Advancing Education

Autumn 2015 Edition

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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Editorial Ramblings

Author: Paul Heinrich

In which your editor ponders a future tense and jumps on his soapbox.

No, this is not going to be a discourse on the wonders of the grammar tests being inflicted on unsuspecting Year 6 children by a government determined to dissuade children from enjoying language. I doubt even the best app (if available) can help with an understanding of the present pluperfect – my French and Latin masters could never get me to understand it anyway! No, this is about school generations past, present and the tense future for ICT/Computing in schools.

Consider the relatively recent past. I'm a late part of the now frequently maligned baby boomer generation, schooled in the late 50's and the 1960's at a small village primary followed by an ancient grammar school with a very traditional academic curriculum straight from the Edwardian era. Technology was nowhere to be seen apart from a slide projector in the Geography room and the ubiquitous duplicator (though actually wasn't much better when I started teaching in the late 1970's). Nor did we have much technology at home. A small black and white television, transistor radio and, luxury, a shared phone line (though a call to relatives in Germany had to be booked in advance as international calls had to be connected by human operators). This was all we knew. Computers were huge, complex and delicate tools that only big business used.

Our political leaders generation, schooled in the 1970's and eighties would have experienced much the same book-based, teacher led and technology free education as my own. While they now use technology themselves it was not part of their educational experience, an experience that I think clouds their judgement when making education policy for not only today but for the future.

The problem in the present is that the world has changed so radically over the last 30 - 40 years yet education policy has not adapted, the normal Darwinian response to change has been missing. We are surrounded by powerful technologies so ubiquitous and cheap that they are in almost every home and every pocket. My regular free Skype video calls to my son in San Francisco would be considered Star Trek fantasy in my school days and the same goes for the Internet, self publishing, instant communication and everything else that we now accept as 'normal'.

Knowing how to exploit and develop the potential of the available tech, to use it creatively, safely and appropriately has never been more important yet this is being squeezed out of a system now focused on enforcing the traditional academic curriculum of my former grammar school, something outdated then let alone 50 years later. The politicians read much into e.g. the recent OECD Report that says computers in school do not make a difference and this is picked up by traditionalists as a reason to sideline both technology investment, teaching and learning with and through ICT and especially ICT as a subject. The report makes interesting reading but its conclusions, based on analysis of the flawed 2012 PISA tests that were heavily biased in favour of cultures where rote learning is the norm are just one opinion. Computers

have been used in education for 30 years and if they are still not making a difference (which Naace members know to be incorrect) then we need to ask searching questions about the curriculum, teacher education and training and how technology best supports learning and teaching. There is no shortage of high quality positive research out there yet it's ignored because it does not accord with the prejudices or personal educational experience of politicians.

And now we have the sheer idiocy of the withdrawal of ICT GCSEs and A-Levels. Children must focus only on core subjects of English, Maths and Science (with Computer Science included of course) with History also being mentioned. No mention of creativity, visual communication, the role of technology nor indeed anything to do with the real needs of the majority of learners that a properly designed and rigorous ICT course can offer. Computer Science is a fascinating subject for those inclined to it and who have the maths capability to do well in it (though they might be better of doing Physics single GCSE in that case). Many will struggle by the end of KS3 and schools are likely to only accept 'suitable' (i.e. those who will get good grades) onto a CS exam course. Of course, if CS GCSE attracts only small numbers of students it becomes uneconomic to run with consequent impact on staffing, KS3 teaching and hence IT investment also.

A future tense or is it a tense future awaits English education. What of the majority of learners for whom an ICT qualification supports them in accessing the type of jobs they will be looking for. Nothing! For these learners the concept of a broad and balanced curriculum that meets their own needs, abilities and aspirations and those of future employers is dead. We seem bent on developing a system designed to separate the Alphas and Betas for the City and professions while the Gammas, Deltas and Epsilons are left to the modern serfdom of the warehouses and call centres, after being tested and re-tested to near destruction in the drive to make 90% of learners at least average. Now which politician or their advisers failed GCSE Maths I wonder.

Meanwhile schools that fail to drive the non-academic through to the nirvana of the so-called English Baccalaureate will be publicly castigated and humiliated by government and media. Individual pupil progress counts for nought in current thinking, the production line must only turn out products that meet a government defined specification. Farewell childhood, welcome to at least 12 years of drudgery. Jump this hoop and then jump higher and if you don't we'll sack your teachers.

As educators we need to fight back if we are to ensure an education system that meets the needs of all. Maintaining the breadth of the curriculum, not only in subject choice but also in the range of qualifications available to learners is essential. There must be a choice of GCSE and vocational courses in KS4 and beyond and ICT must be a part of it, along with the creative subjects that are also being sidelined or rejected. A good ICT GCSE is rigorous, broad-based, should cover aspects of systems, coding, networks, core business tools, imaging and video and more. A working party of Naace members could no doubt design a suitable course kin a very short time. It would still be rejected of course by a creed built on an often privileged if stunted educational experience. "One believes things because one has been conditioned to believe them." *(Huxley)*.

The papers kin this issue of Advancing Education pick up on some of these concerns while offering many positives for the future if we stand our ground. Adrian Mee addresses some of these issues in a very cogent argument for digital citizenship to be included in the Computing curriculum. Dr Christina Preston explores how we can achieve education innovation through action research CPD through involving school, professional organisation and industry partners. Innovation of course brings dangers to which schools must respond and this includes education learners in safe use of social networking as explored in Laurence Boulter's paper. This theme is also developed by Lesley Simm who introduces her PRISM (Primary Internet Safety Monitor) programme.

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

The computing curriculum: an argument for digital citizenship

Author: Adrian Mee, University College London Institute of Education

"Ignorance is an evil weed, which dictators may cultivate among their dupes, but which no democracy can afford among its citizens." (William Beveridge).

The purpose of schooling and the curriculum has always included the need to develop pupils as good citizens as well as the transfer of knowledge. Indeed the aims of the revised National Curriculum states 'The national curriculum provides pupils with an introduction to the essential knowledge they need to be educated citizens.' (National Curriculum for England, 2013). The short discussion below suggests that the society young people will grow up to be a part of is increasingly and profoundly shaped by digital technologies and offers the view that a largely 'technicist' and vocational interpretation of the Computing curriculum runs the risk of providing pupils with an experience which leaves them technically skilled but less able to make critical judgements about digital technologies and systems as concerned citizens.

Introduction

The reform process of the National Curriculum for England has been both rapid and contentious. Whilst there have been consultation, discussion and some tension regarding the status of 'facts' and the notion of 'rigour' across the curriculum, discussion has largely been focussed within the discrete boundaries of individual subjects.

As individual subject programmes of study have been redefined relatively little attention has been afforded to the most fundamental of questions which must underpin any curriculum - 'what is the purpose of schooling?'.

With respect to whole curriculum aims, the foundation upon which the subject curricula should be built, beyond a cursory allusion to Matthew Arnold's (1869) offering of 'the best which has be thought or said' and a declared aspiration to inculcate 'essential' knowledge', there is little of substance to guide those constructing the curriculum pupils will receive.
Whilst these aims offer an aspiration of developing 'educated citizens' this notion appears sometimes to be largely neglected or underdeveloped within the Programmes of Study for Computing.

The process of reform was predicated upon a declared desire to afford schools the ability to define their own curriculum around a small core of what the Secretary of State considered to be the 'essential' content knowledge of each subject. Whilst reducing detail in the prescribed content of some subjects may offer more freedom, when combined with a reduction of clarity and specificity in the overarching aims of the whole curriculum we face a danger that the curriculum delivered at classroom level may become narrow, piecemeal and shaped by assumptions which are based on too little consideration of the the overall purpose of schooling.

As we construct the curriculum for Computing at school level we will need to ensure that we address the needs of pupils who will proceed towards qualifications in computing and to higher qualifications in computer science and perhaps on to

careers in the IT field. Ensuring that the industry can draw on a pool of well qualified labour was a powerful shaping force in redefining the curriculum and is clearly a sensible and laudable aim. However, the majority of pupils who study Computing at Key Stage 3 and even Key Stage 4 will not go onto further study or to work in the IT industry and the curriculum must ensure that the needs of these pupils are met too.

This dichotomy of curriculum need is not new and over several decades the teaching of school science subjects has sought to accommodate the needs of learners who will become scientists and engineers and those who, as citizens in a democracy, will be called upon to make choices on often complex issues which require a degree of scientific understanding. Without a scientifically literate population we find ourselves making decisions on the basis of the pronouncements of 'experts' and politicians who often have little more knowledge that the people they represent. Without some basic scientific understanding discussion of such issues as cloning, global warming, atomic energy and genetically modified food sources potentially becomes a 'sharing of ignorance' and the world becomes a more dangerous place.
Just as science educators have largely accepted the need for the school (if not the higher education curriculum) to be substantially orientated to 'citizen science' we might usefully reflect as 'Computing educators' if the curriculum we are designing and delivering to tomorrow's' citizens reflects the needs of those who will inhabit an increasingly digital world.

Curriculum tensions

It is generally accepted that the school curriculum should be shaped by its wider social context and prepare young people for the cultural, economic, political and technological world in which they will live their lives. The growing importance of digital technologies over four decades is recognised in the terms which appear regularly in the popular press: the "information age", a "knowledge economy" and "digital generation" etc. all attest to the degree our world has changed. Whilst the frequency with which these terms are used has not been met with clarity of definition, they do serve to underline the notion that digital technologies are a fundamental part of our environment and support the idea that the rapid development and almost ubiquity of digital technologies should be recognised within the school curriculum.

If we accept the importance of digital technologies as justification for a curriculum response then those who define the curriculum at the level of national frameworks, at the level of the broader educational establishment and ultimately at the level of the school must decide what skills, knowledge and understanding should stem from the aim of creating the "educated citizen".

With a number of school subjects the process of defining a body of knowledge is simplified by the established boundaries of "traditional subjects" such as mathematics and history. For other subjects which do not have an established knowledge domain such as 'Computing' we can either resort to a contest of strength and power between competing stakeholders vying for supremacy or we may choose to deploy a more rational and fundamental approach and ask 'what is Computing for?'

If the study of Computing is to be seen as a response to an increasingly digital world and the opportunities and challenges pupils will face then we must accept that the curriculum must be 'aims based' rather than defined by the content of a particular knowledge domain.

The initial definitions of the IT and subsequently ICT curriculum were largely constructed around the concept of developing the skills and knowledge which would develop the learner as a critical and skilled 'user' of technology which was often described as 'ICT capability'. The process of curriculum reform has seen the radical redefinition of ICT as Computing with the aim of developing those who can "create technology rather than merely using it". Whilst the "users" versus "creators" argument generated substantial heat (if not light) these two aims share a common root: both see the underpinning rationale for the subject as essentially vocational. Whilst ICT might have been seen to serve the needs of the many who would use digital technologies in their working lives Computing aims, at least in significant part, to serve the growing demands for STEM workers. Whilst supporting both 'users' and 'creators' of technology is laudable and desirable neither ICT not Computing have adequately addressed the need for all citizens to develop the capacity to reflect critically on the risks and opportunities presented to society by emerging technologies.

Challenges for the digital citizen

If it is accepted that the needs of pupils are central to the design of a curriculum and that a Computing curriculum should be carefully constructed around a set of appropriate aims we need to define these aims explicitly. Currently the implicit aims of school level curricular for Computing reflect the national Programme of Study and are dominated by three foci.

FIrstly, pupils will learn about computer science and 'coding' to develop the capacity to become 'creators of technology'.

Secondly, they will develop 'digital literacy', a complex and contested term, which in this context is largely taken to mean 'computer application skills'.

Thirdly, the PoS demands that pupils address the issue of 'e-safety'.

By contrast, examination of the aims of the NC Programme of Study for science offers that pupils are to be equipped with "the scientific knowledge required to understand the uses and implications of science, today and for the future". (NC Programme of Study for science, 2013)

The omission from the Computing curriculum of the need to develop pupil's capacity to critically reflect on the benefits and risks of current and future digital technologies by applying ethical considerations is, I will argue, a major flaw in the Programme of Study particularly at a time where society is facing a significant growth in problems and challenges which affect citizens and are at the centre of public debate.

Whilst the issue of 'ICT and society' was present in the previous Programmes of Study it would be wrong to suggest that this aspect of the curriculum was ever anything but marginal and neglected. At classroom level whilst much time was allocated to 'spreadsheets' and 'databases' lessons in which pupils were asked to critically consider the social implications of digital technologies were rare. Likewise the specifications for examined courses in ICT included 'the social dimension" in order to cover the full Programme of Study but the specifications largely interpreted this as coverage of 'Copyright' and 'the Data Protection Act'. In the assessment of such courses pupil's factual knowledge was occasionally tested but questions where pupils are required to reflect critically on digital technologies and their implications

and to offer a reasoned and technically informed response were largely absent from examination papers.

Likewise, a brief analysis of GCSE ICT and newer Computing GCSE text books shows that "social impact of digital technologies" is frequently present but as the shortests chapter, at the end of the text offering a coverage which is often brief, vague and lacking in depth.

This contrasts sharply with many science textbooks where 'fact science' is closely integrated to 'values science' in a way which is complementary. The theoretical and factual scientific knowledge is presented in a manner which allows pupils to apply this knowledge to make scientifically reasoned judgements on socially relevant issues. In return issues pupils see as important in the practical sphere and for their futures justify the study of scientific principles and theory as relevant and important knowledge.

Just as science has issues which motivate and intrigue pupils so to does the field of computer science and digital technologies. Each news headline about the theft of personal data through online gaming, monitoring of personal communications and driverless cars provides a potentially motivating way of making the study of computing relevant and important. Questions like "Who does Cortana work for?" and "do we have a 'right' to be forgotten?" are fascinating and relevant questions for young people who will need to engage with such debates as 'digital citizens'.

Sadly and too often the 'content' of the Computing Programme of Study is presented as 'knowledge, theory and concepts' which are 'rigorous' but largely detached from the lives and interests of the learner.

Objections to the inclusion of "digital citizenship"

The process of reform was underpinned by a discourse where the voice of industry, academia and the concept of 'rigour' and the preeminence of 'facts' were dominant.

Academia and the voice of industry dominated the discourse of curriculum reform in all subjects and the primacy of 'facts' and 'rigour' were offered as the cornerstones of a curriculum which would propel us forward 'in the global race'.
As Computing emerged as a new subject stakeholders sought shape 'soft' ICT into 'rigorous' Computer science (eventually accepting the more inclusive title of Computing). Where suggestions were made regarding the need to include the notion of an ethical or social implications of digital technologies many voices argued strongly against the 'dilution of rigour' by the inclusion of the idea of digital citizenship. Such objections might be summarised as three statements:

1. "It's not really part of our subject"
2. "Teachers are not qualified to teach issues in computing"
3. "Teachers will promote their own beliefs".
4. "Values are not 'rigorous'".

These views, more likely to be expressed by 'industry' curriculum stakeholders than educators, suggests some fundamental misunderstandings regarding the purpose of schooling, the school curriculum and what it means to be a professional teacher. Taking the objections above in turn:

Computing as part of the school curriculum is an element within the wider school curriculum and its subject content must be defined by the aims of schooling rather than by the notion of a 'body of knowledge' or a 'subject domain' as they might be in higher education. The school has a moral and ethical dimension and so this aspect of preparing children to be 'educated citizens' rather than well trained workers should manifest itself in each aspect of the curriculum. The argument that this vital dimension of schooling can be compressed into the subject of 'Citizenship' and so relieve the Computing curriculum of the burden of teaching it is flawed in two ways. Firstly just as numeracy cannot be solely developed in mathematics lessons so ethical and moral issues need to be encountered 'in situ', in the variety of contexts in which citizens will encounter such questions in the real world. Whilst the processes and techniques of approaching and considering ethical issues can be developed in Citizenship lessons, the consideration of ethical issues in science and in relation to the uses and abuses of digital technologies requires a degree of scientific and technical knowledge if a truly informed and critical consideration of such issues is to take place. Just as the consideration of cloning cannot meaningfully take place without scientific knowledge, a robust and defensible position on digital privacy or the potential benefits of artificial intelligence cannot be reached without a working knowledge of IT systems and computing principles.

The second objection which offers that 'Computing teachers are not trained to teach such issues' is equally flawed and appears to be based on the assumption that 'the teacher' is defined as a body within which is stored 'knowledge', accumulated as an undergraduate, which is then transferred to the pupils. Such a 'transfer model' fails to recognise that the process of becoming a professional teacher, in most cases, takes place after the achievement of a subject degree and involves training both theoretical and practical addressing the teacher's professional role as an educator in the broadest sense including the need to support pupils in making 'good choices' in terms of conduct and in becoming 'good citizens'. Being a teacher is not an ethically neutral role which involves only the transfer of facts from the teacher to the learner but also one of guide and mentor and most teachers do this regularly as part of their wider professional role.

Closely connected with the above is the notion that if a teacher is expected to address ethical and moral issues in their particular subject they will simply 'promote their own beliefs'. Again such an objection is rooted in a flawed conception of what the professional teacher is. Whilst the professional standards which teachers must adhere to specifically prohibit the promotion of personal beliefs the process of good teaching is rooted in working towards developing the pupil's capacity to think critically, evaluate evidence and to reaching their own defensible ethical and moral position.

The final objection to the inclusion of ethical considerations in the Computing curriculum rests on the notion of 'rigour' and the primacy of facts. It could be argued that in an education system like our own where pupils are encouraged to specialise too early, a dichotomy may occur in the way we view groups of subjects, this fuelled and articulated in the popular media and even by politicians with subjects labelled as 'hard subjects' and others, of less value, as 'soft subjects'. The 'hard subjects' are seen as 'rigorous'' and worthy whilst 'soft subjects' are seen as of less value where "any viewpoint is valid". In reality such a view runs contrary to the aims of teaching in such subjects as sociology, history and the philosophy and ethics elements of religious education where pupils are encouraged to think critically about complex issues and present evidenced and reasoned arguments. Whilst the nature of such

problems may yield several answers it most certainly could not be stated that "any view is valid".

In many 'soft subjects' pupils will be required to address complex 'issues' type problems and will be supported in approaching the task systematically. Such an approach will usually include the stages of:

- Investigating and 'decomposing' the issue.
- Gathering and evaluating evidence.
- Constructing and evaluating possible solutions.
- Testing a chosen solution in a range of contexts.

Ironically, the reader will probably already have spotted the close connection between a systematic approach to ethical decision making and the notion of 'computational thinking'. It may also be noted that the process outlined above used in the context of considering moral issues somewhat predates the newcomer of computational thinking!

Some conclusions

The school curriculum must be constructed in a way which serves the needs of all children and this will include ensuring they are empowered citizens in a society which is increasingly encountering opportunities and risks related to the rapid growth in digital technologies. The recent rebalancing of the curriculum to ensure pupils are aware of the principles and ideas which underpin the technologies they encounter and to introduce them to computer science is undoubtedly a good thing. If however a technical focus is allowed to dominate to the degree that it displaces and devalues the consideration of relevant and important 'digital issues' then we run the risk of a population able to add binary numbers and write some lines of code but who are unable to apply this valuable knowledge to inform decisions about how we develop and regulate these technologies for good and place legitimate constraints on those whose self-interest might clash with the social good. Further, a curriculum which consists of 'coding without context and criticality' and computational thinking without an ethical dimension fails those who will go on to be IT engineers and computer scientists by allowing them to assume that as 'creators of technology' they carry no responsibility for the uses to which their creations are put. For the many who will be passengers in a digital future a curriculum which does not address digital citizenship leaves them powerless to make informed decisions in the face of huge opportunities and often unseen risks. In significant part this circle has been squared in science education and the challenge now is to ensure that the curriculum for computing and computer science are articulated in a way which meets the needs of all pupils.

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Achieving education innovation through action research CPD: a school, professional organisation and industry partnership

Author: Dr Christina Preston, MirandaNet

Are models of learning keeping up with changes in science, technology, business and geo-politics? Dr Christina Preston argues that we are at last beginning to see changes in pedagogy but still need much more research and professional development involving school leaders, advisers and companies.

"We're living in a time when things are moving fast. The rules of the game are changing. Science is changing. Technology is changing. Geo-politics is changing. Learning fast is the only mode of survival. But here's the crazy thing: our models of learning have not kept up." Wenger 2014(1)

As a member of the Naace Board of Management as well as the founder of MirandaNet, it is interesting to look back at developments over the years and see how they inform current thinking in schools.

Naace members whose professional lives stretch back to the 1980s like me know that the gurus of education technology have been complaining about the lack of change in classrooms for four decades - since the UK government first introduced the National Grid for Learning in 1997, and before.

Naace(2), ITTE(3) and MirandaNet Fellowship (4), all communities of practice, were formed at much the same time in the expectation that as expert academics, educators and practitioners we could all make a difference.

In 2010 I met Wenger (1) who invented the term 'communities of practice'. In relation to MirandaNet he said that communities of practice in education have more chance of making progress than those in business because sharing is core to teaching professionals ethos. This observation is, of course, equally relevant to Naace.

The enthusiasm to share is palpable amongst us, the evangelists. Since I founded the MirandaNet Fellowship in 1992 our community of practice has grown from fifteen teachers in England who saw themselves as thought leaders in education innovation to one thousand members in eighty countries. We attract more than 64,000 visitors a year who read up to 11 pages of teachers' research.

ITTE and Naace have similarly grown and matured - adapting to new forces by encouraging many more school leaders to join them.

But until the last couple of years most of the expert enthusiasts in each of these three influential communities would agree with Wenger that our models of learning have not kept up with the potential offered by learning technologies.

What has changed?

Michael Fullan(5) is another guru, a long term expert in systemic change management in education. He cites three new forces that are converging to open up learning possibilities. The first force, 'new pedagogies', springs from the new learning partnerships that emerge between and among students and teachers when digital tools and resources become pervasive. The second, 'new change leadership', merges top-down, bottom-up and sideways energies to generate change that is faster and easier than anything seen in past efforts at reform. The third, 'new system economics', makes the powerful learning tools and resources that accelerate the first two forces more affordable for all.

In our research in schools in the last couple of years have seen the evidence of a significant change in professional attitudes now that many teachers own smartphones and tablets. Because of their personal competence and understanding of the potential for of technology for teaching and learning, teachers at the grassroots are beginning to expect and embrace change.

To dampen Fullan's optimism, there has been a profound change in the government's enthusiasm and capacity in England to fund this revolution as they used to and to lead the change centrally. Some of us are still around who were inspired in the 1980s by government agencies like the National Council for Education Technology (NCET, which subsequently became Becta) and organisations like MAPE (later to merge with Naace becoming Naace Primary) that they funded. This government support gave UK plc significant strengths and much that was developed in teachers' garages was exported around the world.

In terms of exports, colleagues in other countries consider the UK to have had major support in terms of the British Education Suppliers Association (BESA). This organisation that was founded at the same time as Naace, MirandaNet and ITTE has published a longitudinal report about the history of industries involvement and how in the UK, computer technology played a central part in the drive to raise standards in schools to meet the new challenges (6).

In this climate of expansion the technology industry was also keen to play a part in professional development. As an English and Drama teacher my first engagement was in a professional development project, where Professor Margaret Cox at Education Computing Unit, King's College, London, invited a group of practising teachers to develop curriculum software to support learning in the new curriculum subject, Information Technology. We were a motley bunch, English, Domestic Science and History experts, who had had no training in computers and certainly no access to them. But we could see that children were highly entertained and motivated by the adventure games that were emerging commercially. We could see the potential learning value and went on to develop Scoop, the first education game for the 8-bit with pictures - black and white of course.

The program was internationally popular as information technology was new and this was an adventure where a journalist had to use information technology devices to gain a Scoop. We all piloted this in our classrooms and wrote the the notes for teachers learning much about how adventures could be used to improve learning and achievement. To this day it can still be seen in some classrooms.

Based on this project and the many we have been involved in since, I do not agree

with Wenger that businesses do not want to share. It's true that they do not want to share with each other on sensitive commercial information but we have had a good reputation in the UK for education's partnership with education. British Telecom's part in this project illustrated the best of partnership. We all gained professional development and shared our research knowledge into what teachers and pupils found valuable in these new digital artefacts. How proud we were of this achievement …and this group of teacher co-researchers who started MirandaNet and have been evangelists for Computing in schools in all its forms ever since: Digital Citizenship and Digital Literacy also being high on our list. At the same time Naace was a growing influence with a membership from 1984 of those early computing advisers, teacher-advisers and policy makers, particularly those in Local Authorities.

How was this professional development and research funded? Well in England in the 1980s teachers were entitled to funding for M.As and Ph.Ds as well as 21 day course opportunities. So drawing on these professional development funding I was seconded to King's to author the educational adventure game and research the value for a year. The teachers in the development group were seconded on a twenty-one day course entitlement that allowed teacher to pursue an interest related to their teaching and researchers at King's were funded by BT to draw the larger research information from this intensive project.

Much has changed since then…In these days of austerity the UK government has closed Becta that commissioned most of the valuable research in this area (7); much smaller professional development funds have been devolved the schools who largely use this for training staff in how to use products and services (8); funds and time for involving leaders, advisers and trainers high level training is difficult to find outside of the CPD opportunities afforded by MirandaNet's action research for teachers, iCatalyst, and Naace's ICT Mark. This perennial problem has been documented widely since the National NOF programme 1999-2003 (9); companies struggle to reach enough schools to demonstrate what they can do and to continue their involvement once a product is installed; opportunities for objective research in this area through external funds are significantly reduced; applying for project funding is onerous and few submissions win - however good they are.

Despite these negative conditions, the World Bank advice for any project holds good: 50% on hardware and software and 50% on training for teachers - I would add for the leaders and advisors. Training could be interpreted as learning how to use the tool. But competence in using a tool does not have the same impact on achievement as a professional development programme where theory is referenced, the pedagogical value are defined by the teachers themselves and systemic change is discussed.

Over the years Mirandanet has evolved two solutions to combining a research and professional development agenda, Sprint and iCatalyst (10). Based on extensive research and practice, these programmes provide an opportunity for the industry, the professional communities of practice and the schools to work together for mutual benefit. At the core of these programmes is the action research method in which teachers themselves plan and develop the data collection methods so that their observations are central in the research reports.

Participants in Sprint work towards a short research report, developed in about one term, focusing on the value of one product or service. The study is undertaken by teachers as co-researchers with the support of selected advisors and researchers from the professional communities. iCatalyst is a longer project where teachers collaborate over a year to look in depth at how they are using digital products and

services and how they can boost achievement. The focus is systemic change based on local evidence. Leaders of these groups can work at Masters level with members of De Montfort University. Some of the mentoring takes place online and through Skype.

All those involved benefit from a well-organised programme:

- **teachers and senior manager**s gain a deeper and shared understanding strategies they might adopt to introduce systemic change and improve pupil achievement. The agenda is generated by the staff and they can use the results in their strategic planning as well as their reports to governors, Pupil Premium and OFSTED; teachers also gain accreditation and can publish for a global audience in a range of modes;
- **leaders, trainers and advisers** are also supported in developing these action research programmes that draw on theory as well as practice;
- **company representatives** who also join the projects as co-researchers gain professional development and valuable research and development information. A learning company uses this knowledge to improve their understanding of education as well as for marketing their product and for evidence of their learning in entering for awards.

Roger Turner, LightSpeed, a MirandaNet associate who has commissioned a Spring report (12), said that the gains were 'testing prototype and next developmental stage products in the classroom with teachers skilled in research providing feedback from themselves and their students. This has resulted in modifications to products based on a wider sample than just ideas generated in the design and development lab of the company'. Roger adds, 'Now more than ever, education needs to work in close partnership with industry if the potential improvements in learning outcomes new product development can help deliver are to be realised'.

Models of funding for this professional development model vary. Sometimes the company funds the whole project through their managed service and at other times they subsidise the school's professional development costs with free resources and trainers.
Schools can also commission a study where they identify the technologies they want to explore in terms of teaching and learning.

Teachers who have enjoyed Naace's PD courses, especially TOTAL, are likely to have begun relevant research, and useful publications are to be found via MirandaNet and Naace research publications (11).

Watch this space for exciting news of the PD agenda as partnerships develop with Naace and ITTE. In particular MirandaNet and Naace hope to be working together using the iCatalyst action research method on training for trainers (with discussion on the 6th November at the sponsors' conference) We hope to have further opportunities for discussion at the Naace Annual Conference 2016.

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MirandaNet Spring conference

Look out for news about MirandaNet conference we will be running on Saturday February 27th at De Montfort University, Leicester, where all the teacher participants in iCatalyst will be telling their action research stories. There will also be an ITTE/MirandaNet teachers conference in London on 2nd July. Get in touch if you want to be a participant in ether: christina@mirandanet.ac.uk

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http://mirandanet.ac.uk/blog/2014/05/how-new-pedagogies-find-deep-learning/
6. BESA report
http://mirandanet.ac.uk/knowledgehub/recommended-reports/
7. Miranda is reassembling the Becta research. Do you have a copy of a report you would like to see up?
http://mirandanet.ac.uk/knowledgehub/becta/
8. The last study Pachler and Preston et al. undertook about ICT professional development for Becta indicated that the CPD landscape in CPD was already very fragmented. We also looked at the reasons why some good teachers were reluctant to use computers in the classroom. Their reasoning was sound.
Pachler, N, C. Preston, J. Cuthell, A. Allen and Pinheiro Torres (2011) The ICT CPD Landscape in England Becta download here. This report contains a section about teachers who are reluctant to use learning technologies in classrooms that you can download here.
9. Christina Preston published the TTA NOF evaluation in 2004 that has many lessons that are valuable today http://www.mirandanet.org.uk/tta/
10. The Sprint and iCatalyst programmes and the action research approach are explained here
http://mirandanet.ac.uk/icatalyst/professional-development-approach/
11. http://www.naace.co.uk/publications
12. http://mirandanet.ac.uk/blog/2015/05/lightspeed-learning-and-listening/

Further resources
Examples of associate-funded Sprint and ICatalyst publications are here
http://mirandanet.ac.uk/about-associates/associates-research-new/

Examples of ICatalyst projects are here http://mirandanet.ac.uk/icatalyst/examples-of-icatalyst/

MirandaNet publications relating to professional development can be found here.
http://mirandanet.ac.uk/knowledgehub/publications/

Some examples of the pedagogical models that the teachers use to measure their progress in systemic change at Masters level can be found here
http://mirandanet.ac.uk/knowledgehub/pedagogical-models/

Learning in a digital landscape

Author: Laurence Boulter, IT Consultant

How does education prepare pupils for learning in a digital landscape? Is it not true that young people inhabit this "territory" in a feral way while we assume that they carry-over into the digital world the values and etiquette we try to instill in the physical world? But, in the virtual world the vast majority do not encounter adults and for most of their time "on the other side" the young are beyond the influence of adults. In the virtual world these things generally are unseen and go unchecked so how can schools support young people?

I went home a couple of summers ago to write a rationale for why we should use ICT in our new school. I was prepared to write about how it will enhance learning, develop meta-cognition and allow for personalised learning and all those other educational benefits that I have come to believe are possible to achieve. However, the sad news of the death of Hannah Smith, allegedly hounded to suicide by internet trolls, unexpectedly altered my perspective and provided an imperative that I had not really considered fully until now.

It is common for us to describe the internet based activities of our children in territorial terms. We refer to them living in the world of social networking and the internet and even describe them as natives (in contrast to us older participants being immigrants). We talk about the digital landscape, lobbies and rooms. We accept that the digital world is an inhabitable place and we know that young people are more at home there than we, as immigrants, might ever be. This "world" has become part of their psyche, their spirit, and we readily acknowledge that the young people of today will grow-up with values, emotions and cognition that will have been influenced by their engagement with technology. We all know that the future will change because of this, and that it is likely that our children will grow-up and model a world where this technology will be used in ways we find difficult to picture and adopt lifestyles that are equally difficult for us to imagine.

For us, this is an exciting challenge. How does education prepare pupils for this? How can we be sure that what we do now in the classroom will both be beneficial to the individual and the shape of society as a whole? However this question took on a different significance when I was thinking about what led to Hannah Smith taking her own life. A word popped into my head that I had never used to describe the behaviour of young people before, but the more I think of it the more appropriate it seems to be. The word I thought of was "feral".

Is it not true that young people inhabit this "territory" in a feral way? We sort of assume that they carry-over into this world the values and etiquette we try to instill in the physical world, but then it occurred to me that in the virtual world the vast majority do not encounter adults and for most of their time "on the other side" the young are beyond the influence of adults. I do not know what the average number of interactions a typical teenager might have in a day, but I'd wager that the number of interactions with adults, if they happen at all, are less than minimal. There is never an instance of someone replying to them "pulling them up" for manners or use of

language. I suspect that the ownership of their virtual world felt by the average youngster is so innate that most adults, when encountered, are considered as infidels. A message from an adult is not given priority, if acknowledged at all and messages from adults outside of the immediate family are probably very rare.

So, in this unregulated environment we should only expect young people to do what young people do, and we know that some pupils like to bully, demean, harass and gang together. We witness these things every day in school and have opportunities to challenge, coach and apply sanctions. In the virtual world these things generally are unseen and go unchecked.

I am not aware that very much thought has been given to the options available to a young person who is at the receiving end of such heartless behaviour. A pupil bullied at school has the respite of being at home. In the virtual world the bully follows them home. If the victim reports the behaviour to an adult the most likely consequence is that they will have their phone or pc or tablet taken away from them which simultaneously denies them contact with their friends, removes the opportunity for them to defend themselves and denies them the means to know what else is being said "in public" about them. In losing their phone the victim is effectively ostracised by their social group. They are always going to be reluctant to seek help from an adult.

I began to picture that this world, for some, was probably very similar to the feral world described in Lord of the Flies, and in that perspective we can imagine the torment that a vulnerable young person like Hannah Smith might have suffered and the likelihood that her persecutors, in Lord of the Flies fashion, grouped together in a persistent assault. We can also imagine how a paedophile might take advantage of the emotional vulnerabilities brought about by online peer aggression. We assume that grooming by paedophiles is a through a direct dialogue with a child. I have read little about paedophiles manipulating friendship groups in order to create vulnerable states in children but the challenge and "sport" offered surely must be irresistible to some.

A while ago Habbo Hotel (a social networking site for the young) was temporarily closed after some reported paedophile activity on the site. I listened to a radio interview with some young teenagers who were angry that they had been denied access (incidentally, I was informed by the Hi-Tec Crime Squad some years ago that Habbo Hotel attracted 250,000 UK youngsters every night and was the world's most popular haunt for paedophiles. This was some years ago though and Habbo Hotel has since significantly improved it's monitoring and protection regime). The interviewer pointed out that paedophiles had been using the site. The teenagers replied, "We know, half the fun is spotting them!"

These children are "playing on the railway tracks" and are in danger of being pushed under a train by a peer or accidentally stumbling in front of it. They are "playing chicken" in front of the trains, hurling stones at the trains and gathering on the tracks to talk and lark around. We know this because these are the kinds of things that teenagers have always done when left to their own devices and I am sure that this context is no different. These children are not being naïve, they are fully aware of the dangers, they are just doing all of those thoughtless, mindless and stupid things that teenagers have always done when the adults are not looking.

What is amazing is the character shown by some pupils given this lack of constraint. I've written before about the year 8 girls (that I had assessed at level 4), staying behind after school to show me how they had taught themselves html coding so they could pimp their Bebo sites (level 6 or 7?). All of us that teach computing know that there is always a pupil in every class who has taught themselves some kind of coding like Java or PHP, or is running a Minecraft Server or publishing Call of Duty videos on You Tube. Many of us recognise how powerful this engagement is and we imagine a world whose occupants are expanding their understanding using the internet, productively socialising or exercising problem solving skills and creativity. It's an appealing dream that drives many of us to explore the potential of ICT in the classroom. But this need to develop independent and creative use of ICT has perhaps overshadowed a more basic need to regulate student habits when online. This is not something that we can do remotely. It is no good telling students to act in a certain way then not monitoring their behaviour. Nor is it any use restricting student use of digital media and devices. The genie is out of the bottle in that respect and all we would achieve is to alienate the activity.

I believe that we need to model the kind of behaviour we would like to see in pupils. Pupils need to see teachers communicating with each other and with the students. They need to see teachers being creative, helpful, polite and organised using personal devices and the internet. We need to spend more time looking at how we can model a social networking environment and developing school systems so they make full use of online facilities and for these to be the norm for staff and pupils. Twitter, Facebook et al are designed specifically to integrate. There should be no reason when a pupil views his or her Twitter or Facebook messages, for us not to be there. I suggest that this then is the primary reason for introducing personal devices into schools. We need to the first to offer them a social networking environment that is as appealing as the regular alternatives. After all, in most cases, when a school pupil wants to message someone 99% of the time it is to someone in the building anyway.

The next time a young person like Hannah Smith gets herself in to trouble it needs to be in "public" and the school needs to be there to support in exactly the same way we are expected to in the non-virtual world.

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Reflections on a PRISM

Author: Lesley Simm, Smithills ICT

PRISM is a Primary Internet Safety Mentor programme running in the north of England by Lesley Simm of Smithills ICT. Here, Lesley shares some of the journey with recommendations based on initial findings from the project.

"I'm enjoying everything about the project really, from the start. I think all the classes, even those we haven't been to work with yet, will thank us for this!" Y3 pupil who began as a PRISM team member in Y2.

"I'm enjoying doing stuff on e-safety because you can do things with other children and teach them about how to stay safe online and why it's so important to be safe. I also like doing these activities because it's doing more and learning more about how to keep safe online. I feel like I have a lot more experience in it now and I like the way we are doing it." Y6 pupil who began the PRISM programme in last year in Y5.

It's almost a year since the inception of our primary e-safety peer to peer programme, PRISM: Primary Internet Safety Mentors, and as the project has evolved over the last twelve months we wanted to share with you some of our journey and initial key findings, in the hope that these will be useful if you are looking to undertake a similar project.

Why PRISM?

The name PRISM (Primary Internet Safety Mentors) came about after a lively conversation with a group of primary pupils about a good name for an internet safety project. After discussing with them ways in which they would be teaching their classmates about internet safety, it became so obvious: a beam of light splitting into different colours representing key messages being shared with lots of children. A prism! How lucky we were that the word fit in so well with the purpose of the project. How often does that happen?

Why did we choose primary aged pupils?

We believe that it is so important to teach e-safety to pupils as soon as they start using the internet, so they grow as safe users of technology. When we first began developing PRISM there were a number of funded programmes for KS3 pupils, such as CyberMentors (which unfortunately lost its funding last year) but nothing for primary pupils which trained them as specialist leaders. This really surprised us, because with my background being in education as a primary teacher and consultant, I knew from first-hand experience that they would be able to accept the PRISM challenge and lead it really well. It would just need to be presented appropriately in a manageable format.

Project Research

We talked to a number of colleagues and also conducted research and guidance from various sources, in order to inform the design of PRISM. For example, we consulted research from the Education Endowment Foundation Teaching and Learning toolkit (EEF) which suggests that pupils engaging in collaborative and peer tutoring activities can make up to 5 months' progress.
https://educationendowmentfoundation.org.uk/toolkit/toolkit-a-z

Ofcom's research was very helpful in helping us focus our design. In particular, we looked at their research about the impact of friends on children's online behaviour, looking at new technologies on the recommendations of friends, and the increasing numbers of children who know someone who has been affected by online bullying. In 2014 their report on children's media-use attitudes found that 66% of 8-12 year old children interviewed would find out about new things to do online from their friends.
http://stakeholders.ofcom.org.uk/binaries/research/media-literacy/media-use-attitudes-14/Childrens_2014_Report.pdf

Finally, as pupil voice is at the heart of PRISM we also talked to children, finding out about how they like to learn, what they already know about e-safety and how they would like to be involved in the project, and used this as our starting point.

So, how does PRISM work?

Stage One

A group of around 12 pupils (can be a few more!) with representatives from KS1 and KS2 are selected as mentors by the school, based on the school's knowledge of their needs. This might be for a variety of reasons, for example pupils who are

- lacking confidence or need to develop their speaking and listening skills
- receiving additional support through the Pupil Premium Grant
- vulnerable learners or those who would benefit from additional support regarding the safe use of online technologies
- or simply those who would be great ambassadors as e-safety leaders!

The school identifies a lead member of staff to support and drive the project, with their involvement and time commitment supported by the Senior Leadership Team.

PRISM team training

Stage Two

Pupils take part in an initial learning session, where our PRISM project leader meets the group and gets to know them and their needs. They also receive certificates and badges and learn about how the programme works and what their roles will be.

Stage Three

PRISM is a simple and easy to manage project. Over a year it focuses on three key themes, which are identified by the pupils at the beginning. Each term, pupils meet with our PRISM programme leader to learn about one of these. They then work together to create a series of activities to share with their peers, again decided on by themselves.

reating activities

Stage Four

Pupils receive a termly Key Stage presentation to deliver to their peers and each

term's theme culminates in them presenting this and their learning activities to the various classes or Key Stages across school, depending on timetabling and class structure.

PRISM team teaching their peers

What do teachers and leaders say about PRISM?

Monica Middlehurst, Headteacher, RL Hughes Primary, Wigan
As headteacher at RL Hughes, I am really excited that our school is the first in Wigan to work with Lesley and take part in her primary internet safety mentor programme, 'PRISM'. We have been on the look out for an e-safety project, which involves pupils in their own learning for a while, and peer mentoring and collaborative learning is something we are very interested in as a whole school.

PRISM is half-way through its second term and already we have a strong, co-ordinated team of pupils, able to share key e-safety messages and model appropriate online behaviour across school. By keeping the same team each term, we have increased their awareness of the importance of online safety and put a value on it by giving them extra responsibility. This has resulted in other pupils wanting to be mentors and children and staff talking about 'PRISM' and e-safety issues even more frequently.

As each class receives a termly session from our PRISM mentors (in addition to learning about it in their computing lessons) all pupils are taught informally using a different approach, which includes fun games. This is something all our pupils look forward to, particularly those that look up to others or learn by example. Rather than e-safety being seen as just another 'boring set of rules' our PRISM team model how it is 'cool' to be safe online!

For us, PRISM is the extra dimension we were looking for. Before we took part, online safety was already high on our agenda: it is taught as part of our planned

computing curriculum, we take part in Safer Internet Day and run parent workshops and staff training, so we have a lot going on already. The one thing we were missing was a way of completing the circle by involving our pupils, and as PRISM is pupil-centred and designed both to develop them as leaders and their peers as learners, I'd fully recommend it (or a similar programme) to other primary schools in a situation like ours.

Mel Hurst, Computing Leader and Innovations Leader, RL Hughes, Wigan
I've been really pleased with how the PRISM project has worked. Resources are always high quality and engaging for the pupils and they particularly enjoy the discussions and making their own activities. Using this peer-to-peer approach, we now have pupils who are confident in teaching key e-safety messages to their peers and promoting it across the school. Taking part in PRISM has been an investment in time and in pupils' learning and this has had a positive impact on every pupil in school. If you buy into a project like this you have to remember that it's for all the pupils, not just those leading it.

Lesley Simm, Programme Leader
RL Hughes decided to keep the same children throughout the project to develop them fully as mentors in all aspects of e-safety and they are starting to see the difference this makes to them as confident and informed individuals. Pupils who, at one time, wouldn't speak in front of a class are now really keen to do so. The presentations take about an hour per class and teachers have found that after one or two sessions of using the prompt cards, PRISM leaders are able to present naturally because they are so familiar with the content.

Since RL Hughes began PRISM they have also seen an unexpected outcome, based on its approach and delivery style. A number of similar groups have begun to be developed for other subject areas, with teachers recognising the benefit of creating their own teams of leaders and working parties!

What do pupils say about PRISM?

I'm enjoying being part of PRISM because I feel like I am learning a lot about e-safety and can help others in school. Y6 pupil

The thing I like best about doing PRISM is making our own e-safety games for the classes and playing them. Y5 pupil

When I presented to the classes I was nervous at first but then I got more confidence when I was teaching the others about it. I'm learning new things and you get to do all these fun activities. Y4 pupil

Recommendations
If you are looking to take part in a peer to peer e-safety programme, like PRISM, or are thinking of developing your own in-school model, we would recommend the following.

1. Teacher or Coach? Ensure the programme is designed and delivered by a qualified DBS checked teacher with recent teaching experience and understanding of e-safety at all levels. Why? There are lots of organisations 'out there' looking to cash in on e-safety in schools and not all of them are suitable. So, select carefully and check out the background history of the developer. Are they education or business based? Are they in it for profit or outcomes for pupils? Have they evidence of

successful teaching and do they have testimonials or feedback to support this? If possible, ask for references. Like all teaching activities in primary settings, the programme leader needs to be able to engage pupils of all abilities, to differentiate learning and be able to tailor activities, questions and responses to suit their needs. E-Safety can be a difficult subject to discuss, so they need to be aware of and sensitive to pupils' levels of understanding and be able to respond and support them appropriately. They also need to be able to keep pupils interested over a period of time!

2. Pupil Voice: Check that the programme is really pupil-centred, as pupil voice does matter, otherwise they may lose interest. To work, a programme like this has to be about them. For example, is there flexibility to change the programme based on pupils' learning and opinions? Does it allow them to make key decisions about how they present the programme to their peers? Are there any resources and are they pupil-friendly and written appropriately for the ages intended? Are they differentiated or can they be if necessary? Are videos or graphics suitable and 'grown-up enough' for them, rather than being selected because they look child-like?

3. Time: Is there enough time for this type of project? Make sure you really have the time for a programme of this type. Is there flexibility in the working day to release pupils to attend sessions? Is there enough time for pupils to present their learning or is this likely to be squeezed into the term? Are project sessions long enough for pupils to learn about the relevant theme and have time to discuss / clarify their ideas about such important issues?

4. Sustainability: Can the programme be sustained once the programme leader leaves school? Are there enough materials so that it can be repeated another year or adapted? For example, is it reliant on technologies or a subscription that won't be available in another year? If so, ensure you have a budget in place to continue, otherwise the impact will be minimal as a one-off activity.

5. E-Safety is about people, not technology! How much face-to-face support is actually delivered by the e-safety programme leader? Are you really buying support or an online package? Is this adequate for your needs? Can the identified member of staff manage it when the leader isn't in school? Is there suitable training for this member of staff or can they receive additional support if necessary?

If you would like to read more about PRISM or wish to discuss any of the above with Lesley, she can be contacted through her website http://smithillsict.com/contact-us

Alternatively, you can keep up with the PRISM project by following Lesley's tweets @smithillsict using the hashtag #prism

Google Apps for Education, Google Forms and Google Classroom V1.1

Author: Piers Casimir-Mrowczynski, Head of Computer Science, Beechwood Park School, Herts.

Google Apps for Education (GAfE) is free to schools. For example, staff and pupils still enjoy their traditional network accounts, Outlook email, personal server residing drives. Additionally, pupils also have access to a calendar. GAfE provides the ability for pupils to share and collaborate when working. So how can these tools be used in a secondary school?

Don't get me wrong. I love Microsoft Office, Powerpoint remains a pupil favourite, and we are doing that 'coding thing', too, from ages 4 to 13. I run our Prep School Computer Science Department, and as someone who can never stand still when it comes to our curriculum, was intrigued when I read about Google Apps.

It was about 18 month ago and a chance glance at one of the many, and very useful, teacher and educator blogs I follow that kindled my interest. There was mention of something called 'Google Apps for Education'. I was certainly familiar with Google as a search engine, and recalled reading sometime back about their 'versions' of office type software too, but at the time it had just not excited me. So feeling somewhat intrigued, I did a little detective work - using Google, to search for Google.

My journey took me to [Ian Addison's blog](#). This is a fantastic resource where Ian talks about his teaching and IT thoughts and experiences. I thoroughly recommend it, and he wrote eloquently in one article about Google Apps at his Primary school. Now feeling further intrigued and quite exciting about this thing of which I understood very little, I searched out some sort of training to get me started. This took me to a fantastic, one day course, introducing me to Google Apps, run by [c-Learning](#). The course was at a weekend which suited me perfectly. It was also one of those courses that leaves one buzzing, desperate to get started.

So what is Google Apps for Education? Google Apps for Education (GAfE) is the version available to schools, that is free, but is comparable in every way to the version paid for by commerce. It is a cloud based world, where one can create and store and manage user accounts, documents and spreadsheets and presentations and email and more. Just like most such worlds an Administrator is required to create user accounts, Organisational Groups etc. That is me. And I love the control and flexibility. For example, staff and pupils still enjoy their traditional network accounts, Outlook email, personal server residing drives. In addition, they now have their use-anywhere, GAfE accounts, providing safe and secure, unlimited cloud based storage and functionality.

Some of the wonderful advantages are that if a child can use Word or Powerpoint, they can jump straight in and create a GAfE Document, or Slides presentation, Web Site or Spreadsheet. Everything they create is saved almost continuously. A class

can commence a piece of creative writing in a school based lesson, then at day-end go home, log on at home and continue. No more emailing of Prep., back and forth, low capacity or lost memory sticks, just a seamless continuation of their work, in a way that mimics the real world of their parents. Additionally, pupils also have access to a calendar. And it is easy for me to take our school calendar and 'share' it with all pupils and staff, so they have access too. Which brings me onto one of GAfE's greatest strengths - Sharing and collaboration.

In so many lessons I highlight the need for teamwork and problem solving. Those real life skills that are just so important to learn and apply. GAfE provides the ability for pupils to share and collaborate when working. They don't actually need to be in the same room to achieve this. On occasions I have had pupils working in teams of two using the excellent Drawing tool. On another I matched up schools across the world, with about three schools at a time, all working on the same Slides presentation, at the same time, literally. The results were amazing, and the team working skills, both in terms of the collaborative learning as well as the ability to add Comments and respond to them, amazing. GAfE really does provide such an easy to use, cloud based, platform non-specific environment that is amazingingly easy to use. The additional flexibility it provides is also so powerful. For Example, if you decide that you don't wish pupils to have Gmail access in your GAfE domain, switching it off for them, is an easy (and reversible) task. If you wish to integrate your existing BrainPop logins to give the pupils a single-sign-on environment, (for their BrainPOP quiz results as well) then that is straightforward too. We have also switched-on, Youtube for Schools, but perhaps that is a story for another time.

Google Forms is one of my favourite tools. With the ever present need for pupil assessment, Forms provides an easy and effective method of creating and managing pupil tests. The idea is simple. First create a set of questions using Google Forms. They can be of a large variety of question types, though multi-choice is the most effective. The ability to shuffle questions at the time of test taking is a powerful one. Once the test has been created, a link (web address) can be shared with the children, who individually and online, take the test and submit their answers. All results are automatically pulled into a single spreadsheet, the owner being the person who originally created the test. Facilities also now exist that will automatically mark the test. Bliss.

Whilst Google Forms is an excellent assessment tool, it has other applications too. I have used it for student welfare surveys, parental communications, staff training surveys, staff training. The applications are endless.

For me, aside from the safe cloud based storage, flexibility and ease of use, the new Google Classroom suite is the icing on the cake. If you are an existing GAfE user, but have not yet added in the free Google Classroom - what are you waiting for!?

Google Classroom provides the ability to integrate your existing pupil accounts into classroom groups, visually presented. Once created, the ability to allocate Assignments is easy. Using your teacher GAfE account, give the assignment a title, add resources, such as an explanatory document or video link and choose a due by date. The pupils, via their accounts, pick up the assignment, utilise the included resources, create their (automatically named) document, presentation etc., and once finished, electronically hand-in their work. I can then, at home or at school, or wherever convenient, view and assess, and then grade their work, with comments where appropriate. The pupil now has recorded feedback and I too have an audit trail of how they are progressing. Seamless.

For the learning and education of the children I believe variety and choice are key. Give them the tools but show them the flexibility to choose what to use to get the particular job done. In the classroom we still use Office, learn how to problem solve using spreadsheets, understand databases, draw pictures! But we also incorporate logical thinking and problem solving using a variety of coding platforms. GAfE also plays its major part. The huge amounts of storage available, administrative power and flexibility, variety of tools, web site creation functionality, amazing sharing and collaboration functionality, make our new world such a powerful one. We are now very happy to have our heads firmly set in the cloud.

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GoogleApps train is available from c-Learning and others.

Online Learning Content Curation Conversation

Author: Caryl Oliver, Learning Solutions

The following is the conversation that I have with subject matter experts when they are providing content for us to build online learning for teachers at participating schools. All the learning delivered is self-paced and self-assessing so no LMS is involved in this instance.

Introduction

Building a module of online learning is like developing a lesson plan that you will deliver in a vacuum. You will not see or hear the reaction to what you deliver and you will have no clues to tell you if your audience is engaged, bored or still there.

The process of developing content for online learning is one where we peel away a lot of the external 'noise' that we might use in a classroom situation and expose the kernels of knowledge that we then present as engagingly and clearly as possible. Subject experts have this knowledge and the e delivery team have the skill to challenge that knowledge in order to reveal the core information.

Together online learning magic is created!

Some key things that will turn online learners off:

- Long academic texts to read online
- Insufficient visual stimulation
- Images not relevant to the topic
- A huge resource library that needs wading through
- Being preached at
- Being asked questions before they have been given the knowledge
- Being sent offsite to read or download large documents from other sources
- Reflective questions that may be answered with 'don't know' or 'so what'

Online learners will spend less than 60 seconds on a page before making a decision about staying or leaving.   Our aim is to engage them in the first third of that time.

Some key things that engage online learners:

- Quick hits of facts and information
- Short paragraphs of detail rich knowledge
- Clear and pertinent infographics and charts
- Games that use the new knowledge immediately
- Material that can be dipped in and out of easily and quickly and revisited often
- Ideas and suggestions that they can put into practice immediately Links to materials supported by usage suggestions
- Reflective questions that do enable genuine reflection
- A whole experience that may be completed in 15-20 minutes

Stepping through the process:

- A module is a topic offered to learners
- A module unit is an individual online learning experience that may take the learner 15-20 minutes to consume
- Outcomes are the key messages within a module unit that will be covered

Do not try to digest this whole document in one sitting. Work through it in small steps on the topic of your expertise and reflect on what you are producing before moving onto the next step.

1. Defining Module units

As an expert in your module topic, you will have a clear idea in mind about what teachers might need to know in order to feel that they have expertise or new skills to manage that topic in their learning environment.
All modules will vary but it is suggested that you aim to have between 1 and 4 module units of learning.

Module units may have titles like:

1. Understanding Puddle Jumping
2. Improving Puddle Jumping in the Classroom
3. Puddle Jumping across the Curriculum

These titles may, initially, be working titles and something more interesting may be applied at a later stage when the content is developed.

2. Defining Outcomes

Once you have defined the titles, you can then consider what the outcomes are to be for teachers who undertake that module unit.

All outcomes will vary but it is recommended that you aim to have between 1 and 3 outcomes for each module unit. This offers a reasonable length of module unit and keeps the learner engaged for a reasonable time.

Be careful about too many outcomes as each one requires a body of work that you will have to supply!

Outcomes may be like:

1. Understanding Puddle Jumping

At the conclusion of this unit you will:

- Have an understanding of Puddle Jumping
- Know where Puddle Jumping sits in the hierarchy of the curriculum
- Be able to plan to include Puddle Jumping in your lesson planning

2. Improving Puddle Jumping in the Classroom

At the conclusion of this unit you will:

- Be able to identify where Puddle Jumping is missing in the classroom
- Have some tips and ideas for including Puddle Jumping in teaching practice
- Be able to source lesson ideas from around the world

3. Puddle Jumping across the curriculum

At the conclusion of this unit you will:

- Be able to explain to colleagues how Puddle Jumping impacts on their work
- Have some tips and ideas for including Puddle Jumping in others' practice
- Be able to advocate for Puddle Jumping within your setting

All of the above has created the framework within which you can develop the content you want to share. From this point forward the scope for creativity increases exponentially!

What this unit will give you

- An appreciation of the type and scale of SLCN in your setting
- Knowledge of the national gap between those children and young people who have had their SLCN appropriately identified and those that have not

3. Defining the content

The knowledge you have to share now needs to be organised into the module units and the outcomes you have identified so take a little time to organise your thoughts into those categories so that the last one the learner tackles is as interesting as the first.

You will then need to do the following for each outcome you have identified.
Your first statement is your chance to make your first impression. What is the most important single thing that you want them to take away from having done this piece of learning? State it strongly and clearly.

'It was only in 1914 that Puddle Jumping changed its then 200 year traditional technique from using one foot to using two…   When Peter Leg first introduced Puddle Jumping to his small village in Yorkshire in 1714 he was solving a local ground maintenance problem without realising the impact he would have on the whole country'

An interesting image or video may be appropriate here.

The learner will, at this point be quite clear about the knowledge being offered and will be engaged because there is no extraneous material to distract them.

Based on having this knowledge it is possible to consider an interactivity that might be used to test the learners understanding of the topic.

Only the person with the expertise in the topic will have a good idea of the range and scope of material that may be available to share with the learner.

By discussing this with e-delivery we will be able to clarify, refine and define the specific parts that we want to include in the online module unit and how to present them.

As each module unit is going to be unique it is impossible to pre-define what the content might be or what to include or not include. The following questions might help you make some of those decisions for yourself:

Will they already know this? *They will disengage if they think you telling them what they already know*
Will they think this speaks to the outcome? *Look at it from their view, not yours.*
Is it the critical information they need? *If they can implement easily they will engage further.*
Is it up to date and current? *Anyone can Google old news, give them what is relevant today.*
Is it just 'nice to know'? *Refer to it but put it in the knowledge bank with a link.*
If you had to cut the content by 50% would you keep this in? *Look at it from their view again.*
Is it fun? *Humour is a powerful tool – it is OK to have a bit of fun.*

3.1 Infographics

Many learners prefer pictures to words and in an online environment this is even more important. If you have a grouping of static information, don't bury it in narrative but show it as a group and let e-delivery come up with some ideas about how to present it for you.
Think about your audience and the tone of voice you want for the subject so the infographic can be created more or less seriously.
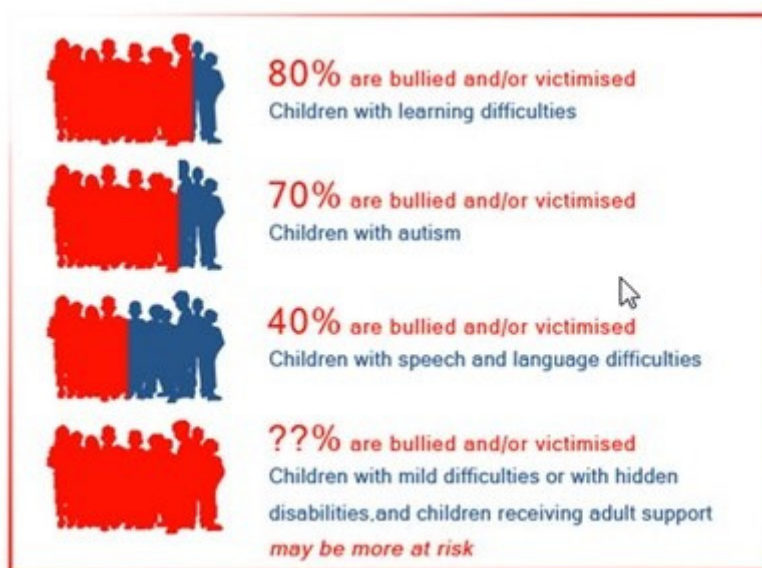

3.2 Getting Interactive

Interactivities, if done well, as the most engaging means of delivering learning online. E-delivery has the experience and expertise to help devise appropriate interactivities for your module units based on the content you have. Talk to them when you have the skeleton of your content so you don't waste time putting content together in the wrong formats.
Interactivities can deliver presentations, practice (ones that you cannot get wrong) and more rigorous testing. The following, by no means exhaustive, list are some forms of content that lend themselves to interactivities:

Presentation: simple series of statements that cannot be dressed up any other way

Lists: Items, actions, rules, etc… may be in priority order or functionality order. Good for a testing game later.
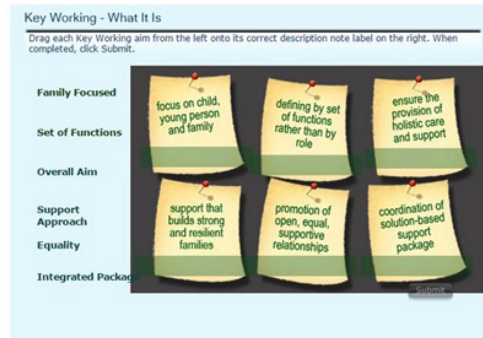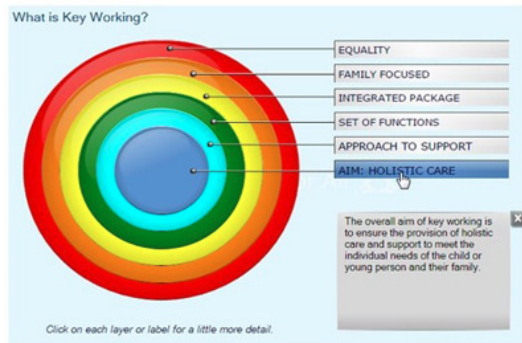
Knowledge check

Presentation

Explanations: A group of products, headings, actions along with simple explanations about them.

Classify: Items with component parts to identify. Statements that group together.

Provide the copy as economically as possible and provide images to be used.

3.3 Videos

Videos are always good to embed into learning material but they are better at 45 seconds than 4.5 minutes. They should be strong on message or the learner will drift away.

3.4 Something to do

What you can do

Work with one or two other colleagues. Observe a meeting with a Parent or Carer (this will of course have to be negotiated with the family beforehand, with sensitivity and discretion), and observe how often they use open questioning to actively involve the Parent or Carer in constructive dialogue.

We always try to include an activity that the learner can do after they leave the online unit. This might be something personally practical, something they may do with their pupils or sit may be something they may do with their colleagues.

3.5 Reflection

Reflection

Consider what 'reasonable adjustments' or 'proactive measures' your school might have made in using assistive technologies (including hardware and software) to support disabled young people and those with special educational needs. Assistive technologies will more than likely have been used allow access across the curriculum. But can they be applied to develop, promote and support a disabled child's fun and friendships?

Reflection is good to help learners before they leave the page with something to think about but in an online environment the reflection questions or direction must resonate with an individual on their own in front a screen.

3.6 Feedback

At the end of every module unit there is an interactivity that enables the learner to write free notes during the course about any issues they want to revisit, discuss with a supervisor of share with colleagues.

3.7

Knowledge, Tools and Links

Module units are supported by resources that can be gathered in a library of knowledge, tools and links. Don't fall into the trap of loading this library up with material that the learner has to work through without guidance. Do make links in the body of unit but not so much that is breaks the flow of the learning or distracts the learner.

About the designer/module unit creator

The person building your module unit is learning about your topic as they build it. If the content you provide is well organised, clear and interesting then the module unit that is produced will reflect the enthusiasm you have generated in the designer!

Online learning is fun and you should have fun sharing your knowledge and experience. Together we can then create the best possible outcomes for the learner.

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ICT at Cramlington Learning Village

Author: Cramlington Learning Village and Frog Education

At Cramlington Learning Village we pride ourselves on our use of technology to help develop independent learners and thinkers. We are proud of the fact that we are one of 6 elearning champion schools in the UK (elearning foundation) and that we are one of only 7 Google Lighthouse schools. We were lucky enough to be the lead school for the UK in an EUN 'creative classroom' project looking into the impact of mobile devices on Education. We are prouder still of the more important side of things: how our use of technology supports our students in many ways.

Our current strategy revolves heavily around the use of 1:1 chromebooks, Google Apps for Education and our Frog VLE. However, our principles have been the same over the past 12 years. Quite simply we want to keep learning right at the heart of anything we do with ICT. Before delving into our current strategy it's worth taking a step back to reflect on our journey over the past 12 years.

Around 12 years ago we adopted Alistair Smith's accelerated learning cycle. At the time we made the decision to collapse Wednesday afternoons for students to facilitate over two hours of regular CPD time for staff. During this time there was an expectation that staff would collaborate on lesson plans and that these would be written in a consistent format (following the accelerated learning cycle) and placed online on our intranet. We soon realised how powerful this was in terms of the impact it was having on our lessons and invested heavily in 3 web designers to help support staff in producing the highest quality lessons and resources possible.

Over the years the role of our web design team morphed with more and more bespoke whole school tools being produced. Technology moved from simply being in the hands of teachers to being in the hands of all students. A new building (our Junior Learning Village) allowed us to place two PCs on each student desk (circular desks for collaborative work) in large open plan classrooms. As technology moved on we realised that in our flexible physical learning spaces, we also needed flexible technology. Against the popular opinion of the time we opted for Galaxy Tablets as opposed to iPads. This took our use of technology to the next level providing access to all of our online tools (and many new ones) 24x7 whether in school or at home. Implementing Frog as our VLE really allowed us to take advantage of the access our staff and students had to technology. Some highlights to follow!

Having had success with our galaxy tablets we found ourselves in a similar position to everyone else across the country. Budgets have been squeezed and money for technology is simply not as readily available as it was in the past. This left us in a position where our level of ICT provision was simply not sustainable in its existing form. However, our use of technology was so ingrained into the ethos of the school we simply had to find a way to keep (if not increase) access.

Luckily around 3 years ago Chromebooks and Google Apps reached both a level of maturity and a price point which made them the perfect solution. We now run a parental contribution scheme whereby parents contribute a voluntary donation (through the elearning foundation) or £10 per month over 2 years. This allows us to provide students with a chromebook, 3 year warranty and insurance, protective case and chrome license. Whilst we have some demand for specialist software (mainly in

Media, Music, Technology and ICT) we quickly realised that online tools could 'completely and comprehensively' replace what we used ICT for in most subjects across the school.

Below are a few highlights in terms of how we have made sure that this strategy works and how we have taken advantage of 1:1 technology:

- Staff training – this was essential. All staff were given their own chromebook and training was built into a two and a half day internal staff conference (with plenty of follow up). We hold regular 'chrome meets' where staff share ideas.
- Our VLE and all of our tools were adapted so that they would work fully through a browser. We developed a new lesson planning tool to allow staff to develop lessons and resources online.
- We developed our own online home learning system and planner. Parents are contributing heavily towards our scheme. It is important that they can see the impact of the chromebooks at home. Engaging parents through these systems and our existing parental portal (VLE for parents) helps parents to see the value of the contributions they are making. Without these, the scheme would quickly fall apart.
- We have a massive focus on our learning toolkits. These are toolkits we developed in house to support students with literacy, numeracy, thinking skills and learning tools. Our aim is to help students become more independent in their learning and to access these tools at point of need as they work. These tools also help to develop a common language for learning across the school.
- My classes – this is another tool developed 'in house' and is the pride and joy of our VLE. My classes is everything a 'class' and their teacher need. For their teacher it pulls all relevant information into a single place about their class. They access all data, SEN information, reading ages, medical information, review data, students' hopes and dreams, career aspirations, rewards, etc.

The My classes area backs up a number of whole school policies. We ask all staff to have a seating plan for each class. On My classes there are photos of each student with links to information about each. These are 'draggable' around a virtual classroom. Another policy is 'hands down questioning'. This encourages all students to be ready to answer questions and to think during lessons. Our random name generator which pulls names directly from the MIS allows teachers to pick students at random.

We have cherry picked the best online tools and have recreated them in My classes all in one place. Instead of Edmodo we build our own class blogs (each class has their own automatically generated), instead of poll everywhere we built VOX and Class Poll. These are just brief snippets of what we have made available to staff and students. We could not function without everything that My classes now offers us:

- Flipped learning – this is such an obvious thing to introduce when you have access to 1:1 ICT and it is changing the emphasis in lessons. More responsibility is placed on the learner to come prepared and richer conversations can take place during lessons.
- Google Apps themselves – these cannot be underestimated. The collaborative nature of GAfE offers so much potential. Not only can students collaborate more easily but feedback is enhanced exponentially. The ability for staff (or peers) to see 'live' work and comment on it at any time is really increasing the quality of student work when produced electronically. We

constantly see students making improvements to their work over weekends, on evenings, during breaks and lunches. They value the speed at which they receive their feedback.

- In many subjects we use marking and feedback to automatically create flight paths for individual students. Resources are made available to them to help them move on in their learning and completely personalised paths are available to them.

In addition to the learning benefits our current strategy brings us, the financial benefits should hopefully be obvious. We are now running 1:1 provision at less than half the cost we were previously providing 1:2, plus we are extending that access to the home. Our licensing costs are dropping dramatically as are our printing costs. We are even seeing a reduction in our electricity bill as we are maintaining far less desktop machines. Our IT support team are able to keep on top of the specialist suites which remain far more easily and all staff and students have 'unlimited' storage in the cloud.

To finish off this article I just want to share three tools which we regularly come back to in our strategy for ICT. The top image shows the ways in which we aim to use technology in our school. The other two are documents we refer to regularly, Becta's guide to introducing new technology and Futurelab's innovation maturity model.

Cramlington Learning Village - How we aim to use technology

Implementing New Technologies – Adapted from prior work of Becta (we believe)

		Dimensions of innovation				
		Educational Outcomes	Educational processes			Educational resources
		Learning Objectives	Pedagogy	Learner role	Management of teaching, learning & assessment	Underpinning Technology
1	Exchange Localised use	Activities address isolated learning objectives targeting specific pieces of subject content within the curriculum such as the life cycle of an insect, or prime factors.	Technology is used within current teaching approaches as a direct substitute for well-established resources, such as using an IWB as a substitute for a chalkboard, or an e-Book as a substitute for a text book.	Learner as 'consumer' of learning content and resources, where the content or resources determine the learner's activity.	Learning is directed by the teacher and located within the classroom, with all learners following instruction in step. Technology is used to generate assessment evidence.	Standard technology, such as interactive whiteboards, linear courseware, and websites.
2	Enrich Internal Coordination	Activities address sequences of learning objectives addressing related areas of content within a subject domain.	Technology used interactively in support of familiar pedagogical approaches, with a variety of resources being matched to different learners' needs.	Learner as 'user' of technology tools and resources, such as office tools and search engines. The learner chooses the appropriate resources or tools for the task.	Technology and systems support differentiated provision within the classroom by providing a variety of entry and exit points to tasks and offering alternative routes through the tasks. Assessment evidence is generated throughout.	Interacting with technology, for example, adding to blogs or wikis, using apps within a learning platform
3	Enhance Process redesign	Activities address learning objectives that include higher order thinking and key subject specific process skills such as inquiry skills in science or presentational skills in languages.	Teaching and learning 'redesigned' to incorporate technology, building on research in learning and cognition. The teacher uses new pedagogies (such as the learner as teacher or concept mapping) to develop competences.	Learner as 'producer' and collaborator using networked technologies to model and make such as learners developing their understanding of a physical, economic, or social process by creating a computer model.	Technology is used to allocate learning tasks and to track learners progress through a task to assess process skills alongside knowledge and understanding.	Using software to programme, create websites, games, video clips, animations, 3D models etc. 1:1 computing
4	Extend Network redesign & embedding	Activities address learning objectives that go beyond traditional subject competencies to include cross-cutting 21st Century Skills such as collaborative problem solving.	Teaching and learning distributed, connected and organised around the learner, bridging the gap between formal and informal learning, through extended productive inquiry based learning.	Learners take control of learning using technology to manage own learning, choosing the appropriate resources or tools to support their learning, such as choosing to join a MOOC to further develop their understanding of a topic.	Institutionally-embedded technology supports the flow of activities, content and data, providing an integrated approach to teaching, learning and assessment giving the teacher and learner timely data on learners' experiences and achievements.	Use of innovative technology, e.g. 3D printing, Alternate Realities. Using technology across boundaries, for example, integrating products made at home with that in school
5	Stage 5 Empower Redefinition & innovative use	Activities address personalised learning objectives that are negotiated with students and are reviewed and revised throughout.	Ubiquitous, integrated, seamlessly connected technologies support learner choice and personalisation beyond the classroom.	Learner as co-designer of the learning journey, supported by intelligent content and analytics.	Technology supports new learning services that go beyond institutional boundaries, allowing the school to broker services provided by others, such as learner communities of practice.	Mobile and location-aware technologies supporting 'agile' teaching and learning, that is, responding to situation

Futurelab – Innovation Maturity Model

For further information please contact Catherine Bonner, Frog Communications Manager at catherine.bonner@frogeducation.com or visit www.frogeducation.com

Infomentor

*Author: Matthew Day, Assistant Headteacher,Southbrook school*

InfoMentor is an award winning online solution to help schools plan their curriculum for formative assessment and mastery learning. InfoMentor connects planning with assessment which reduces teachers' workload. It enables head teachers and teachers to build a clear picture of what students know and don't know.In this case study Matthew Day explains how it has been used at Southbrook School.

Southbrook is a successful secondary special school for pupils, aged between 11 and 16, with varied complex needs and abilities including moderate or severe learning difficulties, social emotional and behavioral difficulties and Autism. Pupils may also have speech, language and communication difficulties, sensory impairments and / or physical disabilities. When we first heard that National Curriculum levels were going we saw it as an opportunity to devise an assessment system that really reflected our pupils and the small steps of progress they make. I devised a Progression Pathways system and all subject coordinators created their own pathway that was suitable for their curriculum.

We then started looking for an easy but effective way to record, track and analyse our assessments against our Progression Pathways. I tried creating my own Excel spreadsheet but it became too complicated. I then started looking at external providers but they only offered their own assessment system that was not flexible enough for our bespoke needs. I met InfoMentor at the Bett conference and straight away realised they were a different company who were interested in working with us to provide us with exactly what we wanted and needed for our school.

In addition to enabling us to complete our assessments, the system also allowed us to plan units and lessons, share resources and make assessments available to all staff, pupils and parents. Once we started using InfoMentor we were also able to complete our reports for parents which has been easier for staff, and parents have reported that they now receive much better information in a clearer format.
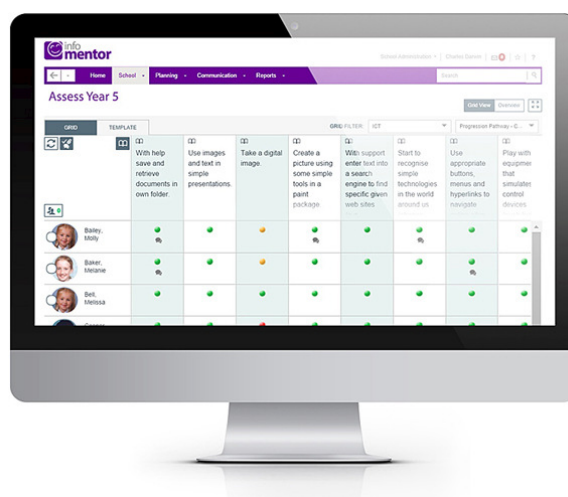
Here are some of the main reasons why InfoMentor is suitable for Special Schools and why we chose to use them:

- It is flexible to be used in the way that best suits your school, staff and pupils.

- All pupils should reach their goals!
- The company are very keen to work with you to achieve what you want from the system and are keen to hear your views on future developments.
- The analysis and tracking of assessment is easy to complete and it is very clear to see progress for individual pupils as well as groups.
- Our SIP, LA and an HMI inspector have looked at our Progression Pathways and our InfoMentor assessment system and have all praised it.
- It is very quick and easy for me as Data/Assessment coordinator to produce reports for leadership team, staff, governors and external agents or parents.

InfoMentor has enabled us to teach more effectively and become more student focused.

Here are some of the key features that allow that:

- Because it is quick and easy to make assessments staff are now accessing regularly (rather than just when NC levels were due to be handed in as before)
- You can save evidence against individual statements in the form of pictures, videos, audio and Word, which means we can clearly demonstrate what a child can do and has done.
- The curriculum coverage tool shows teachers what they have taught and where the gaps are in teaching.
- Curriculum Grids allow us to build a picture of pupil knowledge and what groups and individual pupils' next steps are.
- The planning tool puts everything in one place: plans, resources, assessments etc so they are all linked. As a result staff are now much more focused on using formative assessments to inform their planning.

InfoMentor has helped our school reduce the time teachers spend doing the day to day admin regarding planning.

- Planning is very quick and easy and can be shared with other staff who can then quickly adapt it for their groups.
- Once you have made a plan you can use it again anytime, adapting it as and when it is needed.
- Assessments are linked to planning so it constantly reminds the teacher to focus on AFL.
- Report writing time has been greatly reduced, whilst at the same time we have produced much better Annual Review and End of Year reports for parents.
- It is very quick and easy to show parents how their child is getting on.

Working with InfoMentor has been hugely beneficial to Southbrook and the support from day one has been incredible. Every step of the way the support we get is very quick and personalised. InfoMentor are invested in making continual improvements to their site and, from our experience, will work with schools to make the system work for you.

To find out more call 0845 680 3681, email enquiries@infomentor.co.uk or visit: www.infomentor.co.uk