Using technology to improve teaching and learning in secondary schools

A small-scale study of the effective use of technology in secondary schools

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A. Introduction

Over the last decade, there have been dramatic changes in the use of technology in schools. Schools have purchased extensive amounts of hardware and software, set up broadband access and trained teachers to use technology.

Children and young people are enthusiastic about technology and increasingly skilled in using it, although they may lack more advanced skills and knowledge. They spend much of their time using digital technology for entertainment, socialising and for learning. However, exciting opportunities to harness children’s skills and enthusiasm to improve learning in schools are sometimes being missed:

Some technologies have been adopted widely in specific sectors – for example, virtual learning environments (VLEs) in higher education, and interactive whiteboards (IWBs) in schools. A few technologies for learning – for example, presentation software and data projectors – have been widely adopted across all sectors. Technology continues to be increasingly adopted and used by educational institutions across the country, but examples of cutting-edge technology being harnessed to transform teaching and learning remain the exception rather than the rule (Becta, 2009).

Other concerns about the use of technology in schools are raised in the findings from Becta’s Harnessing Technology Survey (2010):

- Over the last few years there have been no real improvements in pupils’ access to technology in schools. The pupil: computer ratio for secondary schools is around 3:1;
- Teachers have access to classroom technologies such as interactive whiteboards, desktops and digital cameras, but their access to handheld technologies is limited;
- 77% of secondary school ICT coordinators thought most/all teachers at their school were generally enthusiastic users of ICT for delivering the school curriculum, but there were still skills gaps;
- Despite an increasing number of schools having learning platforms, there is evidence to suggest that these are not fully exploited and there are some interoperability, quality and access issues.

This report outlines findings from a small-scale study, conducted by the DfE, based on evidence drawn from visits to fifteen secondary schools. The schools were recommended by the DfE Technology Policy Unit, the Specialist Schools and Academies Trust (SSAT) or Futurelab. The recommendations were based on prior knowledge of these schools making effective use of technology to enhance teaching and learning. The visits focused on the use of technologies across the curriculum and the schools’ views on the impact on teaching and learning, and not technology or ICT as a discrete subject.

The report aims to capture effective practice in the schools visited in order to exemplify how the use of technology can improve teaching and learning across the curriculum. Examples of the practice of particular schools are presented in quotations and short vignettes.

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1 Learners’ use of Web 2.0 technologies in and out of school in Key Stages 3 and 4 (Becta, 2008)
The methodology and a list of the schools visited are included at Annex 1. Resources and related publications are listed in Annex 2.

Across all fifteen schools common themes and factors for success were identified and these are presented in the report together with questions for schools to consider when evaluating their own practice and identifying priorities for development.

B. Vision and leadership

Underpinning the successful practice found in the schools were two crucial elements:

1. A strategic vision for the use of technology
2. Strong whole school leadership of technology

1. A Strategic vision for the use of technology

Effective use of technology was central to achieving the school’s vision for its learners in all of the schools visited. The schools acknowledged that technology was now an integral part of pupils’ everyday lives, and recognised the importance of developing pupils’ skills in using different technologies in preparation for further study and the world of work.

Accordingly, the schools placed technology at the heart of their planning to improve teaching and learning. Staff often described their schools as having ‘a culture of innovation’ where technology was embraced and the schools placed an emphasis on using technology to:

- enhance teaching and learning;
- improve efficiency of systems and processes within the school and reduce administrative burden on teachers;
- Explore future ways of working.

‘Technology can improve an already successful school. It is a way of giving pupils the tools to take control of their learning.’ Headteacher

‘Technology is fundamental to our students’ everyday lives and we are continually seeking innovative ways of incorporating new technologies into the curriculum that are relevant to learners of the 21st century.’ Assistant headteacher

‘Technology offers us the tool to expand places and partners for learning beyond the confines of the school timetable and the school gates.’ Assistant headteacher

The effective use of technology pervaded everything the schools did, including teaching, learning, leadership and management. Each school had taken control of its learning platform, customising it to meet their own needs. In this way, schools had developed a comprehensive system through which all communications with staff, pupils and parents were delivered. For example, information such as timetabling, school diary, attendance and behaviour records, academic targets and tracking could be accessed online at any time and from anywhere. Staff, pupils and parents were expected to log on regularly to access relevant information and to communicate with each other through email and online forums.
2. Strong leadership and whole school involvement in the use of technology

Senior leaders in all the schools were committed to supporting the effective use of technology and viewed it as a high development priority. Head teachers saw a direct link between effective use of technology and improvements in standards. They sought to create an environment where innovation was supported and encouraged by encouraging a positive ‘can-do’ culture and freeing up time and resources to allow colleagues with the right expertise to drive developments.

‘Our school is a very innovative environment. We have actively encouraged innovation and risk taking. We have a culture of trying new things. It has been part of the vision to improving learning.’ Headteacher

‘Technology pervades everything across and beyond the curriculum. It is ingrained here, almost invisible.’ Teacher

Typically, the schools had created a specific senior leadership role such as ‘Director of e-learning’, ‘Head of learning and innovation’ or ‘Head of new technologies’. Often the role was linked to a responsibility for teaching and learning and held by a subject specialist who was not a teacher of ICT. This gave out a clear message to staff that the use of technology was a tool to enhance teaching in all subjects.

A number of schools had established an ICT Strategy group, which provided strategic direction on the whole process of trialling, reviewing and embedding of technologies, always with a focus on enhancing teaching. In some of the schools, this group managed an ‘innovations budget’ for which individuals and departments could bid annually. In some instances, the ICT Strategy Group also managed the provision of an outreach service to other schools.

At John Cabot Academy in South Gloucestershire, the ICT Strategy Group has a key leadership role in the school. Led by an Assistant Principal, the group comprises the Head of e-Learning, the Head of ICT and a non-teaching colleague with responsibility for ICT infrastructure. Together with the Principal, they meet regularly to determine future policy. There is tremendous expertise in the group which has three fundamental aims:
- to support data transfer between learners, staff and parents;
- to support the school’s mobile client base;
- to provide meaningful e-learning practice.

A culture of innovation has been established by the Principal who actively seeks ways of facilitating the technologies that teachers want to use, such as tablet devices to control the interactive whiteboard. There is a dual focus on ‘getting every day right’ by ensuring a robust infrastructure and prompt ‘helpdesk’ support, as well as ‘getting the future right’ by exploring the use of new mobile technologies and social networking sites.

‘People expect to be able to try new things. We’re a ‘yes’ team – we actively seek to enable things to happen’. (ICT Strategy Group Lead)

Oaklands School in Cheshire is an 11-16 special school for pupils with moderate to severe learning difficulties, often with related emotional and behavioural problems overlaid with medical issues. The school acknowledges that their pupils live in a
digital world which has to be matched at school. Many pupils have speech, language and communication disorders and the school’s vision recognises that effective use of technology to support teaching can help to remove these barriers to study. Staff use technologies to support pupils to experience real life situations, which they believe will open doors for their pupils both personally and beyond school in the world of work. There is an ICT subject leader who has been key to the school’s success in developing the use of technologies at the school to improve outcomes.

At Greensward Academy in Essex the development of technology is led by a Learning Technologies Manager who works across the Academies Enterprise Trust (AET), a group of seventeen academies. The AET group has its own ‘e-vision’ for learning technologies and ICT which is clearly set out in a policy document. The Learning Technologies Manager is a crucial link between the AET Director of Professional Development and Training, and each academy’s Vice Principal CPD leader, ICT champions and web development team. This organisational structure ensures a very consistent and collaborative approach across the group of academies for achieving the vision and developing and sharing best practice in the use of technology. The Learning Technologies Manager, who has a teaching background as well as technical expertise, was described by staff as a leader and innovator who was enthusiastic, approachable, and solution-focused.
C. Key features of successful practice

The study identified five key features of successful practice present in all the schools visited.

1. A focus on educational outcomes

All technology developments were strategically linked to the school improvement plan and utilised to improve educational outcomes. Without exception, this was considered the main priority for technology in all of the schools visited.

‘Technology doesn’t replace the teaching. It enables pupils to take a step forward through engagement – to want to learn more in ways that are fresh and relevant.’ Teacher

‘It’s not about having the toys and gadgets; it is about the learning process.’ Headteacher

‘Technology needs to enhance a lesson…. being able to bring movie clips or make your own movie can bring a subject to life. However sometimes you have to ignore it and find a better tool.’ Teacher

‘The technology facilitates and stimulates independent learning….lifelong learning skills really.’ Teacher

Teachers described how the use of technology helped pupils to develop transferrable skills and become more inquisitive. It enabled new ways of teaching, for example, teachers could access up-to-date tools and resources to make lessons more relevant for their pupils.

Technology provided increased opportunities for pupils to work independently and in collaboration with their peers. Instant feedback by teachers and peers via online discussion forums enabled pupils to improve their work. Often the use of technologies transformed group work in lessons, giving a real focus for greater interaction and collaboration between pupils.

Although the use of technology engaged and was felt by teachers to have motivated learners, it also removed barriers to learning for some of the more disaffected pupils and pupils with special educational needs, increasing their participation in lessons.

Questions to consider

How effective is your school in:

- Linking the use of technology to the school improvement plan?
- Evaluating the impact of technologies against educational outcomes?
- Improving inclusion through engaging vulnerable pupils and those with SEN?
- Using technology to support assessment for learning and to promote independence and collaboration?
2. Effective use of a learning platform

Learning platforms were used as a ‘one stop shop’ for educational resources, assessment data, communications and support, which could be securely accessed online at any time by school staff, pupils and parents. Noticeably in all the schools visited, the learning platforms were managed and supported by a team of technical specialists who also understood the teaching context.

‘The learning platform is an online manifestation of everything the school does.’
Senior leader

'We can download documents and upload projects and homework through the learning gateway. You can also email the teacher if you have a question.' Year 9 pupil

'It’s particularly good if a student is absent. They can access everything I used in the lesson.' Teacher

Teachers were able to post lesson plans, homework, coursework tasks and resources on the platform. This also allowed them to easily share teaching resources with colleagues. Many teachers had their own blogging page which they used to engage pupils in dialogue about their work. Data was used effectively to monitor and track pupil progress, identify gaps in learning or sudden dips in performance so that teachers could intervene early on when necessary.

Pupils could also track their own progress towards targets and access records of merit and behaviour awards, homework and coursework tasks. They were able to upload comments and homework and receive feedback from teachers and peers. The technology opened up more opportunities for self and peer assessment, encouraging pupils to evaluate their learning and identify next steps. In one school, students were allowed to access the learning platform via their own mobile devices.

The learning platform was also used to showcase work across the school and to share work between schools. For example, short videos, podcasts or presentations could be played on screens around the school or accessed via the internet. Some schools were also beginning to develop the use of e-portfolios for storing pupils’ work and achievement records.

In addition, video conferencing was used for engaging with other schools locally, nationally and internationally in competitions, workshops and teaching activities.

At the Parkside Pupil Referral Unit in Suffolk, the school encourages students to ‘work anytime in school or out’. Every Friday the school runs a work from home day. Using the learning platform, teachers set a focused piece of work that must be completed during the day and submitted for the beginning of the following week. Students are highly motivated by both the independent learning opportunity and trust from the teachers that the work will be completed. Working this way is highly popular with the students and their parents and work is generally completed.

In order to further broaden the range of qualifications available at the Unit, distance learning via video conferencing has enabled students to undertake a course in Spanish with a teacher in Wales.
Monkseaton High School in North Tyneside has developed its learning platform into an extensive and sophisticated communications network, fully and regularly accessed by students, parents and staff. This not only provides the usual channels for accessing and submitting learning assignments, but is kept up to date so that it provides all users with real time access to a wide range of information and data, such as academic progress information and attendance records. Timetables are, for example, updated daily so that they show immediately any alterations of room allocation and teacher cover as well as any adjustments for special events, or visits. The school feels that the fact that all concerned can so easily and quickly access information keeps all students ‘up to the mark’ in striving for their personal and progress targets.

At Shireland Collegiate Academy in Sandwell, all progress and attainment data is collected and analysed half-termly: this analysis is then shared with heads of department, all staff, pupils and parents/carers in various tailored formats through the Learning Gateway platform. The school converts spreadsheets into visual representations, incorporating imported photos of pupils. These representations are then manipulated to show progress and attainment of all pupil groups.

As there is a continuous focus on assessment for learning, all the progress and attainment data are shared with and used by pupils and their parents through individual pupil portals on the Learning Gateway. The Student, Staff and Family Portals have had a positive effect on the processes in the school, as everyone sees the same up to date information.

At Greensward Academy in Essex the use of technology has enhanced teaching and learning by opening up opportunities for pupils to interact with pupils at other schools, to link with external partners and to work on meaningful real life projects. For example, Year 9 pupils have used video conferencing and online forums to take part in an English workshop run for the group of seven AET academies (Academies Enterprise Trust). By linking with pupils from the other academies they were able to discuss and share ideas to help them produce a film trailer which was later presented to a panel of judges. As part of their media course Year 13 pupils used professional media software to work with Great Ormond Street Hospital to create a promotional video for the hospital’s website. The project gave pupils valuable experience in using professional equipment and software to produce and edit a film, as well as a taster of what could be involved in a career in media.

Questions to consider

How effective is your school in:

- Developing a learning platform as a ‘one stop shop’ for staff, pupils and parents with real time data, resources and communication channels, which can be accessed at any time and from anywhere?

3. Technology embedded in teaching practice underpinned by good technical support

Schools used a wide range of different technologies basing their purchasing decisions on outcomes for learners, mobility and flexibility. They ensured that any equipment bought would be fit for purpose and contributed to educational aims. Most
of the schools had access to a dedicated team of technicians to help embed these different technologies successfully.

‘We do not believe in one system for everyone and everything. What we try to provide is the right infrastructure that will allow each particular curriculum area to be delivered to the optimum.’ Deputy headteacher

‘You need to have the correct devices for each subject – a blanket approach doesn’t work; it needs to be blended.’ Learning Technologies Manager

‘We have good technical support which is essential – it gives you the confidence to try new things.’ Teacher

‘You have to invest in good back-up. Make it secure and make sure it works!’ Headteacher

Schools had moved away from having centralised computer suites to using laptops or netbooks in classrooms. This shift meant that teachers no longer needed to plan their lessons around availability of rooms. Instead, they could integrate the technology into their own classrooms and use it at more appropriate times. Use of technology in different subjects had become more natural and the pupils no longer perceived that it was ‘a lesson in the computer room’.

The laptops and netbooks required careful and secure storage, but they allowed pupils to work in different locations making the learning environment far more flexible. Some schools had also invested in specialist facilities such as a radio broadcasting room and a green screen video recording room where pupils could make their own videos and podcasts and upload them on the learning platform.

All staff had laptops as well as access to a wide range of other technologies, which they could book out when required. Two of the schools had moved away from interactive whiteboards, favouring instead digital projectors and tablets which they thought offered the same level of interactivity, but greater flexibility.

Other classroom equipment was wide ranging and included cameras, voting pads, games consoles, data loggers (for recording scientific data), microphones and mobile devices. Again, high quality technical support ensured that all of the equipment was well maintained and reliable.

At Perins School in Hampshire, the school’s e-Learning scheme was launched in 2007. When pupils join the school in Year 7, they are given the opportunity to lease a notebook computer for five years. They collect their school uniform and their notebook at the same time. The notebooks are loaded with all necessary software and enabled for wireless internet access at school and at home. Lesson plans and resources are uploaded via the VLE which pupils access in lessons and at home. Pupils can email their teachers if they need any help with homework or independent learning and there is a help forum where teachers and pupils can answer each other’s questions.

Over 90% of pupils in each year group take up the notebook offer. The monthly cost includes technical support, maintenance and insurance and financial support is provided for parents who need it. It has become a natural way of working for pupils both in lessons and at home. Year 10 pupils have worked in this way since they started at the school and tracking data suggests it has had a positive impact.
'The notebook scheme is absolutely fundamental. It’s the last piece in the jigsaw.'  
(Headteacher)

At Gumley House Convent School in Hounslow, the use of mobile devices to support ‘anywhere anytime’ learning has been piloted. Given on loan to students across key stages 3-5, the devices are used as part of everyday lessons. Working closely with teachers, students are given the freedom to use the devices in whatever way they feel would support their learning. For example using a range of apps provides opportunities for downloading further information during lessons. The use of mobile devices has given a ‘no limits to learning’ approach and has provided flexibility in the way that pupils study and the control that they have over their own education.

The use of handheld devices such as digital media players has been successfully trialled at the Parkside Pupil Referral Unit in Suffolk, enabling students to store a range of information including timetables, emails, pictures, videos and maps. This has been particularly successful for a number of students. The school has been able to use the technology with the students to plan routes and directions in the local area (for example from school to the local college), and input key questions and answers that will help in unknown situations. For example what happens if the shopkeeper doesn’t have what you want? As the devices are handheld it is not obvious to others that they contain this level of support. The school and students believe that this has greatly reduced anxiety and is building social skills.

Djanogly City Academy has developed flexible, dynamic learning spaces to enable technology to support its vision of creating exciting learning experiences that are engaging and interactive. The Academy’s ethos of delivering personalised learning through innovation is reflected through the curriculum, the choice of technologies and in the infrastructure of the building. Teachers use tablet computers and digital projectors to deliver their lessons, allowing for greater freedom to be mobile within a classroom setting and support the needs of all students. The range of mobile devices used includes gaming devices, graphics tablets, video cameras, laptops, digital visualisers, digital voice recorders, GPS devices, digital media players and handheld projectors.

These devices are used across the curriculum and can be customised for the learning outcomes of a specific lesson. The Multimedia department work alongside ICT services to provide essential support ranging from procurement and staff training to installation and maintenance. Graphic designers, multimedia specialists, programmers and IT technicians work together with the teaching staff to enhance the classroom experience and facilitate learning beyond the classroom.

At Egglescliffe School, teaching and learning outcomes are key to determining the school’s technology development decisions. All developments are supported by a team of technicians and carefully analysed to ensure value for money. A wide range of technologies and software are used to enhance teaching and learning across the curriculum. For example, Egglescliffe School uses high-level graphic design and image manipulation programmes to explore graphic imaging and commercial design outputs as part of its Art and Design curriculum. Good use is also made of very sophisticated composition and music ‘simulation’ software to explore music to a high level.
Questions to consider

How effective is your school in:

- Considering a ‘blended’ approach to technology, purchasing subject specific software and devices and professional equipment where appropriate?
- Maximising the use of mobile/portable devices that can be used across different subjects?
- Ensuring all staff have access to a range of technologies?
- Ensuring adequate technical support?
- Recognising the range of devices used by students outside of school and reflecting this in classroom practice where appropriate?

4. Harnessing pupils’ expertise and enthusiasm for technology

Schools recognised the technology experience of their pupils and put it to good use. In some of the schools an audit was used to update information about the different technologies pupils have regular access to outside school. This helped to inform buying decisions and developments.

Teachers made the most of having ‘pupil experts’ in the class who could guide and help others. This gave the pupils a sense of responsibility and a degree of ownership of the technologies used. However, it was recognised that many pupils still needed teaching about how to use specific technologies and also in information skills, such as evaluating the validity of sources of data online.

‘The things we as adults think are innovative may not be the technologies that our pupils want to use so we let them trial devices.’ Principal

‘You have 30 experts in the class – use them!’ Teacher

‘Pupils love the fact that they can teach us something.’ Teacher

‘The technology at school relates to us. When new things come in we trial them and give feedback.’ Year 11 pupil

New devices and new software were given to pupils to trial and provide feedback. Sometimes, pupils had the opportunity to present at senior leadership team meetings to help inform purchasing decisions. Generally pupils felt very satisfied that the technologies they used in school were relevant and up to date and enhanced their learning in lessons.

Pupils were often asked for their feedback on the design of the learning platform and were encouraged to create their own content to share with other pupils. In one school, pupil podcasts on different areas of study were posted on the school’s own YouTube channel and had received nearly 400,000 viewings in the last two years.

At Perins School in Hampshire, pupils are confident users of technology and are powerful advocates of its use. Students are fully involved in the school as ICT.
leaders, through ICT focus groups and through their involvement in the school radio station.

Pupils are at the heart of purchasing decisions. For example, when the new wireless network provider was put out to tender, shortlisted providers were invited to present their pitch to the school, including a student panel. The successful company was chosen partly because pupils on the panel felt that the company was willing to answer their questions and clearly regarded them as their clients. There are student leaders in each subject and this includes a group of ICT leaders. It is their role to champion ICT in the school and to help teachers and pupils in their lessons. They also gave a presentation at a countywide ICT conference last summer.

At Twynham School in Dorset, students have been significantly involved in the design of the school’s learning platform. During a presentation to the senior leadership team, pupils were clear that they wanted less text on the page and more visual interest. As a result, they were invited to take their proposals to the ICT development team and worked with the web development team to storyboard their proposals.

There is a fortnightly meeting with the school council and their feedback is key. 100 netbooks have been purchased as a result of influence from the school council and one boy was invited to give a presentation about a helpful e-revision tool to school senior leaders with a view to their purchasing the £400 licence for the school.

Pupils at The Cooper School in Oxfordshire frequently use the school’s green screen room to create short video clips on different aspects of their learning, sometimes as revision tools for themselves and their peers. These are uploaded on to the school’s own YouTube channel which now hosts over 115 different videos. Pupils talked enthusiastically about the learning videos, citing how they had used them in lessons and been able to access them from home helping them with homework and revision. The videos have also been viewed by pupils from many other schools around the country; many of whom have posted positive feedback on their usefulness.

Questions to consider

How effective is your school’s practice in:

- Involving pupils in trialling and reviewing new technologies and giving them opportunities to feedback and make considered evaluations?
- Harnessing pupils’ knowledge and expertise to support teachers and other pupils in lessons?

5. Sharing good practice and equipping teachers to use technology effectively

Senior leaders were committed to giving staff time and space to innovate and to develop their own skills, so that technology could be effectively embedded in lessons. It was common for schools to undertake an annual audit of staff IT skills to identify priorities for equipping teachers with the knowledge and skills to make the best use of ICT, and planning how to share ideas, increase competence and reflect on classroom use.
‘It’s important to give staff time to refresh and renew their skills and to try out new technologies.’ Principal

‘We now have staff that are creative and innovative. There are people who are passionate about the technologies and we are continually showcasing best practice and helping each other.’ Executive Principal

‘Staff learn from each other. They know who to go to when they want help.’
Headteacher

‘The expertise is already there in front of you – you need to make sure you empower people to share practice – give it a high profile and encourage the trailblazers in your school.’ Headteacher

Often, teachers attended regular short bite-size training sessions throughout the year. These sessions were mainly in-house workshops focusing on how to use the technology to achieve the desired teaching aims. For the more technical aspects, teachers could book one-to-one sessions with members of technical support teams or seek assistance through the technical help desk.

Many of the schools had a core of motivated teachers known as ‘ICT Champions’ driving a ‘bottom up’ approach to the development of technology. These ICT champions were keen to share their knowledge and practice with colleagues, both informally and by offering lesson observation and ‘drop-in’ clinics. In several schools, each department had its own ICT champion who worked with colleagues to share and develop subject specific practice.

This sharing of good practice created momentum for whole school involvement in the use of technology, engaging some of the more reluctant staff.

In some of the schools, staff were encouraged to engage in their own action research, sometimes as part of accredited courses. These projects often involved trialling and developing approaches to using technology. Two of the schools had a budget which individuals and departments could bid for each year to carry out a piece of action research. Many of the leaders of technology were members of professional forums and they used these to gather new ideas, to share best practice and to discuss problems and their solutions.

The assistant head teacher in charge of ICT at Broadgreen International School in Liverpool completes a full technology skills audit of all staff annually. This audit is undertaken by the ICT/VLE thematic team which includes post-holders from each faculty; the results of the audit are then used to identify staff CPD needs for the coming year. The skills audit also enables a strategic approach to technological developments: developments in technology are introduced across all faculties simultaneously, with support from the ICT/VLE thematic team.

CPD at Notre Dame High School in Sheffield is delivered through the teaching and learning group where a range of staff volunteer to work together and share effective practice on a regular basis. The school describes it as ‘turbo-charged CPD’.

The CPD covers both management and teaching and learning. Staff are introduced to an idea, given time to try it out in practice and then meet a few weeks later to report back and review and refine developments. As a result, staff take responsibility
for their own learning. They explore how pupils' access to their own technologies for example, mobile devices, can be used to enhance learning. When planning lessons, however, they have to ensure that the lesson does not depend upon an assumption that pupils have access to their own technology.

The CPD opportunities provided through harnessing the use of new technologies has reportedly energised staff and resulted in a real learning community where people are willing and able to share and reflect upon their practice.

**Greensward Academy** in Essex has a core of motivated, technology-passionate teachers from a range of subjects, who are known as 'ICT champions'. They trial different pieces of software and hardware and share their ideas and experiences with others both informally and at advertised CPD sessions. Other staff are encouraged to observe the ICT champions, to seek advice from them and to arrange one to one sessions if required. The ICT champions have pioneered many new technologies which other staff have begun to adopt. For example, teachers are now exploring the use of a ‘virtual classroom’ where pupils who are absent or unable to get to school due to adverse weather can access and contribute to the lesson via a live feed.

**Notre Dame High School in Sheffield** offers one-year bursaries for ‘Curriculum Innovators’. All these innovations involve developing the effective use of technology to bring about further improvements in teaching and learning. All teachers are able to apply for these bursaries – including NQTs and support assistants - as the school sees the value of building capacity and tapping into talent from an early stage. Staff submit their innovation plan, which has to be time limited with an exit strategy. These innovations are then spread more widely across the school and local area.

Curriculum innovators not only help with purchasing decisions but also enable the school to share and learn from effective practice. This ensures they do not make expensive mistakes. The school's philosophy is that the expertise is already in the school. What the school does is empower people to share practice, give it a high profile and encourage the trailblazers in the school.

Questions to consider:

How effective is your school’s practice in:

- Auditing the technology skills of all staff annually to identify priorities for staff development?
- Providing regular short training sessions to keep technology skills refreshed and up to date?
- Maintaining the focus of training on teaching and learning and not just technical skills?
- Sharing good practice in the use of technology, for example through the identification of 'staff ICT champions'?

6. Engaging parents and carers through technology

Technology has enabled a new mode of communication between schools and parents in addition to the more traditional letters, telephone calls, and face-to-face events. Schools reported that a major benefit of the development of the learning
platform was the increased engagement of parents and an improvement in the quality of the dialogue about individual pupil’s progress.

‘Parents can see exactly how their child is doing.’ Teacher

‘We have seen an increase in attendance and we think it is because parents can see from the resources online that attendance is closely matched to achievement.’ Form tutor

‘Parents were saying that they didn’t know what they could do to help their children, particularly when they got to GCSE. We tailored a page just for them and set up a forum so they could contact us directly.’ History teacher

‘All our homework records are on the VLE…. it shows when it’s due and goes red when the deadline has gone….. and then it never goes away until you’ve done it….so your parents can see if you’re not doing your homework.’ Year 8 boy

The schools visited stated that more parents were communicating via the website and accessing up to date information and data on their child’s progress. This not only improved communication but also was believed to have led to increased attendance at parents’ evenings. Workshops for parents were held to familiarise them with logging on to the learning platform and the data available to them.

The increased communication with parents had helped teachers to tailor information to better enable parents to support their child’s education. For example, many of the teachers had created, or were developing subject specific parent portals.

In addition, many of the schools visited had schemes to support the supply of devices and connectivity to families who might need them. For example, old laptops were refreshed and recycled to targeted families. Schools sourced funding to set up home internet access where it was needed most. Some schools ran a series of training events on IT skills for adults.

At Noadswood School in Hampshire several departments have developed portals on the learning platform for parents of children studying GCSE. Some parents had raised the issue of not knowing how to help their child in Key Stage 4. Following discussion with the school's parents’ focus group, the History, Design and Technology and Science departments have created banks of resources for parents and posted these on the portals together with useful information on examination courses and practical advice for parents about how they can support their child's learning. Additionally, discussion forums allow parents and students to communicate directly with teachers. The school runs regular parent-child learning partnership evenings during which the learning portals are demonstrated and parents have opportunity to become directly involved in the development of the technology.

Parents of Year 6 children who are about to transfer to The Cooper School in Oxfordshire can contact pastoral staff at any time by posting questions on to a transition webpage. The pastoral staff post replies to the questions so that all parents can benefit from what is often a common query or concern. The website has been such a success that the school is developing a similar site for parents of pupils transferring in to the school’s new sixth form.
Notre Dame High School in Sheffield organises a range of workshops for parents to enable them to become familiar with logging on to the school VLE and accessing their child’s information.

This means that parents get an up-to-date report about academic progress in all subjects, including specific areas of strength and weakness, behaviour and attendance reports. They can also access curriculum programmes and revision packages. There is an email facility so that parents can immediately contact the school for a two-way dialogue, together with a log showing staff availability so that parents know when teachers are available.

Questions to consider

How effective is your school’s practice in:

- Communicating with parents via the learning platform through the use of email and forums?
- Developing portals for parents tailored to the data and subject specific information which will help them to support their child’s learning?
- Providing additional support for parents in the form of access to technology devices, connectivity and training?
D. Conclusions

This report is based on findings from visits to 15 secondary schools known for their good practice in the use of technology. Therefore these conclusions should be seen in the context of the small sample size involved in the study.

1. The schools displayed strong leadership in the use of technologies. Typically this was characterised by:
   a. A long term vision and development strategy where technology was used to support improvements in teaching and learning across the curriculum;
   b. Active involvement of senior leaders who promoted and supported innovation;
   c. Dedicated leadership of technology, but not necessarily by the head of ICT.

2. To enhance teaching and learning the schools had made a strong commitment to sharing good practice and staff development. This was a continuous and flexible process which went beyond skills training in using technologies. It supported teachers to embed new technologies in their pedagogy and curriculum planning.

3. Whilst the schools were constantly seeking to embed a wide range of different technologies to keep pace with technological developments in pupils’ lives generally, decisions were always driven by education. Impact on inclusion, independent study skills, collaboration and assessment for learning were important factors for consideration.

4. The schools had successfully used their learning platforms to extend education beyond the classroom and the school day, to strengthen assessment for learning, to increase parental engagement and to maximise collaboration with other schools and external partners.

5. The schools had invested in technical support such as technicians and help desk services, to ensure that teachers could access high quality support and back up at all times and that the equipment they used in their classrooms was well maintained and reliable.

‘The challenge is not to let the technology drive the school – decide what you want to achieve first and then consider what value the technologies would add.’ Senior leader

‘We can’t stand still. There is always something new out there. We have to look at the technologies that pupils have at home and those they carry around with them.’ Teacher

‘Sometimes the technology can take away from the teaching and learning. It can be a distraction. You have to be able to tell staff sometimes that they shouldn’t be using it.’ Headteacher

‘The impact of technology has been clear……not only are standards rising…… but it has allowed us to experiment and be more adventurous with our teaching. Learning is more ‘real’ for our students.’ Teacher
Annex 1: Methodology of study and list of schools visited

Visit methodology

Each secondary school was visited for half a day during the summer term 2011. A typical visit included the following elements:

- A discussion with the head teacher and leader with responsibility for technology
- A ‘learning walk’ around the school to observe first-hand a range of teaching and learning experiences using technology
- A discussion with a group of four to six teachers
- A discussion with a group of pupils
- An opportunity for feedback and discussion at the end of the visit

Schools visited

The DfE is grateful to the following schools for their valuable contribution to this study:

- Broadgreen International School, Liverpool
- Djanogly City Academy, Nottingham City
- Egglescliffe School, Stockton-on-Tees
- Greensward Academy, Essex
- Gumley House Convent School, Hounslow
- John Cabot Academy, South Gloucestershire
- Monkseaton High School, North Tyneside
- Noadswood School, Hampshire
- Notre Dame High School, Sheffield
- Oaklands School, Cheshire
- Parkside Pupil Referral Unit, Suffolk
- Perins Community Sports College, Hampshire
- Shireland Collegiate Academy, Sandwell
- The Cooper School, Oxfordshire
- Twynham School, Dorset
Annex 2: Resources and related publications

Beyond Engagement *The use of ICT to enhance and transform learning at Key Stage 2 in literacy, mathematics and science* DCSF-00972-2008

**Useful Organisations and Networks**

e-Learning Foundation aims to bridge the digital divide through partnership working with schools, parents and businesses. It provides a free advisory service to schools to help develop effective strategies for ensuring personal access to technology at school and home. E-Learning Foundation also provides financial support through fundraising and grants.

**Naace** [http://www.naace.co.uk/](http://www.naace.co.uk/)
Naace, the ICT Association Membership organisation, provides information, resources, support and guidance to Members on current issues relating to ICT in education. It also provides professional development opportunities. Naace administers the Self Review Framework and the ICT Mark.

**The FITS Foundation** [http://www.thefitsfoundation.org/](http://www.thefitsfoundation.org/)
The FITS Foundation manages the on-going development and support of FITS (Framework for ICT Technical Support). The organisation aims to spearhead the professionalisation of the ICT workforce in the Education marketplace and improve the quality of ICT technical support services.

The National Education Network is a dedicated and educationally focused teaching and learning resource providing schools with a secure network designed and maintained by experts within the educational community.

City Learning Centres are localised delivery centres that help schools to support each other, and share/develop best practice with ICT in learning.

**The Schools Network** (formerly SSAT) [https://www.ssatrust.org.uk/](https://www.ssatrust.org.uk/)
The Schools Network offers advice and support to schools, and facilitates the sharing of best practice and investigation of the most effective techniques and applications. It also provides professional development opportunities for practitioners.

**Vital** [http://www.vital.ac.uk/](http://www.vital.ac.uk/)
Vital is an innovative professional development programme delivered by The Open University and partially funded by the Department for Education. It aims to help educational establishments use ICT to add value to lessons and find new ways to engage learners. Vital provides advice, professional development courses and access to subject-specific resources.

**Buying ICT**