

# Advancing Education

*Autumn 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.*

# Advancing Education

## Autumn 2014 Edition

Welcome to the Autumn 2014 issue of Advancing Education in which concerns are raised over the implementation of the new curriculum, good practice highlighted and new technologies introduced. Adrian Mee asks whether a new digital divide is being created while Christian Smith reports on the impact of a summer week of coding in a primary school. Elsewhere regular contributor Bob Harrison considers the challenges facing teachers this year while Christina Preston reports on recent MOOC innovation and also on the impact of digital home-school links. Returning to the theme of challenges Jon Silvera explains why schools and business should work more closely together to ensure that the new curriculum is a success.

We also have our usual sponsoring partner contributions. RM Ltd offer advice on successful use of ICT across the school, Makewaves demonstrate effective use of their social learning platform and Texthelp provide an example of improved student independence, self esteem and engagement. All reminders that though ICT the subject may be comatose ICT the tool for learning is alive and well and supporting school and pupil progress. Long may it be so.

## Contents

1. [Editorial Ramblings](#)
2. [Computing for all or a new digital divide?](#)
3. [Fossdene Primary and Strictly Education gets into gear for the new curriculum with a Summer week of coding](#)
4. [A busy year ahead for ICT teachers?](#)
5. [Zu3D in the Early Years](#)
6. [The relationship between parental engagement, digital home-school links and pupil achievement](#)
7. [Innovations in MOOCs](#)
8. [Why stronger school-business links are integral to the delivery of the computing curriculum](#)
9. [8 steps to really successful ICT](#)
10. [Makewaves at Monk's Walk School](#)
11. [Having a positive impact on student independence – textHelp's Read&Write Gold at The Priory School](#)

# Editorial Ramblings



*In which your editor explores concerns over implementation of the new curriculum.*

So, another school year is underway with all teachers up to speed with the new Computing requirements, all fully trained and the new programme of study bedding in nicely with few if any teething problems. Back in the real world . . .?

If only it were that simple. Of course the Computing curriculum brings many challenges that will take time to work through, with much depending on the previous history of ICT in a school, the expertise of teachers and whether the school is primary or secondary phase. In practice just how much will change and will it be for the better?

For example, a recent local news report highlighted how a junior school was enthusiastically tackling coding. Teachers waxed lyrical about the excitement and challenge, happily using terms such as algorithm but the reality, for a cynical old Naace member at least, was rather different. In the news item a Year 3 class happily programmed BeeBots and the BeeBot app – fair enough if the children had not used these in KS1 but challenging enough for Year 3 children with prior experience? Not only that but the class were not doing anything that was not in the previous and much derided programme of study for Year 2. However, this was only a snapshot - a 2 minute news item so in reality no judgement can be made. And of course there is no way of knowing how this particular school had planned for Computing throughout the school.

However, as Christian Smith's article demonstrates, with a switched on school leadership and good support children and teachers can get to grips with coding and computer science in exciting and meaningful ways. What a pity this level of engagement and access to support is not more widely available rather than schools stumbling along on their own. However, as Edsger Dijkstra (Dutch computer scientist, died 2002) noted, "*Computer science is no more about computers than astronomy is about telescopes*". In other words Computer Science, coding et al are merely tools that let us see the wonders of the technology; they are not the be all and end all, just something that lets us develop and understanding of cyber world.

While primary schools will evolve their curriculum responses over time the initial evidence suggests that all is not well in secondary schools. A cursory glance over the TES ICT & Computing forum suggests that some schools at

least are relegating Computing to be part a KS3 Technology subject circus rather than teaching it in depth throughout the key stage. Others are making Computer Science a limited option at KS4. This anecdotal evidence is confirmed by Adrian Mee's research where he finds that, "In around 16% of schools it was reported that, *"Over 80%" of pupils would receive no lessons in Computing or ICT at KS4 and in a further 32% the proportion receiving no subject specific lessons would be "between 61 and 80%". Further, "... what is apparent is that a very significant number of pupils at key stage 4 will be in schools where they receive little or no specialist teaching in relation to the Computing PoS."*

Should the alarm bells be ringing at this early stage? Possibly. Adrian Mee indicates a number of reported factors relating to staffing and management attitudes to and perceptions of the subject that will be familiar to all of us. Yet Computing is a compulsory subject, as it should be regardless of whether we agree with the current content of the PoS or not, and thus an entitlement for all pupils, though it would appear that many will miss out.

One factor related to KS4 that was aired frequently at exam board consultation related to the level of mathematical ability required to do well at GCSE (and beyond). Perhaps Dijkstra was right that, *"Programming is one of the most difficult branches of applied mathematics; the poorer mathematicians had better remain pure mathematicians"*. If so there is something of a problem. Maths standards need to rise but there are insufficient top quality Maths teachers to make this happen. At the same time there are too few well qualified Computer Studies teachers to teach CS effectively to more than a small part of the KS4 cohort. And what of schools struggling to employ both Maths and CS teachers – the risk of failure and the wrath of OFSTED will be too great for most management teams who will play safe and ensure that only those few students likely to obtain a good grade get anywhere near a CS GCSE course.

Less than a term into the brave new world it is too early to predict success or failure but the runes do not fall well. Good primary schools will continue to evolve and develop Computing and the use of ICT in the wider curriculum assuming that the novelty does not wear off and they cope with the upper KS2 expectations better than was the case with the ICT Programme of Study. Secondary schools are a different matter. Decisions made for this academic year on curriculum structures and associated staffing often tend to become entrenched, making future change difficult. Academies of course (i.e. most secondary schools now) are not bound by the National Curriculum anyway, which adds to the danger of Computing becoming a fringe subject. I hope I am wrong.

Perhaps though we are still making too much of the technical aspects of Computing so consider this from US writer Daniel Pink, *"The last few decades have belonged to a certain kind of person with a certain kind of mind - computer programmers who could crank code, lawyers who could craft contracts, MBAs who could crunch numbers. But the keys to the kingdom are changing hands. The future belongs to a very different kind of person with a*

*very different kind of mind - creators and empathizers, pattern recognizers and meaning makers. These people-artists, inventors, designers, storytellers, caregivers, consolers, big picture thinkers--will now reap society's richest rewards and share its greatest joys."*

Which brings me to this issue of Advancing Education. I have already mentioned the papers by Adrian Mee and Christian Smith above – they make an excellent read. Elsewhere regular contributor Bob Harrison considers the challenges facing teachers this year while Christina Preston reports on recent MOOC innovation and invites members to join in. Returning to the theme of challenges Jon Silvera explains why schools and business should work more closely together to ensure that the new curriculum is a success.

We also have our usual sponsoring partner contributions. RM Ltd offer advice on successful use of ICT across the school, Makewaves demonstrate effective use of their social learning platform and Texthelp provide an example of improved student independence, self esteem and engagement. All reminders that though ICT the subject may be comatose ICT the tool for learning is alive and well and supporting school and pupil progress. Long may it be so.

And so to my final observation for this issue's Editorial Ramblings, a quote from Nicholas Negroponte, ***"Computing is not about computers any more. It is about living."***

Paul Heinrich  
Editor

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***All opinions expressed in this editorial are those of the author and do not necessarily reflect Naace policy.***

# Computing for all or a new digital divide?

**Author: Adrian Mee, Subject Leader Computing PGCE, Institute of Education**

## **Summary**

*Given the broad acceptance of the importance of digital technologies in all aspects of our lives it is difficult to see how a school which does not systematically develop all pupils' digital capabilities throughout their time in school could claim a curriculum which is either broad or balanced. Whilst a minority of schools are offering curriculum exposure to digital technologies which run through the key stages others have seen the move from ICT to Computing as suggesting a 'down grading' and are compressing the subject at key stage 3 and losing it altogether for the majority of pupils at key stage 4. Despite this the curriculum reform process has made progress in increasing the number of schools offering Computer Science and the number of pupils taking it and this is undeniably a positive step forwards for those choosing to specialize in the technical aspects of digital technologies.*

*"The Internet is the largest experiment involving anarchy in history. Hundreds of millions of people are, each minute, creating and consuming an untold amount of digital content in an on-line world that is not truly bound by terrestrial laws. This new capacity for free expression and free movement of information has generated the rich virtual landscape we know today." "It is a source for tremendous good and potentially dreadful evil, and we're only just beginning to witness its impact on the world stage."*

*The new digital age: reshaping the future of people, nations and business. Eric Schmidt 2013*

## **Introduction**

The complex digital environment with its challenges and opportunities outlined in the quote above gives us a degree of insight into the world for which young people must be prepared. Schmidt's book provides a broad and forward looking analysis of the implications of emerging digital technologies on ourselves as individuals, as citizens and on the way politics, economics and society may work in 'The new digital age'. If the reader takes anything away from Schmidt's work it is that the notion of 'understanding how technology works' requires a richer interpretation than simply addressing how hardware and software functions in a technical sense. The importance and breadth of impact of digital technologies on society is expanded and explored in more detail by Castells (2010).

As our schools are key institutions charged with preparing young people for the world they will encounter it is timely to ask how well our school curriculum

might meet this digital challenge after a period of rapid and radical curriculum reform and in particular how schools are responding to the challenge of reimagining ICT as Computing.

This article explores emerging evidence on how schools are responding to the change from ICT to Computing and how this may impact on pupil's capacity to thrive in the digital world. It draws on a range of evidence including a preliminary analysis of a survey of over 150 schools who were asked to indicate what kind of opportunities were to be offered to pupils in terms of Computing and what forces they felt were acting to shape the curriculum offer in their school. Whilst it is early days for the Computing curriculum this short piece outlines some emerging issues which might merit further investigation and if necessary a response from those who are concerned to see a curriculum offer which prepares all children for the complex digital world they will live in.

From 1988 onwards the emergence of digital technologies as a powerful force in the social, economic, cultural and political life of the UK led to the inclusion of the new subject of IT and subsequently ICT in the National Curriculum. So important was this area of study seen to be that it was one of few subjects made compulsory for pupils at all stages of their school career. The imperative to develop 'ICT capability' in all pupils led to claims that this aspect of learning ranked alongside literacy and numeracy as a core area of development which was essential to facilitate further learning, to produce a digitally literate workforce, and later, to keep pupils safe in an emerging and complex Web 2.0 environment.

With several revisions the National Curriculum for ICT was framed around the broad notion of 'capability' or the capacity to apply digital technologies and to understand the nature of these technologies and their implications in a range of contexts. Successive versions of the ICT Programmes of Study sought to draw together what all pupils should know, understand and be able to do about and with digital technologies. Given the broad nature of the concept of 'ICT capability' and a rapidly changing digital environment these Programmes of Study eschewed a structure which specified software and largely avoided the mention of specific technologies. Whilst different versions of the IT/ICT PoS were structured differently, always the emphasis was on broader curriculum 'themes' rather than a list of specific skills to be acquired and software to be used. The IT/ICT PoS was structured around broad and enduring themes such as "Finding things out", "Exploring ideas and making things happen" and "Critical evaluation" rather than "Word-processing" or "doing PowerPoint". The rationale for employing broad and almost universally applicable themes were several. Firstly a curriculum PoS must have a reasonable shelf life and general themes such as "Exploring ideas" are unlikely to be made obsolete by any emerging technology or trend. Secondly, the breadth of need in terms of the development of ICT capability was such that a specific list of skills, software and knowledge elements would have been excessively constraining to schools seeking to deliver ICT in a wide range of contexts. Finally, unlike a PoS for chemistry or history, ICT was compulsory and as such needed to be applicable to the needs and interests of

all pupils rather than those who had chosen to specialize in a particular non-compulsory subject or who were studying a none National Curriculum subject such as Economics or Psychology where a greater degree of specialization might be justified. Given the broad and thematic nature of the ICT PoS it is difficult to see how it might legitimately be called “out of date”, “boring” or “damaging”, all judgments offered in the popular and political rhetoric which clouded much of the reform process. Certainly what some pupils encountered in some classrooms studying some courses may have been “boring, out of date and damaging” but it is difficult to see how such problems stemmed from the Programme of Study rather than from particular syllabi, courses and directing pupils to courses which were inappropriate for them. Unfortunately, in popular debate and sometimes in policy circles the difference between the tiers of “the curriculum pyramid” Figure (1) were not well understood.

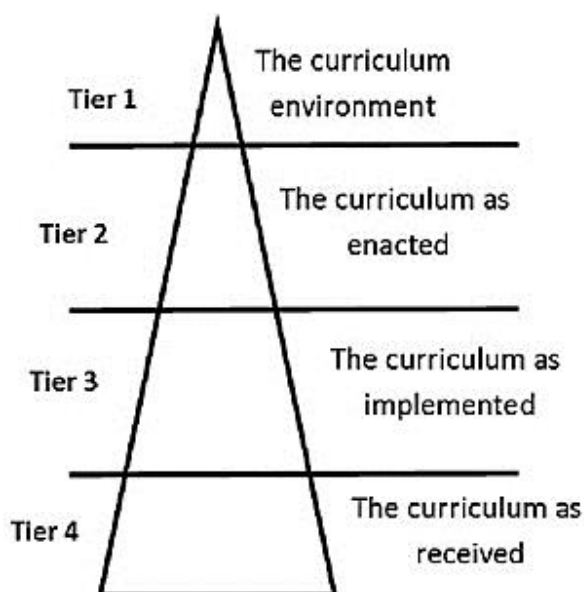


Fig. 1 The Curriculum Pyramid

The ‘Tier 1’ environment has been strongly shaped by the economic and vocational rationale and subsequently became ‘enacted’ in ‘Tier 2’ as a Programme of Study for Computing in legislation. However how these top level decisions will impact on subsequent layers of the production of courses and schemes of work at school level and ultimately how pupils will (or will not) encounter the Computing curriculum in the classroom is open to question.

Whilst ICT as a subject rather than a tool for learning was under-researched there seems to be some evidence that the ongoing policy emphasis and significant funds flowing into schools for digital technologies acted to establish ICT as an important element of learning in the minds of school managers and curriculum planners throughout the 90’s and early 2000’s.

### **What’s in a name?**

The reform process by which ICT has been transformed into Computing appears to have cast the status of the need to learn about digital technologies

into the hazard with some teachers reporting a degree of confusion about what Computing is, how or whether it should be taught and where its place is in the curriculum. Whilst champions of any subject are often passionate about their area of study and its importance the school manager responsible for planning the whole school curriculum and deciding who should be offered what is subject to forces which sometimes present the necessity to sacrifice the important to deal with the urgent. Where “threshold targets” and “league tables” are hot topics there is pressure to focus on key points of leverage in terms of “outputs”.

The change from ICT, often cited as the third strand in the trinity of Literacy, Numeracy and ICT Capability to computing poses a number of questions to curriculum planners who must shape ideals and policies into timetables, options lists and lessons.

Firstly, is Computing “the new ICT”? Should it have the same status afforded to the few other topics in the National Curriculum which are compulsory at all key stages? Is computing a “specialist” subject like psychology or economics which pupils may choose as a minor option? What does this imply for those pupils who do not choose it or, in some cases, are not allowed to choose it?

Secondly, what does Computing look like in the curriculum? Can it be taught like literacy and numeracy as a cross curricular theme or is there a specific body of knowledge which will require specialists to teach it? If pupils do choose a GCSE and find themselves studying the new GCSEs in Computer Science, are they still doing Computing as prescribed by the PoS?

Finally, schools are asking who is Computing or Computer Science for? As a compulsory subject at all key stages this question is already answered in law at Tier 2 but with increasing pressure on timetables schools may choose to interpret this compulsion as liberally as they did with ICT. Further, as Computing and more , specifically Computer Science, has been marketed as “more rigorous” than ICT then might it be wise to limit access to this subject to pupils chosen on the grounds of ability?

Add to this complex conundrum the ‘freeing’ of academies and free schools from the requirement to follow the National Curriculum and we have a sea of uncertainty which will resolve itself slowly and in an ad hoc fashion over several years. It is likely that the diversity of responses from schools will be great with some schools offering comprehensive, well articulated and diverse opportunities to pupils to learn about digital technologies whilst others it will become marginalized and encountered only by a chosen few. It is perhaps worthy of note that this diversity of curriculum quality and breadth was the core rationale for the implementation of a National Curriculum in the first place.

## **Emerging trends**

In seeking to explore emerging trends in the Computing offer in secondary schools we undertook a survey of 162 schools enquiring about the nature and

uptake of the key stage 4 curriculum offer, trends in delivery at key stage 3 and what forces respondents felt were acting to shape the curriculum offer in their schools. Whilst the survey constitutes a pilot for a wider and more detailed study a preliminary analysis of the data suggests some notable trends in relation to the questions posed above.

Around 18% of the sample of schools had not offered a Computing GCSE to any year 10 pupils and a further 50% had enrolled between 1 and 20% of their pupils for such a course. Whilst this is a significant increase in the number of pupils studying the subject and to be celebrated as a degree of success it does suggest that unless there is a large increase in the uptake of the Computing or Computer Science GCSE over the next few years this cannot be the main way in which pupils receive their entitlement to the key stage 4 PoS for Computing. In around 16% of schools it was reported that “Over 80%” of pupils would receive no lessons in Computing or ICT at KS4 and in a further 32% the proportion receiving no subject specific lessons would be “between 61 and 80%”. Whilst all such data is subject to ‘statistical turbulence’ what is apparent is that a very significant number of pupils at key stage 4 will be in schools where they receive little or no specialist teaching in relation to the Computing PoS.

The general picture emerging is one of divergence with a minority of schools offering a strong and diverse digital curriculum including Computing, Computer Science, ICT and a range of other qualifications with an uptake covering almost all of their pupils. In others Computing and learning about digital technologies appears to be regressing to the 1980’s ‘Computer Studies’ model where the GCSE is seen as a specialist subject offered to a small number of pupils sometimes chosen by ability.

Feedback from schools points towards other emerging issues which are acting to impact on the base tier of the curriculum pyramid – ‘the curriculum as received’.

### **Pressure on the key stage 3 offer for computing**

A number of respondents reported a reduction in the time allocated to Computing at key stage 3. In some schools pupils did not receive Computing lessons in all years. In others Computing was being grouped with Design Technology and Food Technology in a carousel arrangement with pupils receiving Computing only for part of the year, reminiscent of the situation in 1988 when IT was placed in the National Curriculum under a ‘Technology’ umbrella. It was felt by some teachers that this reduced focus on Computing in KS3 may reduce pupils desire to study the subject at key stage 4.

### **The status of Computing within the school**

Whilst the subject of Computing has ‘compulsory’ status throughout all key stages many respondents did not feel that this was recognized by school leaders. It was offered that issues of staffing and perceptions of the ‘difficult’

nature of Computing may act to position Computing at key stage 4 as a specialist subject studied by a minority of pupils.

### **Computing for non-specialists**

In schools where attempts were being made to shape a curriculum for pupils not undertaking a GCSE some were seeking to integrate elements of Computing into the wider curriculum with after school activities, assemblies and PSHE lessons including some computing subject matter. Other schools were seeking to offer non-award bearing courses but it was felt by many that allocating curriculum time to lessons which did not contribute the school's performance metric and did not lead to a certificate were not always valued by school leaders or pupils.

### **Problems in perception and choices**

Some respondents reported that moving from GCSE ICT to GCSE Computing had led to considerable reductions in the number of pupils choosing a 'digital option'. In such cases pupils who may have perceived ICT as a well-known and 'doable' option available to all were reluctant to choose a subject they felt was seen as 'difficult' and to a degree unknown.

Certainly it is still early in the reform implementation process but the above trends, if widespread, show a direction of travel which we might consider carefully if we do not wish to see a growing divide in digital skills.

### **The curriculum challenge for schools**

Within the political rhetoric of curriculum reform the notion of 'freedom' was used passionately and often with 'freedom' to develop their own curriculum being offered to schools converting to academy status (now over 50% of secondary schools). With freedom comes responsibility to use it in the interests those schools serve. Whilst pupils are key stakeholders, business interests, community groups and society in general all have a stake in what schools teach and how they teach it.

In considering tiers 3 and 4 of our curriculum pyramid schools might usefully use 'needs' rather than 'compliance' as the foundation of their thinking when constructing a curriculum which prepares pupils for Schmidt's "New digital age". Further it is important to recognize that tier 4, 'the curriculum as received' is more than just the collection of subjects offered to pupils as outlined in the school prospectus. The curriculum needs to be constructed around a vision of curriculum needs. An example mapping of such needs is given in Fig 2. Such a map addresses the first of three fundamental questions school curriculum planners might address.

1. What would we need to teach in order to prepare pupils for a digital society?
2. How do we ensure that all pupils benefit from this curriculum?

- How do we ensure that there is curriculum flexibility to meet the diversity of needs and aspirations of our pupils?

What emerges from such a mapping is that “understanding how technology works” can be interpreted in ways which go beyond the technician model of studying the ‘digital machine’ encompassing the notions of digital citizenship (Mossberger, 2008) and ethics (Jones, 2010).

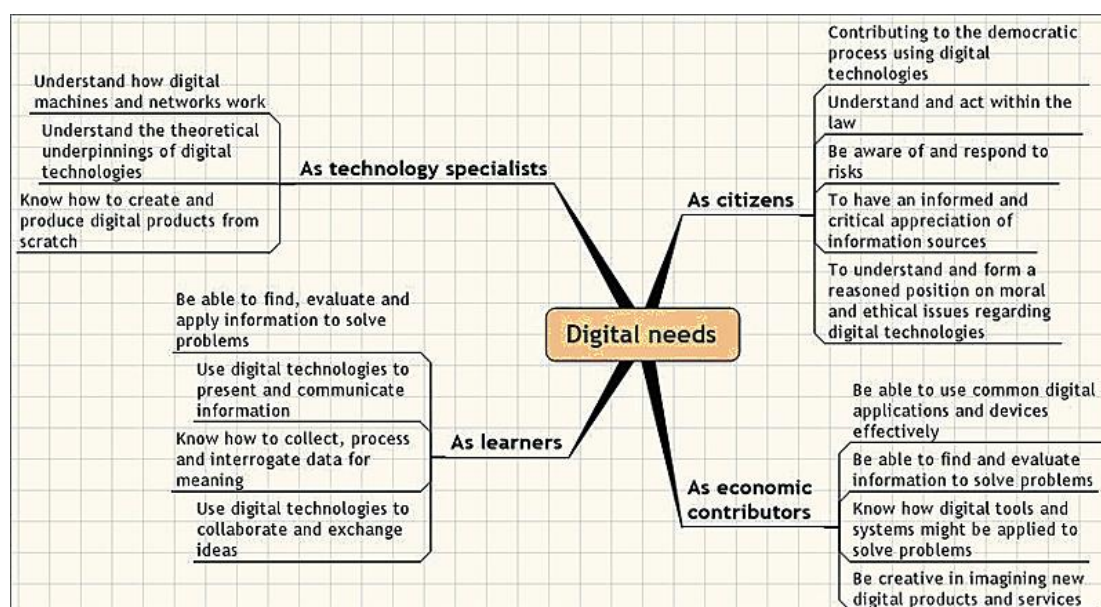


Fig. 2 Mapping digital curriculum needs

## Conclusions

Whether schools are required to teach the National Curriculum or not all are bound to provide a ‘broad and balanced curriculum’. Given the broad acceptance of the importance of digital technologies in all aspects of our lives it is difficult to see how a school which does not systematically develop all pupils’ digital capabilities throughout their time in school could claim a curriculum which is either broad or balanced. The provision of a GCSE in Computer Science, whilst a valuable and necessary addition to the science options of a school does not offer a broad and balanced engagement with digital technologies, especially if it is offered only to a small number of pupils selected by ability.

The earliest curriculum trends suggested by our preliminary research suggests that there are signs of an emerging new manifestation of a ‘digital divide’ within and between schools. Whilst a minority of schools are offering curriculum exposure to digital technologies which run through the key stages others have seen the move from ICT to Computing as signaling a ‘down grading’ of this aspect of the curriculum and are compressing the subject at key stage 3 and losing it altogether for the majority of pupils at key stage 4.

The curriculum reform process has made progress in increasing the number of schools offering Computer Science and the number of pupils taking it and

this is undeniably a positive step forwards for those choosing to specialize in the technical aspects of digital technologies. As a counter balance to these changes the remaining digital needs shown in figure 2 may become increasingly neglected for many pupils.

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# Fossdene Primary and Strictly Education gets into gear for the new Curriculum with a Summer week of Coding

**Author: Christian Smith**

*The coding aspects of the new Computing curriculum need not be complex or difficult. Christian Smith shows how one London school, with help from Strictly Education successfully introduced children and staff to the new requirements.*

Fossdene Primary in the London Borough of Greenwich wanted to enthuse children and teachers with excitement for the possibilities of coding, before the formal start of the new Curriculum in the Autumn term.

The school is equipped with a range of ICT equipment including laptops, desktop PCs and some iPads. A set of Beebots has been well used in KS1. Many teaching staff have good knowledge of the ICT curriculum and are confident in teaching tried and tested units but some are quite new to the coding aspect of the new curriculum.

The ICT Leader Kelly Spinks envisaged the Computing week as presenting an opportunity for every child in the school to benefit from some initial teaching in a short focussed period, giving some profile to Computing. At the same time, she wanted staff to be supported in the delivery, and seeing what is possible, at a busy time of term, with assessments, reports and performances all needing their share of attention.

Strictly Education's Technology & Education consultants planned with Kelly a full-on programme of activity across the school, taking into consideration her wishes as the project evolved, with each year group making the most of



specific resources or particular approaches. Trying different resources with different groups also would give a good indication of what best suits the children in school. Kelly was also clear that she would like the progress of the week to be captured by photos, screenshots and where with some children saving their work for display and celebration.

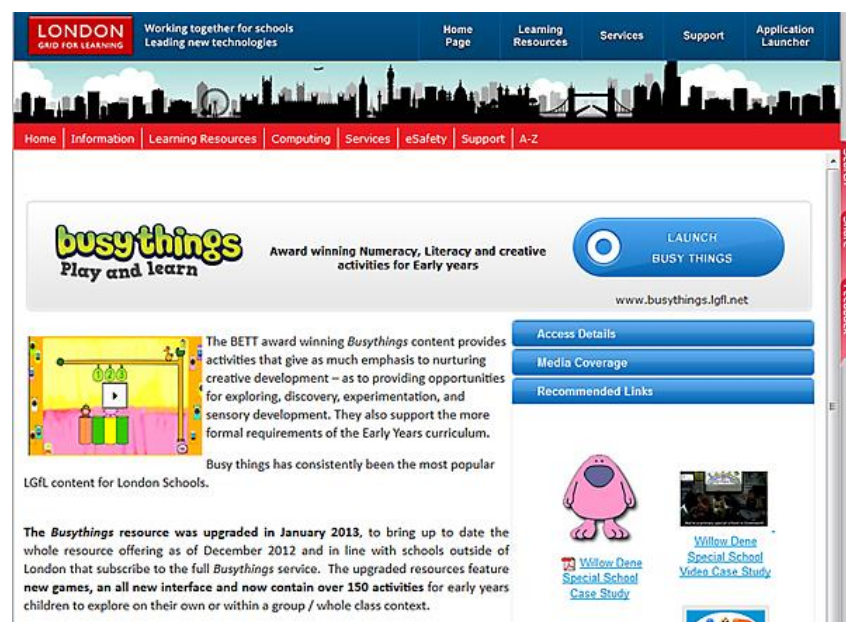
During the week, [Strictly Education](#) Consultant Peter Lillington introduced all sessions and collaborated with class teachers to ensure that the children got the most from the 15 lessons

delivered across the week, in a full 4 day timetable. The content was ambitious but realistic – so that class teachers could continue with some additional follow up for the children after their initial hour. Success included rapid progress through [A.L.E.X.](#) a free coding app on the ipad, where children control the movements of a human robot. Other classes made a thorough exploration of [Hopscotch](#), a delightfully designed app that allows children to create games from cartoon style characters, and the [BeeBotApp](#), where directions in the form of icons control the movement on screen of a digital version of the ever popular BeeBot. On the school laptops, children in Year 5 and 6 were able to code a complete game in [Scratch](#), complete with keyboard controls, incorporating their own individual design touches.



Nursery and Reception explored cause and effect not just with BeeBots out on the floor, but through some on screen fun with [BusyThings](#) (from the LGfL content portal), helping them to develop language usage in context.

Taking stock at the end of the week, it was deemed a great success by all: every child participated, and gained common understanding of sequencing commands, algorithms in action and the need to try things out and problem solve (or debug) when needed – and



many had learnt some new vocabulary – the word ‘algorithm’ a case in point.

Teachers were able, in a straightforward non-threatening way, to have their eyes opened to the rapid grasp of concepts possible (many of which linked directly in to literacy and maths) and were able to see for themselves the enthusiasm shown by the children. Many welcomed the chance to observe their classes and interact with individuals, with an experienced consultant leading the lesson. And those already familiar with this sort of activity were able to refine their thinking and discuss detail relevant to next year’s planning.

Across the school, not just the subject leader, but also the class teachers,

were able to see in action for themselves the range of resources already to hand for the start of the new subject in earnest from September, when the school will be making use of the Switched on Computing, a popular scheme which suggests a wide range of possible resources .

And at the end of the week Kelly was able to see for herself a record of the week – photos of the children in action, screenshots of activities in process, and completed Scratch games files. Feedback from all – the children, the staff and the senior management was positive and enthusiastic.

*For more details, or to organise your own Computing Week, contact Strictly Educations Lead Education Consultant, Christian Smith on 07989 350890 or on [Christian.smith@strictlyeducation.co.uk](mailto:Christian.smith@strictlyeducation.co.uk)*

## **Useful Links**

### **A.L.E.X.**

<https://itunes.apple.com/us/app/a.l.e.x./id597040772?mt=8>

A.L.E.X. is a fun puzzle game and a great way to train your brain. A.L.E.X. helps you think and plan logically as you program your robot A.L.E.X. with a sequence of commands to get through each level from start to finish.

### **Hopscotch**

<http://www.gethopscotch.com/>

Hopscotch is an iPad app that lets kids drag and drop blocks of code to create their own programs. User can make games, stories, animations, interactive art, apps and more as they learn problem solving, critical thinking, and the fundamentals of computer programming.

### **BeeBot App**

<https://itunes.apple.com/gb/app/bee-bot/id500131639?mt=8>

The new Bee-Bot App from TTS Group has been developed based on the well-loved, award-winning Bee-Bot floor robot. The app makes use of Bee-Bot's keypad functionality and enables children to improve their skills in directional language and programming through sequences of forwards, backwards, left and right 90 degree turns.

### **BusyThings (LGfL)**

<http://www.lgfl.net/curriculum-resources/Pages/busy-things.aspx>

The BETT award winning Busythings content provides activities that give as much emphasis to nurturing creative development – as to providing opportunities for exploring, discovery, experimentation, and sensory development. They also support the more formal requirements of the Early

Years curriculum. See more at: <http://www.lgfl.net/curriculum-resources/Pages/busy-things.aspx#sthash.KcH5RhtK.dpuf> .

## **Scratch**

<http://www.scratch.mit.edu/>

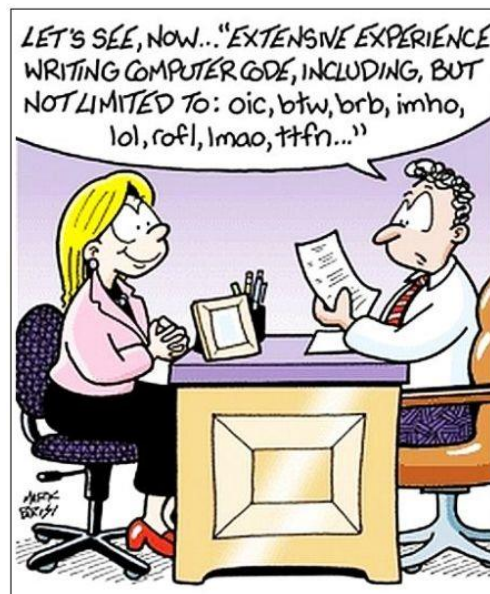
# A busy year ahead for ICT teachers?

**Author: Bob Harrison, Education Adviser, Toshiba Information Systems (UK) Ltd**

*As most ICT teachers log back on, if they ever logged off, they will find that the year ahead will perhaps contain even greater challenges for them than the year just gone.*

*Bob Harrison considers what awaits them.*

Just before the end of last term [NESTA](#) highlighted what many teachers have been saying for a long time that most schools are just not ready to implement the change in the ICT National curriculum to computing with its much greater emphasis on computer science. The [NESTA survey](#) suggested that “more than half of teachers are not confident about teaching the new curriculum”.



Whilst there is a suggestion that there is less confidence amongst teachers in the Primary phase nevertheless the survey does reinforce the widely held view amongst many teachers and industry people that the challenge of such a monumental change has been grossly underestimated. This has been despite the best efforts of the volunteers at [Computing at School](#), the 40 teachers who formed the [DFE Expert Group](#) to create resources, initiatives such as ["Barefoot Computing"](#) and organisations such as [Naace](#). Not to mention the many events and conference companies who have attempted to fill the knowledge gap as long as schools could afford the £250+VAT, travel and the cost of supply cover.

## Teachers getting on with it as usual

Of course teachers are doing what teachers always do and that is getting on with it and making the best of a bad job by helping each other and sharing with each other what works and where resources can be found.

They may draw some comfort from the fact that OFSTED will need some time to adjust to the new curriculum and ensure all their inspectors are up to speed with the new requirements and what evidence of outstanding, good and inadequate might look like.

David Brown HMI has been very active on the conference circuit and has produced some really helpful presentations such as [Inspecting Computing](#),

which he has shared.(see links)

The DfE and the British Computer Society, who were handed multi-million pounds to ensure teachers were prepared and confident to teach the new computing curriculum, were warned several times during last year that not enough was being done to support teachers in preparation for the change.

A new body, the [UK Forum for Computing Education](#), has now been established by the Royal Academy of Engineering to advise government on policy and practice regarding the Computing curriculum and the need for substantially more CPD is high on their agenda. UKForCE Chair Chris Mairs has already stressed the criticality of this issue when giving evidence to a House of Lords enquiry into Digital Skills and provided similar input to the review Maggie Philbin is undertaking for the Labour Party. However given the departure of Gove, Willetts, Truss and Hancock from DfE/BIS it will be interesting to see whether the new Ministerial team of Morgan, Gibb and Boles (and more importantly their SPADS) will be quite so keen as their “tech savvy” predecessors?

*“It is really important that teachers feel capable and confident when teaching the new computing curriculum” said Chris. “I am not sure that government yet grasp the full scale of the challenge and UKForCE are determined to do whatever we can to get teachers the support they need and deserve”.*

### **Further Challenges**

But the change from ICT to computing is not the only challenge ICT teachers will face when their screens reboot this week.

The Head of ICT has traditionally been responsible for the national curriculum subject, procurement and maintenance of kit, relationship management with the technical staff or service provider, internet/online safety issues (incorrectly as this is a Head/Governor responsibility) **and** the use of ICT across the curriculum (Technology Enhanced Learning) in other subjects. This is an enormous responsibility. And now it seems the Government have eventually woken up to the fact that the mantra of “getting Government out of the way” so Heads and Schools can take responsibility for their own decisions might have been appropriate following the top down national strategies of the previous Government. However when it comes to the pace of change with digital technology just “getting out of the way” is starting to look somewhat irresponsible.

### **Education Technology Action Group**

That is why Michael Gove and Matthew Hancock established [ETAG](#), just before they were re-shuffled. They asked Professor Stephen Heppell to chair a group of 25+ “experts” to create some ideas and suggest some actions that Government could take, or some things they could stop doing, which would encourage teachers to innovate in the use of technology so they could improve teaching and learning. Whilst it has yet to be seen whether Morgan,

Boles, Gibb et al will show as much enthusiasm as their predecessors the growing momentum for digital technology to enhance learning for all subjects is gathering pace so teachers will innovate irrespective of Government action or inaction.

An interim ETAG report is sitting on Ministers desks and some reactions are expected soon, especially as there is a General election just around the corner.

### **A bigger job than before?**

So the ICT teachers inbox will be full and yet the pace of technological change will continue.

New kit will emerge, old kit will need to be maintained, new teachers will need support, established teachers will need more support and Head teachers and Governors will need to be kept on their toes to ensure that the children are being prepared to be effective digital citizens and workers.

Children will become more and more “tech savvy” and their digital use will become more complex and their digital expectations of the education system will be raised even higher. Government Ministers come and go. So do civil servants and special advisers. The National Curriculum will have to be revised (lets not leave it too long this time?). BSF and Service provider contracts will end or be renegotiated.

Headteachers will leave and examinations will constantly adapt to the changing needs of industry and HE. The ICT teachers and the Heads of ICT are the bedrock of these changes and will take all this in their stride as teachers always do.

I think they should keep a careful record of the changes they have to cope with this year and use that as evidence for a movement up the TLR scale when it comes round to their annual appraisal.

They will have earned it in my view!

*Bob Harrison can be contacted at [BobharrisonSET@aol.com](mailto:BobharrisonSET@aol.com)*

*This article first appeared in SecEd Digital.*

### **Links**

UK Forum for Computing Education  
<http://ukforce.org.uk>

David Brown HMI “Inspecting Computing”  
<http://www.slideshare.net/Ofstednews/barefoot-conference-computing-and-e-safety-in-schools-jul-11-14>

NAACE

<http://www.naace.co.uk>

Computing at School

<http://www.computingschool.org.uk>

DfE Expert Group Google site and Resources

<https://sites.google.com/site/primaryictitt>

NESTA <http://www.nesta.org.uk/project/digital-education>

The Computing Curriculum explained by Miles Berry

<https://www.youtube.com/watch?v=aKjPDfoG2t0>

More than half teachers not confident in teaching new curriculum

<http://www.agent4change.net/policy/curriculum/2264-more-than-half-teachers-not-confident-in-computing.html>

ETAG

<http://feltag.org.uk/etag>

# Zu3D in the Early Years

**Author: Nerissa Greenwood, Reception teacher, Sellindge Primary School, Kent**

Animation with a Reception class? It's certainly possible and meets several Early Learning Goals as Nerissa Greenwood explains.



I'd seen the animations on the ZU3D website and was inspired to try and let the children create their own. There was a wealth of links to the curriculum that this project allowed and I was able to collect A LOT of evidence and observations.

Before doing the project in class I had a quick attempt myself and it was surprisingly straight forward and easy to grasp. My class were mostly 4 years old and we were going to create very simple animations so I didn't explore the whole of ZU3D, just the basics – I think you could become quite hooked on the different features you can use! I had fun.

My main focus for the animation was story structure. This is what I wanted the children to grasp and thought it would be a fun way particularly as at that age - they don't often want to sit and write stories!

I introduced the idea and had set up a webcam ready on my desk - plugged into the computer with the screen showing on the smart board. Straight away the children were captivated as I pointed the camera at them so they got how it worked. I then very quickly used a teddy and showed them how I captured a shot, moved, captured, moved – I moved the teddy across the desk and then played it back – they LOVED this! They were all very excited and keen to create their own.

Working in teams of three, they were given a large piece of paper and asked to plan their story. They had to show a beginning, middle and an end as well as think about their characters. This was a great opportunity for PSED: listening to others, sharing, initiating ideas etc and also LCT – they needed to communicate their ideas clearly to one another and negotiate and compromise if they didn't like a teammates idea. And naturally it linked to the creative development and storytelling, oh, and if they were writing – writing!

All the children were engaged and spent the whole session discussing, drawing and writing. The children that needed support were the ones who were the 'natural leaders' and took over so it was a great opportunity for a bit of work on social development. With the 'carrot' of filming once they had done a thorough plan it kept them on task and keen to do good job.

Once their plans were complete they were allowed to make their characters using materials in the classroom.

When groups were ready we asked them to think about the setting and what the background should look like – then they got to work on another big piece of paper. I had introduced the idea in the morning and the children had been so keen it carried on all day – the children were given the choice if they wanted to carry on or they could go into child initiated. They all chose to continue. Bonus!

So, the children had a plan, made their characters and completed a background. Without even filming I had observations for; PSED (team work), CD (imagination in stories and art and design, exploring colour and texture, creating work in 2D and 3D forms), LCT (discussing ideas), LSL (phonic knowledge when writing), W (writing captions, sentences, simple and complex words with phonics knowledge), R (story language, story structure and sequence), PD (use of tools, equipment and malleable material, fine motor control), SSM (shape talk when junk modelling, problem solving). I allowed them to direct the way in which they completed the project they just had the end goal – so there were many independent observation and great opportunities to scaffold their learning.

The next day was the day for filming – some children were ready, some needed more time with their characters. This worked well, while I was with a focus group filming the other children were busy and my TA was overseeing them.

I took a group at a time. They were all in groups of 3 so it worked well with one child pressing the capture button, one child moving the characters and the other saying 'click' when the hands were out the way. Of course they needed rotating – they all wanted a turn at everything – particularly the capturing.

Once I had talked through the first few moves with the children they easily picked it up and could manage on their own. They needed to be reminded of small moves and not to take the characters out of shot! The 'cut frame' option was handy as we could easily take out the frames with hands in when the child in charge of the capture button became too eager!

Again I left it to them – I stayed with the groups and I found some just got it straight away and I could leave them to it and some needed step by step help. This depended on confidence really.

It did take a long time but the children were happy. We opened the 'recording studio' up during child initiated and the children chose to film their stories in this time which was great!

The children typed in the titles, speech bubbles (they needed me to set these up in the right place), and credits – another chance for writing and phonic knowledge. They loved playing with the different backgrounds, fonts and the

entrance and exits! The simple features of ZU3D programme meant the children (and I) could understand it easily and quickly. The children chose their backing track and sound effects – the choice from the gallery was great. When we replayed their animations they absolutely loved seeing their characters and their stories come to life – we had shrieks of excitement! I found that after a couple of shots – to show them how their story was looking helped them to grasp the idea – particularly if they moved the characters too far, or left their hands in shot.

I needed to tweak the animations through editing, making sure the music was in the right place etc, but it didn't take very long.

The children loved watching all the animations and we decided to invite parents in for an animation afternoon – a great opportunity for writing invitations, lists of what we needed etc. The parents came in and with popcorn they watched the children's work, introduced by each child (LCT points obtained here – speaking confidently to an audience!). It was great.

I was surprised at how easily the children understood the way the programme worked and so we set up a studio for child initiated which enabled the children to use what they learnt and make new stories independently, and explore the different aspects of ZU3D. The opportunities here were great and even if the finished product wasn't a 'blockbuster' it was the process that allowed for great observations. KUW 7 a definite!

**[Click here to see the films the Hedgehog class made](#)**

*Enquiries to the Zu3D team at [s.corbett@zulogic.co.uk](mailto:s.corbett@zulogic.co.uk) or see the website at <http://www.naace.co.uk/www.zu3d.com> [www.zu3d.com](http://www.zu3d.com)*

### **Acronyms used**

PSED – Personal, Social and Emotional Development

LCT – Language for Communication and Thinking

CD – Creative Development

LSL – Linking Sounds and Letters

W – Writing

R – Reading

PD – Physical Development

SSM – Shape, Space and Measures

KUW 7 – Knowledge and Understanding of the World. Level 7 - Finds out about and identifies the uses of everyday technology and uses information and communication technology and programmable toys to support her/his learning.

'Child initiated learning' - an activity wholly decided on by the child and the result of an intrinsic motivation to explore a project, or express an idea.

# The relationship between parental engagement, digital home-school links and pupil achievement

**Author: Dr Christina Preston, Professor of Education Innovation at University of Bedfordshire and founder of Mirandanet**

Sir Bob Geldof had the vision to see how digital technologies might enhance learning for all, but especially for the disadvantaged: at the UNICEF Education for All Campaign launch in 2008, Sir Bob quoted Epictetus' "Only the educated are free". He continues to work tirelessly towards this aim, building schools worldwide.

As one of the inaugural founders of the company Groupcall, Sir Bob aims, through a series of projects, to support the development of digital products that engage children and their parents more enthusiastically into learning activities both in school and out.

In order to improve the value of their digital products in enhancing learning, the Groupcall product team invited the MirandaNet Fellowship to investigate the existing literature about the ways in which teachers can work with parents to improve their children's learning and how digital tools might support intervention.

The MirandaNet Fellowship partner in this research is a professional community of educators who are committed to enhancing learning using digital technologies. There are nearly one thousand members in more than eighty countries. As co-researchers, they work in partnership with governments and companies in research, development and dissemination projects designed to share new findings about the role of digital technologies in teaching and learning with professionals around the world.

The report includes an extensive literature review about how digital communications might help to bridge the gap between home and school. The issues that appear to be the most significant in relationships between teachers, parents and pupils are the impact of:

- the socio-economic status of the family;
- the parents' awareness about the impact of the media;
- the style of parenting that is prevalent;
- the availability of home-school digital links.

Of the fifty-five teachers who responded about one third used pen and paper for registration. Two thirds of that group would be willing to use digital devices, which suggests that the large majority of teachers see electronic registration as a benefit. Indeed, more than half of the teachers who responded to a questionnaire owned digital devices that had been given to them by the

school. Most of them felt strongly that their time for communicating effectively with parents and pupils was limited and they welcomed the introduction of more sophisticated digital channels that would increase their reach and save them time.

Although the teachers appeared to have had varied experiences, overall the teachers who had engaged with parents found this had a positive influence on pupil achievement. The methods they used to encourage this engagement covered communication at various levels: from phone calls to parent meetings at school. Where there appeared to be most positive engagement was when there had been communication and support from the school to the parent and their child. This support depended, however, on the sharing of information and methods to support the parent in understanding what was required and how they could help their child to learn. One recommendation was the introduction of courses on digital technologies for parents in school. When good relationships were built up, it was an easier step to attend informal parenting classes in the school.

The research and the findings are published with intention to be helpful to professionals who are looking into the relationship between parental engagement, school home links and pupil achievement. These will be available freely on the MirandaNet and Groupcall websites.

The research shows that relationships need to be carefully developed with attention to parental attitudes and skills to ensure that each parent can engage with their children's education in a positive and non- reactionary way. Regular contact face-to-face, backed up with communication on digital devices ensures that parents are kept informed all the time, not just on parents' evenings.

As the director of this study I was impressed by how much evidence is now available about the ways in which pupil achievement can be improved when the parents or carers take pride in their child's learning progress. Some of the parents of children who are not thriving have not had good experiences in schools themselves: attitudes to the value of learning can be altered substantially where regular positive communication is in place. Building up this kind of rapport between the teachers and the parents can have astounding effects on achievement. Digital technologies have an increasing role to play here and evidence of these positive relationships can be valuable in applying for the Pupil Premium.

You can read the full report here:

<http://www.mirandanet.ac.uk/researchexchange/publications/associates-research/>

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# Innovations in MOOCs

**Author: Dr Christina Preston, Professor of Education Innovation at University of Bedfordshire and founder of Mirandanet**

Christina Preston, founder of MirandaNet and a member of the Naace Executive has been experimenting with MOOCs through the MirandaNet EU HandsOn ICT partnership. Naace members can still join these two pilots now for free if you want to see how MOOCs work.

## **Move-It-Online MOOC: International Learning Design Challenge**

The London Knowledge Lab (LKL), Institute of Education, have just become partners in the EU HandsOn ICT project with MirandaNet and partners in Catalonia, Greece, Slovenia and The Netherlands. As a result of the partnership with LKL, two EU events have been held at LKL; on the 26th September, Sarah Younie and Christina Preston, MirandaNet Fellowship demonstrated the EU Handson ICT software to the participants at the What the Research Says seminar; on 16th October, in preparation for the third pilot of the Dr Patricia Charlton held a workshop to introduce MirandaNetters and other international participants to the lesson planning software, Learning Designer that is being used in one of the modules of the the EU HandsOn ICT third pilot, Move-It-Online.

The aim of Learning Designer is to provide ways of describing and sharing most effective teaching ideas, especially those that illustrate 'pedagogically purposeful uses of technology for learning'. In the workshop participants learn how to use this simple web interface that enables the user to browse learning designs for selected learning outcomes, topics and activities. It is possible to search for designs, review designs and adapt designs and create your own design. A core focus was the design of learning design activities with a particular focus on teaching and using ICT in particular teaching ICT in a broad sense e.g. digital literacies, IT, Computer Science and e-safety. In addition there were opportunities for the participants to comment on the CRAM tool as well which helps in identifying the hidden costs of online learning, to make suggestions for changes, critique existing designs, and develop their own designs and experiment with resources and cost modelling when moving from face-to-face to online teaching.





There is still time to join this MOOC which is led by Professor Diana Laurillard and her team, in collaboration with Building Community Knowledge, MirandaNet, Creative Digital Solutions and Hands-ON ICT project. You can still join up here: <http://handsonict.eu/>

Learning Designer is based on Professor Diana Laurillard's research into effective teaching and learning over many years. The two key books, Rethinking

University Teaching: A Conversational Framework for the Effective Use of Learning Technologies and Teaching as a Design Science: Building Pedagogical Patterns for Learning and Technology can both be bought on <http://www.amazon.co.uk/Diana-Laurillard/e/B001HMKDV>

### **EU MOOC: HandsOn ICT third pilot**

MirandaNet have been partners in the EU HandsOn ICT project since 2013. The four members of the team are Theo Kuechel Ian Lynch and Christina Preston and Sarah Younie. All the details are on the blog including the presentations that we made in the summer at the MakeLearn and the MoodleMoot conferences in June in Slovenia and Key Competencies in Informatics and ICT (KEYCIT) in Potsdam, Germany



The third pilot in Canvas is very ambitious. More than 2200 participants from 120 different countries have registered. As a result of feedback this module is being offered in 7 languages in parallel: Catalan, English, French, Greek, Slovenian and Spanish. Also Bulgarian thanks to the OUNL partner and Sofia University, which is a key Associate Partner and contributes to the project by disseminating the MOOC among its contacts and staff but also by providing participants and facilitators for the Bulgarian group. Associate partners are organizations that are not part of the Consortium but contribute in some way to the project through dissemination, technologies, running pilots and so on.

It is not too late to join this MOOC here: <http://handsonict.eu/join-the-mooc/>

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# Why stronger school-business links are integral to the delivery of the computing curriculum

**Author: Jon Silvera, founder and managing director of FUZE Technologies**

*The new computing curriculum is now in full force in schools across the country. However while this change has largely been welcomed, it has also left many teachers feeling daunted and overwhelmed at having to teach something they have little or no experience of. According to research carried out earlier this year, more than 130,000 primary school teachers were not feeling confident enough to teach their pupils how to code. The poll of 250 English primary school teachers also revealed 73 per cent felt they had not been given the necessary resources, such as access to sufficient hardware, resources and training, to teach the new computing curriculum. Jon Silvera, founder and managing director of FUZE Technologies, tells us more about how and why schools and business should work more closely together to ensure that the new curriculum is a success.*



## **The new computing curriculum, who benefits?**

The arrival of the new computing curriculum has certainly not been without problems; with only a small proportion of teachers coming from a programming background, the requirement to teach coding has raised serious issues for many schools. As teachers adjust to the changes, comfort can be found in the benefits of teaching students computing skills. Not only is it providing them with the must-have skills for the digital age, but it's also providing them with a greater insight into the creation of the technologies that they use. Students can become producers of technology, not merely consumers.

To add to this, coding and programming experience can equip students with a number of transferable skills, such as problem-solving and creativity. Yet while the recent media focus has been on how students will benefit from the new computing curriculum, it is important to remember the hugely positive impact it will have on industry too.

The IT skills shortage has been hanging over industry like a dark cloud. According to Allan Cook, chairman of Semta, the engineering and advanced manufacturing skills council, while 160,000 STEM graduates are needed a year only 90,000 are entering the industry from university. Adding to this concern, the UK Council of Professors and Heads of Computing has projected a 15 per cent rise in the demand for IT workers over the next eight years, highlighting the desperate need for computer science to be promoted in

schools. Technology is vital to a globalised economy; the ability to operate in an international market helps businesses to expand quickly, but to do this they need to have a high performing, seamless IT system in place. Consumer technology is also a rapidly growing market, and companies are always seeking creative and technically-skilled individuals to help them develop cutting-edge products that will keep them ahead of the game.

Take Google Glass as an example; I for one would not have thought that by 2014 we'd be able to upload pictures to Facebook, and find our way around a new city, all through using a pair of glasses. These innovators are the types of people that businesses need if they are to keep up with the competition; employees with the ability to think outside of the box, to envisage a game-changing product and to have the imagination, problem-solving skills and technical ability to make it a reality. Given how essential teaching current students programming skills is to the business world, it seems only fair that companies and organisations should play a part in making the new computing curriculum a success. There are a number of different ways in which businesses can lend their support and expertise to schools to help them adjust to the new curriculum:

### **Ensuring teachers have access to the right training and support**

It seems ludicrous to me to expect teachers to teach pupils something which they've never had hands-on experience of. Ensuring that all teachers possess a practical understanding of programming and coding is crucial, as not only will this help to generate an enthusiasm for computing that can then be relayed to pupils, but it will also ensure that students have access to the right support from their teachers.

While some schools may already have a member of staff who has a good understanding of programming, there is a need for businesses to step in and provide training to teachers who require it.

There are training schemes already in existence, such as The Barefoot Project. This project, which is funded by the Department for Education and run by The Chartered Institute for IT, offers free computer science workshops for primary school teachers in England. Other organisations such as Computing at School (CAS) and Naace also provide leadership and strategic guidance in addition to practical information and resources to their members. A number of technology giants, such as Microsoft and Google, have also stepped up to offer training and support to computing teachers.

All these are welcome and are no doubt making the transition to the new curriculum much easier for many teachers, but I feel that even more can be done.

In particular, I think that there is real value in face-to-face training for teachers and that local companies should reach out to schools in their municipality to offer this, particularly in more rural areas where travelling to off-site training locations may not be feasible. FUZE Technologies recently teamed up with

The National Museum of Computing (TNMOC) to deliver a free programming workshop to teachers, which gave them the opportunity to try programming out for themselves using the FUZE, a programmable computer and electronics workstation, powered by the Raspberry Pi (RPi). Clearly there is a lot to be gained from these sorts of training events and this is something that I'd encourage more small and medium-sized enterprises to embrace.

### **Helping students to find their way**

It's not only teachers that need guidance from business, there is a lot for students to gain from this too. The State of the Art report produced this year by the London School of Economics, on behalf of Nominet Trust, found that clearer careers guidance was needed to encourage students to pursue computer science. The study found that students were often unclear on what options were open to those with computing skills, which may well deter many of them from fully immersing themselves into the subject.

Providing students with opportunities to network with working professionals can help to unravel the mystery of IT careers for students. Schools could, for example, ask industry leaders to come in to schools and talk to students about the array of different job opportunities open to them. The importance of this is reflected in the words of Annika Small, CEO of Nominet Trust, who commented: "Digital making is still largely viewed as the domain of geeks huddled in the computer labs of large tech companies. But digital skills are increasingly pivotal to art, fashion, film and music as well as to entrepreneurship. There is a growing disconnect in that UK business is in urgent search of those with digital skills while young people are largely unaware of what opportunities are available and what skills are required."

To take this a step further, I believe schools could look in to setting up a mentoring programme with local businesses, where students are able to have an open line of communication with someone who actually works in the industry. Mentoring can also be extremely beneficial, not only providing students with useful contacts in the business world, but also with access to expert advice when they are completing computing projects in school. It can be difficult enough to cram everything in to the working day without the added task of mentoring, however mentoring doesn't have to be incredibly time-consuming, particularly with the rise of technology on its side. Using tools such as Skype and Google Hangouts, students can connect with their mentors virtually, and even dedicating an hour a week, or a couple of hours a month, can have a huge impact on student's career prospects. FUZE Technologies, for instance, is sponsoring student guides at TNMOC to assist both adults and young people to try coding during their visit to the museum. While enabling these students to further develop their own computing abilities, it is also giving them the opportunity to develop a range of other transferable skills, such as leadership and communication, which will be greatly advantageous when they enter the job market.

## **Aligning supply and demand**

As well as working with schools to offer guidance to both teachers and students, businesses should be liaising with IT teachers and departmental heads to find out how they are handling the new computing curriculum, and which aspects they feel they may need greater support with. There are a number of ways in which this information can be gathered; for example via a focus group, survey, or even an informal conversation during a training session. I've found that similar concerns tend to be raised across the board, for instance many of the teachers I have spoken to have raised the need for resources to meet the following criteria:

### **Ease of use**

Computing resources shouldn't be overly complex and should be helping teachers to feel more confident delivering the new curriculum, as opposed to exacerbating concerns. Products which are easy to set up and which can be used more simplistically can help to ensure that teachers do not feel out of their depth when delivering the new curriculum.

### **Provision of additional resources**

Teachers are always very interested and often reassured by additional resources offered by a company. Lesson plans, project ideas, staff training and access to ongoing support are just a few examples of extra services, which can help both teachers and students to reap the full benefits of any resources they're using.

### **Fun and inspirational**

It's no secret that the key to really engaging students with a subject is to make it as fun and exciting as possible. With hands-on activities far more likely to capture the attention of pupils, teachers are seeking resources which will not only brighten up the classroom, but that will also help students to understand how what they are learning can be applied in a real-world context.

### **Link primary and secondary computing**

With the majority of primary schools using Scratch to introduce students to the world of coding, and a large proportion of secondary schools opting to use the far more advanced programming language Python, many teachers are concerned with how they can help students make this leap. For example, the FUZE comes equipped with the programming language FUZE BASIC, an expanded and modernised version of classic BASIC. FUZE BASIC is an extremely easy language to learn (and teach!) and includes all the core concepts used in all languages.

Still in its infancy, the impact of the new curriculum is yet to be discovered. However what is known for sure, is that the future of many businesses is reliant on having access to a wider pool of individuals with top-class digital

skills. Therefore, I believe that businesses need to take responsibility for their own needs and support educators in delivering the computing curriculum, providing students with the passion and skill to pursue a career in the digital sphere. This idea was perfectly encapsulated by Julian Sefton-Green, one of the researchers behind the State of the Art report, who stated: “We as a nation need to go beyond the school gates to fulfil our digital education needs.”

*FUZE Technologies can be contacted via their website at <http://www.fuze.co.uk/> <http://www.fuze.co.uk> or see their Google+ page at <https://plus.google.com/+FuzeCoUk> <https://plus.google.com/+FuzeCoUk>*

## **Note**

The FUZE powered by Raspberry Pi®, is a programmable computer and electronics workstation designed to introduce and develop text based computer programming.

# 8 steps to really successful ICT

**Author: RM Ltd**

*How effective is the use of ICT in your school?*

*How do you know?*

As a NAACE member your school is committed to promoting learning with technology in a connected world so you're used to looking at the educational benefits of ICT, but when was the last time you considered how effective your ICT actually is?

Here are some suggestions for areas that you might want to benchmark your school's IT service against...

## **1. Vision and planning**

Imagine all your goals for ICT realised: teachers are confident and motivated to use ICT, and students are empowered and excited about learning. Technology is improving learning, with ICT embedded across your curriculum. The right ICT tools support the pedagogy of your teachers. Data is used effectively to plan and run the school whilst new technology is systematically assessed for effectiveness in the classroom.

To achieve this you need to develop a forward-looking approach to the management, development and integration of ICT in your school, however this can be challenging if your ICT support team don't have the breadth of knowledge or experience to suggest and support the right solutions, offer the best educational support or provide the right advice to suit your school style.

Who helps you build a vision specific to your unique needs, with awareness of the wider issues in both IT and education?

How well can your ICT team translate your school vision into an innovative ICT strategy and deliver it?

## **2. Efficient call logging and management**

How do you log a request for ICT support? If you've got an online system that allows you to raise, track and close requests for help and you use this 100% of the time because it works well, then great – you can tick this one off.

If however your call logging system involves stepping out of a lesson to



grab the technician in the corridor, or scribbling a note on a scrap of paper and asking one of your year 7 students to 'run to the network manager's room', then you should probably think again.

How do you flag up a priority issue that is eating into precious teaching or learning time?

How do you provide additional information, or update the call?

And most importantly...

How does your year 7 student get that lost learning time back?

### **3. Defined processes for fault escalation**

So you've logged a call (one way or another) and it's not been resolved yet. You check with the support team and they say they're 'investigating', but it's been a month now and your software/laptop/register/printer still isn't working. It's frustrating for you and probably for your support team, and it might well be impacting the quality of your teaching.

One of the reasons that you might not have an answer yet may be down to escalations. Who do your techies turn to when they get stuck? Do they have a support team behind them that works to the same service levels that they offer you? There may be no-one they can turn to for advice on how this issue can be resolved in an educational environment.

Who provides technical support to your ICT support team?

### **4. Removing single points of failure**

How many people really know how your ICT system works in detail? Hopefully the network manager, but who else?

A few people might have an idea about bits of it, but leaving one of the most impactful strategic areas of the school in the hands of one or two people is a massive risk. What happens if that key person goes on long term sick and then your network develops a major fault? Who would fix it, and how would the school cope without any ICT? Who would carry out the really important daily tasks?

What have you done to mitigate these risks?

How well documented is your network?

### **5. Access to wider skillsets**

Which of these platforms do you use in school: Windows, iOS, Google Chrome, Android?

Which would you like to use? Why? What's holding you back?

If your pedagogy demands something new but your support team say 'it's not appropriate' or 'it's not secure', then that may be really frustrating if you want to introduce a major new initiative. It could just be down to a lack of technical expertise or educational understanding by the support team - they may not know enough about the technology to be able to say why you should (or shouldn't) use it in school, and may be unable to support it technically.

Your students should be equipped with an understanding of every type of technology if you are going to prepare them fully for careers that haven't even been dreamt of yet, and this shouldn't be limited by the technical expertise of a small support team.

What technology would you like to use, but others say you can't?

Which solutions should you explore further for their educational credibility and benefits?

## **6. Out of hours support**

What time do your support team clock off? Probably not long after the pupils go home. And what time do your senior leadership team leave? There are often a couple of hours between these two times. So what do you do if your laptop stops working after school and the ICT support team have gone home, but you have got to finish that report tonight?

This is where an extended team comes into its own again – not only in the breadth of skills, but also in availability. If you had an army of people watching over your network during the day, night or in the school holidays, looking for (and probably) resolving issues even before you notice them, or available until 6pm so that you can get that report finished, you'd be able to spend more time teaching and less time waiting for help.

Who can you turn to for technical support after the school day ends?

## **7. Staff helpline**

If budget is at the forefront of your mind, then additional staff costs to allow every member of staff direct access to an ICT support team member would be unreasonable. If technology is a tool that is fully embedded in the pedagogy across your school then that's exactly what you need.

With a small team of technicians, you'll get support for the most pressing of issues as they occur but it can take time to find the technician, and longer to get the issue resolved. But with a large site, a big teaching team and a small team of technicians, your ICT support could be spread a little too thin, and lessons might suffer as a result. Consider an alternative where every member of the school has access to a large team of technicians available on the phone or online who can resolve the majority of issues, leaving the on-site team to fix the problems that need physically attending to on site.

What impact would this kind of support provide to your teaching and admin staff?

How much more teaching time might it enable?

## 8. Effective teacher training

Every school has a mix of tech-heads and technophobes in its teaching staff; there will be those who take to it like a duck to water and those who need a little more coaching to see how ICT can support exciting pedagogy. Sometimes all you need to try something new is a nudge in the right direction, but if your confidence is low then exploring new technologies can be a daunting prospect.

When it comes to using ICT to best effect in the classroom and beyond, you're going to need to be fully up to speed with what the technology can offer and how best to use it – and if you don't know, the students probably will!

Can your ICT support team make good recommendations about which solutions are right for your school; explain why you would want to use it and how you can get the best out of it? If they are lacking the breadth of experience and skills to support the technology, then it's unlikely that they'll be able to pass on the educational benefits and inspire confidence in your teachers and learners.

### So how many of the above are in place in your school?

If they are, how confident are you that they fully meet standards for best practice ICT support? Each of these areas has the potential to add massive value or seriously hinder the effectiveness of teaching and learning in your school.

If you've got a few 'blind spots' then regardless of whether your ICT support is delivered in-house or by a third party, there are often small changes you can make to improve your ICT support service overall. If you're not sure where to start, RM Education has 40 years of experience in delivering all these areas to a high standard. We are trusted to deliver complete ICT support for over 700 schools and is part of ICT support picture for thousands more.



Visit [www.rm.com/naace/ICT](http://www.rm.com/naace/ICT) to:

- download your free copy of this advice as a PDF to share in school, and
- book your free, no obligation ICT Support Consultancy to help you understand your 'blind spots' in more detail.

# Makewaves at Monk's Walk School

**Author: Makewaves**

*At Monk's Walk School in Hertfordshire, the Makewaves social learning platform has been embedded for a number of years, enabling students to publish their creativity on the web, and giving teachers the means to capture learning and track student progress.*



The popularity of Makewaves at Monk's Walk led to the creation of an online hub that connected seven local schools and gave them an online space to share their work, collaborate, and engage in peer-to-peer learning.

The next step for Monk's Walk Music Teacher Anna Gower, who championed the use of Makewaves in the school, was to create the Monk's Walk Teaching and Learning Community, so that staff would have a way to share good practice and record CPD.

Here, she tells the story of how this new resource was developed.

*With the increasing use of online networks such as Twitter, TES, VLEs and others by teachers and schools, it was only a matter of time before schools started to look at the potential of harnessing, using and archiving the multitude of ideas and good practice sharing that is happening online for use by their staff.*

*At Monks Walk, as well as full staff CPD, weekly teaching and learning briefings and regular practice sharing sessions take place across the year. However in a school with a large and very busy staff, the sharing of ideas outside this dedicated time can be confined to snatched conversations by the photocopier or worse still, don't happen at all.*

*A school local to us has set up Sandagogy, a platform for all staff to blog, reflect and share resources. Staff are given a log-in and are encouraged to use the site to share ideas and access resources. This is embedded into all staff training and slowly the site is becoming a thriving online space for staff and SLT to share their best practice. Twitter is also used to gather and share ideas more widely.*

*Looking at this model, we felt that this could be something that would help Monks Walk staff to embed and innovate with ideas developed from whole school CPD as well as a place to find and share new things to try in our teaching. However, in discussion with the member of SLT running the*

*Sandagogy site, whilst teachers are happy in principle to use it, in a profession where every second counts, what is actually involved in taking a photo, connecting the camera, uploading the image, filling in the information can mean that it's just too much extra work for many to contemplate in addition to their already heavy workload.*

*As active members of the Makewaves community with our students and those from local primary schools, we wondered whether this could be the platform for us. With simple usability, blogging function, the ability to personalise the site as appropriate and strongly visual design, it seemed a straightforward solution to some of the issues that Sandagogy have faced. Above all, the app enables users to upload content straight from their smartphone or tablet, cutting out the additional steps required when using a VLE or other site. Embedding our Twitter feed into the front page also enables us to gather and promote resources picked up from the Twitter community.*

*Makewaves also includes the option to add badges which can be used to log the CPD that teachers have attended visually on their home page and badge missions make it possible to devise tasks to be done by way of follow up from a session. These are earned and evidenced through the creation of resources on the network for others to use and to track the impact the sessions have had on classroom practice.*

*The next steps for us will be to plan a launch to staff and decide how to embed the use of the network into CPD and teaching and learning staff development for next academic year. However with the support of SLT in using mobile technology and social media to create a buzz around teacher CPD and good practice sharing, this is an exciting development that could revolutionise staff training in the future.*

The Monk's Walk Teaching and Learning Community has only been online for a few months, but already 68 teachers are utilising the space, and already a range of high quality teaching resources has been shared on the community's dedicated Makewaves site.

Steps towards CPD badges have begun, with teachers being encouraged to download the Makewaves App in exchange for their first badge. The App enables teachers to quickly capture and upload anything that happens in their classroom, accelerating the process of resource gathering for the Teaching & Learning Community. Being able to use Makewaves on mobile devices also means that contributions to the hub can be made at home, or even on the commute to and from work.

The teachers using Makewaves at Monk's Walk are already paving the way for other schools around the country to create their own online hubs for sharing good practice and displaying teacher CPD.

The Makewaves Badge Library is an open resource of activities that students and teachers can engage with to earn digital badges. Badges have been created by teachers, educators and organisations to encourage and accredit

learning in a vast range of subject areas, and recently there has been a flurry of badges created to assist with the delivery of the new computing curriculum, with Rising Stars and Computing At School two of the organisations involved in badge creation.

As more and more teachers start to map their CPD sessions to badges, the library will become a valuable archive that schools can utilise. Meanwhile, teachers can use their Makewaves profiles to showcase their personal development and shine a light on the good practice that takes place in their classrooms.

*To find out more about Makewaves go to <https://www.makewav.es/> or email [hello@makewav.es](mailto:hello@makewav.es)*

# Having a positive impact on student independence – textHelp's Read&Write Gold at The Priory School

**Author: Texthelp**

*Kate Blackmore, SENDCo at The Priory School in Hitchin explains how Read&Write Gold has improved student independence, self-esteem and engagement.*



I'm Kate Blackmore, the SENDCo at The Priory School in Hitchin. We have around 1000 students at the school and have recently invested in assistive technology, including Texthelp's Read&Write Gold software, to further improve our provision for our SEND students.

As expected in a school our size we have students that find reading and writing challenging for many reasons, including EAL students and those with a range of Special Education Needs (SEN), including dyslexia. We invested in Read&Write Gold software to help students overcome learning barriers and improve access to written content in the classroom.



Read&Write Gold software has had a very positive impact on student independence, allowing students to access reading materials and resources in lessons and enabling them to work without intensive Teaching Assistant or Teacher support. We have seen a big leap forward in students' confidence and self-esteem and they are now keen to offer ideas and enjoy writing, when before it had been a struggle.

Our students also use the software to support their writing both in class and for homework. Read&Write Gold has many different features that support spelling and grammar as well as allowing students written work to be read back to them; enabling them to identify and remedy any mistakes and further improve their work.

We have also found that our struggling readers find the colour tints incredibly useful when working on a computer. This has eased students' visual stress and allowed them to access material, without the teacher doing a mountain of photocopying.

In 2013 we also started using Read&Write Gold software as a reader in exam situations. As a result of this we have seen an increased number of students using their access provision of extra time and readers, now that they no longer have to rely on human support. Students often comment that they are pleased to be independent and do not have to draw attention to themselves as needing assistance, especially in exam conditions. These students now have this software provision as part of their 'normal working' conditions to ensure they are confident with using Read&Write Gold. With the exam rules now allowing students to make use of an electronic reader in their English reading assessments if it is their 'normal way of working', this provision is invaluable.

We wouldn't be without Read&Write Gold and it has transformed the learning experience of many of our students. We value it so much that we are trying to think of ways to use it as part of a wider school initiative.

### **About Read&Write Gold**

Read&Write Gold changes the lives of dyslexic and English as a Second language students through a host of powerful reading, writing and research features. The discreet toolbar integrates with all mainstream computer programs, enabling students to work independently in class, during exams and on homework/coursework.

Available to download directly from: [www.texthelp.com/UK/downloads](http://www.texthelp.com/UK/downloads), the software makes a big difference to the confidence and independence of students.

With the recent changes to JCQ Access Arrangements Read&Write Gold is now also being used as a computer reader by a number of secondary schools in England, for GCSE and A-level examinations.

*For further information on Read&Write Gold or to find out how your school can use it in examinations, please contact Jenny on Tel: 028 9442 8105, email [j.laird@texthelp.com](mailto:j.laird@texthelp.com) or visit our website [www.texthelp.com](http://www.texthelp.com)*



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