
# Advancing Education

*Summer 2014 Edition*

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# About Advancing Education

*Advancing Education' is a leading journal comprised of an eclectic mix of academic and action research papers and reports from members and sponsoring partners on innovative uses of ICT in education and beyond. As such it reflects the wide ranging interests of members and sponsors and all those passionate about ICT in all phases of education. The journal is published online up to three times a year.*

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## Summer 2014 Edition

Welcome to the Summer 2014 issue of Advancing Education in which concerns are raised, good practice highlighted and new technologies introduced. Christian Smith highlights the need for high quality e-safety teaching of parents as well as children with his concerns over the social and safety aspects of the computer games being played at home and elsewhere. 3D has moved beyond the novelty stage and Peter Kemp explores an experiment with 3D animation in schools, noting that the UK has, 'one of the world's largest digital arts and games industries'. While reform to the ICT curriculum is just coming to England other EU countries are ahead of us and Bob Harrison reports on developments in Estonia. How can technology support the development of reading skills? Marion Long has developed an online system using music and images called Rhythm for Reading that is having very positive results in raising standard as explained in this report. Many of us are aware of the disconnect between classroom and workplace, with the two perhaps diverging further as schools look to the past. Jim Wynn considers how embracing technology, adopting more efficient teaching methods and creating a connected classroom can help tackle this problem. Elsewhere Espresso provide an example of their Espresso Coding product in use in school and Epson explain their Finger-touch interactive projectors.

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# Editorial Ramblings

*In which your editor muses on 30+ years of ICT in schools and looks to the future.*

The Naace Conference in March proved a turning point in more ways than one. Firstly a new spirit of optimism was evident, a feeling of a new beginning despite the many reservations regarding the Gove curriculum. Secondly there was a significant and welcome increase in younger and school-based members, representing not only the future of Naace but also of ICT and Computing as it is these members who will both make the new curriculum work and ensure it becomes fit for purpose. It was also the point where I decided, after long consideration, to retire from active service as regards direct consultancy and support for schools, no longer wishing to work within school structures and a curriculum with which I have fundamental pedagogical and political disagreement.

Having been an active user of ICT, a researcher, lecturer and adviser for over 30 years it is worth looking back, not only at how things have changed (or not!) in that time but also what had been re-invented. In ICT terms 30 years seems the equivalent of a millennium in 'real time', from the early days of tentative experimentation and the early missionaries to the ubiquitous use today – in some schools at least. But how did we get there?

Moving into teaching from production engineering I had some knowledge of the early CNC tools but found teacher training devoid of anything beyond the electronic calculator, though as a geographer became fascinated by remote sensing. While discussing with the Ed Tech lecturer the novel Computing course in a placement school – code written on punched cards and sent off to the university for processing – I was told (in 1978) that computers would never have a place in schools. A mere four years later we hade MESU and the Micro-Electronics in Education programme the arrival of the BBC B in schools. At the same time Sinclair launched the ZX81 and the ordinary person could access computers for themselves.

The ZX81 could almost be considered the 1982 equivalent of the Raspberry Pi since most programs were written by the user or had to be typed in from listings. To use them you had to understand and be able to use code. The book '30 Hour Basic' became a bible. Not that these early computers were easy to use as saving to and loading from tape recorders (disk drives came slightly later) was a nightmare but we persevered. In my classroom I was using, for example 'Kingdom' on the BBC B to explore the importance of irrigation or 'Mill' on the Sinclair to make industrial location decisions.

Coding by users soon stopped for the majority simply because a wide range of commercial software became available and the focus moved to using the systems for learning rather than as devices to learn about – most became consumers rather than creators. As systems became easier to use and more powerful, the Acorn Archimedes and the wonderful Risc-OS (1988) being a particular high point, pretty much all the tools that we rely on today became readily accessible – word

processing, DTP, data handling etc and all supported by a quite forward looking national curriculum. This had the sense to retain elements of programming and coding, usually Logo based but also including the use of programmable logic boards, and excellent way of teaching about gates, sorts and other fundamentals. But, as too often happens, schools focused on the parts that were easy to deliver, ignored those aspects perceived as difficult and failed to invest in staff training, technical support or effective management of ICT. Sounds familiar doesn't it.

Then there were the delights of early online services. Anyone else remember those primitive and slow modems that enabled use of the TTNS service via a dial-up connection? While TTNS contained some useful materials and a useful email service it lacked something in terms of speed. Not that the early Internet was much better yet again we fought against the odds because we could see the potential. I had my own website back in 1996 and thanks to the Wayback Machine it still exists although the original host has long since vanished. So much has changed since those early days, when the Net was more like a lawless frontier town populated by geeks. Even pre-Facebook any fool could have a website and many did – today it's just so much easier and you don't have to speak HTML, though it helps.

By the early noughties, with cheap hardware, broadband, high quality educational software and online resources and a mature Internet the potential of ICT could, in theory be harnessed by all schools. Even the curriculum was sound if taught properly and in its totality.

That is, however, where the problems began and remain. Too many primary schools failed to teach the 'difficult' aspects such as control technology and databases, an issue regularly raised by Ofsted. Despite the millions spent on e.g. KS3 consultants, too many secondary schools still used staff with minimal personal ICT capability to teach KS3 and even the type of examination courses that eventually almost destroyed the subject. As an adviser I despaired at the abysmal offerings of some schools. Schools that had no intention of changing their approach so long as they could spoon feed students to a minimal, supposed GCSE equivalent.

But what a breath of fresh air to walk into that minority of schools that had embraced everything that ICT should have been in all. Schools that had high expectations of all staff, that ensured good levels of technology and technical support. Schools that taught the full curriculum and beyond, that were innovative and forward looking. That in overall terms these were judged good or outstanding was no surprise – the qualities of good management and teamwork being the key.

These will also be the key to the future shock that awaits us, the horrors or delights of the Govian Curriculum ('It's life Captain, but not as we know it.', Mr Scott to Capt Kirk) as we prepare for this brave new world. A critical element will be that of interpretation of the content of the programme of study – it's not just about coding as the joint Naace/CAS guidance makes clear. But will school leaders take that on board and ensure that Computing is broad and balance, meeting the needs of all learners and not just the minority with the mathematical and logical abilities to do well with the computer science aspects of the new subject. Learners need to develop a range of skills, knowledge and capabilities with all aspects of information handling (in all its forms), communications, how these technologies work and interact and how to use them effectively whilst ensuring their own e-safety and data security.

It can be done but there remains a lack of teachers with appropriate training and expertise and some good staff have been lost in the hiatus of the last four years.

Others, who struggled to teach the old programme of study will be totally out of their depth with the more technical nature of the new. This issue will not go away – the teacher trainees and not there, nor is the funding for retraining. It sometimes seems that instead of hitting the ground running we are on the blocks for the start of a sack race rather than the 100 metres!

The new generation Naace members face a challenging few years to embed Computing as a subject and to ensure that wider aspects of ICT continue to be taught. All that against a background of ongoing budget constraints, new examination systems and a general election next year with all the uncertainty that will bring. The level of enthusiasm at Conference was palpable as was the excitement and desire to face the challenge. So go for it, remembering one of the wiser sayings of Ferdinand Foch, '*A battle won is a battle which we will not acknowledge to be lost.'*

So to this issue of Advancing Education in which concerns are raised, good practice highlighted and new technologies introduced. Christian Smith highlights the need for high quality e-safety teaching of parents as well as children with his concerns over the social and safety aspects of the computer games being played at home and elsewhere. 3D has moved beyond the novelty stage and Peter Kemp explores an experiment with 3D animation in schools, noting that the UK has, 'one of the world's largest digital arts and games industries'. While reform to the ICT curriculum is just coming to England other EU countries are ahead of us and Bob Harrison reports on developments in Estonia. How can technology support the development of reading skills? Marion Long has developed an online system using music and images called Rhythm for Reading that is having very positive results in raising standard as explained in this report. Many of us are aware of the disconnect between classroom and workplace, with the two perhaps diverging further as schools look to the past. Jim Wynn considers how embracing technology, adopting more efficient teaching methods and creating a connected classroom can help tackle this problem. Elsewhere Espresso provide an example of their Espresso Coding product in use in school and Epson explain their Finger-touch interactive projectors.

So, enjoy the summer and come out fighting in the autumn.

Paul Heinrich
Editor

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***Please note that all views and opinions expressed in this editorial are those of the author and do not necessarily reflect Naace policy.***

# Why we need to talk about gaming in the classroom

Author: Christian Smith

When recent OFCOM data shows that over 75% of children in schools regularly play computer games… how many of our staff REALLY know what that Gaming World is like?

As I came back from the Spring half term break, I asked a group of children I was working with what they had done over the holiday. Among the usual answers of family time, *"nuffink"*, and watching TV, one of the young boys, in year two answered *"I watched my dad play Grand Theft Auto 5"* This led to a chorus of the young boys in the group expounding how great the game was, and had they seen certain bits, or tried different tricks or cheats out.

On one hand, it was great to see a group of young boys, far more animated and lively than they were when being asked what they'd actually done with their free time. But then it hit me…. This group of boys was getting animated over an 18 certificate game they all seemed to have experience of. A game, where the ability to successfully beat a prostitute and steal a car is seen as a positive attribute. And now, it's apparently a family activity.

And what's more, the entire conversation completely cut out any interaction with the girls who were originally involved in our discussion group and started to make sense of some of the behaviors we had seen and had reported to us in the playground.The recent London Grid for Learning Esafety Survey (http://www.lgfl.net/esafety/Pages/E-safety-Survey.aspx) identified the games devices and the gaming that our young people undertake as significant in having impact in the classroom and the way in which our young children engage with each other. Boys were identified as 3 times more likely than girls to be using a games device or station as their primary Internet access tool, but gaming was seen as a core and key part of their internet lives by 1 in 5 pupils at KS1/2 and 1in 10 at key stage 3, with KS3 boys in particular focusing on this activity in their top 3 activities 2:1 more than their gender counterparts

## What Types of Websites Do You Regularly Use? Key Stages 1/2

- **Top Usages (All)**
- Games - 21%
- Youtube - 19%
- Virtual Worlds -13%
- Search Engine - 6%
- Educational Maths - 5%
- School Website - 4%
- Social Networking - 3%

- **Top Usages (BvG)**

| | Boys | Girls |
|---|---|---|
| Gaming | 22% | 19% |
| Youtube | 20% | 17% |
| Virtual Worlds | 10% | 14% |
| Search Engine | 6% | 6% |
| Educ. Maths | 4% | 6% |
| Social Network | 3% | 2% |
| School Website | 3% | 5% |

# What Types of Websites Do You Regularly Use? Key Stage 3

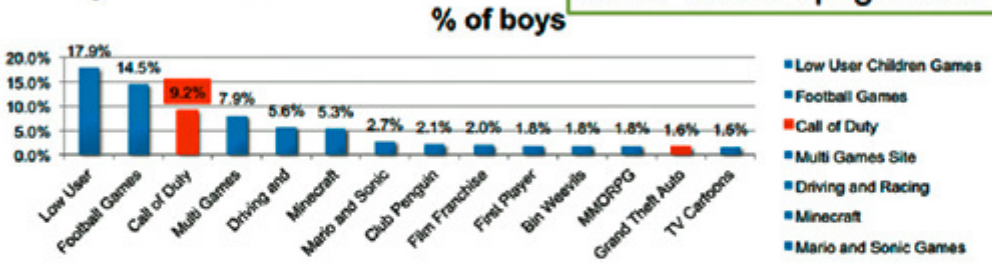
- **Top Usages (All)**
- Social Networking- 25%
- Video and TV - 28%
- Search Engine – 11%
- Games - 8%
- Email - 4%

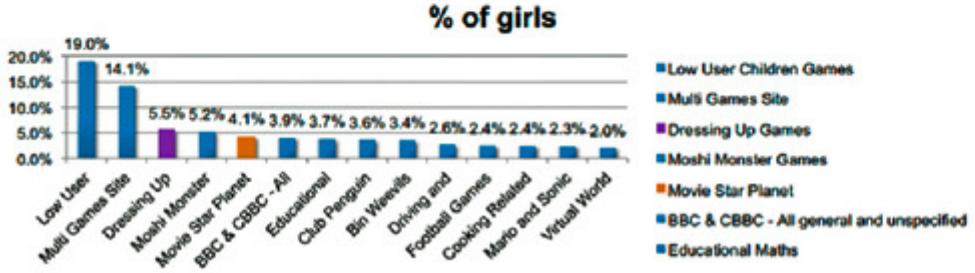
- **Top Usages (BvG)**

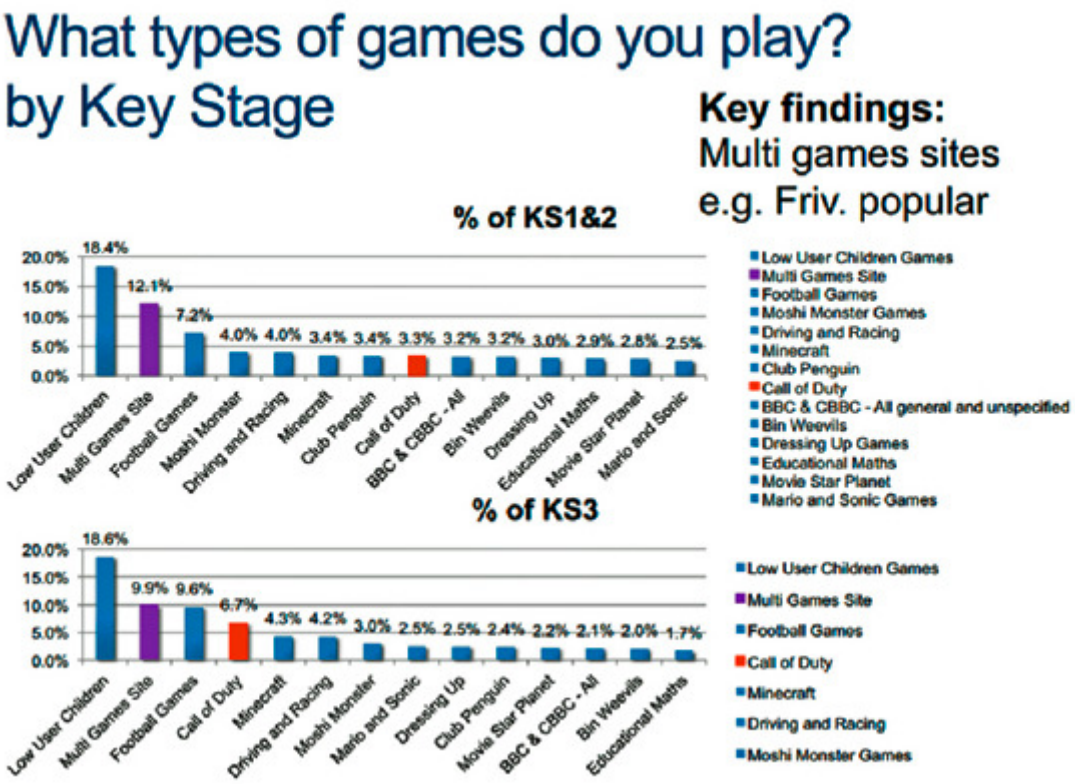
| | Boys | Girls |
|---|---|---|
| Social Network | 17% | 30% |
| Youtube | 34% | 24% |
| Search Engine | 10% | 13% |
| eMail | 1% | 6% |
| Gaming | 12% | 5% |

# What types of games do you play? Boys v Girls

**Key Findings:**
Gender differences.
Boys: football and violence.
Girls: 'dress-up' games.






**So what does this mean in the classroom and school environment?**

We've all seen news reports and stories in the media of the change in the ways our young people interact with each other, with shocking stories that demonstrate a lack of empathy and understanding of someone else's viewpoint. Thankfully these are in the minority, and that is something we must always remind ourselves.

But, when pupils as young as Y2 are seeing parents or themselves are playing games with such inappropriate content and language, they can only be becoming desensitized to such imagery and seeing such behaviors as the norm when interacting themselves.

But its not only console gaming, but web based games where the core activity is to be come popular and famous, by having more boyfriends and being pretty and thin and blonde can only re-enforce stereotypes and values in your youngsters from a very early age. Studies show that early stimulus before the age of 7 can impact us long term on subtle and subconscious levels. Is that what these games are doing?

So why don't we talk about them in the classroom? Why don't we challenge parents who allow their youngsters to play 18 certificate games, the way we would if we found that they'd been watching "Video Nasties" or Pornography at home? Is it a lack of understanding? Of experience? We've all seen Karl Fisch's "Shift Happens" in its various forms and versions, which asks the question of a generation for whom gaming is part of their daily life, when was the last time some of our teachers and parents played a computer game? Or Saw what games like GTAV actually consisted of.

Certainly, the parents of the one Y2 student knew and played, but some of his peers parents were horrified to see the opening sequence alone of the game, let alone the first 5 minutes of game play in a parent workshop.

**So what can we do?**

Should we just shrug our shoulders and just blame it on the world we live in? Or should we be talking about this as part of PSHE and development time?

We must be seen to be challenging parents who we know are allowing pupils to access this content, willingly or unwillingly. To educate parents not only on the ratings systems, but how to set restrictions on devices and access controls online through workshops, training, newsletters and videos.

We need to educate our staff to understand the impact of some of these games on the collective psyche of our young people, bombarded with messages and adverts as they launch, and allow them time to talk about the issues AND the positives And there are positives to allowing gaming as part of our curriculum conversations, search for Minecraft in the classroom, or any of the amazing classroom work done by Dawn Halybone in London.

If we demystify Gaming, the way we have the internet and coding, previously the sole realm of the geeky one or two teachers, we can start to have open and frank conversations about the impact on our classrooms, in the way our youngsters talk to each other, see each other and see themselves and their place in the world And maybe, just maybe, if we provide some alternatives to the inappropriate content we might find ourselves having some animated, engaged youngsters having fun rather than just being told they shouldn't be playing.

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# 3D Animation in Schools

Author: Peter Kemp

*The United Kingdom has one of the world's largest digital arts and games industries but currently there is little formal education available for those considering careers in these areas. At 3Dami 15-18 year old students are asked to build their own small-scale animation studio and tasked to develop a short 3D animated film in just 7 days. 3Dami is a constructionist event helping students learn skills to get into the industry and the event is supported by industry mentors and academic experts, and includes seminars, meetings and industry visits.*

## Summary

The United Kingdom has one of the world's largest digital arts and games industries. Despite this there is little formal education available, and limited awareness outside the industry of how to break in. 3Dami was established in 2012 with the aim to encourage, mentor and celebrate the talents of young (15-18 years old) 3D content creators, providing them with the resources and experience to develop towards becoming professionals.

Students are asked to build their own small-scale animation studio, tasked to develop a short 3D animated film in just 7 days. The students elect their own Directors and Producers, who lead the group through the process of film creation. Help is provided where necessary, but as far as possible students are allowed to freely express their leadership and artistic qualities. 3Dami is a constructionist event helping students learn skills to get into the industry. Support is provided by industry mentors and academic experts, and includes seminars, meetings and industry visits.

Digital media creation touches on many skills, explored in the rest of this article, including computational thinking (emphasised in recent changes to the curriculum.), artistic talent and teamwork/project management. For most students who attend this course it is the largest and most ambitious project they have ever worked on - its hard work, but they walk away having truly achieved something, with an experience that raises their CVs and ambitions for the future.

## Preliminary work

I have been experimenting with 3D animation in schools since 2007, across students aged 11-18. Many students are excited by the idea of working in the film and games industry, but very few traditional courses allow for students to build skills in this area. 2D animation is much more common, with ICT courses supporting work at KS3, 4 and 5. Many of the students I have worked with have excellent 2D animation skill sets, built up from use of tools such as Flash and Pencil.

The recent NextGen report flagged up the shortage of people to fill skilled roles in the Digital Arts Industry. Building on this report, progress has been made towards making Computing (especially programming) a more integral part of the education system. However, the report focused on university level education for 3D art and mentioned very few initiatives around 3D art in schools. Having experience of nurturing this skill set amongst students from different backgrounds and age groups, I recognised this as an area that needs more support and focus.

For many students, studying Animation at university will be their first experience of using 3D modelling tools. This situation is far from ideal as students often make rash career decisions based on feelings alone, without supportive experiences.

The annual animation competition held at Manchester University started offering a 3D category in 2012. Students have shown they are capable of using these tools with much skill and flair; in 2013 a disproportionate number of the prizes were won by students using the Open Source Blender animation software, including one year 9 group. The competition receives over 1000 entries each year, from schools all over the country. It does not have the resources to offers technical support in creating animations and having spoken to the 3D entries, they are nearly all self taught through websites and books. One of the parents remarked "I thought he was alone in doing this". Beyond this competition there is very little to support or encourage young 3D content creators outside vocational BTEC courses.

In the last two years there has been a massive drive behind getting "Computational Thinking" into schools, this is often achieved through programming. It can also be achieved through 3D animation. Working with the Google definition:

- **Decomposition** - breaking the film down into shots, models, animations, sets, lighting etc. Breaking down models into materials, textures, bones, faces, vertices etc. Breaking down animations by first blocking it out, then adding extremes and finally polishing.
- **Pattern Recognition** - Using base models to build different characters, vehicles etc. which share common attributes. Recognising the patterns inherent to creating realistic animations. Sharing assets across multiple shots and the use of linking.
- **Abstraction** - Visual abstraction: the reduction in detail to reduce render time of poorly observed objects; this may involve only modelling part of a scene or making a 'low poly' representation of an object that doesn't feature prominently in a scene. Artistic abstraction, where an object is represented in a deliberately unrealistic style, with students recognising the features critical to the representation of an object.
- **Algorithm** - The process of making a short film, from storyboarding to using keyframing for animation. Techniques for making specific effects, e.g. the 'recipe' for making a virtual building explode such that it looks realistic. 3D graphics theory as it applies to technical artists, e.g. optimising render time.

In 2012 we ran a pilot programme at Teach First offices in London involving 11 students, NESTA, Escape Studios and Double Negative. From the lessons learnt from this pilot we launched 3Dami.

## Application process

3Dami has attempted to create its own application process, distinct from those seen in other computer science and digital art summer courses. I have had experience of students entering large scale computing summer schools, on one occasion winning a

national award. I also have had many examples of students signing up to attend these schools and dropping out at the last moment.

The general form of a summer school application process appears to be acceptance of anyone of the correct age, with potential positive discrimination for gender and minority groups. Courses vary between paid and free models, and it appears to be a well known dictum that charging someone for a course makes them more likely to attend (See the CAS 2013 conference for a recent example of this). In the spirit of making the course as accessible as possible we weren't keen on charging students to attend so we had to think of another way to get student buy in.

Most schools teach the basics of their course on arriving at the school, taking up the first few days or in some cases the entirety of the course. Students can arrive with no experience of what they are going to do and no foundational work beyond a short application form or teacher recommendation. To apply for 3Dami, we decided that students would have to complete a significant number of 3D tutorials beforehand, giving them the basics or above, and allowing them to enter the summer studio at a level where they could immediately start to bring their ideas to life. It also gave students an intellectual buy-in to the course.

The application process involved 2 stages, a declaration of interest by filling in a Google Form, followed a few weeks later by a request for a full application showing their work. The second stage involved students completing a minimum of 4 hours of tutorials. There was a vast array of help videos available so we carefully selected those that we thought would give someone a firm foundation in 3D art. All videos and tutorials were free and allowed students to learn well beyond the basics if they wished. As noted earlier, the main route for students to get into 3D art seems to be by teaching themselves at home through videos, this exposed most of the students to this experience which wouldn't previously have happened.

The number of students who declared interest was 4 times higher than those who completed their application. We speculate that many of those dropping out found that they didn't enjoy 3D animation, or were put off by the commitment necessary to complete the tutorials. The first case is a positive outcome for the student, as they have real experience of using an industry standard tool and can now make a more informed choice as to their futures. The second case helps us filter out students who might not cope with the commitment required by the event.

Several of the portfolios submitted exceeded our expectations, with several showing fully rigged character animation and animations mixed with real life film footage.

We believe this application model is superior to easy access systems employed by other digital summer schools as:

- Students have an intellectual buy in to the course and are less likely to drop out
- Students arrive with at least a basic skill set allowing for more complex projects to be tackled
- Students put off by the application process can learn valuable lessons in applying

We believe that where possible programming summer schools should ask students to complete preliminary work such as codecademy or parts of project euler as part of their application processes.

## People

3Dami requires a very specialist set of people to run it. Programming summer schools can quite easily find amateur programmers in their local area; the 3D animation industry takes up much more of a niche, and finding suitable technical support has proved difficult.

The most important member of the team is the "Technical Expert", the person who knows the software inside out and who is able to answer difficult technical questions. The nature of the students we select for the course means that questions will be posed that are beyond an amateur animator. "How do I rig a realistic fishing rod" as opposed to "how do I make a fence". At the moment we rely on voluntary support for this role, but as we look to expand we are looking into the cost of hiring someone for this position.

It is essential that 3Dami provides a link between the industry and students, giving them access to cutting edge techniques and suitable advice. This has involved working with Double Negative, Escape Studios and SAE London. We are looking to expand these links in coming years.

Other people are needed handle the logistics of food, room booking, press, publicity and the application process. These people are volunteers and can be sourced from student bodies and other volunteer groups.

## Equipment and Software

In recent years computing power at home has become less of an issue when learning most digital technology. Web development, programming and 2D art development environments can run quite effectively on hardware several years old. 3D art poses a much bigger problem, making use of the latest graphics cards and large amounts of RAM. Even for a student who has a cutting edge home hardware set-up, render times for complex scenes can equate to hours if not days for a short animation. Online render farms are available, but come at cost or involve large queues queuing times and are complex to set up.

To get the most out of any hardware used for the event, we have chosen to use the open source Blender tool. This is increasingly being used in industry, offering much the same tool set as you would find in Maya (the market leader), Nuke, Cinema4D etc. Industry professionals have said they would accept job applications in Blender as long as the student has a rudimentary grasp of commercial tools such as Maya. Maya and 3DS Max are now available for free to students, however, we have chosen to use Blender for the following reasons:

- It can be run from a USB stick without the need for an installation
- It runs on hardware setups considered unsuitable for other products
- It runs on a large variety of Linux distributions, Windows (32/63bit) and MacOS (32/63bit)
- It allows you to quickly deploy open license render farm software
- It offers a complete suite of animation tools meaning students don't have to keep switching between products.

The most important factor is making the course accessible for as wide a range of students as possible, which includes those with older hardware, a variety of OS

setups and those needing the ability to run it in the library or in school without having to install it.

The computers we used ran Linux, as it executes Blender 10-15% faster than on Windows. We have found very few issues with students finding the Linux interface a problem and large parts of the industry are now based around the Linux operating system. Where we have not been able to format machines we have used uncompressed bootable Linux USBs running Xubuntu, the performance difference compared to an installed version was not noticeable.

As mentioned previously, render times for animations can stretch to tens of hours. To achieve anything within the short time given to a summer studio required the use of a render farm. There are several free render farm applications available for Blender and the default product installation has the function “net render” allowing you to split the work across multiple machines. In the end we decided to write our own render farm (rfarm, released under an open source license), as we had multiple teams submitting scenes to be rendered at the same time. By implementing our own render farm we were able to balance the render loads, meaning all machines could be used to render a scene and no team had an unfair advantage. UCL provided us with 50 computers from their cloud, meaning students had access to the same render power as might be available in a small to medium animation firm.

## The event

Computing summer schools run from a single day to several weeks. The value of such courses varies widely, and my experience has been that very few students leave with skills that they build on over the next few months and several leave with little more than having learnt the basics. We needed to create a significant experience giving students the full experience of creating and running their own animation studio.

As mentioned previously, we have offloaded the learning of basic skills to the application process; this means that the time available can be used for creative purposes as students attending the event are already skilled up to a basic to mid skill level. We settled on seven working days. Several industry insiders warned us that even with this time frame, we would struggle to create anything of significance. We planned to prove them wrong.

The event aims to give the students complete creative freedom around a theme; for 2013 it was ‘Summer never comes’.

The following describes the process which happened from July 25th – 5th August 2013:

| | |
|---|---|
| Thursday | Icebreakers are done as they arrive to get them working as a team; this includes a showcase of application portfolios. A talk is given to take them through the script development / storyboarding process. An intense script development and storyboarding session then occurs, where they plan out the entire animation they are going to make. If they finish early they can be taken to the computer room to start. Before leaving they are also told about the roles they can take on, Director and Producer. Students who want to apply can prepare a statement for lunchtime on Friday. |
| Friday | The day is started with a talk on using Blender for a team project, including the concepts of linking (splitting shot into models, set, animation), shared drives, directory structures and asset lists. As the students now know each other the team leaders are chosen after the team project talk - they should make statements and a vote be held. An asset list is made, so assets can be ticked off as they are created. The entire short film is roughed out as an animatic, so they can watch it end to end (Using the scanned in storyboard, and rough animation as appropriate). These two tasks happen at the same time. Afterwards they start to make the required assets. If any work remains from Thursday a small team should be created to finish it in parallel. |
| Weekend | The students should be encouraged (but not expected) to do some work over the weekend - the students with less experience will probably want to do tutorials, to catch up, whilst those with more experience may want to start on the assets, particularly the characters. All of them should be encouraged to think about the short as a whole and come back with new ideas/concept art etc. |
| Monday | The real work starts - set layouts should be known by the end of Monday. Students work through the asset lists |
| Tuesday | By the end of the day characters should be done, so animation can start. |
| Wednesday | Industry visits are best done on the morning of this day. At this point some of the shots should be reaching completion, so they can be rendered. |
| Thursday | All props, sets, characters and animation work must be done by the end of the day, so it can render in time. Rendering overnight is encouraged, though it should not be relied on. |
| Friday | The shots are put together, compositing is done, and a soundtrack created. Credits are added and the short declared finished. As the final steps only involve a few students the remaining students prepare a presentation to be given before the short is shown. This is also a good time to get their feedback on how the event went. In the evening a première is held where the students give their presentation and show their short to an audience of parents, industry mentors and dignitaries. |

The two democratically elected roles were:

- **Director**: Has final say on all creative decisions. They are also responsible for consistency, i.e. making sure all of the shots feel like they come from the same world and making sure the story is told.
- **Producer**: Responsible for making sure that the work gets done. They keep an eye on the asset list, and make sure everything will be done in time.

As far as possible, for the duration of the event students were in charge of their own teams. However, this wasn't always the cases and at high pressure moments help had to be provided by helpers.

We are striving to make 3Dami a year round project and we provided access to a facebook group, where students ask technical questions and post their work. This group is still going with students posting work and asking questions, there are also a few industry mentors present who can feedback on any work submitted.

## Lessons learnt

It is possible to create significant digital artefacts over the course of 7 days.

Several students dropped out in the run up to the event due to getting summer jobs. A bursary scheme needs to be provided to discourage this.

One of our students has successfully used his 3Dami experience to apply for a place on the BFI Film Academy. Another student has had his university entrance requirements lowered on the strength of the work produced at 3Dami.

The constructionist approach to learning, where students set their own goals and teach themselves skills to get there is highly effective for teaching 3D art.

## Future planning

3Dami is running again in 2014 with a studio in London at UCL. Future events hope to open up access to a wider range of students with bursary funding for accommodation and transport. Stronger links need to be made with industry and further research needs to be conducted into existing national and international schemes to assist 3D art skills acquisition amongst pre-university students. Improving 3Dami is an ongoing process.

In addition to the above we hope to:

- Write a 3D curriculum based on Constructionism and Computational Thinking which can be delivered in English schools. (As of May 2014 we have CS4HS funding to trial this, anyone wanting to be involved are welcome to mail peter.kemp@roehampton.ac.uk).
- Provide video and textual tutorials to learn digital media. These should include some customisation for 3Dami to teach specific skills such as 'linking'.
- Provide a portfolio website, by which the students apply to 3Dami events. It would include a feedback capability, and run publically all year round, so we can interact with them and push them to get better in advance of an event.
- Provide a render farm for our ex-students, as not many of them have the computer power to actual render a short film. This would tie in with the above.
- We also envisage stronger industry links, so the best students can seek internships / apprenticeships, through a year round mentoring system.

Find out more at http://3dami.org

*Peter Kemp can be contacted at peter.kemp@roehampton.ac.uk or at peterejkemp@gmail.com .*

# Rationale for IMPACT Projects: Increasing learning outcomes through better technology

Author: Neil Deakin and Dewi Lloyd

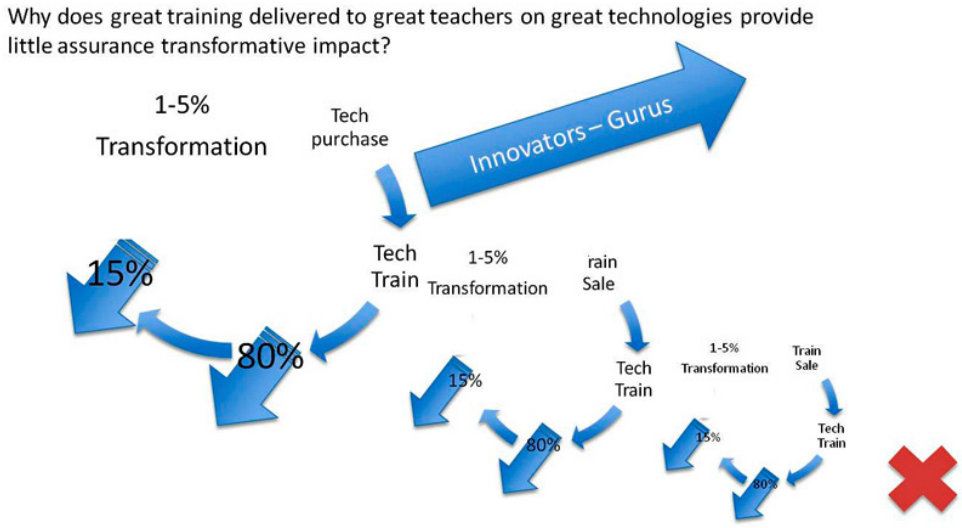

*A large body of recent research projects looking in to CPD have drawn the conclusion that typical professional development and training for teachers rarely results in transformative practice and produces minimal impact on learning outcomes. So why does great training delivered to great teachers on great technologies not have a transformative impact? Neil Deakin and Dewi Lloyd offer some thoughts.*

A large body of recent research projects looking in to CPD have drawn the conclusion that typical professional development and training for teachers rarely result in transformative practice and produce minimal impact on learning outcomes. With over 3 decades of experience, promoting, pioneering and supporting the adoption of innovative learning technologies Deakin & Lloyd have reflected on their experiences and concluded that the impact on learning outcomes had been disappointingly low. For our part we have committed to grasping a deeper understanding of customer needs and developing an approach that accelerates and deepens sustainable impact.

High quality training delivered to effective practitioners for the use of proven innovations often fails to deliver improved outcomes for the learners. Previously we would have suggested that more training was required but having noticed diminishing returns as a cycle of failed implementations occur we have considered what approaches result in sustained adoption and greater impact.

By researching the leadership of change more broadly we found that we agree with Covey et al, as the Whirlwind of the day job hits (described in The 4 Disciplines of Execution) the effective implementation of new innovation fades for all but the natural innovators and technophiles. The challenge is not to sustain the innovation with the early adopters, as they require little support, rather the focus should be on the ‘typical' practitioner who finds it far more of a challenge to change their practice. A mystique grows around the use of the innovation and the core rely on the gurus to utilise the innovation on their behalf. Fig 1 illustrates how the innovators - gurus may well take off even before training and the majority caught up in the whirlwind of urgent daily priorities are unlikely to achieve transformative practice . Eventually a point is reached where the innovation is regarded ineffective and sidelined.

**Why - Great training delivered to Great teachers on Great technologies provides little assurance of transformative impact?**




Whilst identifying where training typically fails to produce meaningful impact, research and experience indicate a number of factors that combined create an environment within which transformative practice is likely to thrive.

- Organisational & Personal **Purpose** based on the specific needs of the teachers & learners
- Establishing high **Expectations** with measurable targets
- Sustained period of **collaborative**; *training, coaching, practice, reflection, feedback & adaption*

Fig2.

Models such as the hype cycle (Fig 2) explain challenges for technology product marketing and adoption. These can be applied to our understanding of innovation adoption in general. Innovation may include; ideas, process, techniques, teaching craft, hardware & software products.

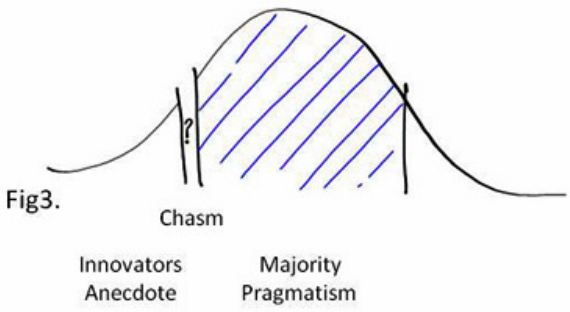


Fig3.

In Crossing the Chasm (Fig 3) Geoffrey Moore describes the challenge for marketers to move technology adoption from the innovators to the majority and if the chasm is not successfully crossed the technology may struggle to survive. Whilst we believe the process of innovation adoption within education and training may differ to that of successful technology marketing the chasm remains significant. Effective strategy and execution are essential to get across and reduce its scale.

To cross the chasm within the school and training context a clear and specific need for the innovation must be identified and effectively communicated (ideally the need is known before the innovation is proposed). Where possible this should involve a broad group of practitioners but needs at least to fully engage all who are involved with the initial project. Where managers have not ensured buy-in from colleagues we have seen innovation adoption sabotaged by practitioners who did not appreciate the need. Great intentions fade where purpose either organisational and or personal is lacking.

Fig4.

As illustrated in (Fig 4) we have often noticed the innovator-gurus grasp the potential of an innovation and move ahead leaving themajority in a deeper trough of disillusionment . In the same way a small group of individuals may leave a significant group of colleagues behind we have noted that a small number of innovative organisations will implement innovations to transformative effect in a manner that the majority struggle to achieve.


Fig5.

With a clear purpose the trough as in (Fig 5) can be reduced. The significant majority are more likely to commit to a project if clarity of why, how, what, when and where the need is being addressed has been established.

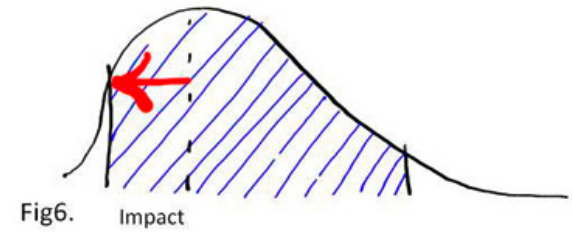


Fig6.

This results in significantly accelerated adoption and greater impact. Illustrated in (Fig 6) the chasm is crossed and greater impact achieved as the majority more readily join the innovator gurus.

Fig7.

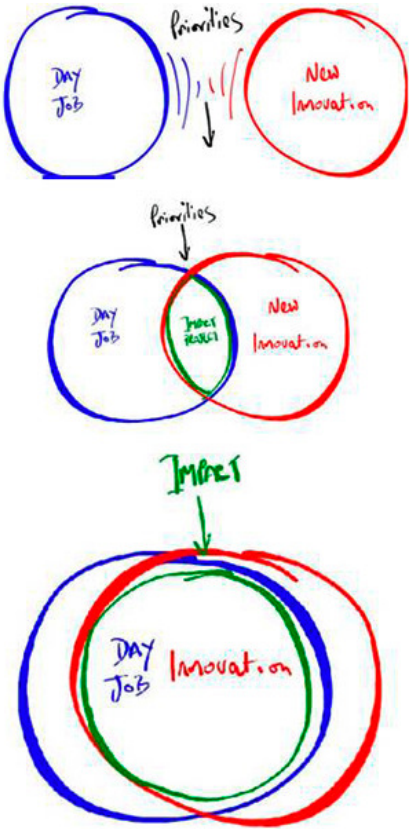


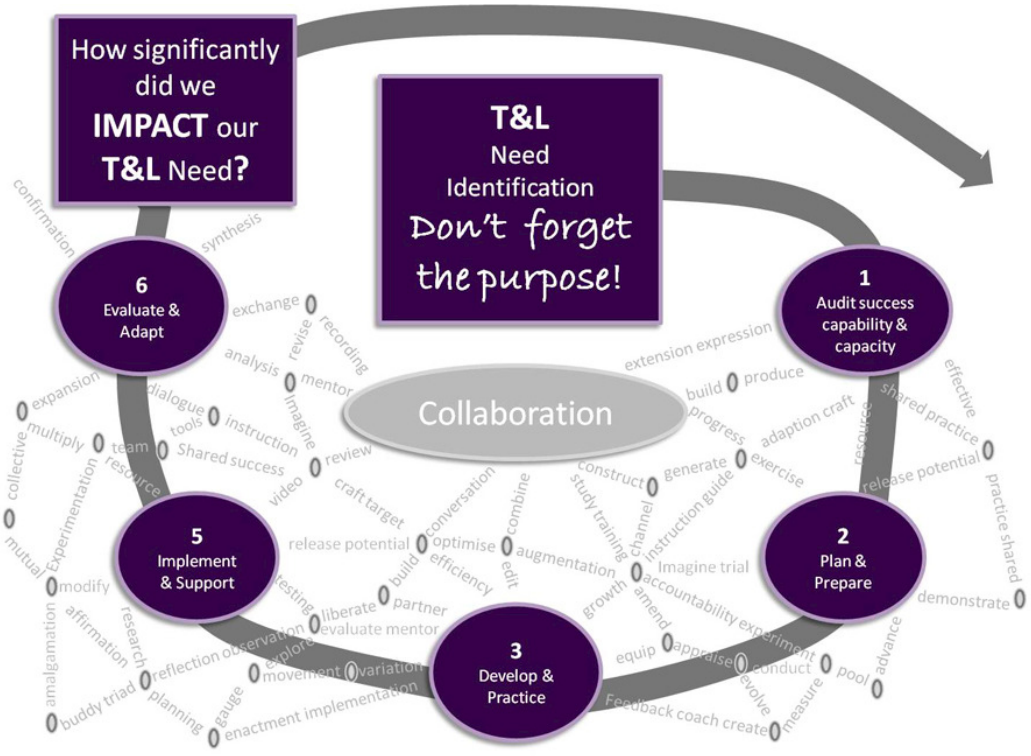

Fig 1.

Illustrated in (Fig 7). Innovations that are not clearly understood to underpin known needs or address activity that takes place within the day job will be repelled by the whirlwind of urgent daily priorities.

A crucial phase is entered once purpose has been established and tailored training provided. As practitioners seek to embed innovations it is now important to prevent the chasm from opening. The whirlwind of the day job will again threaten to overwhelm new initiatives. Genuine collaboration that started at planning and training stages is now most essential and is realised through; practice, reflection, observation, coaching, adaption and feedback.

We doubt many of our observations are a revelation but believe whilst many organisations continue to rely on compartmentalised training and individualised commitment they will fall into the cycle of lack of transformational practice through innovation illustrated in

IMPACT projects that are a collaborative partnership will underpin the priorities of the of the day job whilst introducing innovation that can thrive and deliver greater levels of transformation.



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Neil Deakin is Collaboration partner at Now Collaborate Ltd and Dewi Lloyd is Director of Education at MTM Innovations Ltd.

A pdf copy of this paper can be downloaded from http://www.nowcollaborate.co.uk/implementation-with-training .

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Please let us know the outcome of any IMPACT projects you run.

# England, Estonia and ICT - The Turning Point

Author: Bob Harrison, Education adviser for Toshiba Information Systems

*Bob Harrison reports on his recent visit to Estonia, where reform of the ICT curriculum is some two years ahead of that in England. It might be small but this Baltic state is committed to ICT with pupils starting to learn computing from entry to school at the age of 7 . There are important lessons to learn from the Estonian experience that should inform future developments in the UK.*

The reform of the ICT national curriculum in England was well overdue and the story of the difficulties and challenges has been well publicised and is proving challenging for some schools. See http://www.agent4change.net/policy/curriculum/2208-computing-is-getting-close-is-your-school-ready.html . But teachers are helping themselves and each other: http://www.agent4change.net/innovation/innovation/2188-whos-afraid-of-computing-not-islingtons-schools.html

But we are not the first country to reform the ICT curriculum and during a recent visit to Estonia following an invitation to speak at the annual Estonian ICT teacher's conference I had the opportunity to share our experiences and learn from some of theirs.

The Michael Gove 2012 BETT speech and the decision to "disapply" our existing national curriculum programmes of study for ICT was predicated on him being told "the teaching of ICT in our schools is dull and boring". Many teachers were surprised by this as the most recent OFSTED evidence suggested that *"the teaching of ICT in over two thirds of schools was good to outstanding"* especially in primary schools but OFSTED did acknowledge *"there was a problem at KS4"*. Most ICT teachers quickly suggested that the KS4 problem was largely due to some ICT qualifications being used as "equivalents" to game the league table system and this had led to "tick box teaching".

Nevertheless the reform juggernaut, driven by the British Computer Society, and supported my Schools Minister, Elizabeth Truss, gathered pace and ICT became computing but in reality with programmes of study which are essentially computer science. There is still a strong feeling amongst many ICT teachers and IT Industry representatives that the new national curriculum, stripped of the essential components of Information Technology and Digital Literacy, neither meets the needs of all pupils nor the needs of IT employers.

This has led to claims by politicians that England is the first country to put computer programming and coding "at the heart" of the new curriculum.

During my trip I discovered the Estonians have not only beaten us to it but are also now turning their attention to a more important issue of how technology can be used to enhance learning in all subjects. The Estonian Information Technology Foundation for Education describes this, and their conference ***"The Turning Point"***.


Bob with Estonian teachers.

Estonia, the most northern of the three Baltic States, a small corner of the Soviet Union until 1991,is now one of the most digitally visionary and internet dependant countries where computing is seen by young people as *"fun, simple and cool"*.

Of course we all know Estonia is the birthplace of SKYPE, bought by Microsoft for $8.5b in 2011 still employs 450 people at its HQ on the outskirts of Tallinn. Estonia has become E-Stonia the government's programme for schools, which was coordinated by the Tiger Leap Foundation and all Estonian schools were online with superfast broadband by the late 1990's.The US educated and former Estonian ambassador in the US, President Toomas Hendrik Ilves takes some of the credit *"We needed to computerise in every possible way so we can increase our functional size".*

So nearly two years before English children start to learn computing Estonian children were being taught programming at the age of 7. In fact the youngest generation of E-stonians encounter ICT as soon as they enter school through the e-Kool system and parents can access pupil progress, assessments, exam marks, and attendance with a touch on a screen.

The Estonian Governments commitment to support schools in the use of ICT seems to be paying off. According to the Eurydice key data on Learning and Innovation through ICT at schools in Europe *"there are national strategies covering teacher training measures, ICT for learning research, e-learning/digital media literacy strategies and central steering documents for ICT learning objectives at primary and secondary levels including the use of mobile devices for learning"*.

According to the official steering documents both students and teachers are expected to use ICT in ALL subjects both in class and in complementary activities. There are recommendations on the use of ICT for assessments and *"strong encouragement for the creation of public/private partnerships for the promotion and use of ICT"*.

According to the European Commission survey of ICT use in schools, which benchmarks European countries performance in terms of access, use and attitudes to ICT Estonia is near the top on virtually every measure especially on measures of staff and pupil confidence using ICT and particularly on measures such as *"digitally supportive schools*", *"digitally equipped schools"* and *"digitally supportive students"*.

Another interesting fact to note from the survey is Estonia pupils use of their own laptops/mobile devices (BYOD) is way above the EU average. Sadly English schools cannot be benchmarked in the study and are not included as the response rate from England was so low it made the data unreliable!

The picture emerging from Estonia is one of a visionary group of digitally savvy politicians, a well equipped technological infrastructure, a passionate commitment from the schools and teachers to make computing fun and cool and most importantly to embed the use of technology across the curriculum.

*Ene Koitla from HITSA*

However talking to some of the teachers and teacher educators it seems they face the same problems as we do. And they are not necessarily due to the technology. Ene Koitla, from HITSA, the education foundation responsible for the conference and for promoting the effective use of ICT in Education is a regular visitor to England and BETT.

She believes that attitude and behaviours are the main challenge, *"It is not a technological issue, we have the technology, it is about the hearts and minds of leaders and teachers....we need to convince them that technology will make learning better".*

Piret Luik, Associate Professor of Education and Tartu University,(picture) the leading university in Estonia for the education and training of teachers said, *"All out teachers have to have a Masters degree in their own subject specialism but making sure they have up to date digital skills is still a challenge"*.


*Piret Luik, Professor of Education,*

Whilst my 3rd Millenium digital literacy quiz (designed and updated by digital leaderson my website) is not a scientific measure it was noticeable that the Estonia teachers scored significantly higher than the English teacher conferences where I usually present.


The *Digital Literacy Quiz*

Recently the Education Technology Action Group (ETAG) has been formed by Michael Gove, Matthew Hancock and David Willetts with a remit to report to Ministers how Learning Technology can be used more effectively across primary, secondary, further and higher education and has just begun work.

Estonia is only 85 miles across the water from Finland, a country identified as "successful" according to the PISA tables and of course home to the once mobile leader Nokia. Perhaps the DfE/BIS civil servants planning the next visit to the Nordic countries by Messrs Gove, Hancock and Willets should consider the 20 minute flight from Helsinki to Tallinn as a worthwhile investment of their time?

**Links**

**Turning Point**

The Estonia ICT Teachers conference http://www.e-ope.ee/en/conference/konverentsi_kava

**Eurydice data on ICT in schools**

http://eacea.ec.europa.eu/education/eurydice/documents/key_data_series/129en.pdf

**European Schoolnet Survey of Schools**

http://www.eun.org/about/projects/detail?p_p_id=webcontentbrowser_WAR_eunbaseportlet_INSTANCE_dB5P&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=1&_webcontentbrowser_WAR_eunbaseportlet_INSTANCE_dB5P_paramForcedCurrentView=view-detail&_webcontentbrowser_WAR_eunbaseportlet_INSTANCE_dB5P_groupId=43887&_webcontentbrowser_WAR_eunbaseportlet_INSTANCE_dB5P_articleId=90002

**ETAG**

http://www.heppell.net/etag/default.html

**How Estonia became E-stonia**

http://www.bbc.co.uk/news/business-22317297

**About the author**

Bob Harrison has spent 40 yrs in the English education system as a teacher, lecturer, principal and governor. He has been Toshiba Information Systems (UK) Ltd Education Adviser for 14 yrs. He was a member of the expert group which re-drafted the ICT national curriculum and chairs the computing expert group for the Department for Education. Bob also chairs the Teaching Schools Technology Network, is a writer and presenter on computing and technology enhanced learning and is now a member of the Ministerial Education Technology Action Group (ETAG) advising Government on future policy. He was invited to speak at the HITSA conference in Tallinn on 10th April. You can follow him on twitter @bobharrisonset or contact him at www.setuk.co.uk

*Bob Harrison can be contacted at bobharrisonset@aol.com*

# Rhythm for Reading: Time-smart learning

Author: Dr Marion Long, Rhythm for Reading

*Marion Long reports on her evaluation of Rhythm for Reading, an innovative programme based on digital audio-visual resources which are tailored to suit each school and accessed via a secure portal and streamed into the classroom using a projector and screen. Provided as a ten-week course teachers select one session per week, navigating the audio-visual resources by operating the 'next' and 'previous' buttons.*

## Background

Many teachers are looking for time-smart strategies, which will provide new and effective approaches. Rhythm for Reading is an innovative programme that not only raises reading attainment, but also provides professional learning delivered in twilight sessions, shadowing sessions and online resources, including a teacher forum for sharing practice. Professional development is sustained and on-going and is also tightly integrated with working with pupils. The principle of doing less and achieving more is integral to Rhythm for Reading as each session requires only ten minutes.

The programme's digital audio-visual resources, which are tailored to suit each school are accessed via a secure portal and streamed into the classroom using a projector and screen. They consist of very clear visual displays from which pupils read musical symbols and move, keeping time with specially commissioned original music. The menu is presented as a ten-week course and teachers select one session per week, navigating the audio-visual resources by operating the 'next' and 'previous' buttons.

The developer, Marion Long recognised the potential for using rhythm-based approaches to learning in the 1990s – across the globe researchers are currently engaged in a line of enquiry that explores rhythm-based learning.

*"An exciting facet of language is its link to music: musical and rhythmic ability track with language ability and music training can improve reading skills."*[1]

Earlier studies Anvari et al. (2002) and Overy (2003) suggested a link between musical skills and phonological awareness. Small-scale trials indicating that music and rhythm impacted reading comprehension in particular (Long, 2007, Long and Hallam 2012, Long 2014) have led to the development of a digital audio-visual resource for schools.

### Methodology

### Development and use of resources

The theoretical framework underpinning the development of the resources was based on 'auditory scene analysis' (ASA) Bregman (1990) and 'theory of attending' (Jones, 1976).

Using an ecological approach to analyse auditory processing, Bregman described conceptual 'streams' and 'scenes'. An example of a single 'stream' of sound emitted from a single source could be a person speaking or a bird singing. However, when

several people speak or several birds sing, several sounds are heard concurrently within the sound wave pattern and ASA attempts to interpret and integrate the phenomenon of perceptual organisation: from the sum of wave patterns into segregated streams. Within ASA, Bregman identified the importance of metre as the invariant about which other features were perceptually organised.

Both perceptual segregation from 'scene' to 'stream' as described by Bregman (1990) and Jones' theory of attending are concerned with metre as an organising principle in the interaction of the perceiver with what Jones (1976) described as 'moving world patterns'. Metre, a structural representation is referred to in relation to poetry, language, physical movement and of course music. Synchronising with the 'feel' or the 'groove' of music, poetry or a group conversation means synchronising with the metre. The development of the audio resources for Rhythm for Reading began with discussions[2] around the metre in terms of pace, style, feel and musical character with a particular view to promoting pupils' motivation through the use of pattern, novelty, surprise and symmetry.

The development of Rhythm for Reading MP3 files involved taking the original musical compositions, digitally realised using Sibelius technology, and refining these by modifying the spectral shapes, durations, timbres and intensities of sounds until unambiguous 'streams' had been created. This was deemed necessary because according to ASA the harmonic spectral properties and the inter-relatedness of sounds can influence the extent to which they are segregated by the perceiver into a single stream or multiple streams. Thus, the attributes of sound as timbre and intensity and the intervallic spaces between sounds in terms of: (i) high versus low pitch, (ii) short versus long duration and (iii) slow versus fast pace, in combination have the capacity to influence the extent to which the resources promote optimal conditions for perceiving metrical structures within multiple streams of sound.

Jones (1976) proposed a rhythmic attending theory in which people rely on invariant reference points, in a mental model of space and time to anticipate rhythmically when an event will occur in the future. According to Jones, this process of expectancy casts energy required for attention from the reference point towards an anticipated future oriented event. Three premises apply. First, that attention as a form of energy is temporally organised, second, that as such it oscillates, forming nested hierarchies and third, that interaction between the perceiver and the dynamic patterns in the environment requires synchronisation. The conceptual stage of developing the Rhythm for Reading resources involved creating a brief that would maximise opportunities for both anticipation and expectancy and also for 'inhibition of affect' (Meyer, 1956) achieved by disrupting or delaying the expected and desired event. The outcome is a tool designed to scaffold expectancies and to cast energy required for attention.

'These paths form the patterns of mental space and time and so can establish for us that sense of continuity and connection that accompanies comprehension.' (Jones, 1981, p.571, cf London, 2004, p. 11)

The accompanying visual files were produced using Sibelius technology and provided a reading task, requiring no prior knowledge of music notation, but promoting fluent reading of notation, even within the first ten-minute session.

## Trial

The purpose of conducting this trial was to examine whether the Rhythm for Reading programme had any impact or effect on pupils' reading performance in a secondary school setting. The main challenge of conducting the trial was that conditions were highly variable, but the programme had been developed to withstand a degree of variability. Previous small-scale trials had taken place in primary schools and had produced significant gains in reading comprehension using the Neale Analysis of Reading Ability (NARA) (Long, 2007; Long & Hallam, 2012; Long, 2014). The reliability and validity of the trial was dependent on the suitability of the instrument used to test the effectiveness of the programme and the care taken to ensure that the test was used correctly. The NARA test was used because it offered an age range of six years, judged broad enough to fit with the wide-range[3] of reading attainment of the sample group.

The schools were selected for convenience. School staff recruited pupils who had not met national expectation in reading attainment prior to starting secondary school. They were randomly assigned using a statistical algorithm to either a control or an intervention group based on their scores on a standardised reading test prior to starting the trial. At the beginning and end of the ten-week trial, pupils were tested using NARA. Their raw scores were converted into standardised scores to differentiate for chronological age. The two sets of standardised scores were subtracted from each other to produce change scores and the change scores for the control and intervention groups were compared. There were three dependent variables: reading accuracy, reading comprehension and reading rate and two independent variables: experimental group and eligibility for free school meals, thus maximizing the degrees of freedom of the data and strengthening the reliability of the analysis. A multivariate analysis of variance was selected because this test controls for any loss of heterogeneity within the dataset due to any possible similarity between the three measures of reading.

## Results

The overall multivariate test was significant. A significant main effect for the two independent variables: 'experimental group,' and 'FSM status' indicated that these factors had had a significant effect on pupils' reading behaviour.

Following participation in the Rhythm for Reading programme, gains were found for the pupils from the treatment group. They had significantly improved on the NARA II items: reading accuracy ($F(1,350) = 4.118$, $p < 0.05$; $\eta p^2 = 0.012$) and comprehension ($F(1,350) = 10.143$, $p < 0.01$; $\eta p^2 = 0.028$), but not rate of reading (see Figure 1).

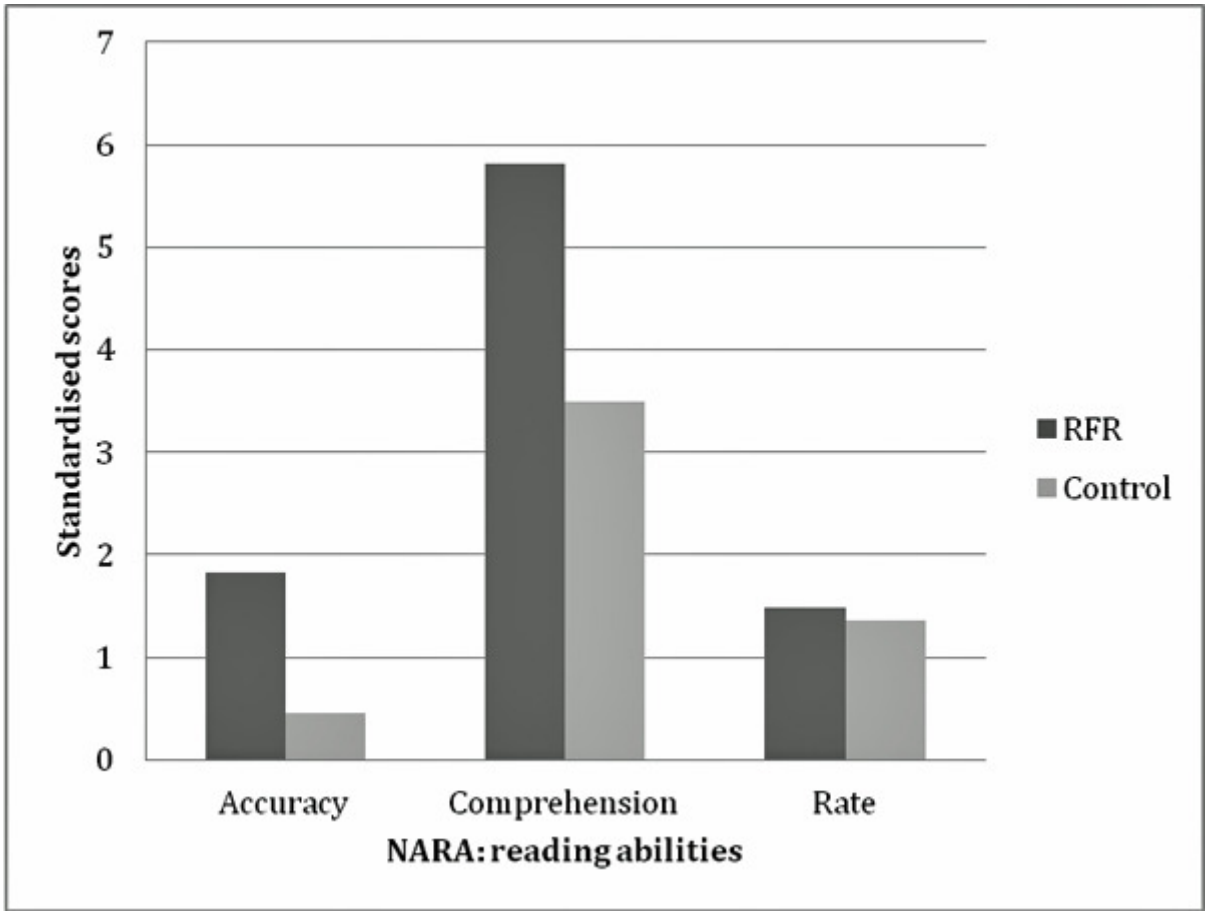


*Figure 1*. NARA: Mean change scores for FSM and non-FSM pupils in intervention (RFR) and control groups.

Pupils' eligibility for free school meals had significantly influenced their performance on reading accuracy ($F (1,350) = 4.613$, $p < 0.05$; $\eta p^2 = 0.013$), and comprehension ($F (1,350) = 5.141$, $p < 0.05$; $\eta p^2 = 0.014$) (see Table 1 & Figure 2). Gains in reading accuracy and comprehension were more pronounced for disadvantaged pupils that had participated in the Rhythm for Reading programme than for more advantaged pupils and pupils of the control group.

Table 1. NARA: Mean change scores for FSM and non-FSM pupils in intervention (RFR) and control groups

| | NARA: Mean change standardised scores | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | R. Accuracy | | | R. Comprehension | | | R. Rate | | |
| | RFR | Ctrl | Overall | RFR | Ctrl | Overall | RFR | Ctrl | Overall |
| Mean change score FSM pupils overall sample | 2.31 | 1.69 | 1.99 | 7.16 | 4.53 | 5.8 | -0.33 | 0.76 | 0.24 |
| Standard Deviation | 5.86 | 5.09 | 5.46 | 6.34 | 5.39 | 6.09 | 5.69 | 6.86 | 6.32 |
| Mean change score Non-FSM pupils overall sample | 1.62 | -0.19 | 0.75 | 5.23 | 2.97 | 4.15 | 2.28 | 1.66 | 1.98 |
| Standard Deviation | 5.1 | 5.22 | 5.22 | 6.88 | 7.35 | 7.18 | 8.04 | 8.49 | 8.25 |
| Mean change score Overall sample | 1.83 | 0.45 | 1.15 | 5.82 | 3.49 | 4.68 | 1.48 | 1.36 | 1.42 |
| Standard Deviation | 5.34 | 5.24 | 5.32 | 6.82 | 6.77 | 6.89 | 7.49 | 7.97 | 7.72 |

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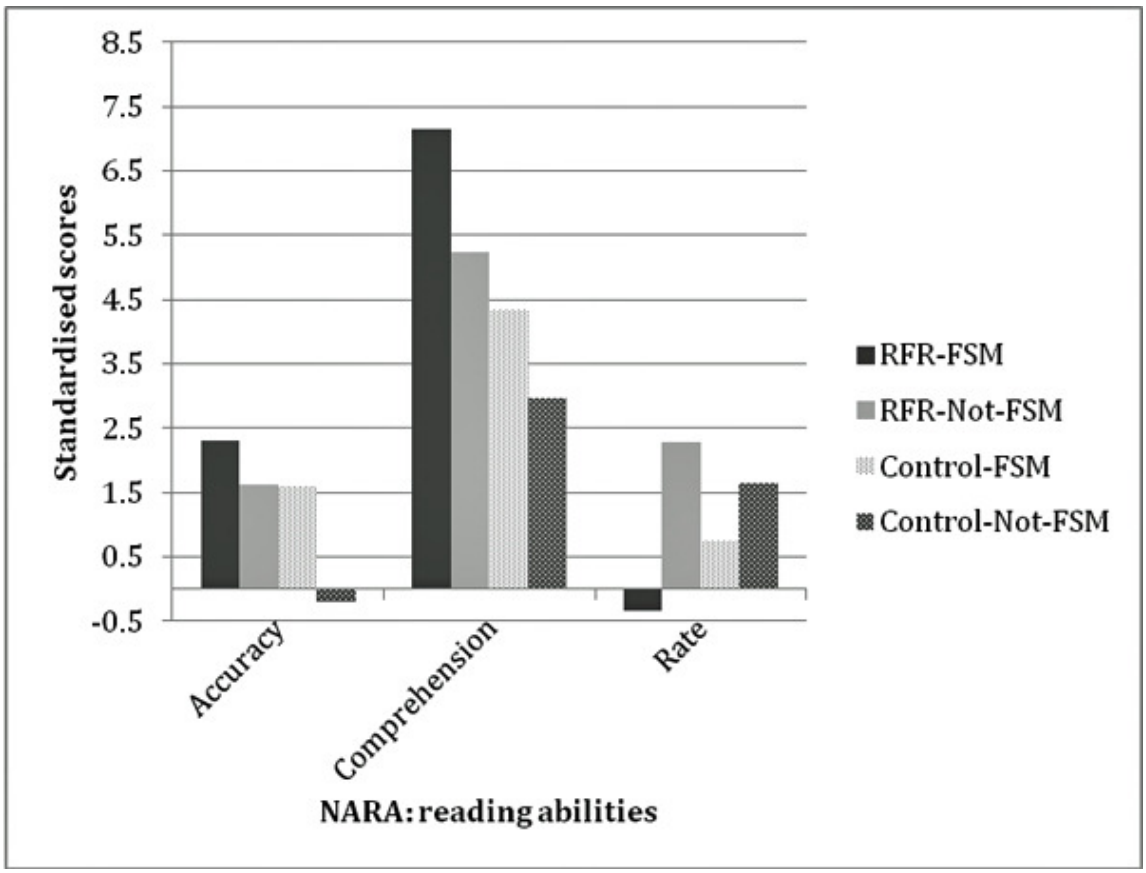


*Figure 2*. Comparing NARA mean change scores for pupils with FSM status: Rhythm for Reading (RFR) group versus controls.

## Discussion

These findings show that statistically significant changes had occurred in pupils' reading of connected text after participation in the Rhythm for Reading programme (ten training sessions of ten minutes).

The analysis revealed that significant gains had occurred in reading accuracy and comprehension for pupils in the Rhythm for Reading group when compared with the control group, which indicated that the intervention had had a beneficial effect. Reading accuracy and comprehension gains were significantly larger for disadvantaged pupils. Disadvantaged pupils from the Rhythm for Reading group made the largest gains in reading comprehension overall.

There was no effect of experimental group on reading rate. Pupils' reading rate tended to either increase or decrease in relation to their baseline scores due to the difficulty level of passages that they attempted. In general, some pupils read more quickly because their reading accuracy and understanding had improved. However, some read more slowly either because they had become more engaged with the text or because they had encountered unfamiliar words when they progressed onto increasingly difficult passages.

The very broad range in pupils' reading attainment was a feature of the trial. There were no ceiling effects in the data. However, seven pupils (1.9% of the sample) had a reading age of 6.0 years or lower and to a very small extent there was a floor effect. Therefore, the NARA II was an appropriate choice of reading test for this trial The minimal influence of ceiling and floor effects, together with the audited data collection and scoring procedure, suggests that the reliability of the data and the validity of the findings are robust.

It is usual in trials to attribute to some extent the gains in an intervention to the hawthorn effect (sometimes known as a placebo or halo effect), an assumption that simply being selected to take part in a trial is likely to have a beneficial effect of some sort. Related to this point is the implication that the benefits of taking part have been denied to the control group. For this reason, the trial was constructed around the expectation that the control group would receive the intervention at the earliest opportunity. In four of the six schools, pupils readily accepted that random selection was a fair method by which two equal groups could be established for comparison. However, in two schools, pupils were more defensive, believing that they had been unfairly targeted for an intervention that they didn't need. These pupils attended weekly Rhythm for Reading sessions in the literacy support department of their school, which for them carried a stigma and they were uncomfortable in this setting. The location of the programme in the literacy support department is likely to have generated a negative 'halo' effect for approximately one third of the overall sample.

Although these findings, suggest that Rhythm for Reading can help pupils with reading comprehension, they cannot be widely generalized for two reasons. The South London setting featured a distinctive social demographic, so these findings can be reasonably inferred to apply to local authorities with a similar socio-economic and demographic profile. The sample size of this study is not large enough to be representative of the wider UK population of Year 7 pupils with fragile or weak reading attainment. Therefore, any attempt to generalise these findings beyond the parameters of this investigation should be approached with a degree of caution.

To conclude, the findings of the trial indicated that the rhythm-based approach and newly developed resources had improved reading attainment, benefiting pupils' reading comprehension in particular. The gains in standardized scores indicate that pupils made accelerated progress, suggesting that Rhythm for Reading within the contextual parameters of this study is an effective group reading intervention.

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**Notes**

1 ‘ Music and language: reading, rhythm and neural synchrony’ seminar given by Professor Nina Kraus on 7.2.2014 in University of Maryland USA. http://www.nacs.umd.edu/calendar/event.cfm?eventid=3381

2 Eric Crees composed the music according to a brief around musical character, feel, key, tempo and melodies with distinctive peaks aligned within the rhythmic structure.

3 As pupils move up to secondary school, the tail of under-achievement lengthens with the weakest readers reading more than five years below chronological age.

# Closing the classroom and workplace disconnect

Author: Jim Wynn, Chief Education Officer, Promethean

*As anachronistic education systems fail to motivate and prepare young people for work the whole world is staring at staggering levels of youth unemployment. Jim Wynn, Chief Education Officer at Promethean, looks at how embracing technology, adopting more efficient teaching methods and creating a connected classroom can help teachers tackle this problem.*

When it comes to education and society – it's time to wake up and smell the coffee. Whilst there has always been a certain level of disconnect between learning experiences inside the classroom and the world in which young people found themselves outside the classroom, it didn't much matter in the past. Quite simply; because the classroom was designed to prepare those people for a society that the teacher fully understood, and more importantly, helped to build.

Fast forward to today's world and the story is very different… times have changed. What we now see is a society driven by technology and one where education in many respects has been left behind. As teachers, this leaves us with a new set of challenges.

Firstly, we are caught in the middle of political pressures to perform in outdated ways (often by parents as well as politicians). We must also step up to the mark and help students to not just acquire knowledge, but also be capable of applying such knowledge in the 'real' world. Let's not forget accountability either. There is growing pressure to make sure students perform at a certain level, with the added burden of increased administration work, box-ticking exercises and tightening budgets.

Employers are also looking for a different skillset than they were a few years ago. From creative problem solving to effective communication, companies want their future workforce to be equipped with the ability and confidence to not only 'get by', but help advance the organisation, achieve real results and make profits.

## From classroom to workplace

So how can teachers motivate and inspire children to learn in the classroom, whilst also preparing them for the real world of work? Moreover, how do we know if we are being effective at this?

For starters we need to avoid broad brush generalisations and measurements. The rate of youth unemployment is not a reliable indicator of whether a system is failing or effective. Instead we need to analyse the situation and make targeted interventions.

In spite of being a major part of the solution, teachers are attacked from every side and education systems around the world have let us down. The critical success factor in closing the disconnect between what happens inside the classroom and the workplace is to ensure teachers are equipped with the right skills and knowledge.

However, the harsh reality is that professional development as it stands just isn't professional enough – and this is where we have to start.

We need to describe a teacher's competence not as a threat but as part of our professional development journey. As we embark as a fresher or novice into the profession and mature and develop into a competent and expert pedagogue over the years, recognition of where we are in this journey could not be more important. Moreover, if we can see it as professional development and growth rather than a bar above which to perform at (or lose your job) then things will improve.

As such we must find a way of:

1. Measuring where teachers are;
2. Placing them on a professional continuum;
3. Putting things in place to steer them through their profession.

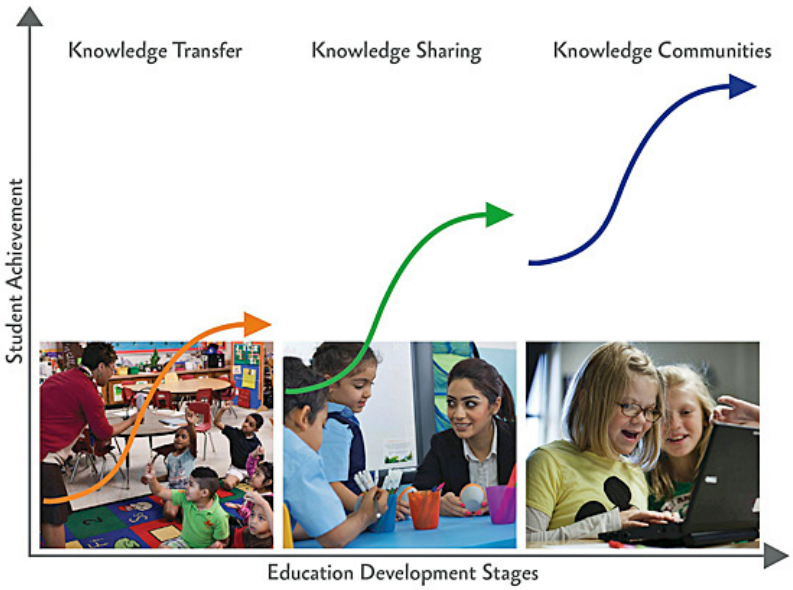
Considering the integral role that technology now plays both inside and outside of the classroom; technology must also be considered at every stage.

## Teaching new tricks

While an individual can't make the shift from a traditional learning culture to the digital world on their own, they can ensure responsibility is taken for their own personal development. Teachers need to be able to embrace change, while remaining enthusiastic about new technologies so we can continue to improve and update our teaching methods.

Don Passey, from the Department of Educational Research at Lancaster University, has researched teachers' personal development in a lot of detail. Rather than simply focusing on content, subject and short-term gains, Passey suggests we need a more sustainable, long-term approach to improve teaching practice and quality.

Passey has come up with a framework, outlining three core classroom approaches:



It's typical for teachers new to the profession to adopt a 'Knowledge Transfer' approach while getting to grips with lesson planning and controlling students. There are limitations to how much students can achieve through this teaching method though. 'Knowledge Sharing' can enrich students' learnings, but again, only to a certain extent. Adopting a 'Knowledge Communities' approach is the most effective way to provide students with a deeper, richer learning experience.

A spokesperson from OECD estimates teachers are in knowledge transfer mode for 75 per cent of time, while knowledge community perhaps only accounts for five per cent of teaching time. Embarking on ongoing personal development and adopting technology, however, can shift this focus and help teachers move towards better learning outcomes for their students.

**Taking on technology**

Technology can help teachers in all areas of our work – it can make more complex ideas and subject matters more accessible, it can help improve students' performance, and it can support young people in making the transition from school to the workplace.

Imagine a typical school day and how technology could be part of it. When a teacher is lesson planning, tools could be used to help create and adjust lessons and deliver interactive content across multiple devices. At the same time, mobile devices – smartphones, laptops, tablets – can be connected to our own equipment to foster student engagement. Using technology can also provide data and insights to enable the monitoring and tracking of students' progress. This information can even be shared with the students themselves to motivate them to take ownership of their learning outcomes.

Being connected, the students can collaborate and learn from their peers, other teachers and experts – not only those who are in the same classroom or school as them, but from anywhere around the world. Technology gives us the opportunity to create an exciting Knowledge Community – and this network can be global, ever-expanding and accessible 24/7.

**Protecting our future**

There is a really exciting opportunity for teachers to help transform the education system, to reshape it for the digital generation. But while we can take positive steps towards changing our learning culture through our own personal development, it's not a journey we can take on our own. Support should be provided from our peers, managers and leaders, and collectively all parties need to recognise the value of collaborative, community-based learning that is fuelled by technology.

Children and young people don't need to embrace technology. They were born with it. It's now such an integral part of their lives, they don't even think about it. If we don't find a way to advance our education system and move it into the digital world, we will find ourselves failing the next generation of workers.

By using technology to help improve the quality and effectiveness of teaching, we will help our students be better prepared for the real world. This, in turn, will help societies become more secure and nations more prosperous – ultimately closing the current disconnect between what happens inside the classroom and the realities that exist in the workplace world.

To learn more visit:

www.PrometheanWorld.com

www.PrometheanPlanet.com/EFF

www.twitter.com/effdebate

https://www.facebook.com/EducationFastForward

## Who is Jim Wynn

Jim Wynn, Chief Education Officer, Promethean, is a mathematics teachers and founding member of Education Fast Forward (EFF), a forum which brings together leading global experts and change agents from the world of education to discuss the topics that matter most. The forum addresses the key challenges facing governments, educators and employers both now and in the future, and aims to find practical resolutions.

The next EFF debate (#EFF10) will take place on Wednesday 25th June 2014 as part of the launch of the results from the OECD's international survey, TALIS. The survey focuses on the learning environment and the working conditions of teachers in schools and addresses questions such as how well are teachers prepared today to face the diverse challenges in schools? Guest presenters are the OECD's Andreas Schleicher and international education expert Michael Fullan.

Leading the Education Strategy team at Promethean, Jim undertakes studies and independent research with leading educational organisations and institutions to help governments, local authorities, schools and teachers to better understand the challenges and potentials surrounding teaching and learning technologies today. This includes a series of 'Thinking Deeper' white papers on topics such as teacher professional development and the effects of technology on student achievement.

# Book Reviews

Author: Dr Christina Preston

*Dr Christina Preston, Founder of the MirandaNet Fellowship and Professor of Educational Innovation, University of Bedfordshire reviews some recent books.*

These reviews were first published on the MirandaNet website at
http://www.mirandanet.ac.uk/researchexchange/publications/book-reviews/

## A Call to Action Teaching with Technologies: the Essential Guide

## Professor Marilyn Leask and Dr Sarah Younie, Routledge

Between them over the last three decades, authors, Leask and Younie, have held posts in schools, universities, national agencies and local government in England as teachers, senior managers, teacher educators, government project managers and researchers. As a result they bring a variety of perspectives to the subject of teaching with technology. Based on the broad knowledge and experience they have accumulated, they identify and record the essentials of theory, practice and research that an educator will require to practice well in the networked and personalised age that is now emerging in the twenty first century.

The two chapters on the history of government policy and implementation provide the background, the rationale and research findings behind: the provision of computers and training in the 1980s and early 1990s; the impetus to develop internet for schools in the mid and late 1990s that prepared for a step change in provision; and, the £5 billion pound programme implemented by New Labour, 1997-2010, to use technology to boost student achievement.

The story Leask and Younie tell resonates with their understanding of the complexities of the educational landscape and the ecologies of change. In this context they observe that politicians can rarely share the same longitudinal and balanced view as professionals because their objectives are short term. The main casualty of this situation has been inadequate attention paid in national programmes to the potential for influencing innovative pedagogies and new working practices of teachers over a long period of time.

The coverage of the main issues in the contemporary context in chapters three to seven is comprehensive of the range of context in which educators work. The authors explore practices in terms of interactive whiteboards and games-based learning along with reflections on whole school development and professional development. Generic tables of theories and research about learning and a series of audit tools will be valuable for practitioners at any phase of education and any level of management.

In the last two chapters about futures Leask and Younie tackle the ways in which schools can expect to change as the personalisation agenda takes hold and professionals create communities of practice, often online, where they build, share

and advance knowledge. However the authors cite the OECD's current concerns that international education systems are neither 'knowledge rich' nor 'evidence based' despite the fact that technology offers a solution to this problem.

The solution offered by Leask and Younie promotes new ways for professionals to work collaboratively online to create a wikipedia of essential professional practice. In 2010, the UK Coalition government stopped maintaining all the websites of research and practice on the grounds of cost so ironically this traditional book is a major resource for those looking for academic references, government reports, case studies and websites that evidence
what has been done in the last thirty years. The authors also issue a call to those education professionals who want to contribute to an innovative Wikipedia-style resource that is funded by subscriptions from international charities and universities. This crowd-funding principle ensures that the valuable theory, practice and research evidence cannot be taken down by any one government that has an ideological objection to professional teachers using their evidence to influence policy and practice. This vision is eminently achievable and fifty research pathways are already being developed by teachers.(www.meshguides.org).

So Leask and Younie are right. Their book provides an essential guide to: the history, research and practice behind the implementation of computers and networks in schools since the 1980s as well as the underpinning theories. The reader learns what has been learnt from the research into these early practices and how educators can take charge of their professional agenda in the future. It's a stimulating the provocative read for any educators who has an interest in using technologies effectively in teaching with a strong thread of common sense and a credible vision for the future.

## Narrative Ecologies: Teachers as Pedagogical Toolmakers Keith Turvey, Routledge

Books are an excellent technology to use on trains and buses where wifi and seats are intermittent. So for the last thirty years I have reviewed erudite books and journal papers about digital technologies on my journeys from home to London and back. In all that time I have never become so absorbed in an academic treatise that I have missed my bus stop, until now.

Keith Turvey's book is timely in a political context when teacher training is being moved from universities to schools and when high stakes testing and a competitive economy between schools is impacting on the kinds of programmes that teachers now follow. His concern is a reduction in promoting the links between theory and practice in preference for practice in isolation.

In his opening chapters Keith comments on a general but slow transition from technology centric to teacher centric programmes in developed countries. But he is critical of policy makers who promote the use of technology with very little understanding of the complexities involved in effective training. His comprehensive policy and academic references will be valuable to those studying in this field.

His key emphasis is about the use of online communication tools as Virtual Learning Environments or Learning Platforms. In this context he tells the story of five student teachers' complex socio-cultural and autobiographical ecologies as they incorporate technologies into their professional practice. Quoting their online comments as they grapple with the technology, combined with interview data, preserves a teacher-centred perspective on the value of online learning for them and for their students. I found the five teachers' reactions to using digital technologies in their classrooms absorbing as their attitudes developed in their online utterances. Into these student teachers' narratives Keith also weaves his own story about his own 'bottom-up' approach to research in education. This story highlights still further the complex fabric of interactions between learner and learner and teacher and learner.

A unique Narrative Ecology model is used as an analytical tool to pinpoint the differences and the similarities in each student teacher's practice. One interesting factor that emerges is that an array of personal prior experience and tacit knowledge has a deep influence on how much change training can effect. For example, teachers who demonstrated a largely authoritarian approach in the classroom tended to retain this relationship with pupils online: teachers who sought out a more democratic approach set up situations online that gave the students more freedom in response. For example, one teacher acknowledges and appreciates the influence on language of the learners' wider uses of technology in social and leisure contexts. Other teachers felt uncomfortable with this and sought to impose more formal language in an online learning setting in school regardless of how they communicate in other web spaces.

What Keith has contributed to the teacher education canon is a design for a methodological and pedagogical approach to teachers' learning that will inspire teacher educators to observe more closely the individual student's pedagogical activity within a complex technical and socio-cultural ecology. Sharing these observations will improve not only the student's understanding of learning complexity, but the teacher's understanding as well.

At £85 you may need to ask your library to buy it – but take care when you borrow it that you do not sail past your bus stop too.

## The ultimate guide to using ICT across the curriculum
## Jon Audain, Bloomsbury

Jon has packed into this book a wealth of exciting and creative ideas that will enthuse teachers and pupils alike. His easy style makes the book very readable. The publication is timely and teachers who use it will feel well prepared to plan and execute some motivating lessons using ICT.

The coverage of the full curriculum is exemplary with a outstanding suggestions for music which is Jon's specialist subject. The grading of tasks for teachers who are nervous beginners, enthusiatic learners or experts works well as do the icons throughout the book denoting creative projects, mobile technologies and for the ICT coordinator. Plenty of signposts for every kind of professional who is using ICT.

In the section on teaching Computing as  subject, the section on computer programming, outlines the requirements in language that is easy to understand and

will allay many teachers concerns about their lack of training.It is also pleasing that he has balanced these technical concerns with an insightful chapter about teaching Digital Citizenship and E-Safety.

The book stands out as a handbook for general classroom use because of the careful thought Jon has given to reaching school staff where teachers have many different levels of training and confidence in this field.

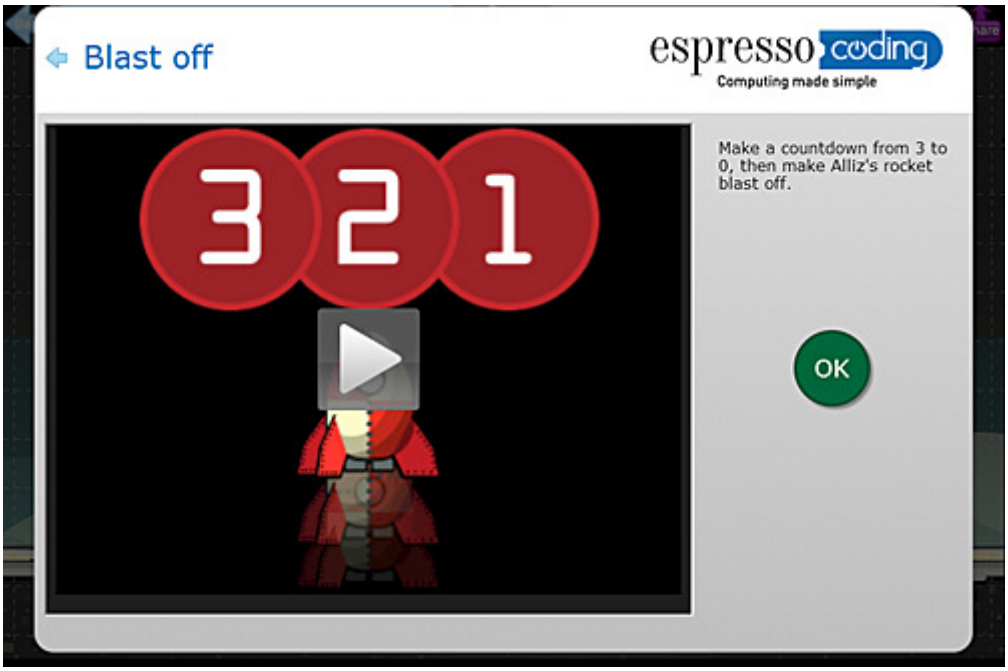
I tried to find something the author has left out in this comprehensive but in his hints and tips for ICT coordinators he even remembers to suggest a kettle lead amongst the list of cables every school should have in a box – typical of the practitioner commonsense he bring to this subject.

*Dr Christina Preston can be contacted at christina@mirandanet.ac.uk*

# Campsbourne School chooses Espresso Coding to meet the demands of the new computing curriculum

Author: Espresso Education

*Campsbourne School in Hornsey, north London, is using Espresso Coding, a resource for primary teachers designed to help them meet the demands of the new national curriculum – specifically coding. Whether you're a coding novice or a coding 'ninja' Espresso Coding has been designed to help teachers deliver the new coding objectives of the updated Computing curriculum for Years 1 to 6. June Isik, ICT leader at the school discusses the roll out of Espresso Coding and how it helped teachers, with little to no experience in writing computer programs and to teach coding to their pupils.*




## About Campsbourne School

Campsbourne School is a 2 form entry school with 415 pupils ranging in age from nursery to 11. The school has a variety of classrooms, resource spaces, a library and a new Information and Communication Technology suite.

## The issues

The subject of ICT is being replaced by Computing in the English Curriculum and will need to be taught from September 2014. While aspects of ICT will continue, the Computing programme of study places a large emphasis on teaching Key Stage 1 and 2 pupils how to code. June Isik, who has been the school's ICT leader since 2012 said, "*We needed a resource that teachers with little or no experience in computing could use to master the subject. In fact 99% percent of the teachers were*

*very anxious and worried by computing and coding because they didn't have the required skills or subject knowledge to teach it properly."*

"*With the new computing curriculum, there is a lot of new language - for example the word 'algorithm' can be quite frightening to teachers who don't understand that it is merely a series of instructions."* Espresso Coding builds pupil's confidence to code by taking elements like algorithms and distilling them into friendly, simple scenarios.

One of the observations that June makes was that coding as a topic can be viewed as dry, so it was important that the school chose a resource that presented coding in a dynamic, colourful and exciting way. Pupils take their lead from their teacher, so it was essential that staff were enthusiastic about coding and conveyed that excitement to the pupils. For those teachers and students who want to stretch themselves, Espresso Coding provides an opportunity to see, use and understand elements of JavaScript code.

## Implementation

Campsbourne chose Espresso Coding because it has an extended free period of access until October 2014 and teachers had the opportunity to evaluate it before it became a paid subscription. The school signed up in November 2013, initially June introduced Espresso Coding to their Year 5 classes in order to evaluate how it worked. More recently the rest of the school has started to use it.

## Benefits

Commenting on the service, June said, *"Espresso Coding is really well structured and you can see a clear and methodological progression. There is a step-by-step video at the beginning of each section that takes teachers through the topic and lesson plan - brilliant for reducing anxiety levels and building confidence. Coding is all about sequential and logical thinking"*.

*"Many schools in the surrounding area are using Scratch from MIT or Kodu Game Lab for Key Stage 2 which are available as free downloads. However, the problem with these resources is that there is no clear progression - teachers need to hunt around to find lesson plans and other supporting material if they are to use them effectively. Espresso Coding is the 'full package', providing staff with everything they need to teach coding successfully."* The full services provides teachers with a comprehensive scheme of work linked to the 2014 Curriculum along with over 70 lesson plans and other teacher resources.

Step-by-step progression through the topic is also extremely helpful to pupils, who guided by video, can work at their own pace and make their way through the resource. Pupils can publish their finished apps to a bespoke schools website and share them with friends and family.

Commenting on the uptake of Espresso Coding by pupils June said, *"In the last lesson of each unit (there are six available as well as 5 starter units) pupils can create a game or app - an activity they love! Many enjoy using Espresso Coding so much that they have been accessing it at home and saving and sharing the apps that they create on the site. We don't set homework for coding at Campsbourne so it is refreshing to see pupils taking learning outside the classroom."*

## Significance

Concluding, June said, "*One of the most significant benefits of Espresso Coding is that it appeals to all three types of learners - audible, visual and kinaesthetic – so helping to create a level playing field."*

Espresso Coding builds pupil's confidence to code by taking elements like algorithms and distilling them into friendly, simple scenarios.

*For further information please visit [www.espressocoding.co.uk](http://www.espressocoding.co.uk)*

# The Rise of Interactive Projectors

Author: Epson

*Finger-touch interactivity, mobile device integration and ultra-short-throw projection are fuelling an unstoppable trend.*

It may have become more interactive, but life in the classroom is never static. For the past decade interactive whiteboards have been installed in classrooms and helped a generation of students learn via advanced teaching methods unheard of a decade earlier, but the demand for the integration of mobile devices and for new kinds of content is creating a thirst for a new, more versatile hands-on technology fit for the progressive classrooms of the 21st century.

At the vanguard of that change is the ultra-short-throw interactive projector. Enhanced by ultra-short-throw technology as well as by brighter, more efficient 3LCD optical engines, it's a shift that's being driven by Epson, which already has a 76% share of the ultra-short-throw interactive brand share in Europe and the Middle East[1]. As the market leader with a long heritage in the education sector, Epson believes its responsibility is to tirelessly innovate to improve a generation of classrooms. Epson's new range of ultra-short-throw education projectors unveiled at BETT 2014 does just that, ushering-in a new era of interactive projection with some exciting new features that strive to allow for more versatile teaching methods.

## Pen problem is no more: Finger-touch

An exciting innovation in Epson's latest flagship product, finger-touch technology means that there is never the need to hunt for a replacement pen. Finger-touch is available on Epson's EB-595Wi flagship ultra-short-throw interactive projector, which will go on sale in April 2014.

Perhaps the most exciting technology development recently for both educators and students, finger-touch changes everything by allowing teachers and students to draw, annotate or write using just their finger. With no pen needed, it's one thing less to lose.

Finger-touch brings some magic to the classroom, but interactivity on Epson's new EB-5 Series is no novelty; annotations and drawings made by either finger or pen (interactive pens will continue to be options for those who prefer them) can be saved as image files for later inspection. Any interactive work can therefore form part of students' notes and records.

There are other advantages to interactive projectors that are allowing them to quickly overtake interactive whiteboards in modern teaching environments. Perhaps most crucial of all is a reduced cost of ownership, and a projector's ability to display and integrate a wide range of content, with video playback and moderator functions through compatible software, just some of a number of a core advantages.

## Out of the shadows: ultra short-throw projection

High brightness for all interactive projectors is a given, but Epson's new EB-5 Series also sees the widespread use of the ultra-short-throw concept. Able to project large

images from a very short distance with minimised shadows and glare, it's the technology that's making possible the new trend to interactive projectors. Well established, ultra-short throw interactive projectors are perfect for classrooms and are being used throughout both emerging and mature markets.

As well as brightness and an ultra-short-throw image, this new generation of interactive projectors is about some great new device integration software that promises to encourage adoption. Epson's new models are great for classrooms that want effortless interactivity yet currently struggle to integrate the plethora of mobile devices in the hands of students. “With many pupils now having their own laptop, tablet or smartphone, it makes sense to have a central interactive display that can help manage students’ shared content within the classroom,” says Hans Dummer, head of Visual Imaging, Epson Europe.

## Trend to interactive projectors: analysts and owners agree

Arguably the biggest advantage interactive projectors have over interactive whiteboards is a reduced cost of ownership. With the interactivity built into the projector - without the need for a separate, expensive interactive whiteboard - cost is reduced, meaning that educators are able to make their money go further. In addition to this, interactive projectors can display a wide-range of content types that can be edited by multiple students and then saved for later use, which makes them ideal for collaborative learning. So it's no wonder that education establishments in emerging markets are increasingly bypassing interactive whiteboards altogether in favour of ultra-short-throw interactive projectors, while in more mature education markets there's now a clear trend to install interactive projectors alongside interactive whiteboards or even to upgrade existing solutions to access a new improved feature set. The existing high penetration of interactive whiteboards is steadily giving way to ultra-short-throw interactive projectors across Europe and the Middle East, and Epson believes this trend is now unstoppable.

Others agree. A report in November 2013 on the Front Projector Market in Europe and the Middle East by FutureSource Consulting highlights this trend, predicting that the market share for ultra-short-throw will more than double by 2017 when it will out-sell standard short-throw models two-to-one. The same report also highlighted that the interactive projector market enjoyed a massive 12% year-on-year growth in the third quarter of 2013, with touch-based interaction gaining traction to reach a 7.4% share of the interactive total.

## Epson's 76% interactive market share

Epson expects these trends to continue, and with a 76% ultra-short-throw interactive market share[2] is in a unique position to lead this shift towards interactive projectors. Epson is also the world’s number one interactive projector manufacturer[3], its products based around its own core 3LCD projector technology – which is up to three times brighter than rival single-chip DLP projectors[4] – first developed in 1989. This has massively important ramifications for the visible quality of not only text and colours, but also for video.
In an age where design and manufacturing are more often than not completely divorced, Epson stands out as one of the few companies that embraces design and manufacturing as nothing less than an art form, and where a long heritage in the education market informs its products.

Epson is at the forefront of some exciting new technology that culminates in mobile device integration and Epson's pen-free finger-touch interactivity. All of this will help educational institutions take advantage of – and accelerate – the unstoppable trend to interactive projectors.

# What is Epson finger-touch?

By introducing intuitive controls into classrooms, finger-touch makes collaborative learning simple.

Finger-touch is the latest innovation in interactive projection for classrooms that means anyone can interact with a presentation, without an interactive pen. Teachers and students need use only a finger to annotate, underline or write onto any image, slide, graph – and even video. Finger-touch interactivity can be used to enlarge or reduce, rotate, and move around diagrams and objects on screen. As useful for classrooms as for small groups and during one-to-one learning, finger-touch makes collaborative learning and peer assessment simple.

## Why is finger-touch great for classrooms?

Finger-touch is all about instant interactivity using natural gestures, and with no learning curve. Teachers will find finger-touch incredibly useful for quickly emphasising a point or providing additional notes during class, crucially without having to find an interactive pen first. Instead of first finding a pen before contributing to class, students can head straight to the projected image.

## Does finger-touch require any accessories?

No – just fingers. There's no need for any external equipment, accessories or gadgets, so with finger-touch there's nothing to break, and nothing to lose.

## Can finger-touch work with several students at once?

Yes – because the EB-595Wi has up to six points of finger-touch, it is great for collaboration between teachers and students, or between groups of students.

## How does finger-touch work?

Finger-touch works by shining a infrared curtain over the projected image. When the curtain is broken by one or more fingers, it enables the projector to calculate the exact point that a user is touching, annotating the image accordingly. It's precise technology that's simple to set-up and easy to use.

## Can I use finger-touch and pens together?

Epson's lighter, more responsive interactive pens for 2014 can be used alongside finger-touch, allowing teachers and students to swap between pen and finger as they wish. The new interactive pens, which use a 'hover' function that accurately detects the position of the pen when it's not in contact with the projection surface, will be favoured by some teachers and students for long periods of writing. However,

classrooms using finger-touch no longer suffer delays caused by a lost interactive pen.

## Can finger-touch creations be saved?

Yes – any annotations made by teachers and/or students can be saved as image files for viewing later. By having a permanent record of their hands-on interactions in class, students can retrospectively view their work while teachers can more easily monitor their contributions in class.

## Which Epson projectors have finger-touch?

Finger-touch debuts on Epson's EB-595Wi, which is announced here at BETT 2014 and available from April 2014. A uniquely flexible and versatile WXGA resolution projector, the EB-595Wi uses 3LCD technology for superb white and colour brightness, while its ultra-short-throw design minimises shadows and glare. Equipped with the latest version of Epson's Easy Interactive Tools software, the EB-595Wi boasts the ultimate combination of both dual interactive pens and finger-touch interactivity. Complete with optional Wi-Fi to show content easily from a range of smart devices using Epson's iProjection app, the finger-touch friendly EB-595Wi is the most advanced interactive teaching solution yet.

*For further information go to the Epson website*

## References

1 Futuresource Consulting, EMEA Quarterly Market Track, November 2013
2 Futuresource Consulting, EMEA Quarterly Market Track, November 2013
3 Source: Futuresource Consulting Limited, www.futuresource-consulting.com
4 Compared to leading 1-chip DLP business and education projectors based on NPD data, July 2011 through June 2012. Colour Brightness (Colour Light Output) measured in accordance with IDMS 15.4. Colour Brightness will vary depending on usage conditions. For more information please visit www.epson.eu/CLO

**Published by Naace.**

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