

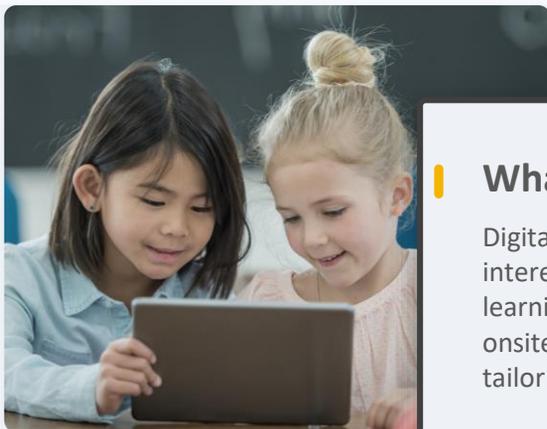


An Essential Guide to digital learning

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The world of technology is constantly advancing and infiltrating every aspect of modern life to change the way we live, work, socialise and even how we learn. Never before has a generation been so connected and had access to so much information at their fingertips. Young people are already using digital technology to learn at home through the internet, computer gaming and social networking. Now, schools and other educational institutions are increasingly realising the benefits of new technology to engage students, enrich the learning process, personalise education and breakdown barriers.





What is digital learning?

Digital learning meets individual student needs and interests with appropriate access to technology. Digital learning includes online learning and blends this with onsite learning as well as a teacher using technology to tailor lessons to the interests of individual students.

How can digital technology assist learning in schools?

Digital learning enables education to be personalised to a greater extent, so each and every learner can achieve his or her academic potential. Students can learn at their own pace, ensuring they gain the knowledge and skills to succeed in school and ultimately their future careers.

Students are also more likely to be motivated to learn using the latest technology, since they are accustomed to using technology outside of school. Technology also offers a unique opportunity to create simulations and environments that would be almost impossible to create in a traditional classroom.

Used effectively a tablet device, such as the iPad, provides the teacher with a greater set of tools at their disposal to facilitate outstanding lessons. The device in itself will not turn a poor lesson into a good one, nor does it in any way replace the professional judgement of the teacher to determine how best to support their students.

A student's progress is closely linked to their self-motivation, engagement and independent learning skills. A personal device like the iPad offers new opportunities to motivate and engage students of all abilities. It empowers the student enables them to take control of their learning.

Trends: What's happening in digital learning?

There are many trends in technology that are impacting on education in a big way. Technology is no longer being thought of simply as an additional tool in education, but as an integral part of the educational environment. Through web apps such as Facebook and Twitter, the world is undoubtedly becoming increasingly interconnected.

These advances have created new ways to engage and interact, ways that are beginning to be utilised for learning. With advances in gaming and interactive software, 'touch and gesture' technology is another development being increasingly used to interact and navigate a virtual environment.



There are many lessons being learnt from the computer gaming sector, where challenge, progression and reward are encouraged through exciting virtual quests. The use of games is beginning to be explored to address educational themes in order to help students master concepts and develop skills, like problem-solving, in a fun way. For example, the Li Ka-Shing Foundation is funding a UK pilot of proven maths software that helps pupils develop understanding of complex mathematical problems.

According to Felicia (2011) video games are ideal to support teaching and increase motivation. It is predicted that in a few years game-based learning and mobiles will be frequently used in classrooms. The greatest potential of games for learning lies in their ability to encourage collaboration and fully engage students in the learning process.

The cloud is another development, which is changing the way that we consume and purchase software and services.

This is a computing technology that uses internet and central remote servers to maintain data and applications, transforming the way data can be stored and accessed. The cloud is driving an increase in the blending of formal and informal learning. Many students are learning when and where they choose, consuming a range of news and information through ebooks, apps and social networks.

Traditional education publishers are also turning their attention to the digital world like never before and technology giants like Apple, Microsoft and Amazon are promoting the advantages of their devices to the education sector.

The cost-effectiveness and usability of tablets, such as the iPad or Galaxy Samsung Tab, is certainly fueling their adoption in education. Indeed, Scotland recently announced plans to spend £60 million on tablets for universities, colleges and schools.

What are the benefits of integrating digital technology into the classroom?

01

Digital learning gives students an element of control over time, place and pace of their learning.

Technology can extend learning beyond the classroom walls. A mobile device (e.g. tablet) can move with the student from the classroom, to the library, to the home. This provides the flexibility and opportunity to continue learning where and when the student chooses.

02

The internet provides a vast library of resources from around the world.

Students can watch video lecturers and listen to podcasts from experts in their fields. For example, Khan Academy has a variety of high quality lecturers on a range of school curriculum subjects (www.khanacademy.org). O2 Learn and iTunesU also provide free online lessons and videos, which have been developed and uploaded by teachers and academics.



03

Technology helps teachers enrich their lessons with multimedia.

The use of the internet in lessons can enrich subjects, provide a useful research tool and enable students to connect with the rest of the world. For example, internet content such as www.panoramas.dk can be simply used to provide students with a virtual tour of an iconic building or geographical location. Flickr can be used to show up-to-date images to illustrate a range of places and subjects at the touch of a button. Handheld devices can also be used by students and teachers for data collection on field trips. It is possible to record their thoughts and what they see using the camera and voice recording features of their device.

04

Student-centred learning

Digital technology can effectively monitor a student's progress and provide a more personalised learning programme. Many of the latest interactive games and other digital teaching resources can immediately adjust to a student's responses and offer a greater or lower challenge until they understand the set task or concept.

05

Instant feedback

The use of online assessments can show the teacher the progress of each student and any gaps in understanding, enabling them to tailor their teaching accordingly. It also gives the learner immediate feedback. Mobile learning devices (e.g. tablets) can include built-in software so that teachers can pose questions and students can respond in real time. Alternatively, the use of electronic voting pad systems can provide students with instant feedback during classes. Teachers can receive real-time feedback on how well the material is being understood on a question by question basis. Assessment and assignments can also be delivered directly to a computer or tablet, which extends the available time for learning.

06

Digital content saves money

Digital content can be updated continuously unlike printed material. It also has the ability to include hyperlinks for additional information or reading and videos to illustrate concepts. This potentially offers a significant saving on textbooks, materials and calculators.

07

Technology allows students to collaborate with other students, the teacher and off-site experts.

Technology also makes it possible for group work to be undertaken as homework through tools like online documents and office suites. Meanwhile, Skype could be used to connect your classroom with another class or expert in another country for an international online discussion. In addition, essay planning and revision can be greatly supported by students using mind map software to develop maps of key concepts. These can be produced alone or collaboratively.





08

A Virtual Learning Environment (VLE) can be created.

The basic content of a VLE would include syllabus, lesson plans and resource materials. Students can be set homework and use online self-assessments. Homework can be submitted online, so teachers can see the status of every students work and parents can access their child's targets and results.

09

Tasks and concepts can be mastered through gaming techniques

Young people are familiar with, and in many cases quite the experts in, overcoming virtual challenges through computer gaming. They can spend hours solving puzzles and scenarios in a virtual environment without feeling like they are working or learning. Educational games can make learning and testing fun. They can also provide virtual demonstrations of topics such as atomic structures. For example, LittleBigPlanet and Minecraft.

10

Greater interaction with text

Whether students are reading worksheets or textbooks, the iPad or other digital devices allow learners to check their comprehension by clicking on keywords and defining them. It also allows notes to be written while the text is being read to support the student in gathering their thoughts, and securing their understanding.

11

The ability to create 3D models to enhance understanding

Some subjects require large amounts of abstract thinking. By building and animating 3D models of complex processes using animation software, students can form a far greater understanding and recall of the process.

12

Prepares students for the technology-driven workplace

The ability to confidently use technology in the 21st century is a necessary skill in most workplaces and professions. Greater use and access to technology on a daily basis in schools and colleges will further develop the learners' abilities to use the technology and digital tools they are likely to encounter in their future careers. Educational technology enables students to analyse and evaluate a diverse range of information as well as express ideas in compelling ways that will better prepare them for the modern workplace.

| What outcomes can it achieve?

Evidence suggests that digital technology can positively impact on student attainment. According to the Department for Education, two of the largest studies in the UK looking at ICT's impact on attainment (the ImpaCT study and the Test bed project) have found there are statistically significant positive relationships between the use of ICT and achievement in mathematics, English and science.





Technology has also been seen to improve students' confidence and motivation by making school work more enjoyable. Student's attitudes and involvement in learning changes as it is considered as fun and not regular education. The Eurobarometer Benchmarking Survey was carried out in 2006 in 25 EU Member States, Norway and Iceland, found that 86% of teachers stated that students are more motivated and attentive when computers and the internet are used in class.

Another interesting example is that of Longfield Academy in Kent. In the first two terms of implementing an iPad programme, Longfield Academy noticed a great impact on teaching and learning. After a successful implementation and two terms of embedded use, the research carried out by Naace shows some incredibly positive impacts on teaching and learning. Read *The iPad as a Tool For Education* by Jan Webb at www.naace.co.uk/publications/longfieldresearch

A number of studies have also found positive results for, instance the use of SimCalc Mathworlds, which is an application that allows students to manipulate relationships about time, velocity and position, has a significant effect on student's scores. This was particularly evident on the knowledge of complex concepts.

Evidence also suggests that the use of audience response systems (ARS) or voting pads generally improve student outcomes such as exam scores and comprehension. One of the main benefits of ARS being that it can deliver frequent formative assessment in the classroom and students can respond without the judgement of their peers.

There is also a wealth of long term studies which look at what has the greatest impact on student progress. For example the Sutton Trust Report, which looked at the research evidence behind different approaches of improving student performance:

www.suttontrust.com/public/documents/toolkitsummary-final-r-2-.pdf

This lists the three teaching approaches that have the biggest impact on student progress (results) as:

1. Effective feedback
2. Meta-cognition & self-regulation (teaching that encourages students to think more explicitly about learning in the classroom)
3. Peer tutoring/peer assisted learning

What about safety and security?

With the use of digital technology comes responsibility and e-safety. Technology enhances learning, and schools and colleges can ensure students gain the most from it, by also encouraging responsible online behaviour, highlighting the principals of staying safe online and developing an e-safety policy.

Many search engines provide filtering facilities to remove unsuitable sites and advertising for search results, and most browsers allow users to adjust settings for security and privacy.





In the case that a student's tablet is stolen, the ability exists to remotely track it if labelled. It will also be insured so can be replaced and all the students' work will be backed up.

All schools and colleges should put together a robust 'acceptable use policy' and go through it carefully with pupils to ensure that they behave with the devices in such a way as not to increase the risk to themselves or to the devices.

I Points to consider before embarking on digital technology

When considering introducing digital devices to your school, you should consider professional development for teachers who will be using the technology, how often you will integrate it into lessons, look at robust devices that will withstand daily student handling and obtain adequate insurance cover for the technology.

In his white paper, 'How the Digital School can improve teaching and learning', Colin Rose also recommends investing in a learning and thinking skills programme in parallel with introducing digital technology to enable students to develop independent learning skills and be taught how to assess whether an online source is credible or not.

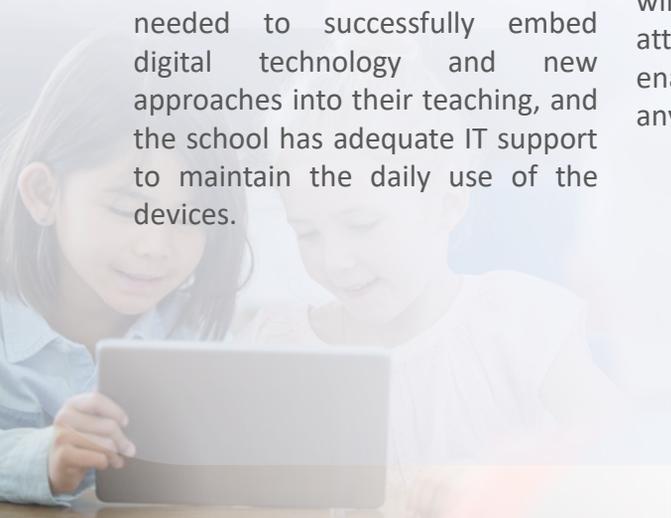
Professional development and IT support are important factors to consider in order to maximise the value of your digital technology. Ensure that teachers have the skills needed to successfully embed digital technology and new approaches into their teaching, and the school has adequate IT support to maintain the daily use of the devices.

Some schools have found it beneficial to survey staff on their confidence in using various online tools and devices to identify where training or support may be required.

Some teachers who have taught for many years without technology may not see the introduction of digital technology as an important tool in their teaching. It may be necessary to demonstrate how technology can support objectives and extend teaching and learning into new realms. This might be achieved through sharing best practices among colleagues or observing the lessons of colleagues who have integrated the new technology effectively into their teaching.

It is also useful to consider and utilise the technology experience of students. Some educational institutions have found conducting a survey of students to find out about the different technologies they have regular access to outside of school is a worthwhile exercise. It is particularly helpful in informing purchasing decisions.

Finally, and most importantly, consider the outcomes you wish to achieve and how you will evaluate them: achieving increased attainment, improve student engagement, enabling students to access content anytime, anywhere and increase employability skills.



Choosing digital devices

Touch tablets offer a cheaper and more intuitive alternative to laptops and PCs as well as eliminating the need for students to carry around lots of heavy books. There is a wide choice of tablet devices available on the market including:

Apple's iPad

Sleek, lightweight and easy to use, the iPad is a popular choice with educational institutions worldwide. Apple offers a range of high quality educational apps and digital school textbooks with iBooks 2 and iTunesU. As well as a long battery life, the iPad features two cameras. Apple's closed ecosystem, also means that only certified apps can be installed, giving some degree of confidence in the Apps to which students have access and can be restricted by age group.

Microsoft Surface

The newest tablet on the market, Microsoft Surface benefits from detachable keyboard covers to solve the typing issue with standard touch tablets. Microsoft's Office suite of software remains commonplace in most workplaces and educational institutions so it is well supported.

Amazon's Kindle

The basic Kindle e-readers are being used as an alternative to traditional books, while the Kindle Fire tablet offers an alternative to the iPad. It's whispercast service allows for easy management of fleets of Kindle devices, while the ability for teachers to restrict access and set limits is a further plus point.

Android tablets (e.g. Google's Nexus 7 and Samsung Galaxy Tab)

There are a variety of competitively priced devices available and Google Play Store offers a good range of educational apps.

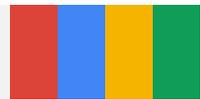
» When choosing devices it is important to consider the following requirements:

- mobility and reliability (e.g. battery life)
- connectivity
- security and safety
- usability
- integration

Leasing Vs buying?

Technology changes so fast, that keeping up with the latest devices and software can be an expensive challenge. As a result, leasing offers an excellent alternative to buying. Many schools are now opting to set up attractive parental contribution schemes that enable the cost of obtaining student iPads or

other popular tablets, for example, Acer, Asus, Blackberry, HTC, LG, Samsung, Sony, Toshiba and Dell, to be spread over a period of up to two years in a highly cost efficient way.



Using a leasing scheme, schools enjoy the obvious volume advantages of ordering equipment in bulk, but without the disadvantage of having to pay for purchase upfront. In addition, many schools find leasing advantageous from a budgeting standpoint

as switching from outright purchase to a lease agreement changes how the equipment is accounted for. A unique feature of leasing is that it allows the cost to be allocated to revenue as opposed to a capital budget with obvious benefits for many educational organisations.

Working in partnership with schools, WestWon Limited for example, cannot only arrange a highly competitive lease agreement for the required number of devices – anywhere from 25 to 2,500 – but also essential insurance cover.

THIS IS IN TWICE



Working in partnership with schools, WestWon Limited for example, cannot only arrange a highly competitive lease agreement for the required number of devices – anywhere from 25 to 2,500 – but also essential insurance cover. WestWon can also administer the entire parental contribution process on behalf of the school via the www.westwon.co.uk/parentportal freeing schools from having to administer payments and leaving them to focus on learning.

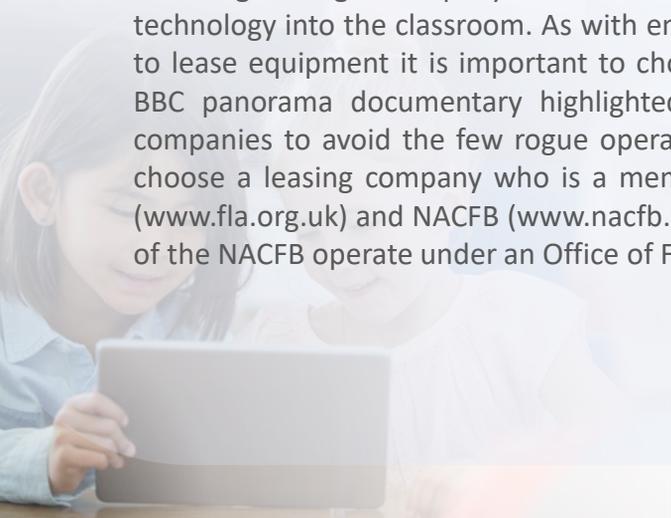
The WestWon Parent Portal provides teachers and parents with a simple one-stop system to track and fund each tablet acquired under the scheme. In the case of parents, for example,

they can log in to see the full details about their child's device including model number, first payment date, last payment date and whether they have opted to purchase the tablet at the end of the lease.

Given the rapid rate of technology change, leasing IT and computing equipment is an ideal solution for schools. Using the WestWon Parent Portal for instance, parents have the choice of whether to purchase their child's iPad or tablet at the end of the lease for a small fee (£25.00+VAT), or can simply return it. In any case, the school will not be left with a large supply of 'old' equipment after the lease period ends.

| Choosing a leasing company

Selecting the right company to work with is vital in successfully integrating digital technology into the classroom. As with entering into any new contract, when opting to lease equipment it is important to choose a reputable leasing partner. A recent BBC panorama documentary highlighted the need to check the credentials of companies to avoid the few rogue operators in the industry. Remember to always choose a leasing company who is a member of an industry body such as the FLA (www.fla.org.uk) and NACFB (www.nacfb.org), which ensure best practice. Members of the NACFB operate under an Office of Fair Trading registered Code of Practice.





Useful sources and websites for further reading

How the Digital School can improve teaching and learning by Colin Rose

Using technology to improve teaching and learning in secondary schools (January 2012) – Study by the Department for Education

The iPad as a tool for education: A case study by Jan Webb

www.naace.co.uk/publications/longfieldipadresearch

www.e-learningfoundation.com Learning Foundation

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

References

1. Felicia, P (2011). What is the relationship between the use of digital games for learning purposes and student achievement? Waterford Institute of technology
2. Rose, Colin. How the Digital School can improve teaching and learning

www.naace.co.uk Naace is the ICT Association Membership organisation, which provides information, support and guidance to members on current issues relating to ICT in education.

www.iste.org International Society for Technology in Education

www.ssatrust.org.uk The Schools Network
The Schools Network offers advice and support to schools, and facilitates the sharing of best practice and provides professional development opportunities for practitioners.

www.aalf.org Anytime, anywhere learning

www.projectred.org Project Red

Research study on 1:1 learning in thousands of schools in the USA, which includes nine steps to successfully using new technology.

www.education.gov.uk/schools/adminandfinance/procurement

The Department for Education provides advice on ICT procurement including details of purchasing frameworks.

www.teachtoday.eu

Teachtoday provides information and advice for teachers, head teachers, governors and other members of the school workforce about the positive, responsible and safe use of new technologies.

www.nacfb.org The National Association of Commercial Finance Brokers

The NACFB is the UK's trade body for finance brokers and it has established complaints and disciplinary procedures designed to eliminate unacceptable working practices amongst its members.

www.fla.org.uk The Finance & Leasing Association

The Finance & Leasing Association (FLA) is the UK's leading trade association for the consumer credit, motor finance and asset finance sectors, and the largest organisation of its type in Europe.