identified was that language learning at school does not necessarily reflect the language young people use in the real world and so their app connects 'linguists of the future' in a safe environment.

On the big day when they pitched to their Dragons they spent the morning with an Accelerator. This is a company which helps them to refine their presentation and gives them a heads up on the type of questions which get asked in the real world. "We enjoyed their keen questions and were impressed with the case model they chose to focus on," reports Evgenia Grinblo at Future Workshop.

Although they did not win, Richard is adamant that participation in the programme has changed the way computing is viewed in the school. "Apps for Good lets us have a very balanced approach to computing so we cover ICT, digital literacy, multimedia – the full range," he explains.

APPS FOR GOOD: THE IMPACT

+ The majority (61%) of Apps for Good partners deliver within curriculum time, while 26% participate as a club and 13% use a mixed curriculum/ club model.
+ Nearly one quarter of students would like to continue coding after the process, and about a quarter of students are more likely to choose their GCSEs in computing or ICT.
+ Nearly a third more girls who participate are more interested in technology, and 15% are more likely to continue studying computing at school. Furthermore, a quarter of girls are more interested in working in a technical job, more than a third are more interested in a business career and over 40% are more interested in starting their own business.

New faces

While some schools are old hands at Apps for Good and incorporate it into the curriculum, at Boswells School in Essex the story is quite different. 2015 was the first year that they entered and they ran the programme as part of an extra-curricular club. My World of Atoms, created by brother and sister Ben and Rebecca, won the Learning category sponsored by Samsung UK & Ireland. "Their app tackles the wider issue of lack of interest in STEM subjects by gamifying the topics that are harder to learn," comments Aleyne Johnson, Head of Government Relations and Citizenship.

Ben is the 'techhead' and Rebecca is interested in graphic design and many professionals were surprised by the high quality graphics and the block buster cinematic approach they adopted in their video. They learned a lot from the judging process, as Rebecca explains: "Fluxx Ltd, the marketing consultants, gave us guidance and an insight into their industry. At the Barbican, the business professionals gave us comments and advice that will help us develop our app. After our pitch, their challenging questions helped us consider all the issues involved."

Students at Boswells now understand the complexities behind app development including the different steps in development and design. For many students Apps for Good was a journey of self-discovery as they analysed their strengths and weaknesses and their role in a team. This has proved very useful for the Duke of Edinburgh Bronze Awards where the Skills Section requires candidates to choose an activity that will allow them to prove they have broadened their understanding and increased their expertise in a particular field.

At Boswells School the role of the experts was crucial. The students had to identify the type of expert that they needed and then book an appointment via Skype. Speaking to an outsider meant they had to explain the problem clearly and simply. "This developed the students questioning and thinking skills," explains Penny Cater, Head of Computing & Business Skill Area. "The Apps for Good experts have a wealth of knowledge and it was good for students to see what it was like in the real world."

WHAT'S INVOLVED?

+ Apps for Good is open to UK Primary and Secondary schools, FE colleges or informal learning centres or international schools delivering the UK curriculum.
+ It's a flexible course framework that can be delivered to students 10-18 within curriculum time, as a club or within timetabled enrichment.
+ Any level of teacher experience or subject knowledge will suffice for delivery.
+ The programme is free for non-fee paying UK schools (£250 annual fee to private/fee-paying schools and for-profit learning centres.)
+ Find out more at **appsforgood.org/public/teach-apps-for-good**

ABOUT THE AUTHOR

Sal McKeown is a freelance special needs journalist and author of Brilliant Ideas for Using ICT in the Inclusive Classroom (Routledge) and a book for parents, How to help your Dyslexic and Dyspraxic Child (Crimson Publishing).

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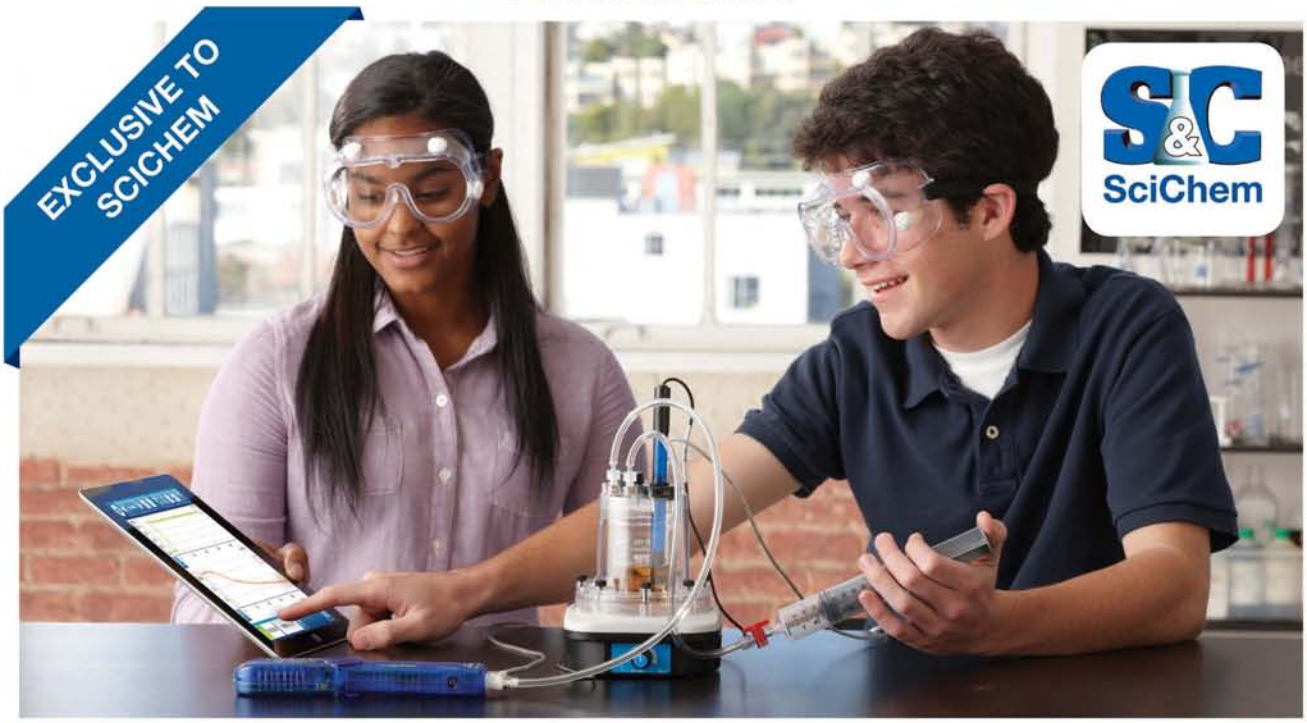

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PASCO is a company with a mission: to bring 21st Century technology into the science lab. It already offers more than 70 datalogging sensors, designed to measure almost anything required by the science curriculum – temperature, pressure, dissolved oxygen, or pH... to name just a few.

However, taking measurements is only one aspect of conducting an experiment. Recording these measurements and displaying the results graphically provides students with a tangible visualisation of their experiment and its results – and these can then be saved, manipulated, compared with other students' results or shared with the teacher.

PASCO is at the forefront of bringing innovative technology and equipment to the science classroom. For a number of years, PASCO's SPARKvue app and datalogging sensors have been available to use with iPads, Android tablets, and even Chromebooks, in addition to being compatible with Mac and Windows desktop and laptop computers.

Going further

But now, there's another option. PASCO has recently launched the SPARK Element™. This is an Android-based tablet that is designed purely and simply to work in the science lab. It is a standalone, tablet device that will display results in a user-friendly, intuitive manner. It is pre-loaded with the award-winning SPARKvue app and has been designed to provide a cost-effective and reliable alternative to iPads or Android tablets.

The SPARK Element is a robust, water-resistant device that offers the performance of a tablet, but only includes the features required to conduct science experiments. Apps that are not directly required to conduct the experiment are not supported, bringing greater student focus on the science learning.

Connecting sensors to the SPARK Element is as simple as for other devices – simply use any of the PASCO interfaces such as the USB Link, Airlink2, 550 Universal Interface or SPARKlink Air.

For convenience both inside and outside the classroom, the SPARK Element includes a smart cover, which can be used to protect the screen or device by elevating it off the lab surface.

Safe solution

At the launch event in Chicago in Spring 2015, PASCO's CEO, Steven Korte, described the new device: "The SPARK Element provides an affordable solution for teachers looking for a dedicated science-learning device that's built for the rigours of the classroom and the excitement of enquiry-based learning. It's easy to set up and use, and it's lightweight so students can carry it in the field as they engage in real-world science and build their science literacy."

With 8GB of storage, 1GB of memory, a 2MP rear camera, Wi-Fi and Bluetooth connectivity and weighing just 350g, the SPARK Element compares extremely favourably with other tablet devices. UK schools that prefer not to offer tablets to students, or do not support a Bring Your Own Device environment will benefit greatly from the SPARK Element. Students will be taught using the same methodology as students in schools with iPads and Android tablets, but the outlay and risk for the school will be far lower.

MORE INFO

For further details or to arrange a free demo, contact Scientific & Chemical Supplies on 01902 402 402.

In it together

Parents have a crucial role to play in their children's education, says **James Whitaker** – and the right technology can help them do just that...

It's official – parents matter! In fact, according to research by Professor Charles Desforges, for a child of seven, the influence on learning of parents matters six times more than that of the school. And this effect is still 30% greater by the age of 12, after which time the child itself starts to become the most significant influence.

In other words, it seems that *at no point* does the school have the greatest impact on a child's learning.

To many heads and teachers, who witness on a daily basis the influence pupils' home lives have on their engagement, behaviour and academic performance, the results of this research may come as no great surprise. Yet few schools devote real attention to harnessing the power that parents hold in ensuring their children achieve.

My view is that, broadly speaking, parents are the untapped yet critical partners in the network of support that schools and teachers create to help young people succeed.

So, armed with this insight, how should we approach engaging parents to support their children so that learning and aspiration are supported outside of school?

Parents as partners

Too often attention is given merely to involving parents in the life of the school – identifying projects and events and telling families how they can contribute. Whilst these are an important aspect of building a real school community, the real focus should be on engaging parents as partners in the learning process of their children.

During my time as a maths teacher I felt limited by the options to engage parents that were available to me. My school operated a text messaging service to notify parents of upcoming events or send an attendance alert. The admin team managed this and if I wanted to send anything out I had to submit a request.

For me to communicate with parents on a regular basis the only option was to pick up the phone - a worthwhile practice but one which is often time consuming and inefficient. I would usually catch parents at work, in the supermarket or making dinner and generally not in a position to be discussing their child's progress in my lesson.

Once or twice a year we'd organise a parents' evenings for each year group, but I always felt the impact of these was limited by their infrequency.

The key issue is what happens to inform and engage parents in between these conversations. And this is where technology can help shift the paradigm.

> "I would often catch parents at work, or in the supermarket..."

Instant messaging

Smartphones have transformed the way society communicates. Convenient, instant, on-the-go and personalised communication is what we have come to expect of the content pinged straight to our pockets. And yet this revolution hasn't hit schools...until now.

An app approach is different. It allows parents to receive tailored information from individual teachers in real time but digest and respond at an opportunity convenient for them. It's account-based, which means it isn't reliant on up-to-date contact details. Parents can manage everything from a single place, and it remains safe whilst removing the need for individuals continually to remember security details or proactively login to one of a range of web portals.

Crucially, it's a format of communication with which we are increasingly familiar and at ease. With 75% (and increasing) of the population aged 16-64 owning a smartphone, people are more likely to access theiInternet through their phone than a wired broadband connection at home.

An app appoach enables communication to continue almost effortlessly in between phone calls and face-to-face meetings, so that meaningful relationships between teacher and parent can be developed and sustained over time; this could lead us to a situation where, for schools using technology in this way, parents' evenings would simply be a formal continuation of a deep and mutually beneficial partnership that is happening every day.

With closer OFTSED scrutiny on parental engagement, I am convinced it's time to embrace technology to help teachers to build partnerships with parents in a way that is convenient, meaningful, and most importantly, beneficial for young people. I hope you agree.

TOP TIPS TO ENGAGE PARENTS IN THEIR CHILDREN'S LEARNING

+ Convenience is King!
Implement strategies that make it easy and convenient for the parent to get involved. Events at the school aren't always easy, or even possible, for families to get to; try using technology to keep them in the loop so they don't miss out.

+ Partnership is a two-way thing.
We all feel more valued when we're invited to contribute towards something. Regular, two-way communication between teachers and parents is essential to build a meaningful partnership.

+ General is generally not good...
Parents are more likely to engage with messages that are specific as to how they can help their child. It's fine to send general broadcasts that advertise events at school, but the focus when communicating with families should be on messages that are tailored to supporting *their* children.

ABOUT THE AUTHOR

James Whitaker is the founder of ParentHub

“

Parental engagement must be a **priority** and not a bolt-on. It needs to be **fully embedded** and **integrated** in **teaching** and **learning** plans if it is to **make a difference**.

DO PARENTS KNOW THEY MATTER?, DCSF REPORT

”

ParentHub

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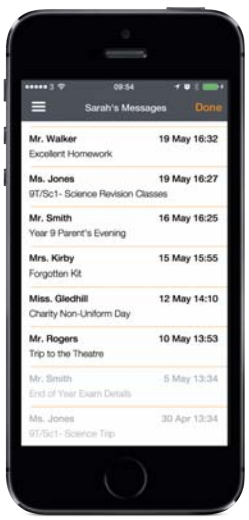

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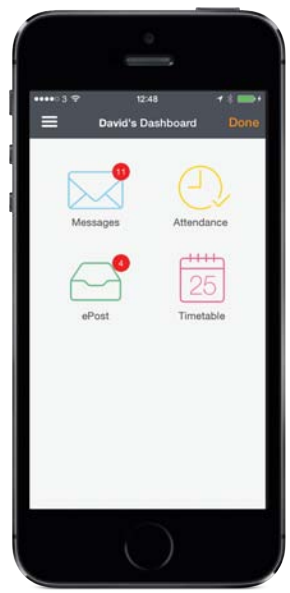

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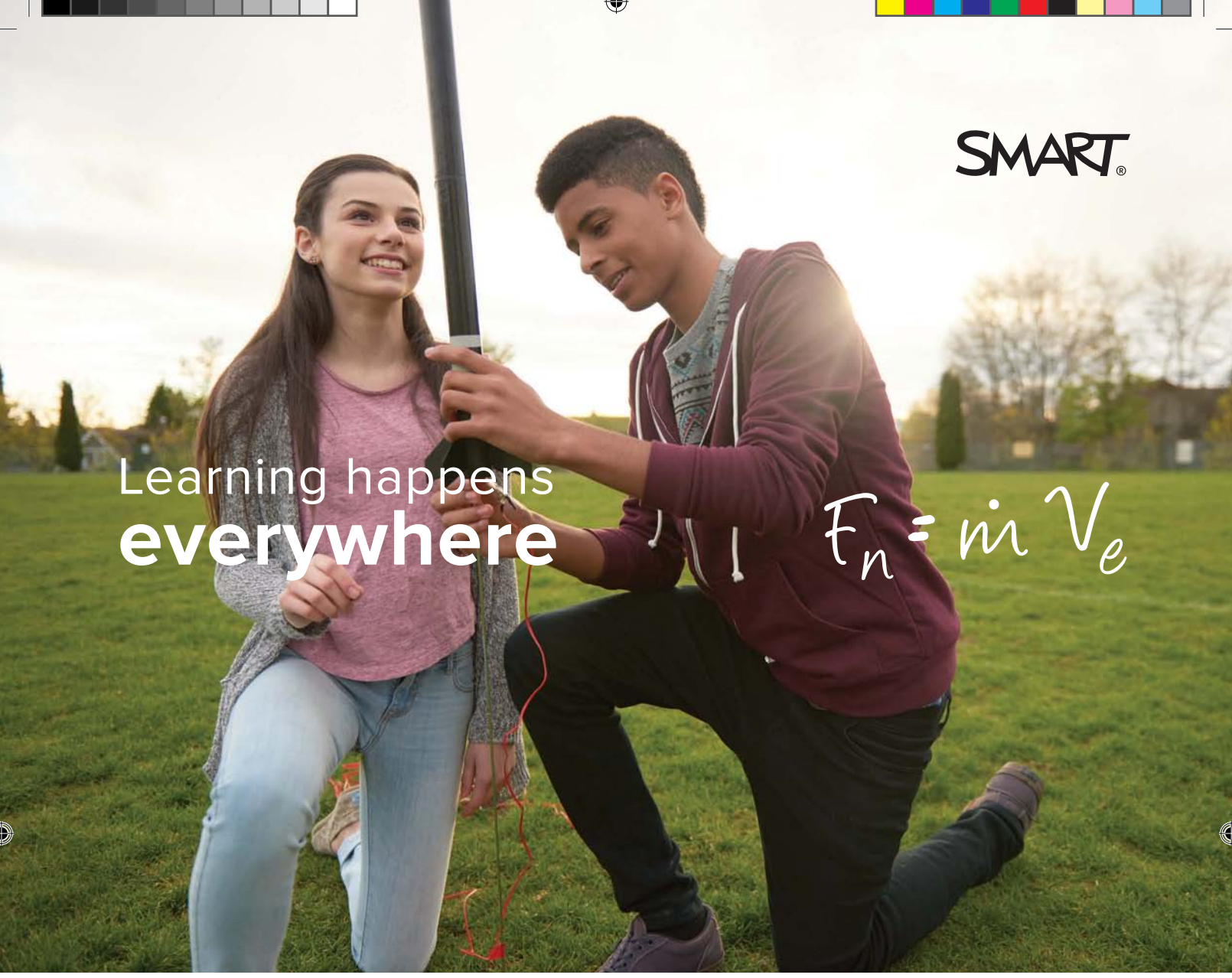

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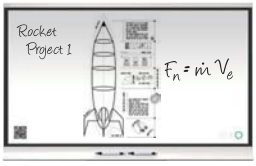

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Is it really possible to equip your classrooms with the latest technology on a tight budget? The answer might just surprise you...

Time and time again we hear schools explaining how budget constraints prevent them from implementing the technology they need in their classrooms and learning environments. At Steljes, the team believes that every school deserves the chance to have market leading, best in breed technology, even with limited funds. And that's why they are so excited about a brand new programme from SMART – Classroom as a Service (ClaaS).

ClaaS gives you access to the latest education technology solutions from SMART, through a flexible subscription model. It can be tailored to meet your budget requirements and removes the need for capital expenditure – leaving you free to invest in other areas.

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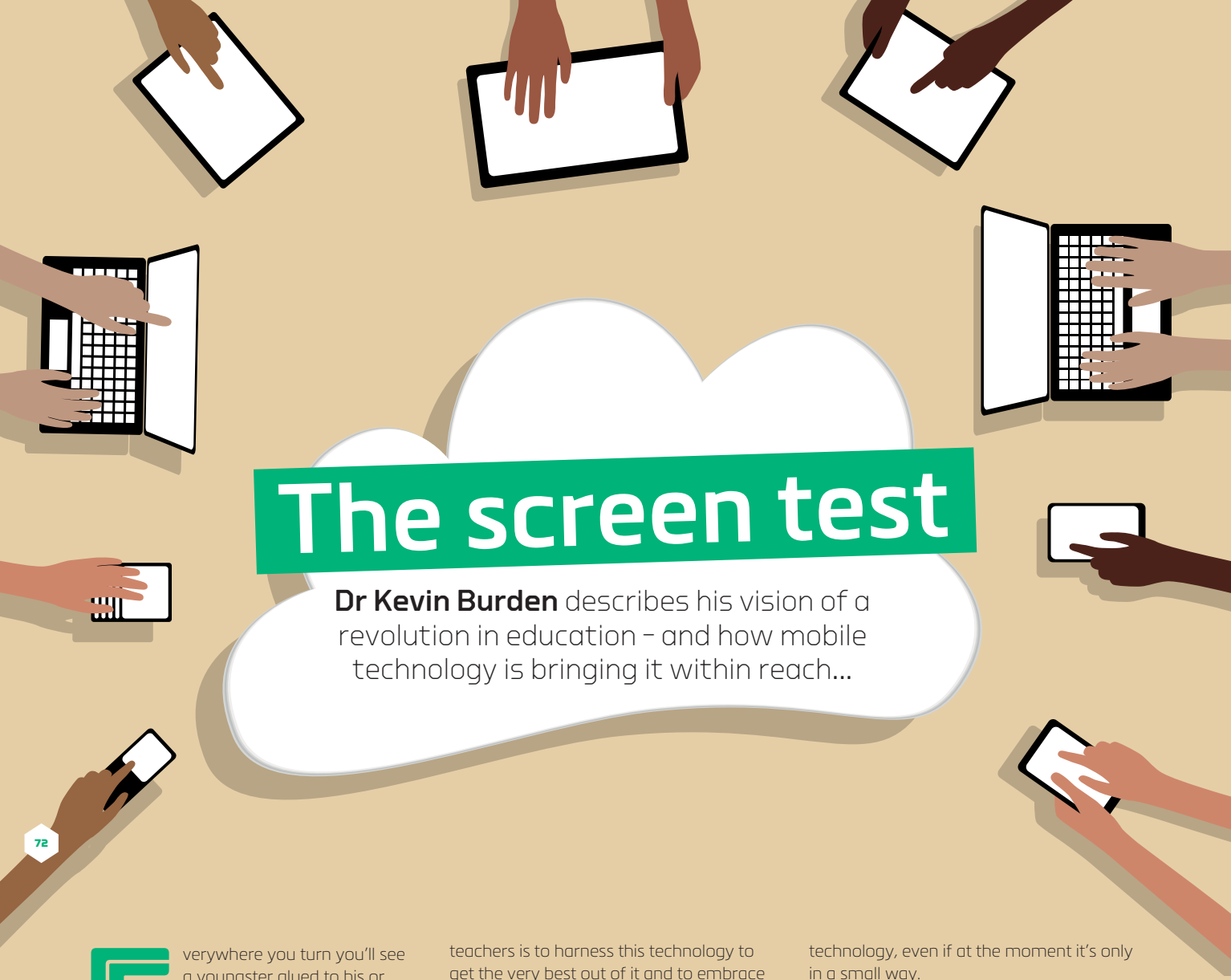

The screen test

Dr Kevin Burden describes his vision of a revolution in education – and how mobile technology is bringing it within reach...

Everywhere you turn you'll see a youngster glued to his or her smartphone or tablet. But is this a good thing or a bad thing? Some parents may despair about the amount of time young people are hooked up to their devices – without them spending even more time on them at school. Teachers may also be uncomfortable about the negative impact the technology has in terms of its potential to be a disruptive influence in the classroom or playground.

Whatever your thoughts on the impact these devices have on our young people's daily lives, one thing is becoming clear: our schools are on the brink of a revolution that I believe will see a challenge to traditional classroom learning - and it's being sparked by touchscreen mobile technology and the many positives it is already bringing to education.

The positive use of iPads and other tablets is set massively to change the way we teach our children in the future. The challenge for education leaders and teachers is to harness this technology to get the very best out of it and to embrace the positives it can bring to the world of education.

And the evidence is that we are beginning, at last, to grasp the real benefits that it can bring both for teachers – and for their students.

Starting steps

That's not to say all mobile devices are being welcomed into the classroom everywhere. I've just returned from Vietnam where smartphones are banned in all schools because they're seen as a disruptive influence. Many other countries have taken the same view – as well as plenty of schools within countries where the technology is otherwise generally embraced in education.

However, across the world, we're now seeing the touchscreen advantages that tablets and iPads can bring, if they are adopted appropriately as innovative teaching devices. And more and more schools are beginning to use the technology, even if at the moment it's only in a small way.

In a Scottish pilot project I've been involved in, pupils received a masterclass from an artist based in New Zealand, using Skype on their tablets to discuss the work they had produced. Examples like this highlight the road that schools need to take if they are to get the most out of the technology. It's a route I believe will take us away from traditional didactic teaching methods, with students instead collaborating with experts and their peers anywhere in the world through mobile touchscreen devices. I also see us getting to the stage where school textbooks will be replaced by interactive, multi-media online teaching aids, that will be continually developing and evolving.

New perspectives

But, touchscreen technology alone doesn't change a thing. Simply giving every child in a school an iPad won't alter anything. It's the use of technology as an enabler that will make the difference. What's the point

TIPS FOR SCHOOLS AND TEACHERS LOOKING TO HARNESS TOUCHSCREEN TECHNOLOGY

+ Learn from others. If you're looking at introducing mobile technology take a look at what other schools are doing and get their advice.
+ Make sure your school has got reliable WiFi – its important if you want to get the best out of the technology and its apps.
+ Invest in support and training. If the initiative doesn't work, it is usually because the teacher has been left isolated. A programme of staff development is vital.
+ Play around with the technology. Take the device home, use it with your children, find out what it can – and also can't – do and have some fun with it.
+ Empower your students. Some control is obviously necessary but rather than stifling them with too much restriction, give them responsibility. You'll find they become more enthusiastic and will get more out of the technology. They may even teach you a thing or two!

of giving someone a tablet, if they just use it to cut and paste? That's low level work that can be done on a PC. And what's mobile about that?

The fact is the technology we are seeing now – and that which is about to be developed – gives us the opportunity to rethink how children learn and are taught, and to do much more.

To get to that stage we have to cast aside the old traditional model of everyone being in the same classroom, sharing the same space, with the teacher at the front of the class as the fount of all knowledge. Students need to be granted more responsibility for how, when and where they learn, not just in the classroom but beyond it as well. Once that happens we will be able to exploit these technologies more fully. We'll then see an education system developing that is in itself mobile and not classroom bound.

Immense potential

The huge number of apps that are available are already being used more and more in schools with great effect. Film-making apps are allowing science teachers to capture experiments, place their commentary over what's going on and play it back with their students for feedback and comments. The same goes for music teachers and their pupils' performances. Collecting and sharing information, collaborating on projects, challenging and discussing issues and interaction between the experts and the novices – that's what this technology can bring. Take languages: how beneficial would it be to set up Skype, so Spanish students can talk and listen to someone living in Madrid? Then there are the significant impact touch-screen technology can have on field trips and the opportunities it will bring for children to gather information and collect live, current data – again all at the touch of a screen.

For us to get to that place, we have to teach the next generation of teachers about the advantages that mobile devices can deliver and how they can use them with their students. A global initiative called 'The World University network' is looking at how we get teachers and educators to understand what mobile learning is all about, and I am currently leading a European Erasmus+ project, which aims to equip the next generation of teachers with the skills and understanding to use mobile technologies in ways that break with tradition, challenging their existing ideas and theories of what 21st century learning is all about.

The future is within touching distance... and for teachers and students alike, getting there promises to be an exciting journey.

ABOUT THE AUTHOR

Dr Burden, based at the University of Hull's Faculty of Education, is leading a European funded Erasmus+ project looking at ways in which teachers of the future will work in the new digital era and its impact on higher education

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Big, strong, and dependable, rugby league prop forwards are the front line rhinos of a scrum. They tend to be the heaviest players on the field – and the best ones look square shaped, with their solid and robust build capable of withstanding the requirements of the most demanding environments. In many ways I could say the same about the 65-inch iiyama ProLite TH6564MIS-B2AG – whoever thought of the name for this display won't win any prizes, but the product itself just might. It's huge, it weighs as much as a cow and itgives off an air of steadiness in a 'don't mess with me' sort of way. There are of course lots of things this display and a prop forward don't have in common, too – because this is an educational resource designed with safety and flexibility in mind.

The iiyama ProLite offers an interactive display of really high quality, not least because of its superb LCD screen that guarantees great viewing angles from all sides of a room no matter where you are sat. It has an ambient light sensor, which can rather cleverly detect changes in environmental lighting conditions, adjusting the screen's backlight brightness accordingly. Many interactive whiteboards have a downside to them in that they cast shadows, but this isn't anything you would worry about with this giant. It has an anti-glare screen which reduces ambient reflection in high brightness environments, meaning the sharp clarity of the content isn't compromised. One thing you will be delighted about is that this coating also makes the screen less vulnerable to dust, grease and dirt marks.

The iiyama is an interactive touchscreen beauty with 10-point infra-red touch features.By using a finger or stylus, you can write,annotate, draw and present with the confidence of someone giving his/her 100thTED presentation. There are all sorts oftechnical key features that the geekier typesamongst us might find exciting, including stuff to do with input and output connectors, 4000:1 High Contrast Ratio etc – but for most teachers, the main need-to-knows will be that it has 18 hours per day usage time, inbuilt speakers, and comes with a remote control and a quick start guide.

The future of learning

When interactive whiteboards first appeared on the education scene, they seemed like something from the Andromeda Galaxy – but technology has moved on apace since then. Interactive touch screen displays like this resource raise the bar, because they open up collaborative learning for the whole class to an unprecedented level. The iiyama is like a giant tablet – the infrared technology is beyond me but I am reliably informed that it is physically impossible to wear out the touchscreen and the display characteristics remain unaffected by the touch functionality.

One feature that I particularly like is the PIP. This stands for Picture in Picture and it allows you to watch images coming from different sources at the same time. This might be confusing for some students but from a multi-tasking point of view it's great. And by far the best practical use of this giant tablet is for collaboration between students. You could give a group of four learners a challenge and they could feasibly all use the display at the same time, cutting down on individual visits to the screen and so allowing more students to be involved.

Price wise, if you factor in the VAT then you are looking at around 3K, which for any school is a lot of lolly. But, these marvels do come with a free, five-year de/reinstall warranty for education customers. Large format touch screens are becoming a regular addition to the front of the class these days and are replacing the whiteboard in the same way as the latter once replaced the prehistoric chalkboard. This is a high-end panel that works perfectly with most classroom software and is well worth considering for updating your classrooms so that you are not left behind.

VERDICT

+ A touch of brilliance

This resource demonstrates how touch technology can help engage students. The iiyama brings to the classroom a visually rich learning experience, offers excellent visibility and sound, provides precise and responsive interactivity, and is highly intuitive for students and teachers.

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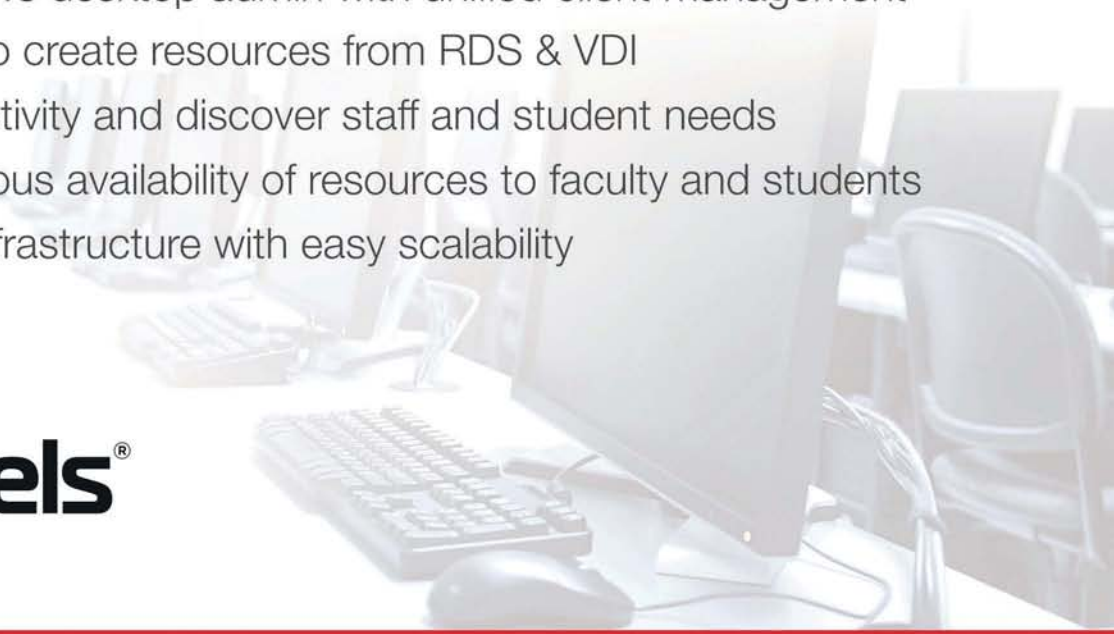

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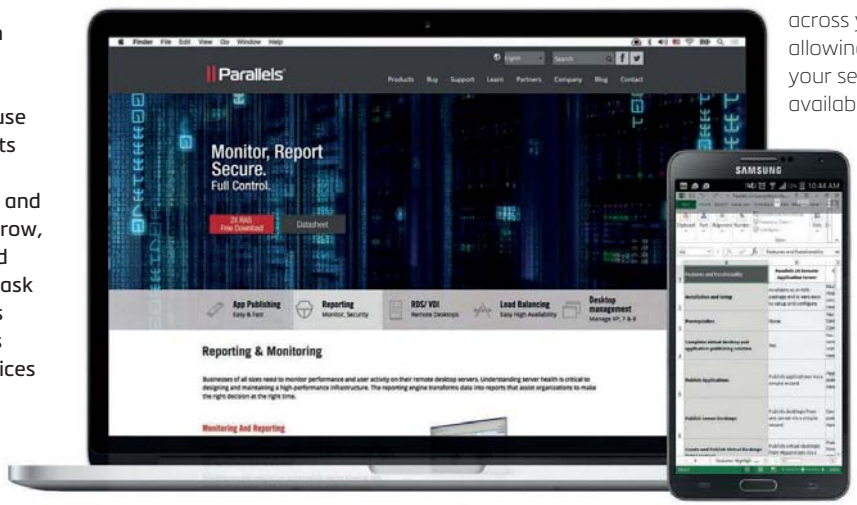
Sometimes it's the simplest solutions that can have the greatest impact...

As an IT professional working in the education sector, you play a key role in driving learning innovation through the use of technology. As budgets continue to shrink, and demand for applications and resources continues to grow, IT departments are faced with the overwhelming task of managing user access to educational resources from any number of devices such as laptops, phones, and tablets, whilst ensuring systems are secure and user experience is optimal.



The classroom has become inherently reliant on technology to allow teachers to deliver engaging and effective lesson content, and many IT departments have had to resort to purchasing expensive systems to ensure that classrooms are fully 'switched on'. These systems are typically difficult to implement and require a lot of investment in training and support, placing a significant burden on the IT department and the school as a whole.

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+ Mix the most popular hypervisors with Parallels RAS to deliver seamless application virtualisation and publish remote desktops. Parallels Software manages Virtualised Desktop Infrastructure (VDI) or Microsoft Remote Desktop Services (RDS) independently and easily.

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+ Regain up to 80% of the time normally used to configure and manage desktop clients. Parallels RAS allows you to transform any Windows client into a secure and fully managed workstation. Existing company computers can be used as is, immediately starting to deliver remote desktop and virtual applications.

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MORE INFO

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The domino effect

Early adopters in industry can have just as much of an effect as innovative teachers and leaders in terms of encouraging schools to embrace new technologies, suggests **Mark Byrne**...

It is safe to say technology is now all around us, continually evolving and challenging the way we live, learn, work and socialise. We can also acknowledge that some people have become early adopters, who love and embrace it, whilst others are currently more cautious, preferring to keep it at arm's length.

One cross-section of society which tends to fall within the 'love and embrace' camp is young people. Having likely grown up with technology from an early age, they tend to be the most comfortable with embracing the evolving array of devices on the market.

I have never been a teacher, so I will not attempt to jump into your world with wild predictions about the classroom of the future, or how technology will improve teaching and learning; I will leave that to others. Now the tools are available, however, I am excited to consider how teachers could appeal to young people's technology-led nature based on what other industries are already doing.

Retail therapy

For example, something we all have to do is shop. Retailers are pushing to stay ahead of the curve to differentiate and compete against rivals, and technology is the latest way they're striving to achieve this. New technology is being used both to drive efficiency within supply chains, and to improve the choice and experience for consumers.

Online shopping is now commonplace; it has dramatically changed the way most of us shop and the way retailers communicate with us. Most consumers are now used to searching and shopping online, moving from a physical to a virtual process. Retailers are using this new path-to-purchase to capture lots of information about us. They know the types of things we buy, where, how and when we buy, where we live, and so on. They use this information to build a picture about us, and then use this picture to put forward incentives or rewards to keep us interested and buying from them.

If we take this concept of gathering information and then using the right incentives or rewards to keep people interested, could this be used within an education context? Could the reward systems within education be personalised? My son has a passion for cars, for example; capturing and acting on this information could make such a difference to his engagement levels at school.

Game plans

Then let's move into the world of gaming, and the rise of augmented reality devices (AR). While this might sound like something you expect to see in the latest sci-fi blockbuster, AR needn't be daunting. Put simply, it is a real-time view of a physical and genuine environment, the components of which are augmented by computer-generated sensory input such as sound, video, graphics or GPS data.

Wouldn't it be great to be able to give young people the chance to have a glimpse of thousands of potential career opportunities in a way they understand and that could pique their interest? Perhaps AR and the foundations of gaming could help offer this, showing wider life-skills and career opportunities in a genuinely engaging way. It also has amazing potential for immersing students in different cultures around the world – imagine studying Pompeii, and then having your teacher put you in the middle of the action with an AR headset! I'm a little envious of the pupils of the future.

Peer pressure

So, will schools embrace this new technology? The take-up is having a domino effect in different industries, so I wonder if when one school takes the leap with a new piece of technology, other establishments in the surrounding area will be more likely to follow? Trinity School in Croydon, for example, has found the Toshiba Portégé Z10t provides good functionality for the school environment thanks to features such as a pressure sensitive pen that allows students and

> "It's hard to know exactly what new and exciting careers will be around in the next ten to 15 years..."

teachers to write directly onto the screen, enabling a completely paperless classroom. Wireless connectivity and a detachable tablet also mean that teachers can carry the device around the classroom whilst still showing the display on screen, bringing the learning experience to their pupils and making work more collaborative. As Trinity School continues to have a positive experience through its use of technology, it will be interesting to see if there is an increased interest from surrounding schools.

As technology continues to encompass and benefit a range of markets, it's also worth bringing our thinking back to the practicalities of life for today's pupils, and how it may impact the jobs of the future. It's hard to know exactly what new and exciting careers will be around in the next ten to 15 years, but I'd guess that technology will play an increasingly central role. Just as investment in sport and the arts is seen as crucial in providing pupils with a solid all-round educational experience and vital transferrable skills, the same can be said for a school's emphasis on new technology.

Once schools feel comfortable and ready to embrace new technologies, I hope they will enjoy exploring the opportunities waiting for them, which will not only benefit purchasing decisions but more importantly, students and their learning process.

ABOUT THE AUTHOR

Mark Byrne, is Head of Corporate, Education, Public Sector at Toshiba.

GETTING WITH THE PROGRAMME

Bishop Challoner Catholic College in Birmingham runs a not-for-profit eLearning scheme to ensure that all pupils have access to a laptop. The school wanted to overcome issues of mounting insurance costs by keeping expenditure to a minimum. Toshiba's education experts suggested its Self Maintainer programme, which allows schools to take control of its own IT repairs, helping to dramatically cut insurance and maintenance costs.

Since implementing the scheme, the school has seen clear financial benefits along with it being extremely positive for the students, helping teach invaluable life and IT skills as well as offering them an accreditation upon completing the training. "Our overhead costs have been cut down dramatically and waiting time for device repairs has gone down from weeks to days," comments director of ICT and innovation Andy Baker. "If we didn't have the programme, our e-learning scheme wouldn't have survived."

THE HELP DESK

Mark Chambers tackles some of your questions about how technology is changing teaching and learning in schools across the country...

Mark Chambers is CEO of Naace and a former school leader and local authority school support service manager. Naace is the professional association for all who are passionate about the impact that digital technology can have on learning outcomes for young people, and is an inclusive community that encompasses schools, teachers, consultants and employees of the EdTech industry.

Q I have recently taken on responsibility for IT development at a medium-sized academy, and have been asked to conduct a 'technologies skills audit' of staff. I can see more or less what the idea of such an undertaking is – but have no idea how to get started; could you offer me any guidance?

Clearly there are many different categories of staff in a school including support staff, administrative staff and teaching staff. Each of these roles will require both general skills and competences offered by more specific packages.

Auditing the skills of colleagues for their responsibility is therefore very wide ranging and the IT Lead in your school is likely to draw on a number of sources to help with a skills audit. For example, when assessing the skills of administrative staff, it is highly likely that you'll want to look at using some of Microsoft's freely available tools that support the assessment of confidence with basic applications for office activities. It may well be that once you have used these you find that appropriate training is available from the same source.

Staff supporting students with particular needs will use specialist software. The first level of audit with these colleagues is to find out what packages are used currently, and what support for these is available from vendors, or publicly available, for example on YouTube.

Regarding skills for teaching staff, there are two alternatives. Firstly do it yourself (DIY); secondly, using off-the-shelf products. For an off-the-shelf solution we would point to the Naace Competency Checklist, available to Naace members, which covers all aspects of the curriculum including Computing, and in the interests of fairness, point out that more commercial offerings are available from many Naace partners. For a DIY solution it will be necessary to define the scope of your audit if the scale of it is not to increase exponentially. Limiting yourself to the Computing Curriculum is relatively easy in that the Programme of Study is available as your guideline. Looking at the skills staff need to deliver an effective technology enabled curriculum, your design needs to be broken down into sections such as 'Skills required to deliver X, Y or Z learning objectives' where you are clear on the priorities your school is targeting for an effective TEL curriculum. Another section would be 'Skills required to manage student learning' in which you would explore staff competencies with tolls that support effective management and administration of learning, for example.

Q I am head of IT at a small secondary school in the South East of England. After many months of planning, we have finally rolled out a BYOD programme for our students, which is generally working pretty well. However, an early survey of parents and learners has revealed that one area of concern for both stakeholder groups is storage and charging. We don't currently offer this facility, given that our young people are bringing their own devices from home and taking them away at the end of the day – but if we were to consider introducing it in response to this feedback, what options might be available to us, bearing in mind the vastly different types of devices for which we would need to cater?

When adopting a BYOD policy in a school, it is important to stress that students must always arrive in the morning with their device fully charged and ready to be able to learn. Many schools include this in the BYOD agreement which students sign at the beginning. However, all too often, when heavily used, the battery in many devices will not last a full day without charge.

One option is to locate charging units around the school in communal areas which will allow students to charge their devices ad-hoc at times such as break, or lunches. Desktop Chargers can be secured to desks for security and allow devices to be charged via USB cable (usually up to 16 devices at a time). Some products, for example, have the added benefit of 'intelligent boards' which recognise the device which has been plugged in and sends the correct voltage to it for charging, ensuring there is no damage to the battery.

Other products could include lockers or cabinets in which to secure devices for charging, but most organisations find that for 'on the fly' charging, the desktop style units are perfect.

Q Everyone keeps on telling me (I teach GCSE and A Level English) that Twitter is the best thing to happen to teachers' CPD in decades... are they right? And if so, how do I – as someone who has never before engaged with any kind of 'social media' – benefit from all these amazing opportunities it apparently has to offer?

In 2006, our current chair of Naace stood in front of an audience of 300 teachers at TeachMeet at Bett and a) confessed to being a Twitterholic and b) asked how many of those in front of me used the platform. It seems strange to recall now that only five hands went up.

Such a response to a similar question at any gathering of teachers in the UK would be unthinkable now, with many teachers using this social media tool as part of their everyday lives. Of course many teachers have different reasons for using Twitter: some use it for personal logging of their actions or thoughts, whilst others use it to follow the antics of 'celebrities'. However, there are many teachers who use it to support their careers, to extend the teaching and learning opportunites for their students, or to treat it as an extended staffroom and, as some assert, 'the best CPD in the world'.

There are many popular social media tools, each of which fulfils a different purpose and can be applied in many ways to support the work done by teachers. However as I find Twitter to be far and away the best of the bunch, it is this tool which I am going to concentrate on for this answer.

The importance of using social media tools like Twitter is recognising that there really are other people who are willing to share and support you if you ask for it. Twitter transforms your device of choice, whether it be a tablet, phone or PC, into the largest classroom in the world. The best known example of this can be found at 8pm every Thursday by following the #ukedchat hashtag whereby large numbers of teachers spend a frenetic and intense hour sharing their thoughts and ideas on a predetermined educational topic. Furthermore, each session is archived and can be found at: http://ukedchat.com/archive/

So go on, give it a go and if nothing else, follow @naace on Twitter and we'll be happy to guide you through its use.

Q As head teacher of a relatively poorly funded secondary school, the issue of classroom furniture is not something that has been high on my list of priorities over the years. However, in half a dozen rooms, the desks and chairs have now deteriorated to the point that they are actually having a negative impact on lessons. Thanks to some creative budget management – and an incredible effort from the tireless parents in the PTA – we have the money available to replace them, and I would like to take this opportunity to start creating the '21st century learning space' I think all our students and teachers deserve. What questions should I be asking my furniture supplier(s) in order to meet this target?

Our 'top 10' suggestions are as follows:

1. Check that any prospective supplier has a demonstrable track record in the education sector – both from a supply and design perspective – and preferably with industry accreditation.
2. Always ask for reference sites similar to your own scope of requirements and don't just call them but go and see them in action.
3. Search around for other live environments to look at; a number of 'non-furniture' suppliers and other organisations will have demonstration or mock-up areas you can visit.
4. Ask the supplier what processes they have in place to help you make choices and how they involve the staff who are going to have to 'live with' these spaces in order to incorporate their views and try out different layouts, etc.
5. Ask the supplier if they are prepared to run a student-led project to help engage, design and identify space requirements if that is something your curriculum or timetable can support.
6. Don't be afraid to ask suppliers for their opinion of what doesn't work as well as what does; and to hook you up with other practitioners to confirm.
7. A good supplier will work with you and put in the upfront effort whilst giving you time to reflect on ideas - they may even be willing to loan items so you can try them practically and in action before making a bigger commitment.
8. Make sure the supplier is absolutely transparent about any ongoing maintenance or possible lifecycle costs.
9. Ensure the supplier provides some form of staff induction if the furniture is multi-purpose so that they are fully aware of different configurations and any specific functions they might not have thought of or be aware of.
10. Don't just rely on the supplier – a good amount of research, consultations with staff and students, maybe even taking time to develop and reflect on some mood boards will ensure that the space is fit-for-purpose not just as initially intended but into future years.

Remember that you will be living with this furniture for as long as it lasts – and if you pick the right quality that could be for some time!

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PLAY IT SAFE

Security and charging are key concerns for any BYOD school – luckily, there's a solution...

LapSafe®, the education sector's expert in managing smart technologies, has launched a brand new addition to its Diplomat™ range of self-service charging lockers. Users' devices such as laptops, netbooks, Chromebooks and tablets including iPads can be stored and charged in individual lockers.

Teaming up with BeCode®, the new locker range fitted with a smart keypad lock named miniPad™, offers a complete keyless environment. The locks are secure, simple to operate and are unaffected by power outages. They do not require connection to your IT infrastructure. miniPad™ is perfect for lockers operated by single dedicated users or areas where multiple users can use the same locker – to operate you simply type your code into the keypad.The Diplomat™ PIN lockers are fitted with sophisticated electronics to manage 'safe' power for the user and the devices at all times, as standard. The Diplomat™ PIN includes protection for in-rush, power surge and residual voltage protection.

With fully integrated LapSafe® SmartLine™ charging, devices are all charged simultaneously. Charge levels are indicated to the user via a single LED adjacent to the locker being used and the use of AC adaptors is not required. There is no user contact to any 240v system by the user. Perfect for issuing self-service devices.

For establishments requiring BYOD (Bring Your Own Device) schemes then LapSafe® ChargeLine™ is the best charging option; a single 13 amp UK or Euro socket is conveniently positioned inside the locker bay for the user to use their own AC adaptor for charging. Each locker tower is powered from a single 13 amp fused spur and is fully power-managed. All devices can chargeat the same time regardless of the device being charged.

CASE STUDY: KINGS CE SCHOOL

Secure storage and charging became a priority for this Wolverhampton school following a massive technological investment...

The Kings CE School in Wolverhampton is a Voluntary Aided Church of England School. It re-opened its doors in September 2012, after a huge technological investment from the Building Schools for the Future Scheme (BSF), which included £1 million to spend on new IT equipment. Through BSF, the school now has a stunning new design and innovative up-to-date facilities, making it one of the most advanced educational establishments in the country. Due to such success, Kings CE School was listed as one of the government's top 100 schools.

Nick Walton, IT Manager at Kings CE School explained, "The investment from BSF was fantastic as we had a lot of money to spend on our IT equipment. We use IT in everything across the curriculum, product design and manufacturing; it is embedded

into everything."

Before the investment from BSF, Kings school had a small amount of desktop computers for the students and laptops for teachers. The 15 teacher laptops were kept in a cupboard, which reduced storage space for other equipment, and was also not very secure. After funding, the school bought numerous amounts of laptops and iPads for the students to use and needed secure storage and charging for the devices. The school contacted LapSafe® which specialises in providing safe power management solutions that allow charging and data transfer for laptops, netbooks, iPads, tablets and other such devices, in volume.

Nick Walton said, "After consideration, we ordered 13, 30 bay Mentor™ trolleys for laptops, one 20 bay Midi Mentor™ for laptops and six iPad Traveller™ units. The units are reliable and if we need help or have a problem, we know we can call LapSafe® and receive brilliant customer service." Nick also added, "We chose LapSafe® Products for its competitive pricing and because it has the best products on the market with the best functionality."

MORE INFO

For more information on the full range of LapSafe Products visit www.lapsafe.com


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MAKING THE CONNECTION

Unbeatable communication means superb engagement – and of course, there's an app for that...

Groupcall provides communication and data solutions to the education sector. Co-founded by Sir Bob Geldof, Groupcall's product portfolio comprises Messenger, Emerge and Xporter. Groupcall Emerge is the powerful app enabling schools to have an up-to-the-minute copy of their MIS data instantly and securely available in the palm of their hand for access anytime, anywhere. Student information including timetables, attendance, minutes late, absence notes, medical information, behaviour and achievement data can be accessed wherever the teacher is located. Their award-winning Messenger product is currently used in more than 5,000 schools providing an easy-to-use, web-based solution for parental communications.

The Groupcall Xpressions app is also now available allowing parents to receive and view information sent directly to their mobile phones keeping them updated on a wide range of events in close to real time. All information is extracted directly from the school's Management Information System (MIS) and the school decides what information parents can view but includes:

+ Free messages sent to the school and delivered directly to the app using push notifications
+ Updates regarding selected partner systems used by the school i.e. homework, catering and library systems
+ Attendance records and absences*
+ Marks and grades*
+ Achievement records*
+ Behaviour events*
+ Timetable*
+ School calendar*
+ Notification timeline for all of the above.

groupcallxpressions
start the conversation

The system is completely automated and requires no new process or actions within the school. Parents will be presented with information for each of their children no matter which school the child is in (assuming each of the schools involved is using the Xpressions app).

The information available is the same as for teachers with small exceptions to comply with data protection guidelines such as viewing other participants in achievement or behavioural events.

The Groupcall Xpressions app is currently available on Apple iOS and Android devices with Windows mobile to follow.

* Enhanced service for SIMS.

MORE INFO

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Introducing the smart new additions to our range

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Smaller footprint
TabCabby Compact is a third smaller than similar models!

TabCabby 20V

- Vertical storage in four removable baskets
- Charges 20 tablets with cases, or 32 without
- When not charging, stores up to 40 tablets.

TabCabby 32H Compact

- Nearly a third smaller than our TabCabbys
- Stores and charges 32 tablets.

TabCabby 16H Compact

- Nearly a third smaller than our TabCabbys
- Stores and charges 16 tablets.

DeskCabby

- Stack up to three units; they'll fit neatly on your desk
- Stores, charges and syncs 12 tablets using Cambrionix technology.

Boost+

- Charges and syncs up to 16 tablets using Cambrionix technology
- Compact and portable – take it anywhere!

All TabCabby models feature:

- Separate compartments for adaptors and power supply
- A new compact size, so they take up less space in the classroom
- Power7 energy management for daytime or programmed charging
- Power ports compatible with the charging cables that come with your devices

Talk to LapCabby today. Call on **0115 982 1771**
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LapCabby
New thinking in ICT storage

Q&A

MOBILE DEVICE STORAGE

Terry Jackman, who works in the IT department of Dixons City Academy in Bradford, describes what a difference effective tablet storage has made in his school...

VISIT: LAPCAPPY.COM/TECHINNO CALL: 0115 982 1771 EMAIL: TALKTOUS@LAPCABBY.COM

LapCabby
New thinking in ICT storage

Set up in 1990 as a technology college Dixons is now part of a chain of schools across the Bradford area. Dixons' 1100 students regularly use tablets in their lessons.

T&I: How long has your school been using technology in its lessons?

TJ: We've used laptops for quite some time, and when we took part in an initiative providing technology for schools we started using tablets, too. Our participation began as a one-to-one programme, where every single pupil was provided with a Nexus 7 they could take home or keep in their locker. The initiative was great, but unfortunately a lot of tablets were damaged whether in school – having fallen out of lockers – or at home. Eventually we decided to keep the tablets in school and distribute them around the departments, but working out how to manage them was a big problem. At one point we had about 1200.

Did you have any storage?

We'd used laptop trolleys before, but the ones we had were essentially big, cumbersome metal boxes, and they didn't have charging technology or anything like that. We had to install the tech we needed manually. When we found ourselves in need of a solution to storing hundreds of tablets quickly, we knew trolleys like these weren't going to do the trick. We needed something that'd do everything we wanted in one simple package.

How did you find the storage you needed?

I just searched online for tablet trolleys – and that's how I came across LapCabby. I was desperate for a solution that'd keep the tablets safe while allowing them to be moved around the building and accessed easily, and the TabCabby immediately seemed to fit the bill. The TabCabbys had built-in Power 7 charging technology, easy-access compartments and lots of added features to keep devices safe when they're not in use. They were also brilliant value, especially compared to the storage we'd had before. Luckily, one of the other schools in our chain had some LapCabby units in use so I popped over to see how they worked. And that was that, I was decided!

So, which LapCabby product did you go for?

We've about 15 of the TabCabby 32H Compact, with angled metal shelves rather than slide out trays. You can even open up the sides to get the cables out easily. It was great to find something that suited our needs so perfectly.

What sets these units apart from similar products?

The ease of use is a big selling point; they arrive fully assembled and installation is simple. They're also extremely well made and easy to wheel between classrooms, with protective bumpers, cushioned compartments and durable castors ensuring devices are kept safe in transit. That's particularly useful for our science department as a couple of trolleys are shared between classrooms. I love the appearance of the TabCabby, too. They come in lots of colours but our school colour is blue – so we went with that!

What's the most innovative feature?

The fact that you can programme your charging schedules in advance. There are three different schedules you can set for each day, which is really useful as each of our departments has different needs. Plus, the charging is intelligent, which means every device gets exactly the amount of power it needs and batteries aren't overloaded or damaged.

Are there any products you might try in the future?

We've thought about the GoCabby as it'd be very useful for field trips - you can wheel it around so easily. If we invest in iPads or another type of tablet in the future, we'd look into the LapCabby products with synchronisation technology, too.

Who else do you think would love a LapCabby, and why?

Any educational establishment, definitely. Anywhere, really, that runs activities involving tech or works with members of the public – perhaps hospitals, private healthcare companies or even football clubs would find them useful. Ultimately, LapCabby units just make life easier. The products are so versatile that I can imagine many companies would find one to suit. Devices are kept really secure, we know exactly where they all are and where to find them, and it's so simple to move them around the building. For us, our TabCabbys have made a big difference.

LapCabbys are making a difference in schools right across the world; visit the features page at www.lapcabby.com/features

Sex, lies and the digital generation

The first step in keeping students safe online is to accept that they will always be one step ahead – but in some ways only, argue **Emma** and **Charlotte Robertson**...

At Digital Awareness UK, we speak to thousands of young people every month about how to be safe and responsible online and time and time again we battle with the same dichotomy – should we celebrate their tech savviness or should we stifle it?

The obvious choice of course is to celebrate it, which is the very foundation our e-safety organisation is built on. We believe that the only way to truly educate students in the e-safety space, or any other, is through empowerment. However, with issues like cyberbullying, sexting and security violations at an unprecedented level in schools across the UK, we must also accept that whilst empowerment is key, we have great responsibility to ensure our students are skilled up when it comes to responsible use.

Double dealing

Young people today never fail to surprise and amaze us when it comes to how savvy they are online. They can show us how to override the school's security filters, how to hack into their friend's social media profiles, they can even demonstrate how they've managed to use their parent's credit cards to make in-app purchases without them ever finding out.

This is a generation of people who are used to helping their parents and even teachers overcome any technical issues they may face – whether that's showing them how to upload a video to YouTube or how to get presentations to work in the classroom.

Unfortunately for us, this often means that even if you're just a couple of years older than them, they see you as a digital dinosaur, and no one wants that title! We talk to young people day in, day out about how they're using technology and we're always on the back foot, so how can we expect your average teacher to know the ins and outs of what Snapchat is and what the associated dangers are when using it? The ever-evolving digital landscape doesn't wait for anyone to catch up.

But as much as this generation will have learnt how to enter a false date of birth to have an Instagram account illegally at the age of eight, that doesn't mean they have common sense. It doesn't mean they have the life experience to know that when a 'model' wants to add them as a friend on Facebook, it's probably too good to be true. Or that it's unlikely that there is £10,000,000 waiting for them in Nigeria if they click on that link. Or that people are usually presenting the best possible versions of themselves on social media (a version of themselves that often doesn't actually exist).

The only way you learn these things is through life experiences and sadly, now that young people are experimenting with social media from such a young age, we don't always have time to share those lessons with them; sometime we haven't learnt those lessons yet ourselves!

At Digital Awareness UK we run fun, interactive social media safety workshops with students of all ages and usually by the time we reach year four students, most of them admit to regularly using social media. One of the biggest and most concerning trends we're seeing in schools at the moment is that student are wising up when it comes to understanding and overlooking the rules their parents set out for them. We're seeing a huge trend in the rise of the

'double-profile', for example.

This essentially means that children may tell their family they're on Facebook and share their account information so their parents can regularly check in and see what they're up to. They are of course mindful that anything they post could be scrutinised by 'the olds', so they only post content they know they would be deemed 'appropriate.' What mum and dad aren't aware of is the fact that their child has another profile on Facebook called Twinkle369, which is the account she actually uses to post what she really wants to share with her peers. Savvy – but worrying – move.

Real resilience

Guidelines set out from the likes of Ofsted will encourage schools to ensure that their students know how to 'report' issues to social networks if they're ever victims of online abuse. Students know they're supposed to do this, we rarely need to remind them. Sadly they also know that using the 'report' feature is often ineffective due to the time it takes for social networks to respond, or even the fact that particularly on gaming networks like Xbox Live or Playstation Network, and even on platforms like YouTube, people 'report' each other when they've done nothing wrong and use it as a tool to cyberbully.

Again, students have wised up to it.

The irony of this all is that the issues we're dealing with don't start online. Behaviours like bullying, stranger danger, pressurising people into sexting, even extremism and radicalisation are developed offline. So as educators it's imperative that instead of just focusing on what the latest social networks are or how students can block, report or 'tell an adult they trust' we also focus on teaching them about the impact certain behaviours can have on their health and wellbeing.

An example of this is could be seen in sex education. When we teach students about relationships, trust and not feeling pressured into doing something, we can talk about how this doesn't just happen face-to-face, it can happen when people blackmail others to send them explicit images of themselves via social media.

The most progressive schools we work with have a holistic approach to e-safety, which doesn't just focus on how it can be crammed into a one hour ICT lesson. Instead it looks at how it can be integrated across the curriculum – PHSE, art, drama, sociology, psychology and so on. This allows us to share relevant life experiences, which override the benefits that any unsafe, savvy social media use can offer.

6 STEPS TO GET TO GRIPS WITH ONLINE SAFETY

1. CPD: Activate regular training solutions to keep staff skilled up on social media safety
2. Education: Create a culture of responsible social media use amongst students through an innovative strategy that effectively integrates e-safety into the curriculum
3. Policy: Ensure your students and staff have clear acceptable use guidance
4. Parental engagement: Get your e-safety efforts backed up at home through parent events
5. Leadership: Ensure your SLT empowers staff to effectively advise on social media safety by investing in your e-safety vision
6. Crisis management: Get a robust escalation system and crisis plan in place

ABOUT THE AUTHOR

Emma (pictured left) and Charlotte Robertson are co-founders of Digital Awareness UK, which uses leading YouTube stars, hackers and social media specialists to inspire students to enjoy using social media safely. If you'd like to work with them to help bolster your e-safety efforts, get in touch at www.digitalawarenessuk.com or tweet @DigitalSisters

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Q&A

DIGITAL SAFEGUARDING

Clare Askew, Head of Learning Services including Online Safety at ICT4Collaboration talks safety in the 21st Century classroom...

VISIT: WWW.ICT4C.CO.UK CALL: 0300 303 89 50 EMAIL: SALES@ICT4C.CO.UK

T&I: What do schools need to know about the Prevent Duty?
CA: The Prevent Duty is now a legal requirement for all schools; and there are five key areas which they should know about and take into consideration: **1.** Risk assessment **2.** Working in partnership **3.** Staff training **4.** IT policies **5.** Monitoring and enforcement. Schools need to take a multi-pronged, multi-agency approach, as there is no 'one solution'.

How can your forensic monitoring service help fulfil responsibilities?
ICT4Collaboration's forensic monitoring solution manages the risk of exposure to inappropriate material and provides early warning of risky behaviour using sophisticated threat-detection technology. Unlike any other solution, the monitoring of content and activity in any language, both online and offline, is managed by an external team of child protection specialists, trained to look for behaviours rather than simply picking out key words and phrases. This completely removes the pressure on staff who have not been trained to deal with identifying the subtle markers and euphemisms which indicate potentially risky behaviour by young people and staff.

If an alert is raised, are you able to offer advice regarding intervention?
We work with the school to ensure they have procedures in place to deal with incidents, alerts and potential threats. Should a school want additional support we are able to offer a full digital safeguarding service which is a compehensive package looking at all aspects of e-security and e-safety across the school.

What do you say to those who suggest that this level of monitoring is either unnecessary, or even intrusive, in schools?
No school wants to be front page news for the wrong reasons; by putting in place a range of processes and services, schools are able to demonstrate that they have taken reasonable steps to identify extremist behvaiour, therefore fulfilling their legal duty to safeguard students and staff. The beauty of our monitoring system is that the school is only alerted to actual incidents or potential risks and we work with them to follow up on alerts and early warning markers. In busy schools, this makes a positive impact on workload.

THE TOUCH OF EXPERIENCE

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AVSS Ltd is a family run business located in Bracknell, Berkshire, which started in 2003. It is a well established audio visual company with many years experience, from audio visual sales to installations, projector servicing and repairs.

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Installations
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Engineers
AVSS Ltd only uses its own internal experienced engineers, meaning clients can be confident they will always receive the best advice and service. The engineers will carry out a free, no obligation site survey at your premises (location permitting) and then pass it back to a sales team member to provide you with a very competitive installation quote. All the engineers are enhanced CRB checked, and all installation services come complete with a full one-year warranty.

Interactive touch screens
AVSS Ltd is an approved supplier and installer for many brands of interactive touch screens including Benq, Smart, Promethean and Clevertouch and more.

Clevertouch interactive touchscreens are changing the way we educate – the durable alternative to interactive whiteboard and projector solutions. With innovative features such as built in PCs and an app store focused on education, Clevertouch is a product we are proud to be installing in a growing number of forward-looking schools.

The SMART Board 4000 Interactive Flat Panel Range (including the SMART E70) is designed specifically for classrooms and combines a premium touch experience with the power of SMART Notebook collaborative learning software on a 55", 65" or 70" display. The high-definition, shadow-free LED display features low-friction coated glass that lets fingers glide smoothly over the surface, creating a natural touch experience.

MORE INFO

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Independence **DAYS**

What does effective collaborative learning really look like – and why is it important? Mary Palmer sets out the evidence...

Collaborative learning is emerging as the most effective pedagogical model of our time. This is truer than ever in schools using 1:1 mobile devices every day as an integral part of teaching, learning, sharing and responding. So how is it working, what do shining examples look like and what are the biggest challenges?

If school-leavers are to be equipped with the digital skills they'll need for onward study and employment, teachers need to feel completely confident using mobile technology. Not as a replacement for books and traditional teaching methods, but as a seamless addition. In some pioneering schools, a new teaching infrastructure is making this a comfortable reality, not a chore.

Ideally, there'd be a UK-wide plan to help teachers and heads at the beginning of their tech-journey. In its absence, schools are turning to a valuable handful of well-informed, well-researched resources.

At Techknowledge for Schools, the educational research charity formerly known as Tablets for Schools – of which I am director – a partnership exists with 40 pioneering schools in a continuous research programme (since 2011) to uncover success stories, benefits, concerns and, ultimately, impact. In this piece I will share the most recent findings. But first, why is collaborative learning such a powerful alternative to the centuries-old 'sit and listen' approach and why is so much energy being invested in it?

Bigger picture

Independent learning and collaboration are essential life skills. The Government is quite rightly pushing for building soft skills alongside academic study. As well as qualities and skills related to confidence, self-awareness, self-reflection, resilience and effective interaction with professional adults, familiarity with mobile technology and its role in everyday problem-solving is

an equally important part of the equation.

Collaboration and contribution at school on a local, national and international level are all possible in the age of high-speed broadband, and the options for using mobile technology to achieve it are varied and rich. Opening opportunities beyond the school enables youngsters to develop as 'global' citizens.

Progress for all learners is another priority. The new Progress 8 measure makes schools accountable for the progress of learners at all levels. Research shows that touchscreen devices are a powerful way to offer real differentiation to learners where the learning can be self-paced and scaffolded to support those at the slower end and offer links to additional resources at the faster end.

And students are fast becoming innovative creators with their devices. Collaborative learning offers untold value via multi-purpose apps that require group work. Using devices to create and share presentations with real-time visuals and graphics, annotating pictures, making videos, tutorials and digital posters are easy for most of today's teenagers. Teachers use devices to give feedback individually and in groups, and parents too can access the whole day's work and teacher interaction from home.

Transforming Learning: new research

Previous research for Techknowledge for Schools found that 1:1 technology was most successful when part of a wider pedagogical vision and with strong support from the leadership. New 'Transforming Learning' research builds on this to show the importance of sustaining teacher support, training and motivation to use the technology.

It emerges that 'flipped' and 'challenge based' lessons emphasise and develop collaboration skills more than 'regular' lessons. Students are expected to lead their own learning through independent research on tablets and to work in groups to solve problems and present solutions. Collaboration is encouraged and accepted as a way of discovering answers, asking peers for support or feedback and sharing findings with the group and the teacher.

Doing this means giving students the autonomy to work independently, which not all teachers feel able to do. Allowing students control of their learning through new teaching models can suggest a threat to a teacher's role and authority in the classroom.

The use of 1:1 devices clearly helps to facilitate personalised learning. Teachers feel able to provide resources and support to different ability levels within the same class. They no longer feel they have to 'teach to the middle'.

Individual access to a digital device is also described by teachers as a means to extend learning beyond the classroom and offer students a way of 'seeing the world'. Many students engage more with the subject if they are asked to research it themselves rather than being given a hand-out.

A science teacher said of students using challenge-based learning: "They were able to say, 'I've learned that I need to listen to other people's ideas and that we need to decide who's going be in charge...' So even if they didn't enjoy it, they learned about working together and working independently."

Other teachers told of high student engagement in lessons that involved independent and collaborative work, but said that students need to be 'eased into' this form of learning. "When you start they come with every little problem... gradually you see them become more independent," was a typical comment.

Teachers also report that 1:1 mobile technology is particularly beneficial to students with learning difficulties or those who struggle with handwriting; it presents alternative ways to access and share their learning.

Room for improvement

Concerns about technology and its impact on classroom management has prevented some teachers from fully utilising their devices. Device distraction is a recurrent issue cited by many teachers, the fear of losing control of the class is uncomfortable and technical problems can disrupt lessons if adequate IT support and expertise is lacking. Teachers also worry that not all students have the emotional maturity to regulate their use of technology.

The role of Techknowledge for Schools is to draw on research to provide robust evidence of how mobile technology is influencing learning and teaching and most importantly, how it is improving learning. The charity continues to explore closely how children's motivation to learn and how the personalisation of that learning is affected by the increasing use of mobile devices in and beyond the classroom. If you need help getting started, we're happy to provide it: www.techknowledge.org.uk

ABOUT THE AUTHOR

Mary Palmer is director of Techknowledge for Schools

OVERCOMING CHALLENGES

+ PREPARATION:
Experienced 1:1 schools give teachers months to familiarise themselves with tablets and their apps and software before introducing them to the classroom. Months should be spent preparing the IT infrastructure and back-up plans before buying devices. The infrastructure should be informed by a vision and strategy backed by leaders who have communicated clear digital learning objectives.

+ SUPPORT FROM THE TOP:
This is crucial for teachers to feel able to experiment with alternative teaching styles and the level of autonomy it can allow pupils. An e-learning lead (preferably in each department) accessible to all teachers and with the authority to suggest and design new types of material, is essential to offer real-time support and 'back-up'.

+ CPD
Training and support on how to use a mobile device is vital to building teacher confidence and allowing teachers to experiment. The most effective CPD often takes place informally within departments, with teachers co-creating and sharing resources. Teachers also need curriculum-based training and examples of how mobile devices should be integrated to extend their use beyond fun activities.

+ CONSISTENCY:
A multitude of competing apps and platforms is available. Ask the e-learning lead to introduce apps to communicate, upload homework and present work. Resources for multiple use, such as presentation apps, web-based video content or e-books, rather than relying on one specific app, can make technical problems less disruptive.

THE SLOW BURN

Christina Preston traces the steady and considered path of an educational revolution she and her colleagues have been following for over two decades...

Ever since I founded the MirandaNet Fellowship in 1992 our community has been expecting a revolution in teaching and learning because of the impact of digital technologies in schools. Over the years we have grown from fifteen teachers in England who saw themselves as thought leaders in education innovation to one thousand members in eighty countries. Our online and face to face debates and our members' publications on our website indicate that the exponential increase in the use of technology is a global phenomenon.

Our hopes for a revolution on teaching and learning strengthened in 1997 when the UK government introduced the National Learning Grid: the first internet service for education in the world. However, unlike the workplace that has been transformed by technology, most classrooms have continued to look much the same for the last 100 years.

MirandaNet Fellows investigated the reasons for the slow pace of change about five years ago. The teachers who were interviewed had been nominated by their peers as excellent practitioners. These professionals were often able to use the desktop computers at home but were reluctant to use them in the classroom. We found they had good reasons. They questioned the design of some learning products: inappropriate loud sounds and tasteless animations diminished the calm atmosphere of learning they were trying to create. They found that internet access was not always reliable and that, when computers in network rooms did not work, the rhythm of the lesson was interrupted. Overall these reluctant teachers were sensitive about gimmickry and about money being spent on technologies for their 'wow' appeal rather than because their educational value was proven. These were fair professional judgments – but they were mostly focused on the challenges of the network room and the software available there.

In their hands

Now a tipping point has been reached in education innovation. Why? Well, for the last twenty years keeping the school networks and computer rooms functioning has absorbed staff energy, consumed money and put control in the hands of the network manager. In contrast Fellows are now observing a sudden change in practice because personal tablets and smart phones have put powerful and affordable tools in teachers' personal control, 24/7. Now that this technology is smoother, faster and more intuitive, the uses in everyday life have stimulated a much wider professional understanding about how this technology might be used in the classroom and at home.

David Fuller, a MirandaNet Fellow, has published an action research study about the use of tablets at Fonthill Foundation schools in Brighton. When tablets were first purchased, David worked closely with the teachers to translate the potential of a tablet into classroom practice. He also harnessed the students' empathy with this technology – a valuable source of insight for teachers. David advocates allowing students to experiment, share and, most importantly, to reflect on the potential the technology offers the pupils. For example he describes students writing their own books: "For the final section of the lesson, they passed on their book to a colleague who completed audio or video feedback on what they thought about their book for the author. This proved really useful encouragement for the SEN children who attended the session".

Taking time

In the Fonthill schools new kinds of learning are taking place, whereas at Warden Park School in West Sussex, Dai Thomas, another MirandaNet Fellow, has planned a slow revolution in learning through well-organised trials of tablets. His study emphasises an emerging pedagogical practice called Flipped Learning (see also pages 35-35 of this issue). The idea is to 'flip' the responsibility of learning to pupils so that the teacher becomes more of a facilitator. This model explores a different way of using physical and virtual space from traditional approaches: students are encouraged to research a topic outside the classroom now that they have significant resources at their finger-tips through safe use of the internet. Students also view instructional videos at home and then debate what they have learnt at school where the teacher can pick up the misconceptions and encourage inspiration. Students return to the classroom to collaborate, coach, and instruct each other and debate with their peers and their teachers. Tablet technology also underpins the opportunity for small groups or individuals to present strategies and solutions to help others. Enthusiasts maintain that students' understanding is internalised and reinforced.

Dai's study indicates that clear leadership is essential to make flipped learning work and anticipate challenges. Reasonable reflection time and professional development space is also important but because teachers do have to change their teaching style from information transmission. Some advice that emerges from the first eighteen months of this project is:

+ Help teachers view positively the move to use tablets by starting with personal administrative tasks: for example registration and email on the move; note taking; and resource collection.
+ Encourage teachers to enlist pupils to help them as pupils welcome opportunities to help the teachers understand the tablets
+ Debate the wider and broader aims of education within the staff. At some point the whole staff will want to consider whether they are willing to adjust the theoretical underpinning that informs their professional life and adjust school policies on teaching and learning on the evidence of promoting tablets for all.
+ Communicate sympathetically with parents and staff members who are concerned about league tables and academic rigour because the current assessment environment does not encourage the changes in teaching and learning that are pursued in this project.

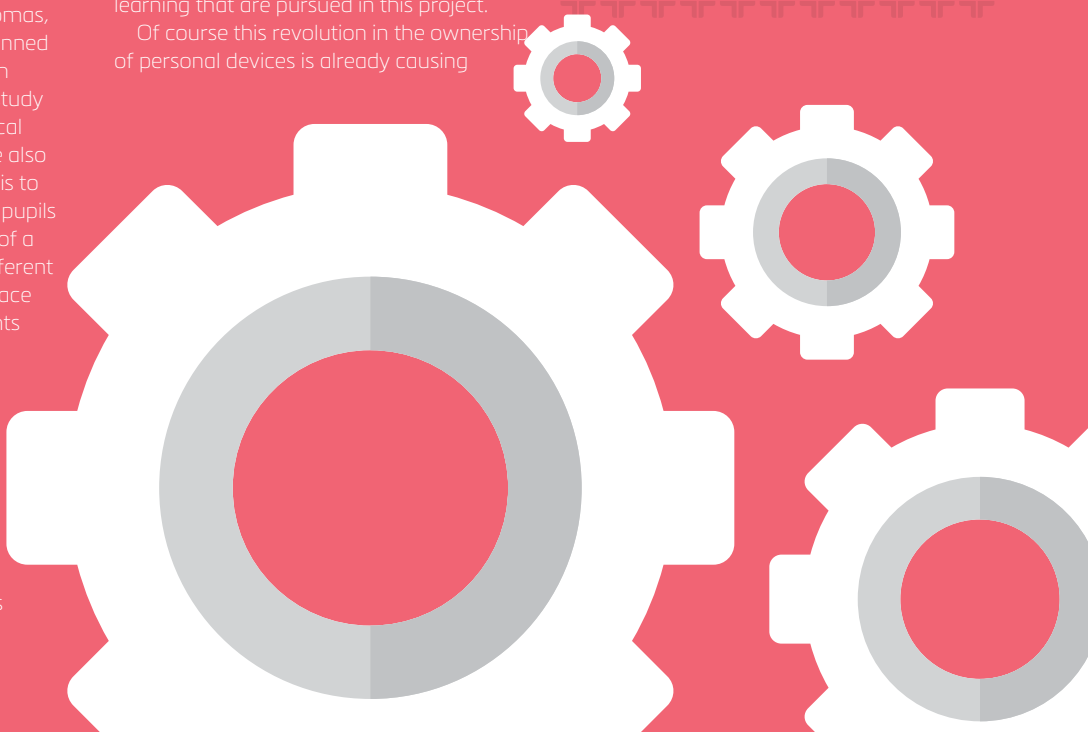
Of course this revolution in the ownership of personal devices is already causing dissent from some teachers. For example, a research report that is being hotly contested on the debating channel, MirandaLink, appears to prove that in schools where mobile phones are banned achievement scores improve. Even if the methodology is flawed note must be taken. Enthusiastic innovators bringing in mobile devices must work with all the teachers and parents on a code of conduct that everyone can sign up to.

Professor Mike Sharples summed up the overall MirandaLink consensus that schools have a responsibility to harness the power of mobile devices for learning. "This is just one small way to help students 'navigate life' and develop valued and transferrable skills. The key is not to let devices rule in school, but to put them into their proper place alongside the other equipment for learning, and to encourage responsible and safe use".

Perhaps not a revolution then, but rather, thoughtful changes in practice designed to prepare pupils for the future.

ABOUT THE AUTHOR

Christina Preston is the founder of The Mirandanet Fellowship; a community of practice that is free to join www.mirandanet.ac.uk. MirandaNet associates, Tablet Academy, run course for schools about using tablets creatively in schools (www.mirandanet.ac.uk/associates); and members' debates can be seen at www.mirandanet.ac.uk/mirandalink-thought-leadership-and-debate



IN THE SPOTLIGHT

Four brilliant ideas for better teaching and learning, for everyone...

TECHNOLOGY FOR ALL

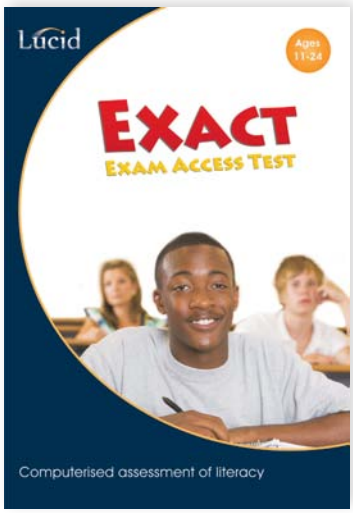
Computer Aid is an ICT for development (ICT4D) charity that aims at helping resource-poor communities to access digital information and build skills that will improve their lives. Its projects vary from education, health, agriculture, gender equality, governance and post-crisis relief.

For the past 17 years, Computer Aid has witnessed how new technology can tackle poverty and has provided practical and empowering solutions to over 500 million people. To date, the charity has sent over 230,000 computers into 113 countries for individuals to transform their conditions and create better livelihood for themselves and their families.

This work can only continue with donations of equipment and generous funds. Please support Computer Aid today to transform more people's life through ICT.

Contact Darren Taylor, 0208 361 5540, darren@computeraid.org

ASSESSMENT FOR ACCESS



Assessing students for exam access arrangements can be very time consuming. Lucid Exact is a suite of computerised tests of word recognition, reading comprehension, spelling and handwriting/ typing speeds that are easy to administer and save significant amounts of assessment time. Nationally standardised for age 11 – 24 years, immediate results provide data for access arrangements. There are two parallel forms of each test to allow for repeated assessment. Lucid Exact is available on a yearly licence with unlimited use for stand-alone computer at only £135, with network versions also available.

"It probably saved us approximately 100 LSA hours of marking and processing"

SENCo, Maidenhead

Lucid Research, www.lucid-research.com
sales@lucid-research.com, 01482 882121

AN EYE FOR CHANGE

Newly launched audio and visual teaching aid eyeTeach – winner of a Havering Business Award for Innovation, and a 2014 Technology & Innovation Awards Runner-up – allows teachers to see themselves in the classroom environment to review both their own performance and that of their students.

Using Megapixel cameras and HD audio recording, video can be played back while eyeTeach is still recording, eg to speed up class explanations or show a student where he or she can improve – replaying an oral exam, for example.

Important built-in safeguards ensure teachers retain full control over the system's recordings and no annual software licences are required.

www.eyeteach.net, tel 0843 382 4999, info@eyeteach.net

MORE THAN WORDS

Exciting times are ahead for Vocab Express, with new functionality promising to enhance an already hugely powerful framework of familiarisation, activity setting and student tracking.

Vocab Express uses pre-loaded, pre-categorised exam board and text book vocabulary within a unique vocabulary learning environment. Simple to use,Vocab Express encourages independent learning accessible at home, in school or on the move. Activities such as intra-school competitions and leaderboards keep students motivated – whilst vocabulary tests, with no preparation or marking overheads, reduce teacher workloads. Keep informed with highly effective real-time reporting and monitoring tools following student progress and study patterns.

Free student trial available: www.vocabexpress.com/register

Q&A

RECORDING OBSERVATIONS

Dan Pinnell discusses the versatile and efficient app which is saving that most precious of resource of all in the educational sector: time...

iObserve APP **VISIT: IOBSERVE-APP.COM CALL: +44 1452 886 888 EMAIL: HELP@IOBSERVE-APP.COM**

T&I: What was the thinking behind the development of iObserve?
DP: The idea came from watching the everyday routine of staff and assessors using dictaphones to record observations before coming back to the office, putting on their headphones, writing them up, re-listening to them, cross-referencing to the standards of the qualifications and writing it up every time the student mentioned something related... They then had to type up the whole thing into a report, reviewing it against the original recording and finally they had to return to the scene of all that consumed time just to get a signed declaration. We thought, there must be a better way! So we made one.

How does it differ from other recording tools out there?
Firstly, you have the option to record either video or audio – vitally important if you want to display hard evidence that a candidate is doing something towards their qualifications, but the main difference is that the qualification criteria is actually embedded within the app. At the click of a button, you not only record your observations, but time-stamp those recordings with customisable course criteria as they happen in real time. You then have the option at the end for both parties to sign off to say they are happy with the audio. The whole report is done on-screen, with the added option to print off the declaration and as the app is self-contained, it doesn't need Wi-Fi – great for use on the sports field for observation in PE classes!

Is it easy for teachers to use? Even if they are not especially tech-savvy?
Yes – definitely! We spent a lot of time working on the interface to make it as simple and intuitive as possible. The minimal amount of input that's needed is just the observation title and the student's name. The teacher's name is saved in the app but can also be changed. It's that easy. Follow the instructions on-screen and you can't go wrong. It's about a four-or-five click process from start to finish.

Obviously, this is an excellent tool for CPD; but what other uses are schools finding for iObserve?
Students who may be struggling with traditional means or have learning difficulties now have the option to easily dictate their work or show it in vocational departments. In English, we all had to stand up and do our book reports, well now the teacher can record and provide live feedback directly against course standards. One of the great things about this app is that it's so versatile and can be easily adapted. Teachers and students alike can use it to record lessons or lectures for either feedback or revision purposes, marking the recording with key points as they go, enabling them to quickly find and review them at a later date.

What sort of feedback are you getting from teachers who are already using iObserve?
All the feedback we've had so far has been positive, from within and from outside of our organisation. The main feedback we get is of course the amount of time saved from the teachers, and how efficient it is. But we've also noticed a by-product in that it is producing accountability for teachers, and peace of mind for heads. You know that what's being recorded is what really happened. Not only does this prevent any shortcuts being taken but it also supports the good work that is being done – useful for when Ofsted are dropping by and you want to blow your school's trumpet!

Are there any developments on the horizon of which T&I readers should be aware?
There are exciting things in the works, particularly with the PC version we are working on. This will enable users to store everything in a central space and import recordings from any device, even remotely. Obviously this will save even more time but it will also enable students themselves to email in evidence of their own work if they are off school premises, perhaps at work experience. We're fortunate this is such an adaptable app, and there are a lot of directions to move in. We'll continue to listen to feedback and let that take us to new, and always better, places.

FOR YOUR... CPD

Getting everyone connected for the digital age

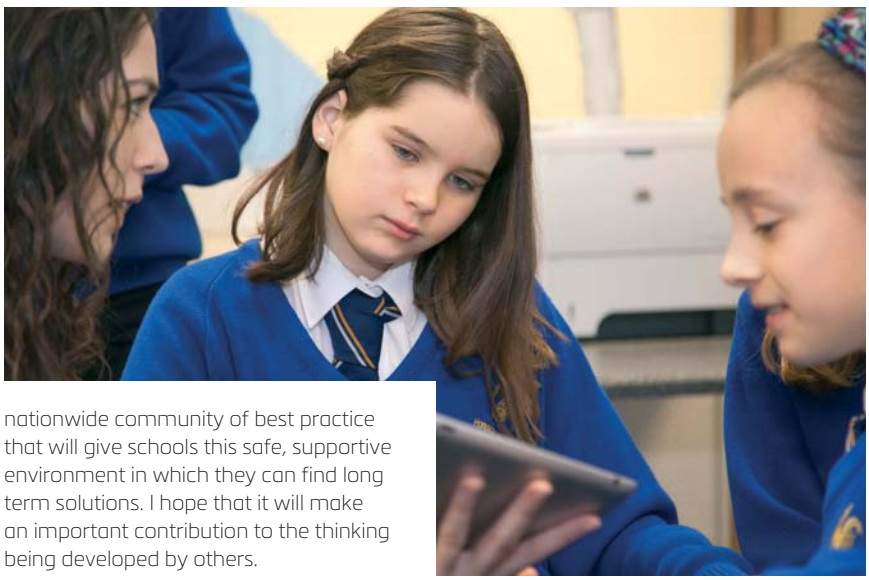
COLLABORATIVE IMPROVEMENT

The government's recent announcement that schools considered to be 'inadequate' would be handed notices to improve and risk conversion into academies must have struck several bum notes with heads and teachers around the country, says **Keith Wright**. I'm not alone in thinking that there needs to be a fundamentally different approach. There's a growing sense across the education world that the answers to school improvement can be found 'in the room', through schools working together in a genuinely trusting, supportive and non-judgemental environment.

Trust and support

The government should at last convert the rhetoric of the self-improving school-led system into hard reality, by giving schools a real opportunity to collaborate. Rather than being judged by a set of inflexible and simplistic criteria, leaders need the trust and the freedom to identify what support they need to help them deliver the best possible education for their pupils. And instead of the threat of takeover and parachuted in experts, 'struggling' schools should be able to find other schools that are best able to help them to achieve that goal.

This trust based, collaborative approach will help to deliver a genuinely school led, self-improving system. But it needs clear thinking, a collective effort and, perhaps most importantly, a national framework. I'm now talking to school leaders around the country about plans to create a nationwide community of best practice that will give schools this safe, supportive environment in which they can find long term solutions. I hope that it will make an important contribution to the thinking being developed by others.



Constant communication

The community will be based on Bluewave's online school improvement platform and will give school leaders the opportunity to share best practice with colleagues from around the country. The platform itself is not the most important thing, but a consistent communication system is and that's why we're advocating its use. And in the autumn I'll bring together school leaders, professional associations and leadership experts for a school improvement round table where we will crystallise this vision and start to develop a pilot approach.

An accountability culture based on judgement and threat isn't the way to unlock genuine school improvement. We need to embrace true collaboration instead – firmly founded on trust.

Keith Wright is managing director of Bluewave Education
www.bluewaveeducation.com

92.9%

of all parents have no plans, whatsoever, to educate their children about online risks
source: AVG

LEARNING THROUGH DIALOGUE

When teachers wish to promote democratic learning, students are given licence to challenge and are encouraged to discuss, debate and argue. Passive consumption of delivered knowledge is then replaced by full engagement with the subject matter through conversation.

The conversation around the topic becomes the new curriculum, enabling each student to act as an open-minded, independent thinker who can defend his or her position with intelligent argument. In the digital age, conversation as curriculum can be extended beyond the classroom into the use of social media and other communication technologies. It may be impossible to change the curriculum we must deliver, but teachers who appreciate the merits of conversation in a truly Socratic mode will redesign lessons to incorporate learning activities to reflect it.

Extract taken from 'Learning with 'e's: Educational theory and practice in the digital age', by Steve Wheeler (Crown House)

FUTURE PROOF

The digital economy is booming – but are we adequately preparing our young people to be a part of it? Clare Verga considers the landscape...

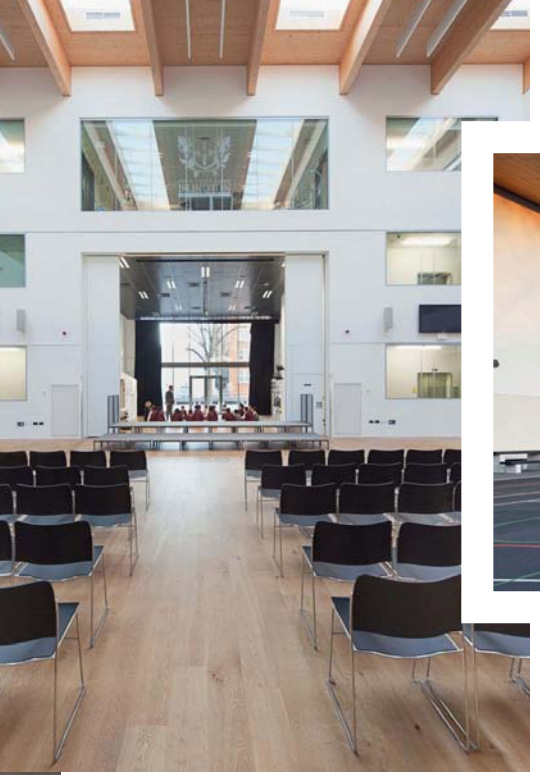
UK is failing to prepare today's pupils for a future in the economy of tomorrow. There is a coming crisis in digital and technology skills and careers awareness, which will mean that our nation's young people will not be able to fulfil their potential in an increasingly digital economy. Teachers and pupils are not getting the right support and training, and there is a serious lack of a careers provision across the country.

This is why the British Interactive Media Association (BIMA) called a summit recently, inviting leading industry figures from Google, Microsoft and the BBC and me, representing UK schools as the Principal of City of London Academy Islington, to discuss this significant issue. BIMA's Digital Day, which takes place on 17 November 2015, is one of the initiatives that will allow schools to work with digital agencies to raise awareness of digital career opportunities.

The digital skills desert

Since 2012, careers services in schools have suffered a serious demise. With Connexions now run by the local authority due to changes from electoral reform, UK schools are severely lacking support, particularly state schools. Although there is still a small provision for careers, it varies wildly between different counties depending on budgets, needs and perspectives in that particular community/locale.

An Ofsted report published in September 2013, based on a survey of 60 schools, found that only 1 in 5 of the schools surveyed provided their students with sufficient information to consider a wide range of career possibilities, whilst links with employers were limited. Further to this the Education Select Committee has repeatedly



warned that the careers' services have been neglected.

Meanwhile, the digital economy is booming. A report written by the UK Commission for Employment and Skills in 2013 identified:

+ 3% of the workforce are employed in the digital sector.
+ The sector contributes 7.4% of GDP (£69 billion per annum).
+ Growth of employment in the sector is up 5.5% between 2009 and 2012 (against a backdrop of recession) – more than twice the rate of growth in the economy as a whole.
+The digital industry is predicted to be one of the main drivers of the UK's economy over the next decade.

For this growth and productivity to be maintained, the sector requires highly skilled recruits; however, many employers are reporting difficulties in finding the right people with the right skills.

There are young people in our schools today who have the potential to be future contributors to this vibrant sector. All of this serves to highlight how initiatives such as BIMA's Digital Day can be of significant benefit to all parties involved, but also emphasises why it is critical to improve the quality of education in schools in order to better support the future of the digital career sector.

A joined up approach

One off events like BIMA's Digital Day are powerful and serve a purpose. Digital Day is organised by industry heavyweights, and sets out to provide much-needed career support to the UK's young people – to raise the profile of digital careers' and engage the interest of our young people in pursuing a career in digital. However, that interest and motivation cannot be sustained without a repetitive approach or the provision of a comprehensive offer that will ensure impact longer term. While the industry certainly has a part to play in this, it is untenable to expect the responsibility to sit with them without support from the government, which is why a joined-up approach is essential.

Consideration must be given to teaching students how to employ their skills in a digital context and engage them practically in facilitating this. Careers education needs to be high quality and informed with the most up to date developments in digital. It must make it clear to young people the full breadth and range of digital pathways available, highlighting the auxiliary roles and all opportunities beyond the obvious, in a way that is accessible.

Practical steps forward

Opportunities for young people to visit off site facilities are stimulating and often prove to be inspirational. Work experience is an important part of this and it is key to give exposure to quality placements.

In the absence of quality careers' advice and guidance in school, many students are reliant on family and peers to advise and support them to make decisions about their futures. Many do not have the knowledge or connections to support their child in achieving a career in digital. Teachers must keep up to date with digital developments to be of genuine benefit to young people. Webinars and online conferencing, websites linking schools with the local digital economy, development opportunities such as immersion courses or digital placements for teachers, and dialogue through social media would all be highly valued by those working in education.

Social mobility

I serve a community where 75% of our students are eligible for free school meals. Many come from households where no adult is in work, or where their parents work in unskilled occupations. A tiny proportion of our students have parents who received a university education; few of them have parents or family friends working in the digital sector. We drive aspiration amongst our young people and make sure they are aware of the wealth of opportunities available to them. There is no ceiling. We have a thriving digital economy on our doorstep so drawing on initiatives such as Digital Day, to support what we are doing, is a very exciting opportunity.

Fundamentally though, it is about engaging policy makers to address the issue of the sector's talent shortage and growing skills gap crises in a way that is centralised. That is, galvanising experts from the digital industry and establishing a core group or think tank to link with parliamentarians and government departments, teachers and unions.
The future of recruiting from UK talent for this sector is at risk and current educational reforms, I would suggest, will likely sustain and indeed arguably further frustrate the risk to the sectors' talent shortage and growing skills gap crisis. This cannot be ignored by government anymore.

ABOUT THE AUTHOR

Clare Verga is Principal of City of London Academy Islington

10 ways to make an impact

Just been promoted to head of computing? **Terry Freedman** can help you start as you mean to go on...

The title "head of computing" can cover a multitude of roles. You might, for instance, be expected to be the ICT co-ordinator too – so pick from this list the suggestions that will be of most use to you immediately. But first, why might you even want to make an impact? Why not just get your head down, do your job and let that be the end of it?

Clearly, the impact you have as a professional is important from a personal career point of view, but of even more immediate importance, in my opinion, is what you can do on behalf of your subject. If you're in a primary school, raising the profile of computing may induce the Head to give you a couple of grand to buy a set of tablets. In a secondary school, your influence may inspire more pupils to choose computing in their options – it's not just a matter of making an impact for the sake of it.

1. CARRY OUT A SWOT ANALYSIS

This is a great way to find out, relatively quickly, what's good and what isn't. The acronym stands for Strengths, Weaknesses, Opportunities and Threats, and you can make it as simple or as in-depth as you like. You could set up a survey in Google forms to elicit opinions, but that will take time and effort that could be better spent improving things. A far easier approach would be to ask a selection of teachers and pupils what they think about the set-up. What they come up with may not be able to be fixed quickly, but at least you can start planning ahead.

2. IDENTIFY BARRIERS TO ENTRY

Why aren't colleagues using the education technology facilities? Why aren't girls signing up in droves to do computing GCSE? Economists are useless at making predictions, but they do have some great concepts. One of them is 'barriers to entry'. They apply it to the difficulties of entering a particular market, but you can adapt it for your own ends. Rather than trying to cajole people into doing what you would like them to do, find out why they are not doing it already – and then make it easier for them to do so.

3. GET OUT AND ABOUT

A really good investment of time is to use a couple of your free periods, or some time before or after school, to walk around and see what the facilities are like and how people are using them. This is essential for picking up some ideas, such as working with other teachers (see below).

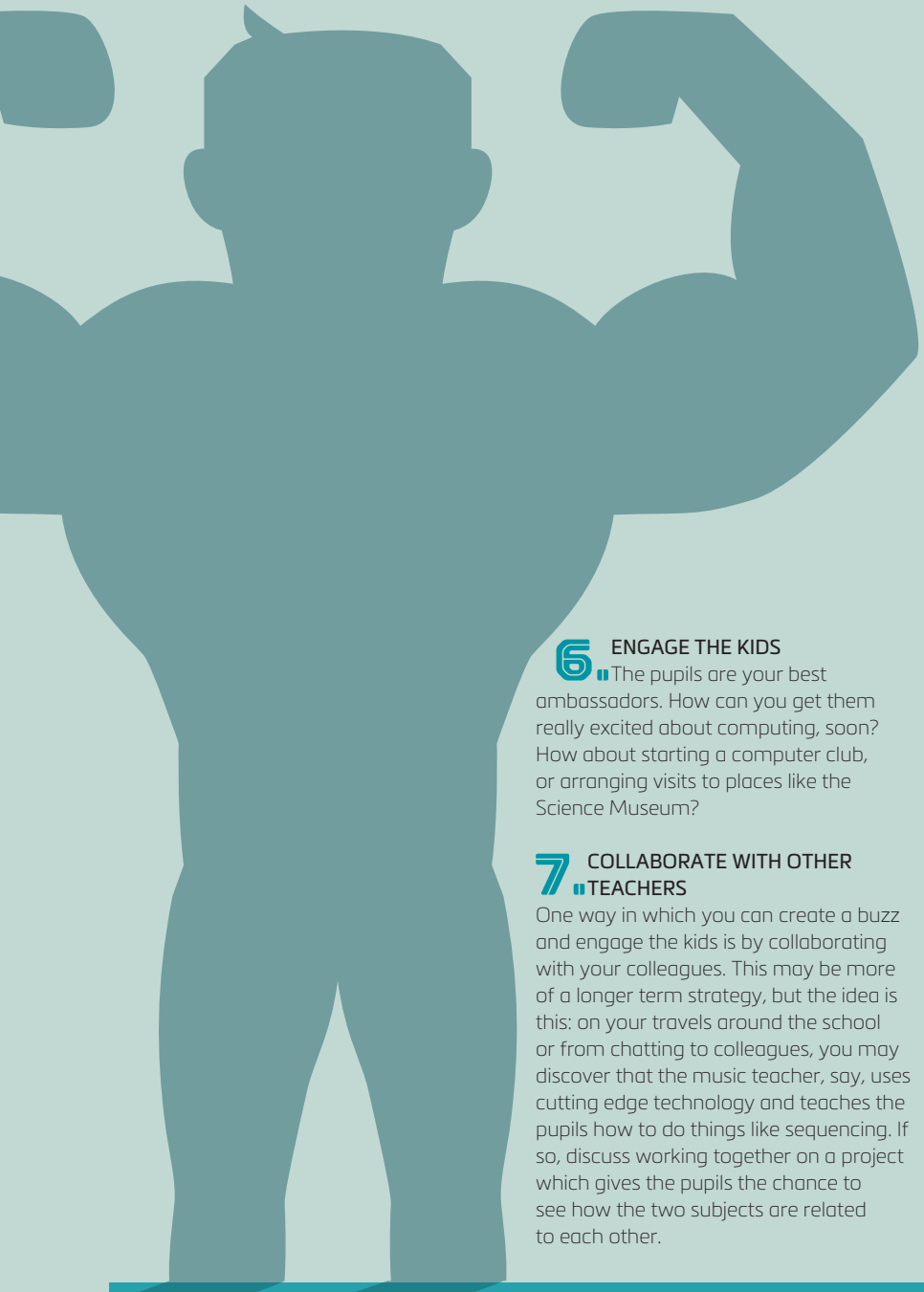
4. LOOK FOR QUICK WINS

No matter how brilliant your predecessor was, there are always ways to improve things. Introducing a tablets-for-all programme is one way, but that will take a lot of time and money. Look around: is there anything you can see could be changed tomorrow? It could be something as simple as putting a list of instructions with each item of equipment.

5. CREATE A BUZZ

This may sound like a contradiction in terms, but you can create a buzz in a quiet sort of way. Oscar Wilde said that the only thing worse than being talked about is not being talked about. He was right. Ask for a corner of the staff noticeboard where you can put up news about equipment that staff can borrow. Contribute to the staff newsletter with a short column called "Top Tips".

"Why aren't girls signing up in droves to do computing?"



6 ENGAGE THE KIDS

The pupils are your best ambassadors. How can you get them really excited about computing, soon? How about starting a computer club, or arranging visits to places like the Science Museum?

7 COLLABORATE WITH OTHER TEACHERS

One way in which you can create a buzz and engage the kids is by collaborating with your colleagues. This may be more of a longer term strategy, but the idea is this: on your travels around the school or from chatting to colleagues, you may discover that the music teacher, say, uses cutting edge technology and teaches the pupils how to do things like sequencing. If so, discuss working together on a project which gives the pupils the chance to see how the two subjects are related to each other.

8 ENGAGE PARENTS

Parents are likely to be bemused by all this coding stuff. Arrange for a parents' open evening where they can come along and try out Scratch and other programs for themselves. And make sure it's the pupils leading the whole thing.

9 CREATE A DIGITAL LEADERS GROUP

Digital leaders are tech-savvy pupils who can train staff, and help parents, and do simple trouble-shooting.

10 CREATE A DIGITAL PIONEERS GROUP

Start a digital pioneers group. This is a group of pupils who will try out evaluation versions of apps and other things, and then give you feedback. You can include teachers in the group too. Having a digital pioneers group means you can evaluate lots more products without doing all the work yourself.

ABOUT THE AUTHOR

Terry Freedman is an independent educational ICT and computing consultant, and publishes the ICT & Computing in Education website at www.ictineducation.org. He was the T&I Ambassador for 2014/15.

BUILDING THE BRAND

Think about the longer term too. How do people feel about your subject, and education technology in general? If you need to get other staff on board, then consider creating a space just for them. I turned an old music store room into an IT room for staff, and it was never empty. Someone else I knew converted a computer room into a staff-only computer room, complete with a technician on hand and, most importantly, tea and biscuits on tap! It's all about making the facilities accessible.

Even if your concern is solely teaching computing and ICT, you should still think about the impression pupils have of the subject. If you can, set up an area where pupils can read books or magazines about computing, or set up a mini computer museum where old technology is displayed. (You don't need tons of room for this; I once devoted the tops of the folder cupboards to it.)

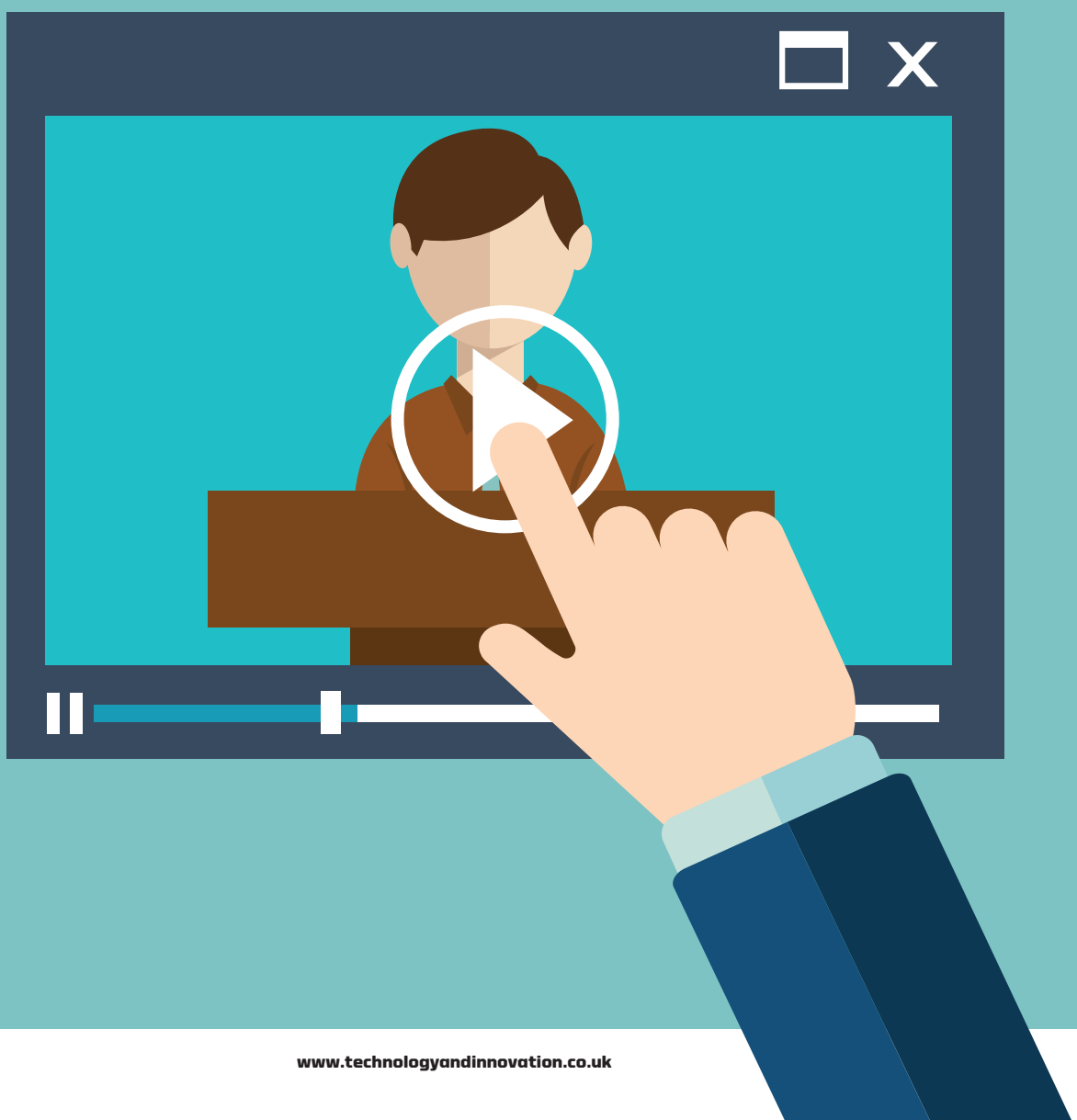
Make sure there are examples of pupils' work outside your classroom, under attractive and thought-provoking headlines such as "Should mobile phones be banned for under 10s?" (a great topic to discuss with primary school children!), or "Should driverless cars be banned?". Change the display every half term at least.

Another nice idea is to have a computing logo and headed paper. Get the kids to design it. Run a competition with a prize of a £50 iTunes voucher. That in itself will create a buzz! Do it right, and you can create a bigger impact than you may have believed possible.

However, I do think it important to bear in mind that you are attempting to create an impact not just for yourself, but for your subject. If you come across as simply a publicity-seeker, it won't be perceived well at all.

Body of **evidence**

How can video be used to capture 'learning', rather than just 'lessons'? And what is the difference? **Andrew Goff** explains...



Video is undeniably embedded into our daily lives. We consume it constantly through various different channels – TV, online, social channels, advertising boards – everywhere. And video proves itself to have the power to engage on a global level. You only need to think back to last year and the 2.4 million videos that were created on phones and tablets for the Ice Bucket Challenge. Video proves itself time and time again to be the most engaging, and levelling, media we have.

Unsurprisingly, in education, we're on a journey to understand how video can add value. Many HE institutions fully embrace lesson capture as a means to allow students to review course content, learn independently, and catch up on missed classes. And in secondary education, a subtle change is being made from talking about 'lesson capture' towards 'learning capture'. The difference is subtle but important.

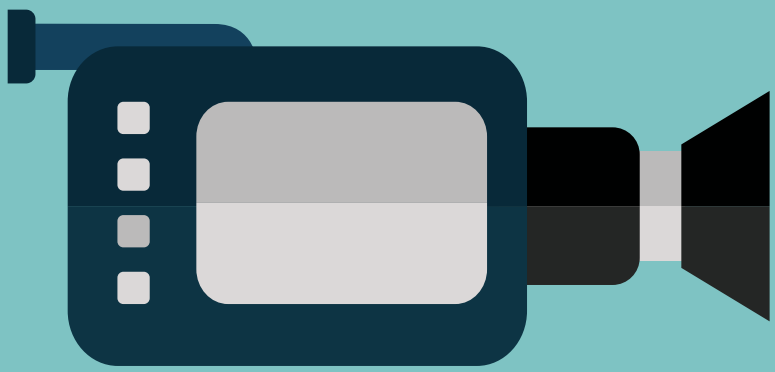
Technology means that we can now cost effectively capture all that is happening in a classroom, and beyond – after all not all learning takes place in a classroom. But why capture learning? How can teaching be enhanced through learning capture?

Body of evidence

Let's take a step back, and consider the variety of challenges that schools are facing today. Teaching and learning clearly come top of any teacher's list of priorities and many educators are grappling with how to embrace and embed technology and digital learning into their teaching to benefit the students. Safeguarding young people both on and offline is also an important consideration, especially for non-digital natives. And naturally, OFSTED inspections weigh heavily on the minds of teachers and schools too. A school that embraces the concept of capturing the learning that takes place in their school is well placed to address some of the challenges above.

Essentially it boils down to providing content for capturing learning for future reference and consideration for both the teacher and the learner.

But why do we need 'evidence' of classroom activity? Doubters of the value of learning capture will no doubt jump on that word 'evidence' and lean into its negative association. Will the footage be used for berating in staff reviews? Will parents want to see proof of their child's poor behaviour in the classroom? In some situations, the answer is quite possibly yes. However, in most schools with a positive learning



environment this is not the case. Evidence of what took place in a lesson is there for a teacher to self-critique and understand why certain activities worked out well but others didn't. The footage is available for when there is a disagreement about a student's behaviour – visually showing a parent footage of a student is far more constructive and factual than words.

About time

The question of when learning should be captured is particularly interesting. Presently, the majority of captured learning is planned and therefore pre-meditated. In truth reality is not being captured, but rather a timed, premeditated performance, and not the normal situation upon which we are trying to improve for teachers and students alike. Of course, pre-planned capturing has its place, for example when evidencing teaching assets such as presentations or demonstrations whereby you would really like to have the best example available. But this serves a different purpose. How much would students benefit if learning could be captured 'on the fly'?

What teaching needs is a pedagogical mind shift towards an 'always on' approach. This is a bold step for any teacher as the thought of capturing all of their learning environment is a scary one. It requires confidence and a transition to a creative mindset that embraces the idea that self-evaluation can be remarkably empowering. It also needs a trusting relationship with their school, including the understanding that captured learning will not be used to a negative effect.

Constant capture

So does the technology support the drive for 'always on' captured learning? Absolutely. A few years ago this may not have been the case – but we are now in a place where networks are generally robust enough, storage is cheap and fast, and security, whilst it is never infallible, is considerably more secure and on the whole much more simple to use.

Why shouldn't our classrooms always be 'on' and captured? Aren't our future generations, their safe-guarding and capability the most important things to us personally, morally and nationally? If we can't capture all classrooms all of the time then are we perhaps saying that there is a massive problem here, and that we are under performing? As a teacher, the door to my classroom was always open for scrutiny. We know that to be accountable is perhaps seen as more stressful but it is necessary if we as a nation are going to continue to develop, flourish and ultimately protect and further the lifestyle that we have in this country.

Learning capture – rather than the more restricted, 'staged' lesson capture of the past – puts the focus of the process fully on the benefits in terms of growth and development to both teacher and student. Technology is now suitably developed to facilitate an 'always on' approach; the future of learning capture now sits squarely in the hands of educators – it is theirs to embrace and see how their teaching and learning can excel as a consequence.up that challenge.

ABOUT THE AUTHOR

Andrew Goff has a broad breadth of experience in technology around teaching, learning and communication. In schools he has taught technology and ICT, acted as a development director, before doing consultancy for various businesses in the education sector, and is now COO at Digital Learning Delivery (www.digitallearningdelivery.com)

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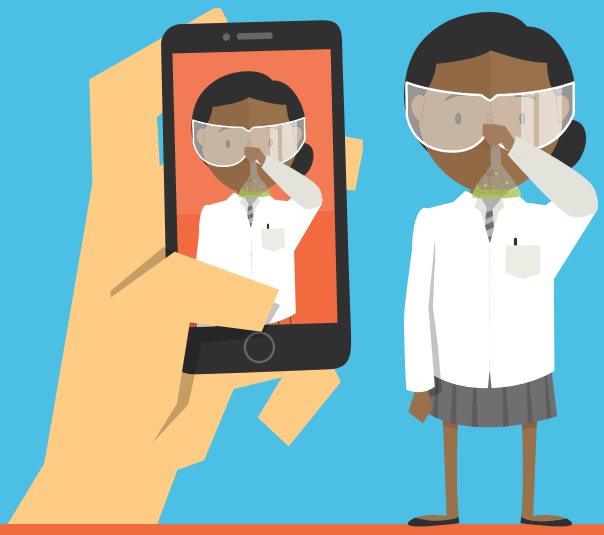

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Q&A

VIDEO STORAGE AND DISTRIBUTION

Ray Maguire, CEO at Digital Learning Delivery explains the huge potential of video capture in schools...

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T&I: Should more schools be capturing video?
RM: Absolutely. Video as a medium is so powerful and engaging, and schools are vibrant, dynamic environments with so many different activities taking place that it's a shame we are not as yet using video more in schools. The opportunity for capturing video in school is really only limited by imaginatation. As a starting place, lessons can be captured and be used for teacher CPD. Indeed many exam boards are now looking for video assessment submissions. Beyond that, assemblies, sports activities, drama performances and much more can be captured and shared with the school as a whole but also parents and the wider community – a real celebration of the student achievements.

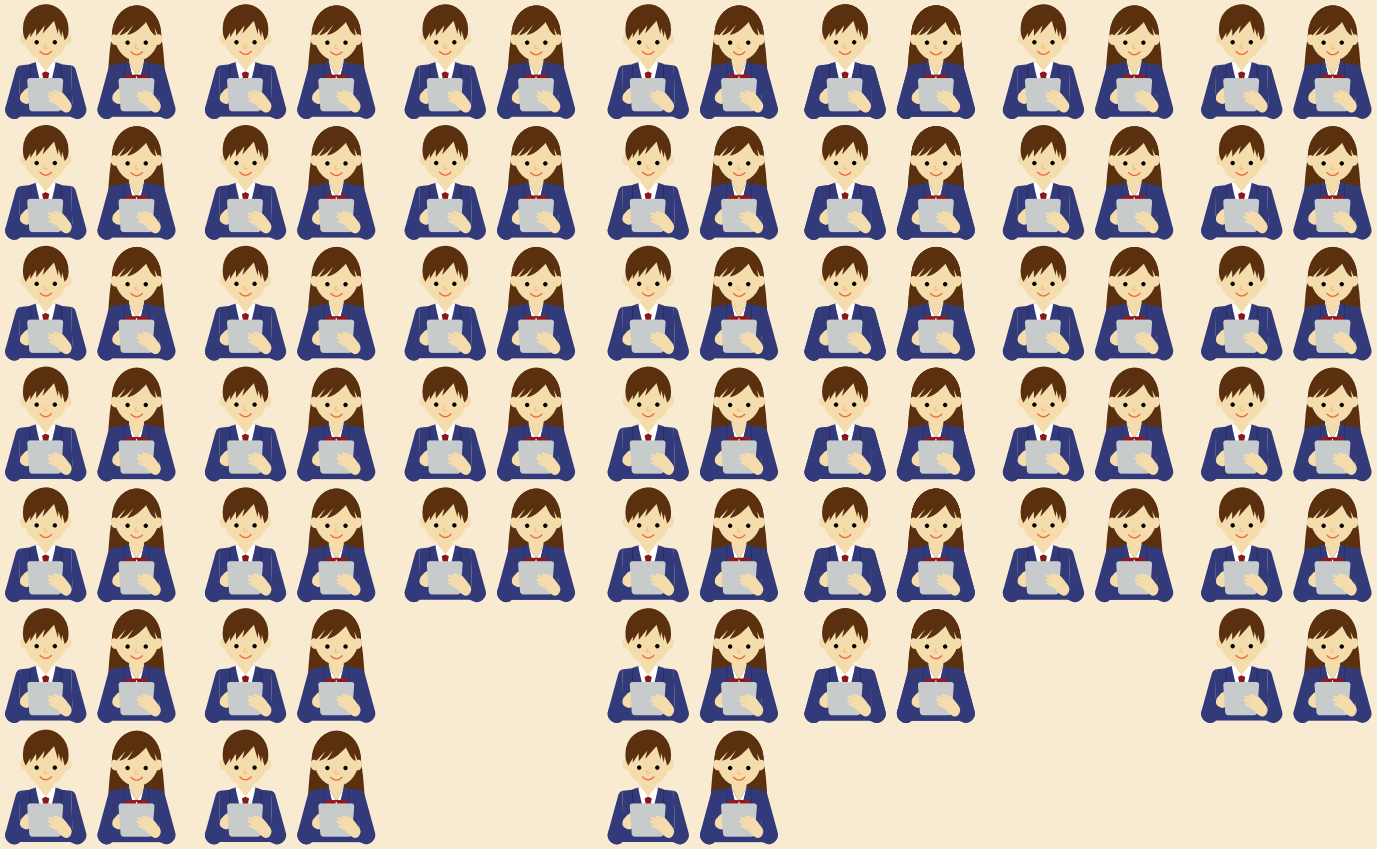
Why should schools be thinking about a video storage and distribution system?
Once schools have embraced the mindset of capturing learning video then it really becomes about getting the most out of that video. There is little point video being stored on a local network or stuck on a teacher's device. Firstly, a system, such as SchoolVID, that stores your content in the cloud makes that content accessible wherever you are – school or home. Secondly, the distribution features ensure that the right people get to see the content. SchoolVID allows teachers to choose who can see the content and can easily choose the content that is to be shared with a wider audience for example through a simple embed on a school or community website.

What are the features of SchoolVID that make it so especially suited to an educational environment?
Schools are busy places and teachers have many demands on their time. SchoolVID is designed to make it easy for schools and teachers to incorproate video into their daily life. The SchoolVID Upload app allows teachers and students to film and upload their films seamlessly to the SchoolVID system. It removes the need to connect phones, tablets or cameras physically to a computer – press a button and the footage uploads. Once uploaded, SchoolVID then makes the management of the video easy. Projects can be created and the system is searchable – no content hidden away in a folder on a network. And really importantly, SchoolVID is secure and permissions are managed locally.

How might SchoolVID be used to enhance teaching and learning?
From a teaching perspective, SchoolVID can be a very useful tool in particular for on-going self-assessment. For example, a teacher might choose to film a specific lesson with one class, review the lesson, make improvements and then film the same lesson when delivered to another class. SchoolVID can help facilitate this process. From a student learning perspective, SchoolVID offers many opportunities. Similar to teachers, students can use SchoolVID to film themselves, self-evaluate and then implement learnings. There is also the opportunity to review lesson content which could be particularly helpful during GCSE years. SchoolVID also contains features around Projects and Groups which really lend themselves to collaborative and flipped learning.

Can schools using SchoolVID be confident that their video content is being stored securely and shared safely?
SchoolVID has been built with student safety and security as a critical feature as we understand the concerns a school may have around the safeguarding of pupils. SchoolVID has its own dedicated login system, but also fully integrates with Office 365 and EduTone for schools that are already using those systems for SSO purpose. Permissions are managed by the teachers and schools so content that needs to remain private will do so, but equally the right content can be shared to wider audience.

Is it time for all classrooms to have cameras?
Over time, yes, but considering tight budgets, this could be built up over time with portable cameras being used in the short term to capture video. There are certainly many reasons to embrace cameras in the classroom. Capturing learning in the classroom can benefit teachers from a CPD perspective but also as a tool to aid management of behaviour, safe-guarding and security too. Cameras can also greatly benefit the student too when used creatively in schemes of learning. Some schools, teachers, students and parents may feel uncomfortable to start, but as cameras become more embedded in schools it will open up the opportunities and the benefits will become more and more apparent.



We're all coding now

... or are we? Drew Buddie has some words of warning for schools that are addressing the new computing curriculum by simply leaping off one bandwagon onto another...

Years ago, when I was growing up in Motherwell I was a massive fan of my local town's football team. Like many other fellow fans I used to get disheartened as each Saturday we played to paltry crowds, whilst fellow townsfolk departed in their droves to attend matches played by both of the much more popular Rangers or Celtic. This didn't deter me or many fellow fans from continuing to support Motherwell, but each season we watched our attendance figures dwindle as increasing numbers of 'fairweather' fans who craved a team that was far more successful (and winning trophies) switched their allegiance to their 'Old Firm' team of choice. You might be wondering what that has got to do with the teaching of computing and ICT in our schools, but I see it as a perfect metaphor for how the subject has come to be in its current state.

Although for years many secondary schools like my own taught a broad ICT curriculum which would include digital literacy, programming, simulation, history of computing, e-safety etc, many chose instead to concentrate on the IT equivalent of the 'Old Firm': the use of Microsoft Office applications. Such use of popular software was condoned by school senior leadership and was driven by a need to gain what was seen as returning easy results for relatively little effort: the OCR Nationals being the main culprit.

As a result, it took a certain amount of single-minded determination for Heads of ICT to continue to teach a variety of IT-related activities instead of resorting to a curriculum dominated by Excel, PowerPoint and Word activities. In fact I want to take this opportunity to applaud every single colleague who showed such doggedness, because if your experience was anything like mine then it cannot have been easy to justify such decisions to your SLT.

Count the costs

I guess a backlash was inevitable, the teaching of such shallow skills was never going to be tolerated forever, but I never thought it would be so swift and wide-ranging as has been the case over the past couple of years. I completely support the change of emphasis from a student's need to know exactly what button made text right justified, to them learning how to control a robot using the code they've written on screen.

The majority of the teachers now responsible for teaching the new computing curriculum are the same individuals who taught ICT in the past and I think the support they have been given is nothing short of a travesty. Although CAS has done a phenomenal job to support such teachers, their funding was wholly inadequate for the provision of training on a national level to around 20,000 teachers. It is no wonder then that so many computing teachers still feel vulnerable about the teaching of this subject for the coming year.

I have many reservations about how we have found ourselves in the current situation, but I believe that it is retrievable.

For one thing, teachers and schools have to stop being dazzled and bewitched by a need to ditch a broad IT curriculum for one which is wholly centred on coding. If we are not to do a disservice to the current

generation of school students, then I believe that schools need to play to their strengths and coding will not be a strength of the majority of schools.

Trying to cram 'coding at all costs' into every school's computing curriculum has led to an overreliance on superb organisations like Code Club, and this is dangerous because it is an unsustainable model by which a school abdicates its responsibility adequately to train its staff. It has been of great concern that £25,000 grants have been available for recent graduates to train as computing teachers, yet those who taught ICT for years were given no such financial incentive to upskill to the necessary level required for examination courses in computer science.

Keep 'em keen

I had the privilege of recently attending MineCon – the world Minecraft convention – and somewhat ironically, under the new ownership of Microsoft it is just possible that this software may save the day as far as computing at KS3 is concerned. The conference was predominantly comprised of young people, and if we can tap into their knowledge of and enthusiasm for this tool and make use of this to help them to understand the wider principles of computational thinking, then it is possible that computing could finally be the subject we want it to be. Minecraft is the true epitome of the old teacher's adage that 'students know more than me' – but let's exploit that for a change; let's encourage students to teach their teachers how something works for once without teachers feeling vulnerable.

There is some scepticism about the need to train a generation of coders. Renowned programmer and trainer Jason Gorman (@jasongorman) has summed it up on Twitter by saying "Programming is the new literacy, and that's why we're investing less than the cost of an Egg McMuffin per teacher in training". He adds "...I'm far more concerned about the (lack of) support – especially funding – for teachers in delivering the new computing curriculum as Maggie Philbin's Digital Britain report correctly identifies, the budget for schools computing needs some zeros adding to the end. I'm also deeply concerned by the complete lack of coverage of basic programming good habits in both the curriculum and clubs approach".

So there you have it, if professional programmers like Jason have come to such a conclusion then we must not think we have a 'happy clappy club' where everyone in industry is applauding what is happening in schools in the guise of computing.

If precautions are not taken within a few years, students will be as bored with the computing curriculum as they were by learning PowerPoint and its ilk. Let's make sure this does not happen.

ABOUT THE AUTHOR

Drew Buddie is Chair of Naace (www.naace.co.uk)

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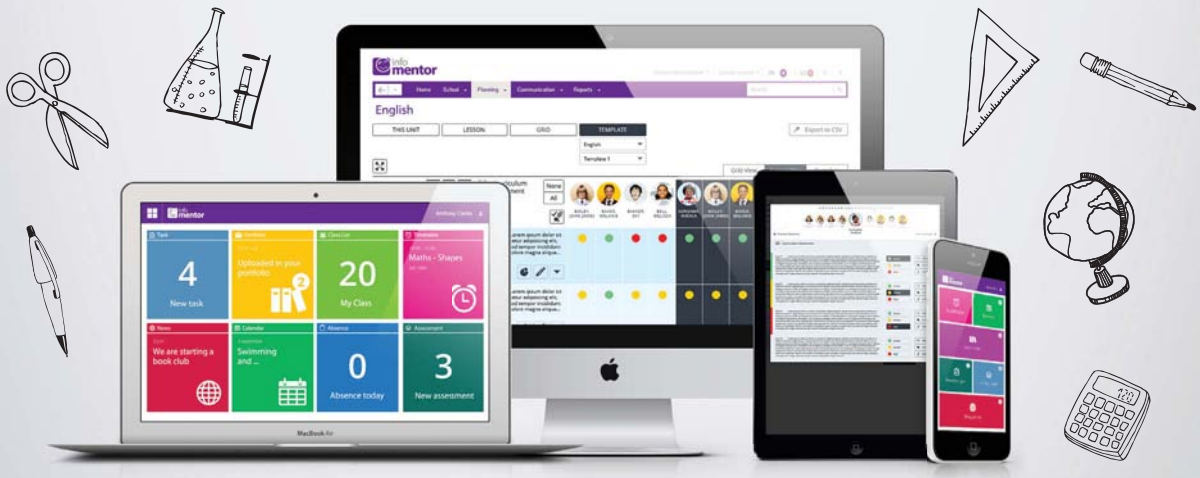

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SIX THINGS TO ASK BEFORE BEFORE YOU BUY

By considering six key questions, says **Rob Eastment** at Firefly Learning (fireflylearning.com), teachers can ensure that any new technology is implemented in a coherent way to deliver specific benefits, while voiding the all-too-common perils of platform proliferation...

1 Whom does this technology benefit?

It's easy to see a new app as a useful sticking plaster to solve a specific problem, but this mindset only encourages proliferation. A utilitarian approach is preferable, selecting technologies that bring the greatest benefit to the greatest number.

2 Do you have buy-in from all parties?

Allowing teachers to introduce their own tools is a recipe for chaos. Any new technology must be assessed for the benefit that it will bring to the school as a whole, so you must give careful consideration whether the technology is likely to be universally adopted by users, how much training will be needed, and how to communicate the benefits to sceptical parties.

3 Is your existing infrastructure up to scratch?

New platforms needs to integrate seamlessly into schools' existing IT estate, and must provide a function for centralised administration. What's more, you need to check that your infrastructure is capable of supporting the new platform, and how it affects the school's hardware purchasing cycle.

4 What does this technology replace, and what functions overlap with existing systems?

Give with one hand, take with the other. Technology procurement should replace and, ideally, consolidate existing systems. The goal should always be to simplify the school's IT estate, getting rid of obsolete systems and replacing them where possible with cross-school platforms with multiple functions.

5 Where and how has this technology been used successfully in schools?

It's always a good idea to get user feedback before making a purchase, so schools should talk to other institutions that have used the technology. They will be able to give impartial advice on everything from troubleshooting the implementation, to achieving user buy-in, to innovative 'off-the-label' uses for the tool in question.

65%

of UK secondary schools feel they have the ideal bandwidth for their needs source: BESA

6 Who's in charge?

The best technologies are implemented as a partnership between all parties. Nevertheless, it's important that a single group is ultimately responsible for procurement, implementation and administration.

BEING A LEARNING ARCHITECT

The space in which students learn is important. It's not simply about inspiration. If the design of a space is wrong, learning can be constrained or even completely stifled. It's hard to engage students when their surroundings are poor.

Teachers should be the architects of learning spaces. And equally important is the way technology is embedded into the learning environment. Embedding computers into the curriculum is one thing – deploying them effectively within the physical confines of a school is another matter entirely. If teachers establish a computer lab or ICT suite, all of the technology is contained within one space.

This means a message is sent to the students that 'this is the place where computing is done' – and in an age where computing can be done in the palm of your hand, or on your lap, wherever you are, this is not the best message to send.

Extract taken from 'Learning with 'e's: Educational theory and practice in the digital age', by Steve Wheeler (Crown House)

IT AIN'T WHAT YOU GOT

At New Mills school it's creative innovation, not flashy hardware and applications, that is getting fantastic results for students, as head of the communications faculty David Harbord explains...

I don't think our school, New Mills in High Peak, Derbyshire, is unusual in most respects. It's a small comprehensive secondary school, with 600 pupils, that has space for 1000. We give our pupils the best education we can, using often severely limited resources.

However, some things do make us stand out a little bit. The school is 100 years old, and we share our small town with the Swizzels-Matlow factory, which makes Love Hearts and Fruit Salad chews amongst other childhood favourites. They are by far the biggest local employer, and generations of our pupils have previously followed their relatives up there to work. New Mills has moved beyond the industrial boom, which gave us our town's name, and into socio-economic hardship. We want the best for our pupils. We've secured the continuation of our sixth form recently by moving out of Special Measures and won particular commendation for our leadership.

We are determined to lead properly, showing our pupils the opportunities that lie ahead of them, many of which may be beyond New Mills itself. Our core ethos is that we must ensure that pupils are passionate about one principle: technology is part of life, will be part of work, and must be understood and embraced.

Resourceful approaches

However, we have a noticeable gap between our collective passion as a school for technology, and the amount of cutting edge hardware and applications we have access to, because our budgets are limited. We've invested in essential, reliable ICT. We've chosen to chase success by picking our battles in terms of technology investment, and it's really working for us.

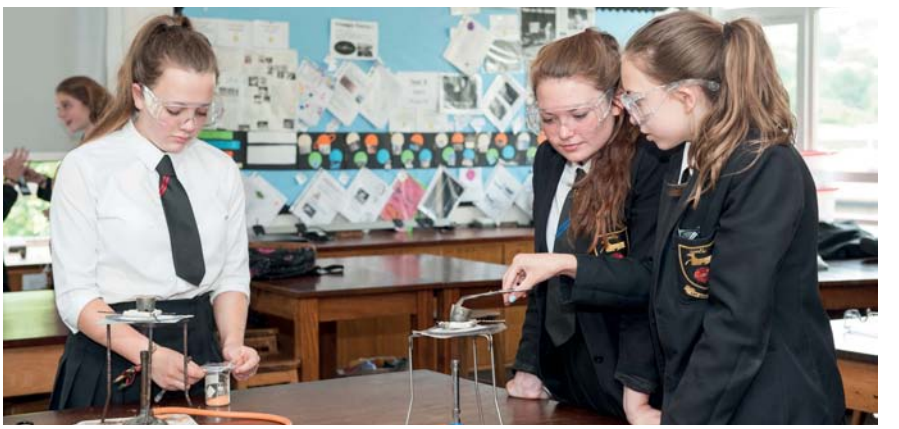
> "We give our pupils the best education we can, using often severely limited resources..."

Together with our technology provider Stone Group, over the last five years we've built the best possible infrastructure to enable our classroom ambitions. We've an estate of around 500 devices for staff and students, including the 24 Macs in our media suite, two computer rooms, desktops in our library and a teaching PC in each classroom. We've got laptops available for lessons. But, for example, although Stone Group got our infrastructure ready to implement the BYOD scheme we'd love to have, we are awaiting funding to progress it.

So, we've made it our mission to bring technology to the classroom in any way we can, especially in the media department. I'm determined to get the message across that digital skills and technology competencies can be learned with limited resources. In fact, it makes lessons creative, resourceful and often very entertaining to teach.

Life skills

The media courses we offer at New Mills are the most keenly subscribed at our school. Currently, our technology resources are the best the school has, which is more testament to how vital digital access is for inspiring better learning. We



ABOUT THE AUTHOR

David Harbord is the Head of the Communications Faculty at New Mills School in Derbyshire. As well as teaching media to year 7-11, David teaches English Literature and Language A Level students. David

work extremely closely with the ICT and computer science departments; we have many students in common and what we're teaching is so closely linked – I might be offering a desktop publishing module in modern journalism whilst ICT is teaching HTML5 and web publishing methods, highly desirable dual skills.

Our kids often come into the media lessons very tech-confident, but I find that they often feel they are ahead of where their knowledge actually is. They are savvy touch-screen technologists, on tablets or phones, but the employment we want to prepare them for requires so much more, so we use our Mac suite to build desktop and multimedia confidence. For example, one of our female pupils recently went to a local bakery for work experience, where she found herself in the office helping produce marketing material using Photoshop, because she'd learned how to use it in class. I was delighted – it's a brilliant example of how we encourage our pupils to aim for the highest use of their skills.

Using contemporary resources keeps our lessons lively and makes use of the ICT we have available. We use our WiFi network in the media room to source examples of primary, secondary and tertiary sources for English literature assignments or SMSC discussions. I let children choose their resource, obviously within the guidelines of our e-safety charter and restricted browsing. We use YouTube a lot, to demonstrate examples of video media, which, considering up till recently we were transferring 1980s BBC VHS tapes to disc in order to view, this shows how our network infrastructure is vital to good teaching.

Well prepared

Combining the technology we have in school with my own resource has become a regular classroom aid. Often I'll use my own iPad to project work onto our shared screen in the classroom using an app I sourced myself, or I'll highlight a pupil's work or ideas by showing the class. My colleagues are doing similarly creative things in their own classrooms, to ensure technology stays key to every lesson. I believe that the more natural you can make integrating your own technology into your job look, the more positive influence it'll have on our pupils.

The strategy is working. When Stone Group refreshed our last PC Estate, they brought our start up times down from 15 minutes to 7 seconds for some machines. So we just open our software, or our browsers, and get on with the lesson.

Yes, some computers are slower than others, all across the school there's devices that we're keen to put to better use. However, rather than sit and wait for an unachievably large pot of money to be granted for brand new machines, we're refreshing the ones we have, improving their memories, security and connectivity, which is cost effective and quicker for us. In the past few years we've sent a steady stream of students to university to study media production, communications and computer sciences, including several to Edge Hill University, which is highly regarded and focused on employability post graduation. The combination of reliable but limited resources, the tidal wave of enthusiasm from the kids for the subject matter and some solid, creative lesson planning is changing our results. I'm really proud of the innovative ways our kids, and our teaching staff find to make best use of our technology. We truly get the most out of what we have.

Although New Mills' industrial history and recent economic misfortunes have shaped the lives of many of our former pupils, we are extremely hopeful that a passion for technology, and what it can help you achieve, will make the difference to current and future school leavers.

Across the divide

Lee Marsden looks at the 'connectivity gap' – and why it matters in education

Wi-Fi has become a standard part of modern life, with most of us able to access the internet in a multitude of different places, including at home, work, at the train station and even in the local coffee shop. Hailed by many as the 'fourth utility' – broadband is an essential part of modern life, vital to a thriving society and economy.

However, this is not the case in our schools. A staggering 65% of primary schools and 54% of secondary schools suffer from a lack of proper Wi-Fi connectivity. These figures have lead to a 'connectivity gap' or 'digital divide' – along with concerns that pupils are being held back because of being denied access to innovative and effective digital learning.

A study in 2013 by the British Educational Suppliers Association (BESA) concluded that school Wi-Fi was not fit for the 21st century. A study a year later by the same organisation found that over half of UK state schools have poor web access, which is hampering the ability to teach IT skills, despite the pressure to establish digitally sharp pupils. Although digital learning has been on the rise for years, technology by its very nature can change incredibly quickly. This makes it incredibly difficult for school staff to follow and catch up with, creating an ongoing challenge.

A right, not a lottery

In this day and age, it is of great concern that children are denied access to effective digital learning because of a lack of broadband connectivity in schools. Digital and IT skills are vital to the transition between education and the workplace. It is now a shared ethos that an online world of knowledge and resources should be a right for every student in their place of learning and should not come down to a postcode lottery of ineffective 'not-spots'. Areas where schools are struggling with bandwidth issues are generally rural and remote areas including Cumbria in England, East Ayrshire in Scotland and Gwynedd in Wales.

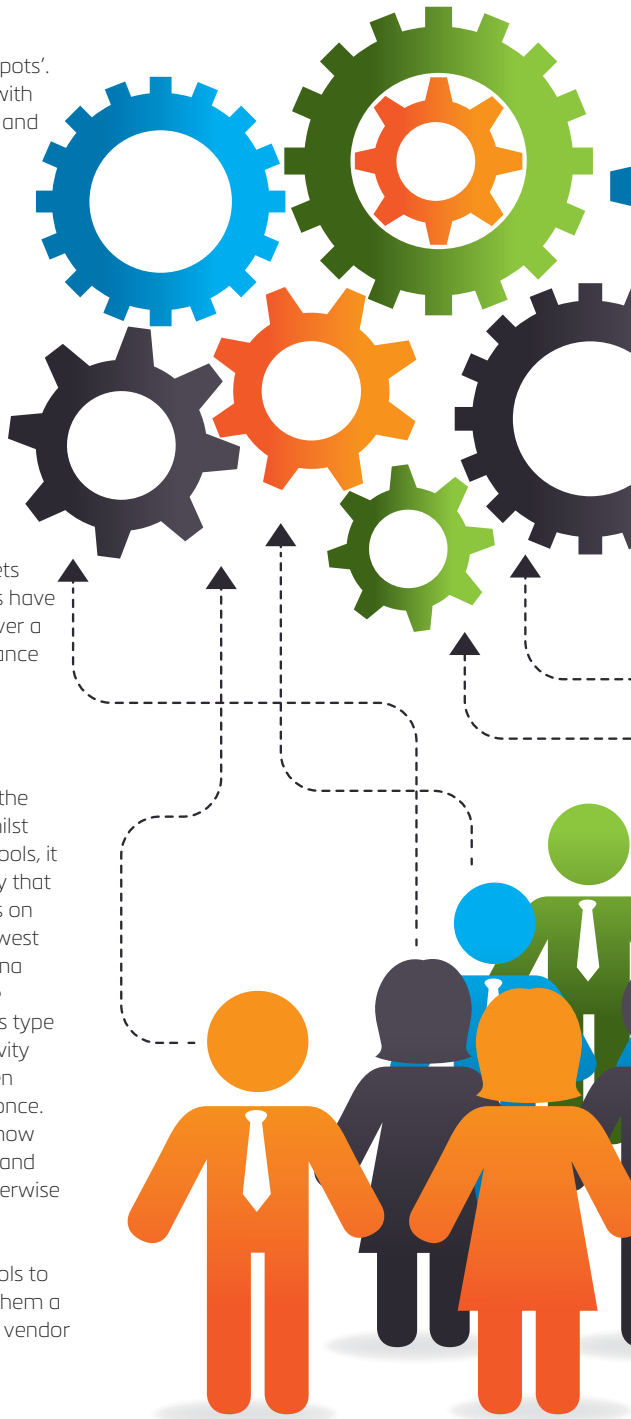
The problem worsens when parents and students (and even teachers) increasingly expect schools to offer the same level of Wi-Fi performance and speed as many have in their own homes. A fast speed is crucial as it allows teachers to both download resources but also to upload and share content online, a practise now occurring a lot more frequently.

In addition, with more and more children bringing smartphones, tablets and laptops into classrooms, schools have a real challenge to manage and deliver a seamless, secure and high-performance wireless connection to each user on the network.

Invest in the best

Things have come a long way since the times of interactive whiteboards. Whilst you may still spot these in some schools, it is the latest in broadband technology that IT departments must get their hands on to ensure the best coverage. The newest 802.11ac spectrum and smart antenna equipment is easy to roll out and are becoming the industry standard. This type of technology ensures that connectivity is shared out simultaneously between many pupils on different devices at once. Even better, these technologies are now affordable, making them accessible and within real reach of schools who otherwise may struggle to invest in the latest up-to-date technology.

However, it's not enough for schools to invest in the first vendor that offers them a good deal on the latest tech. A good vendor



is supportive from first contact, through the sales process and beyond – allowing the school to keep up to date with the latest technology developments, ensuring they are not falling behind. Therefore, schools should be educated to choose a vendor that can help them get the most for their money and also support them in the future.

Who knows?

With pupils as young as six using their own computers and mobile devices in schools, it's clear that IT departments also need to implement a secure and safe internet infrastructure that will protect children of all ages. Those who are making the decisions need to be educated to learn exactly what they should be purchasing in terms of broadband and security products, in order to avoid them falling into traps such as patchy networks that could invite in a virus, or inadequate internet speeds.

For primary schools or those smaller rural establishments that do not have a dedicated IT department in place, this becomes a difficult challenge by putting teachers and staff under pressure to make decisions that could impact children's exposure to potentially unsuitable online material.

Schools need to adequately support their staff and realise that even the most budget-stricken departments can still provide a system that is affordable, yet still advanced, with sophisticated obstruction from harmful viruses and inappropriate content.

More positively, it has been reported than technology budgets are growing in schools and will be at an average of £14,450 per primary school and £64,400 in a typical secondary school by the end of 2016. However, with so many schools now falling behind, will this new stance come a little too late?

Broadband speeds are vital to support effective technology adoption for pupils and for teaching. The government must step up and address this as an urgent priority – but must make a conscious effort to roll out better technology in education across the board. If this does not happen, some schools and their pupils will inevitably fall behind. All schools deserve to get the best high speed broadband available to support teaching, wherever they are.

ACTIONS SCHOOLS SHOULD TAKE TO IMPROVE CONNECTIVITY RIGHT NOW:

+ Run a connectivity check
Broadband speed can be affected by a number of different factors including the technology used to deliver it to the premises and the type of connection you use to connect your device to your router. Running a simple speed test can usually diagnose what's causing a sluggish connection.

+ A hotspot hub
Investing in several access points that connect to the premise's central network is a simple and affordable way to help the connection stretch that bit further across the school.

+ Check devices are in shape
Too many programmes and old, out-of-date software on both teacher and pupil devices can really slow things down. Run regular 'health checks' on all devices to ensure browser plug-ins are up to date and that not too much space is taken up with unnecessary clutter.

+ Install anti-virus software
A virus is a sure-fire way to ensure the school's devices slow right down. It's a good idea to install anti-virus software to ensure full protection against malware, spyware, phishing and other Internet threats.

ABOUT THE AUTHOR

By Lee Marsden is EU President at ZyXEL (www.zyxel.com/uk/en)

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Sowing the SEEDS OF STEM

When it comes to engaging young people in science, technology, engineering and maths, it's great teachers that make the difference says **Ruth Amos**...

I became a campaigner for STEM back in 2006, when at the age of sixteen I became Young Engineer for Britain. Up to this point, I had enjoyed all STEM subjects, but wanted to follow a career in law.

The catalyst for change came when my GCSE resistant materials teacher set me the challenge to design something for his elderly father that allowed him to walk up and down his own stairs unaided. He wasn't able to have a stair lift and wanted something that would enable him to keep active. The project really caught my imagination. My teacher soon realised that I would need outside help to make my product – it had gone past being constructed in school lathes and with handheld saws, and so I was put in touch with Reg, who owned a local engineering firm. With his guidance I patented the project and produced a full size unit. Together we set up StairSteady Ltd to protect, and later produce and sell the product.

The StairSteady is simple to use – it requires no electric or electronics and is completely mechanical. The beauty of this is that the user can use the stairs at his or her own pace, safe in the knowledge that the necessary support is there. There are no running costs and it can even be used in a power cut, meaning the user is never left 'high and dry'. It is like having a walking frame for the stairs, which can be mounted by our engineers at any height, making it suitable for any age or height of customer.

I found this design to be unique, there was nothing like it available at the time, however I soon realised that making a single example of a product is very different from having something that is fit for market. I look back at the development stage with a fondness; we felt like explorers, we had no idea what

was possible, but shared a real passion to make it work.

Natural inclinations

The older I become, the more I see that I really was always destined to have a career in STEM. In fact both my younger sister and brother have careers in or are studying STEM too. When at the age of seven my dad first taught me to programme in BASIC, I should have realised where my passions lay. Why then did it take a 'push' for me to end up in a STEM career? I think it's because I didn't realise that my interests and passions could be fed through such a path. I never saw that my keenness for problem solving, logic puzzles, maths, or even my love for Lego, stood me in perfect stead to have a career that nurtured those passions.

Looking back at how I was inspired into STEM I think it's important to try and get students outside the classroom, to interact with people in the industry and with others who have a passion for science and engineering. Take the Big Bang Fair for example; a chance for young people to share knowledge, meet those who are already doing it and get inspired – not just by adults but also by their peers. As a daughter of an ex-teacher, now turned educational psychologist, I understand the red tape and the issues involved with leaving the classroom, but the rewards are potentially massive. If you can't get away from school grounds, then invite people in, maybe in person, but also using technology. I am an avid fan of TED talks and the range of talks especially on the TEDed section can add excitement to any subject.

I also think the media have a big part to play in the education of the next generation and I'm so excited that BBC Learning is making its clips and information much more accessible to teachers, and geared up to be used in the classroom. Thus meaning teachers can use ten minutes of beautifully shot and edited clips of BBC programmes to inspire students.

There is merit in competitions, too, whether F1 in schools, Young Engineers, Crest Award or 4x4 in school – challenging young people and allowing them to meet with others with the same passion can really broaden their horizons. The Bloodhound SSC project is doing so much in schools to encourage and inspire young people into STEM. Bloodhound SSC is a supersonic car created by the international education initiative Bloodhound Project to attempt a 1,000 mph world land speed record. The online resources mean you don't need to leave the classroom to education and engage. They even have suggested projects to do, video clips and fact sheets.

It's all about you...

When analysing all the things that affected my journey into STEM, however, probably the single biggest influence of all was my teacher. Mr Stokes was head of technology and inspired so many to take up a STEM career. As a school we had a record number of winners of the Young Engineer for Britain award, and this was down to Mr Stokes. As a state school we had all the stresses and issues that any educational establishment has, but this man carried a spark that enthused numerous young people. I am sure that as he comes up to retirement he has no idea quite the impact he has had on so many, but STEM careers are so much richer because of his passion.

This is to me probably the most important thing that can be done to encourage students. You may feel you don't have time, or budget or the facilities – and these things help – but the most important thing is to get across your passion and to nurture your students. STEM has careers for every level of student; it is not just for the brightest, or the ones with the neatest writing. Some of the best designers can't write about their ideas, but they can make them beautifully. It doesn't have to be done out of hours, you don't have to start a STEM club – although they're great – it can be done in the time set aside for lessons if you encourage and inspire. I am in no way saying that there are not teachers already doing this. I have had the pleasure over the years to meet many who are really inspiring the next generation into STEM, but we all need to be shouting about how we are going to get more young people engaged with these subjects. Making sure they are a priority within our schools, sharing good practice with each other, and not getting disheartened – you have no idea how you may have, or may be affecting your students. Like a stone that is skimmed across a pond never sees the ripples it has caused, so many teachers never realise how many they encourage. I love hearing how people got into STEM careers and so often it's a teacher. There are hundreds of educators across the country unaware of the difference that they are making.

STEM careers are constantly changing and developing, with jobs now open that weren't even imagined when I left school. This is one of the hardest things our education system needs to do, to help young people to prepare for work, but also to prepare for jobs that often haven't been created yet. To give the skills that allow them to have the basic knowledge they will need, but also the ability to adapt. To some that is an exciting concept and to others it fills them with dread. As an optimist, I'd like to think you would all take up that challenge.

ABOUT THE AUTHOR

Ruth Amos was Young Engineer for Britain 2006, with her idea, The StairSteady. As well as running StairSteady Ltd (stairsteady.net), she is deeply involved in the promotion of enterprise in education, working on a wide range of projects and sharing her passion about engineering and science with students and teachers throughout the UK.

The paper trail

Caroline Wright considers the costs and benefits of completely upgrading your school's printing solution...

When you Google search for 'printing in schools' the top results all reference 3D printing. Certainly in the world of education sector printing this seems to be the latest buzz word, and justifiably so; back in 2012 to 2013 the Department for Education's study of innovative ways of teaching science, technology, engineering and mathematics (STEM) and design subjects revealed that 3D printers had a highly motivational effect on pupils, with most schools reporting a greater interest in STEM subjects when using the technology.

However, while schools focus on this new teaching resource, is there a danger of letting traditional printers get old, costly and inefficient? While they may seem less interesting and therefore less worthy of attention, the fact is that schools spend a highly significant part of their budgets on printing and printing consumables. It also appears that the potential cost benefit of being managed efficiently, makes them a cost centre worthy of attention!

Our recent 'Resources in English Maintained Schools' research report showed that English maintained secondary schools are currently spending £61.2m per annum on 'general school items and stationery'. Most of the 303 secondary headteachers, deputy heads and bursars who responded to the survey, defined 'general school items and stationery' as printer consumables, paper and writing instruments.

We commonly see situations where there are multiple printers dotted across the school, or in some cases every class. These are often of varying ages, different brands and of course using assorted toner cartridges. Managing those printers and any required maintenance time, let alone the cost of toners is a huge burden on time, school budgets and learning opportunities. So what is our advice to schools?

1 PRINT AUDIT

The first step is to invite a selection of print supply companies in, to carry out a print audit. BESA member organisations all adhere to our code of best business practice and therefore the audit should always be free of charge. The only commitment from the school's side is time and having your historical print cost information to hand.

The audit is part of the fact-finding process. Without an audit, any printer supply and management proposal is not worth the paper it's printed on!

In addition to giving you a better insight into the current areas of usage and expenditure, the audit should highlight current printing levels, the existing printers' life expectancy and full costs. Are you printing double sided? How much print waste is there? Are you printing in colour when you could be saving a lot of money by printing in black and white? Do you know where your print expenditure is currently going?

The print supply companies should be asking you plenty of questions. Schools know what they want and what they hope to achieve, no other company knows this better. The suppliers should also be able to provide you with references from other schools who have a history of using their services.

2 COST CENTRE MANAGEMENT

An increasing number of schools are moving towards cashless transactions. The potential for having your printing management integrated with your cashless transaction system; using ID cards and fingerprints is worth considering.

3. EXTERNAL PRINT MANAGEMENT

The printing/photocopier industry tends to have a level of stigma attached to it and in some cases you are quite right to be wary. However, schools can rest assured if they are dealing with our member companies. And the reality is that there are highly effective ways for schools to manage their printing, one being a fully managed print solution.

In short, when a full audit has been carried out and the supplier has really immersed themselves in the school and its objectives, a fully managed print solution will certainly reduce unnecessary printing, save or eradicate maintenance time for internal resources, reduce printer downtime and also save budget that can be better utilised elsewhere.

Once again the solution that is right for you has to be one you are comfortable with. It could be a situation where the school pays a lease, contributing monthly or quarterly and in an agreed way, for example on a cost per print basis. What is important is that you know the costs in advance, along with the terms you'll be committing your school to. There should be virtually no need for any staff to have to spend time on the printers other than for printing.

4. COSTS

Your chosen partner needs to be able to clearly demonstrate the total cost of ownership and benefits to you. Your school's situation/printing environment will evolve, and it is down to the skill and commitment of the supplier to ensure that any solution they provide changes with the school's needs.

A warning: it is important to note that a managed solution does not necessarily mean a complete overhaul of a school's existing equipment. Managed service contracts are commonly three to five years and therefore, being comfortable that you are going to reduce costs and increase efficiency is important. The supplier's service level agreement and response time is a consideration; you don't want any surprises. And of course the costs that you are comparing must include ordering, maintenance, training, reporting, warranty terms and down time.

5. ENVIRONMENT

Something we hear a lot about in schools is the importance of their environmental goals. A managed printing solution will reduce volume (typically by around 20 per cent through eradicating waste print jobs and encouraging more double sided printing) and an audit can also be expanded to examine co2 usage/ reduction by moving to a more centrally managed multifunction printing solution.

Therefore, if you have a variety of printers around your school it may be worth inviting a few managed print suppliers into your school to understand the benefits that can be achieved.

ABOUT THE AUTHOR

Caroline Wright is director of the education sector's trade association, BESA. She has written this piece with professional input from Nick Madhavji, managing director of one of its member organisations, Joskos Solutions.

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Q&A

PRINT MANAGEMENT SOLUTIONS

Andrew Hall updates us on a busy and successful year for OKI Systems UK – and the schools with which the company works...

VISIT: WWW.OKI.CO.UK CALL: 01784 274300 EMAIL: ANDREW.HALL@OKIEUROPE.CO.UK

T&I: It's been a year since we last spoke to you for Technology and Innovation magazine – so what's been happening at OKI over the past twelve months?
AH: OKI has had a very exciting year since we last spoke. We have launched some very innovative products, not specifically for education but we have seen some establishments taking these products. In particular we launched the ES9541 + Clear or White, the first digital LED 5 toner device. It is ideally suited to art, technology and design or repro graphics departments. It enables users to print onto dark coloured materials by placing white toner first or even printing onto clear. In addition clear allows for spot colour giving that professional finish to documents and images.

Do you think that more schools are now starting to prioritise print management when considering their overall budget?
Since last year yes, we have had more schools asking about managed services. Why is it so important? The benefits are huge to the education sector. Many have copier contracts but printers and MFPs seem to be stand alone. This is costly when not managed. By conducting a free print audit we can advise the school on exactly what they spend on printing, service and support. Savings are huge and can be as much as a graduate teachers salary for a year! Besides other benefits such as carbon reduction, reducing paper usage/ wastage and energy efficiencies to name a few.

We are hearing more and more about the use of Wi-Fi enabled printing, and cloud storage in schools – are these options you are able to facilitate?
Yes, OKI's new generation devices all support mobile print and print apps are compatible with OKI devices.

What would you say are the environmental factors schools need to consider when thinking about printing?
Energy savings is the obvious one. Current devices are far more energy efficient than older models. Auto power off features and Sleep Mode are two features that are standard on OKI printers. Printing double sided has immediate savings on paper usage too.

Could upgrading to a more modern print management system actually have an impact on teaching and learning in schools?
Yes, educating students about print practices will have a lasting impact on the environment. Studies forecasted back in 2001 that it would be a paperless society by 2010! In fact, print is not dead at all, there is comfort in, and a need for, paper. Managing what is printed and by whom is critical for many reasons. Security, data protection, legal contracts, printing mono or colour and many more. All these combined add up to the bottom line, saving money and being more efficient. A managed service will ensure access to the latest technology at all times.

Are you able to consult with schools in order to help them find the right printing solution for their needs... and budget?
That is exactly what we at OKI practice. We offer a free no obligation audit, present results and potential savings and then it is evaluated as the contract runs. Flexibility is key in choosing the right solutions partner.

And what about ongoing support once they have made their purchases?
That is what a managed service is all about. It frees up IT support to focus on the network rather than fixing printers or clearing paper and replacing toner. A managed service is inclusive of support and maintenance.

Can you tell us about a school you have recently helped?
Manchester's largest high school, Parrs Wood, is a typical example of the kind of help we are able to offer. The school is focused on delivering the best possible results and most positive outcomes for pupils. Where appropriate, it implements innovative technology to help achieve these goals; and it sees the provision of high-quality printing solutions as an integral element in its stated objective of making the learning environment as engaging as possible for young people and as a key tool in streamling the administration and management of the school. To drive efficiencies and enhance the learning environment, the school decided to look at a managed service for printing. As a result, the IT team approached several independent providers and chose OKI and approved reseller, DMS Leasing to standardise on its printing solutions. The OKI approach worked out as being more cost effective and OKI guaranteed that support could be provided as and when required and consumables delivered when needed.

Anthony Cumbor, ICT Support, Parrs Wood High School says, "We pay a set price per page. This gives us tight cost control and predictable budgeting because we know exactly how much printing is going to cost. The approach also streamlines administration by giving us the option to charge back costs quickly and easily to school departments."

The long-term benefits of the MPS implementation are often extensive within education. Schools using a managed print service can typically reduce costs by as much as 35%.

Access all areas

All schools have a duty to provide a safe and secure learning environment – and access control technology has an increasingly important role to play, says **Matthew Grimley**...

The issue of security in schools is as important today as it ever has been. The safety and wellbeing of schoolchildren is a front that school staff and parents can unite on; amidst new security concerns, student safety is being pushed further up the agenda.

With such a transient population of staff, students and visitors moving through the school gates every morning, the use of access control measures are increasingly proving their value within a school setting.

Open doors

Access control systems provide automated entry to authorised individuals and deny access to any unauthorised visitors. They consist of three key components known as the physical barrier, the identification device and the door controller software. The physical barrier usually consists of a door or gate – which should comply with the essential British Standard PAS 24-1 'Doors of Enhanced Security' – and secured with a magnetic or strike lock. The identification device provides authorised individuals with a method for gaining entry through the physical barrier, usually in the form of Radio Frequency Identification (RFID), smart card and reader, swipe card and reader or PIN entry pads. Door controller software makes the decision on who can gain access, through which entry points and at which times of the day.

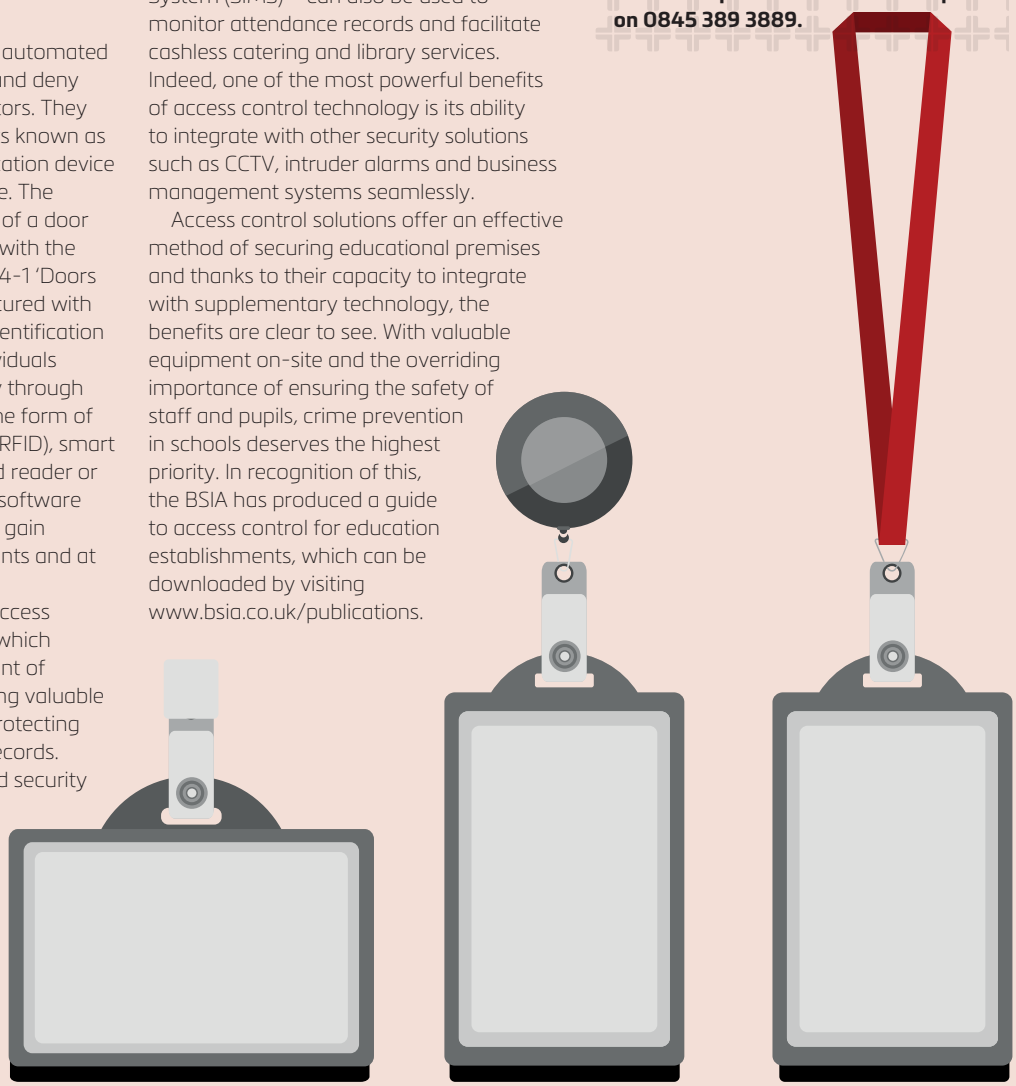
There are a vast number of access control applications in schools, which include controlling the movement of people around the site, protecting valuable or dangerous equipment and protecting confidential student and staff records. Some schools - where increased security measures are necessary - are utilising access control solutions to control entry to the school site by using turnstiles or speed gates coupled with a smart card, which limits entry to one person for one card presented. Each smart card is unique to the student or staff member and can be granted different levels of access.

Restricted areas such as store cupboards housing valuable or dangerous equipment can be protected using access control so that only staff members can gain access. The same can be said for staff rooms or offices which may contain confidential student and staff records.

Integrated solution

The same smart card – when integrated with a School Information Management System (SIMS) – can also be used to monitor attendance records and facilitate cashless catering and library services. Indeed, one of the most powerful benefits of access control technology is its ability to integrate with other security solutions such as CCTV, intruder alarms and business management systems seamlessly.

Access control solutions offer an effective method of securing educational premises and thanks to their capacity to integrate with supplementary technology, the benefits are clear to see. With valuable equipment on-site and the overriding importance of ensuring the safety of staff and pupils, crime prevention in schools deserves the highest priority. In recognition of this, the BSIA has produced a guide to access control for education establishments, which can be downloaded by visiting www.bsia.co.uk/publications.



ABOUT THE AUTHOR

Matthew Grimley is Senior Communications Executive at the British Security Industry Association, the trade body representing the UK's private security industry. Members of the BSIA are responsible for more than 70% of privately provided UK security products and services. For further information, visit www.bsia.co.uk. The BSIA operates a local rate helpline on 0845 389 3889.

Heart of the matter

Tim Killick lifts the lid on the true secret of a school's success – its storage infrastructure – and explains how the right solution can transform the technology landscape of a school within weeks...

Storage infrastructure is, probably, the least of your concerns, if you're a teacher. On a day to day basis, most people in schools may not realise that the problems which occur with devices in the classroom are likely to be caused by inefficient, or insufficient behind the scenes infrastructure – not the devices themselves. But, I guarantee the network manager or ICT technicians are permanently concerned with the health of their storage and server estate.

A typical school infrastructure comprises three parts:

+ Servers, which run a school's applications, its email exchange, etc.
+ Storage, which holds all its data, from pupil records to videos.
+ Networking equipment – switches and cabling which knit the entire solution together.

Also typically, these three things won't be from the same manufacturer, or bought at the same time. They won't be the same age, and will be supported by different companies for maintenance.

Clean slate

Many schools are running on very outdated, and in some cases obsolete infrastructures, which are being kept alive by their very brilliant ICT technicians and the support from each manufacturer. As you will know, budgets to replace it all are few and far between. At Stone, we often work with schools to find a solution to one, or two of those three parts that can be replaced without 'starting again'.

However, starting again with storage and infrastructure can often be the most liberating, cost-effective and simple way forward. In the same way as the green-screened trolley PC and tower has no place in the corner of the classroom any more, because it doesn't fulfill the requirements of modern education, the three-part back office infrastructure is looking increasingly unlikely to be able to support a digitally forward-thinking school with big BYOD or multi-media plans for the next few years.

Infrastructure investment is, arguably more essential than end-user device investment, in terms of the long-term benefits of technology in the classroom.

Reducing the size of both footprint and power consumption and increasing the support and security of your infrastructure can be achieved by purchasing a 'box' which contains all three of the traditional components that I mentioned. Then, you can get to work in making it into the beating heart of your entire solution by adding software which becomes your systems infrastructure, or virtual desktop capabilities to enable BYOD or remote access for all.

When you deploy a solution like this (Stone's is called the Integrum), you eradicate any concerns about single points of failure, because they contain two computing nodes and two power supplies to ensure availability and security.

Fit for purpose

The all in one infrastructure automatically tidies up the decades of data you have, by de-duplicating and compressing files and making them accessible at a speed of your choice, relative to frequency of use. For example – current classroom projects remain on the faster SSD storage, and last term's move onto the spinning disk storage, so they are still at hand, but not taking up valuable speed space. Everything moves faster with better storage infrastructure. Lessons get smoother. Jobs get easier.

Data compliance and storage of sensitive information is becoming a very important part of a school's Ofsted checklist. Elderly servers and inaccessible files are vulnerable to intrusion, or worse still, complete data loss. The devices in the hands of pupils and teachers can be safeguarded from misuse by a better infrastructure, which can enable essential secure features such as cloud storage; so no data stored on any device.

If you're planning to introduce a BYOD or one-to-one device scheme, start with a thorough investigation into the infrastructure needed to run a successful one. Without thought in this area, even an iPad can be as useless as that old PC on the trolley.

ABOUT THE AUTHOR

Tim Killick is Enterprise Sales Director at Stone Group (www.stonegroup.co.uk)

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AN APPLE FOR TEACHER

It may not have been developed as a tool for educators – but **Dr Joanna Rhodes'** new watch is definitely having an impact in the classroom...

I think it was probably inevitable that I would buy an Apple Watch. From the moment they were announced I kept up to date with the news and read the previews. I pre-ordered at one minute past eight on pre-order day on the Apple Store App on my phone; and consequently I was one of the lucky first recipients (amongst the general public anyway) of a shiny Apple Watch Sport, delivered promptly by UPS on launch day.

By Monday morning The Watch was making its first trip to school. I hadn't even made it into the building before the kids had noticed; by break I was in the middle of a posse (including teachers as well as students) trying to find out what it did and whether it was living up to the hype.

And it must be said, it was at work where The Watch really came into its own. I have my timetable in my calendar on my iPhone and so a quick glance at the modular display on my wrist reminded me of the next class due to arrive. I don't like to get my phone out during lessons for fear of seeming unprofessional in front of the students. Glancing at my watch didn't feel the same, and the subtle silent taps on my wrist rather than dings or rings ensured the watch could not distract others.

On tap

By half way into the week I was beginning to wonder how I had managed without The Watch. Adding to the joys of the instant timetable were reminders 15 minutes before the end of a lesson to set homework; another to prompt me to collect it in (and what I had actually set them to do); and another to ensure an important message from the staff briefing was delivered to the students. A tap... send student A to the year office; a tap... speak to student B's parent about the presentation in her book. Over the smell of coffee during my free... a tap to remind me to use the time wisely by working on the faculty development plan update.

The timer function has been simple but effective in lessons. A tap on the modular display and I can use the digital crown to set the time for the activity – this is a strategy I often use to keep students on task but having the timer on my wrist has been very useful and students have enjoyed looking at the time as I walk round to help them.

Appy days

Apps straight to your wrist are both fun and useful. In the last few weeks I have used my watch to look at social media – including Twitter, which I use regularly in lessons to get students talking about exciting scientific developments, and Instagram, as well as BBC news, line updates for the London Underground, and my boarding pass on British Airways; that turned a few heads at the airport! The night sky app tells me if the conditions are good for star gazing and the weather app suggests I should pick up my umbrella as I leave the house. The map app tells me where I am and how to get to places on foot, and works as well around the streets of Paris as it does while taking a stroll or geocaching in a local forest. The best paid third party app I have installed is a translation app into which you speak a word or phrase of your choice; in a few seconds the word or phrase is displayed on the screen of the watch in the language of your choice ready for action.

Status updates

The Watch has also taught me some things about myself that I never realised. During lessons my heart rate rises from a resting 62 to about 100 – even in lessons where I think I'm relaxed; I can top 120 when working hard to keep a bottom set on track. As a teacher I walk an average of 10,792 steps per day, stand up for the equivalent of six hours solid and at for at least one minute in each of 14-16 hours, and burn an average of 600 calories – no wonder I'm exhausted at the weekend!

Is it a novelty? Well, I bought The Watch even though I thought it might prove to be so, but many weeks in and I am using it to the same extent as, if not more than, the day it arrived, in both my personal and professional lives... and when you consider that's not something I can necessarily say about all the dedicated educational technology I've tried, it really does start to look like a genuinely smart investment!

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