DECODE

IO3 - Quality Framework for Integrating ICT in the Teaching-Learning Process – National Report (England)

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Introduction

This report focuses on the current state of ICT and digital integration in schools in England, with a particular focus on best practices and quality frameworks. The purpose of the research is to explore what evidence base currently exists for the adoption of ICT in the classroom. These results will then be used to develop guides for practitioners, in order to support schools to maximise the potential which digital technology offers to add value to the classroom.

The content of this report has been gathered through a combination of analysis of key national documents and interviews with practitioners. The results of these are summarised below, with different sections focussing on a different area of ICT integration. Section one looks at the guidance and support on ICT integration provided at a national level, something which adds context to what follows. The report then moves on to look at how ICT is addressed in the curriculum, both as a standalone subject and through added value in other lessons. This is followed by a look at best practices in the use of technology in the classroom, as well as wider key national resources and documents in the field. The last few sections of the report then focus on the frameworks and guidelines which exist to ensure schools are using ICT in an effective and high-quality way. This includes the documents and resources available, as well as training provisions for education staff.

Throughout the report the common theme is that a lack of national coordination has led to an uneven level of adoption around ICT and digital tools in schools across England. Whilst some are embracing cutting-edge technology, others lack a simple ICT strategy. Crucially, in schools where digital tools are commonplace there is a high level of innovation. This has led to a noticeable impact on students' learning and so demonstrates the value of this technology. The challenge for education in the UK is now to harness this innovation in order to improve and develop the ICT and digital provision in all schools in the country, not just those with the resources and inclination to explore this topic on their own.

ICT-based Education on a National Level

There is no formal legislation or legal framework which currently governs the use of ICT in schools in England. Instead, individual institutions are given the responsibility for developing their own approaches and strategies towards ICT in the classroom. This means that the current national strategy to ICT takes a 'bottom-up' approach, with the Government's (amongst other national bodies) main intervention being to monitor innovation. Where effective actions are identified, these initiatives are promoted as best practices in the hope that they will inspire others. Yet, this promotion only informs education leaders, without giving them any tools or support to enact reform, meaning there is no guarantee that they will be effectively implemented.

Another key national body within education is Ofsted (Office for Standards in Education, Children's Services and Skills), as it is this organisation which is responsible for inspecting the standard of education in all schools and colleges in England. These inspections take the form of short on-site visits, with inspectors given a common framework against which to benchmark the standard of provision at a school. The best possible grade for an inspection is outstanding, with other possible outcomes being good, requires improvement or inadequate. If a school receives an inadequate ranking they may be placed in special measures, where staff are given intensive support to help them improve. Still, it is important to note that, whilst the framework offers detailed guidance to inspectors around various aspects of schools life, an explicit assessment of the use of ICT and digital tools in schools is not included. Instead, the extent to which a school uses ICT and digital resources forms part of the general assessment of the 'quality of teaching' (see below for more details). As a result, English schools lack a formal national coordination point to help guide the digitalisation and adoption of ICT solutions within teaching.

However, thereare signs that this is beginning to change. There is a growing focus on digital skills at a national level, with the Government recently publishing a digital strategy which includes sections on digital skills and education for young people. Although this strategy is only a consultation document, it does promise an increase in funding for IT teachers, with a particular focus on encouraging more Computing graduates into the profession. Whether this will develop into a concrete policy is yet to be seen.

Despite the lack of national coordination, there is growing anecdotal evidence that cooperation and knowledge sharing is taking place amongst schools and practitioners on a regional, local level. This is particularly true amongst academy chains (where groups of schools work together under a common structure) and school associations. For example, it is not uncommon for one member of the chain to be more advanced in regards to

digital tools and teaching than the others. Thus, experience and best practices can be shared, with peer support offered to implement practices which have been shown to work well. Nevertheless, this cooperation cannot be guaranteed, which means that, without a national policy governing the adoption of ICT and digital tools, the level of usage and innovation varies massively between schools, with provision patchy in many areas. It should also be noted that the provision in England is in many ways behind that found in the other home nations; with Scotland having the clearest policy through its Digital Learning and Teaching Strategy, which specifically focusses on harnessing digital technology in the classroom.

The absence of a national policy also means that there is very little national funding for technology procurement by schools. Instead it is up to individual schools to make money available for this via their existing budgets. Not only does this limit the volume/type of technology which can be brought into the classroom (depending on the budget each school provides), but it also means that individual schools/academy chains act as sole buyers, meaning they do not always benefit from the best available offers and cannot apply economies of scale discounts. Indeed, a lack of funding for hardware means that is not uncommon for schools to pass the cost of ICT resources on to parents, by asking them, for example, to make a monthly contribution to cover the ‚rental' of a tablet or similar device for use on school related activities.

Similarly, the lack of national coordination means that schools are free to create their own organisational structure for the implementation of digital learning and ICT, both in terms of who is responsible and how it is monitored. In schools who are more committed to developing a digital strategy, the most common approach is to appoint a digital leader who has the overarching responsibility for the development, implementation and monitoring of the institution's digitalisation. However, with no national support for such roles, the money to cover staff costs for these positions has to be found from existing budgets. Therefore, it is mainly only within schools with more resources (such as independent schools or further education colleges) that these positions are full-time roles. For most other institutions, the responsibilities associated with ICT innovation and digitalisation are included within the daily tasks of certain staff members (either teachers or IT support). The problem with this approach is that less time can be dedicated to these responsibilities when given to a non-digital specialist, something which hinders the level of development and innovation which is possible.

During field research it became clear that the main catalyst for ensuring a dedicated strategy and budget for the digitalisation of teaching was buy-in from senior management. Without this support, even the most dedicated teachers find implementing changes difficult, as the money and time is simply not available. Whilst in some cases this buy-in is achieved organically as senior management quickly understand and value the

impact which ICT tools can make, in other instances an external impetus is needed to ensure this. In many cases this impetus comes from schools looking for ways to improve the results of their inspection by Ofsted. Although, as detailed above, Ofsted have no formal requirement to assess a school's use of ICT, they do look at the overall impact and quality of teaching, with the adoption of cutting edge digital and ICT tools one way that schools can demonstrate the quality of their delivery. To be sure, increasing the formal scrutiny which Ofsted carry out on a school's ICT and digital innovation would be one solution for addressing the current patchy uptake of ICT tools in schools as with no guiding national policy, it is the Ofsted inspection criteria which drive many schools' strategies and approaches.

ICT in the Curriculum

Alongside Ofsted, another method through which the government shapes education programmes in schools is the National Curriculum, which sets out targets and topics to be taught in different subjects, across the different age groups. One such subject is computing, with the National Curriculum for this subject area setting out the minimum requirements for teaching ICT in schools. The focus of this curriculum is very much on the practical side of computer science, with, for example, students introduced to the principles of coding from a young age. Students progressing through the computing National Curriculum are first introduced to basic concepts, such as algorithms, before moving on to learn programming language and develop their skills in using this. Broadly speaking the aims of this curriculum can be summarised as ensuring students are able to:

- understand and apply the principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- analyse problems in computational terms, developing practical experience of writing computer programmes to solve problems
- evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- use information and communication technology responsibly, competently, confidently and creatively[1]

However, recent changes to the way that schools are classified in the UK means that not all institutions have to follow the National Curriculum. Schools are now able to reclassify themselves as an academy. For those that choose to do this, they no longer report directly to the local authority and so have more freedom to set their own curriculum. Similarly, many private schools operate outside of the National Curriculum. As a result, there is no requirement that computing is taught to the same level in these schools.

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[1] National curriculum in England: computing programmes of study: https://www.gov.uk/government/publications/national-curriculum-in-england-computing-programmes-of-study

Away from the taught subject of computing, there are many other ways that ICT is brought into the classroom. Programmes such as Word, Excel etc. have long been a part of teaching and are now expected by staff and students. Equally, tools such as Virtual/Personal Learning Environments, Interactive Whiteboards etc. are now an established feature, with online environments in particular helping staff and students collate digital resources and tools. Similarly, approaches such as Bring Your Own Device (where students bring their own tablets etc. into the classroom) and flipped classrooms are growing in use.

Schools' online systems often include a student e-mail facility which allows staff to easily send resources and updates outside of lesson time to students. At the same time students can submit questions and homework to staff remotely, with staff often given access to digital plagiarism checks to monitor this work. Email is also useful for support and pastoral care, as information around guidance and student administration can easily be shared via these channels (including scans/photos of forms etc.), which cuts down on the administrative burden on staff and pupils.

Blended learning is also growing in acceptance as a cost-effective and useful way of delivering teaching. This is particularly the case in further education where vocational courses lend themselves well to formal teaching delivered outside of traditional classroom settings. Therefore, many colleges are investing in the development of online teaching content to either replace or complement formal face-to-face learning. These blended learning courses are usually integrated into the college's VLE, as this allows staff to track their usage and impact via a medium students are already familiar with.

However, schools are also aware that they cannot keep up with the speed of technological advancements – due to a combination of lack of finance, staff time for development and specialist knowledge. Indeed,in many institutions it is students who are driving the most innovative adoption of ICT in learning, with staff (and by association the wider school's digital strategy) learning from them. Recent examples of this include the use of resources such as Facetime to aid homework via group chats and quiz apps being used as a revision tool amongst study groups. Although this student-led innovation is a welcomed addition to the growing digitalisation of teaching, where this approach becomes limited is in its ability to transfer the use of these tools from being a homework aid to an integrated part of the classroom. This is because such a transfer relies on the school having a dedicated and functioning digital strategy that allows for the use of these tools in the classroom – something which, as seen above, is not always guaranteed. The risk here is that, if schools do not keep up, the use of education technology in and outside of school could diverge. This is turn could impact on the effectiveness of classroom teaching if students deem the school's ICT resources as inferior or outdated to

what they use at home. Thus, whilst this student-led innovation should be encouraged, it is not sustainable in the long term to allow this to continue to be a primary driver in the digitalisation of teaching.

Indeed, it is this need for greater coordination and support for schools which presents the greatest opportunity to further enhance the use of ICT in the classroom. The current approach in England may be producing some effective and innovate practices, but it is too reliant on proactive teachers (and students) enacting change from the bottom up, something which creates hotspots of innovation surrounded by swathes of schools who are being left behind. Consequently, an increase in top level support, through a combination of inspiring examples of what can be achieved, increased funding and practical support for understanding how best to embrace technology (from what technology is 'safe' and effective for use in the classroom, to advice on suppliers and where to source tools and resources), would make the process of adopting new technology far more simple and efficient. This in turn would mean that more schools feel able to embrace ICT and digital tools to a greater extent in their provision, and so start to even out the current patchy levels of provision.

ICT Integration in the Classroom

E-Twinning:

E-Twinning is growing in use across English schools, particularly during language lessons, with schools partnering with institutionsin another European countries where the target language is spoken (most often French, German or Spanish). In particular students are encouraged to speak to each other via Skype/Facetime, mixing between English and the target language of the class. Whilst the focus of these classes is to improve students' confidence in speaking a foreign language, there is also a natural spill over into cross-cultural learning. In some instances this is a integral part of the learning, with students at both schools encouraged to work together on projects which force them to learn about each other's culture and background.

In its most basic form, this approach to e-twinning simply requires that students have access to a device with a facility for Skype/Facetime. However, many schools have also made use of the support offered from the Erasmus+ E-Twinning services, particularly when it comes to finding partners. Similarly, there are also examples of schools using their experiences with e-twinning to develop more detailed Erasmus+ KA2 projects to further strengthen the links they have to partners across Europe. An example of such a project can be found at www.erasmusplus.org.uk/stories/tendring-technology-college

Bradford Film Literacy Project:

Bradford was the world's first UNESCO City of Film. In an effort to create a meaningful legacy from this status, a film literacy project was created which aimed to have a positive effect on learning amongst primary age children in the city. The idea behind the project was that film could act as a useful gateway into wider literacy learning (reading and writing) as young people are a generation who have grown up surrounded by the moving image. Therefore, by using a variety of short and long-form films, students could learn how image, sound etc. are used to build meaning and fashion a narrative. Students themselves were also encouraged to develop a short film, using hand held devices (tablets, mobile phones etc.) to capture and edit content. To guide this work tasks were set around literacy points; for example including a scene in the film which demonstrated the use of an adverb. Hence, the project transcended the traditional use of (pre-recorded) video in the classroom. Instead it harnessed the potential of modern devices to become interactive parts of the learning experience, with learning driven by the young people.

Alongside some in-school support, experts delivered CPD for teachers around the basics of film literacy, editing content etc. Not only did this mean that the teachers who took part in the training were confident to deliver the film literacy content independently, but they were also encouraged to act as ambassadors within their own schools, helping to upskill colleagues. For those schools that took part in the project, the results have exceeded expectations, with on average students' writing and reading literacy scores in tests improving by around four points.

http://bradfordfilmliteracy.com/

YouTube Trends to Engage Low-Attaining Groups in Languages

Internet culture and trends are a dominant part of many young people's lives, with lifestyle bloggers, vloggers etc. being the trendsetters for digital natives. Indeed, websites such as YouTube produce new viral videos and memes on a regular basis. Whilst it may seem that these trends have very little to do with the classroom, teachers are learning to successfully harness young people's interest in them to aid learning. One example of this is one school's use of internet video and memes within language learning, with these online resources becoming the main focus around which a class session is based. Students are encouraged to translate the content of the videos, with these phrases then forming part of the wider exercises within class, as students (often without realising) gain practical experience in tenses, manipulating verbs, sentence structure etc. This has proved particularly effective for lower achieving groups of students, who are often very detached from

traditional learning pathways. However, the engagement with YouTube and other internet memes/content introduces an element of fun into class which encourages them to reengage with the wider topic. For schools this is also an easily achievable practice as all that is needed is an internet connection and access to YouTube, with no specialist equipment or subscriptions to new tools required.

Minecraft

The game Minecraft has the potential to be used in many different subject areas to aid learning. In one school, Ballyclare High School (which has been highlighted as a leader in the use of this tool), Minecraft has been used during English lessons, where students use the platform to recreate scenes from books, as well as in other subjects such as RE and Maths. However, the school has found it particularly useful in Geography as it naturally allows students to engage with and role play different scenarios linked to the natural world. For example, in one class students were encouraged to build their local town in Minecraft to help them better understand the settlement theories they were learning about, whilst in another different groups of students were challenged to build flood defences, which could then be tested through in-game scenarios.

Thus, a great benefit of this approach is that it is allows for virtual scenarios to be created which simulate a kinaesthetic learning approach in a classroom without the need for additional resources, time or expense; limitations which have traditionally hindered the wider use of this learning style in many classes. Equally, the game-play element of Minecraft encourages students to develop crucial personal skills, such as critical thinking, team work etc. which helps encourage their overall development in a fun and interactive way.

Virtual Reality in the Classroom

Sevenoaks School in Kent is a (private) co-education boarding/day school for 11-18 year olds and in recent years the school has been able to establish a dedicated department focussed on innovation. As part of this, the school have been closely monitoring the growing affordability of virtual reality headsets and exploring the potential use of this technology in the classroom. By the start of the 2016/17 academic year, the school felt that VR had now become affordable enough to warrant investment and so began to roll out the technology into the classroom. The impact had been massive, with a range of subjects reporting an increase in student engagement and improved learning through the use of VR to explore topics. For example, the technology has been used in art and design to explore famous pictures in more detail. Students are able to render a 3D virtual mock-up of the picture and then fully immerse themselves into the scene using VR. This allows them to investigate the nuances of the image and so develop a greater understanding of meaning and technique.

Similarly VR has also been used in other subjects as a more abstract aid to learning. An example of this is during philosophy lessons where students have used the technology to explore the French philosopher Descartes' hypothesis that life is a simulation. VR gave students a real taste of this by demonstrating just how much an augmented reality can blur the boundaries between fact and fiction.

The school's use of VR has been so successful that they have included this technology in their recent 'Outreach Box Project', which has involved the development of several technology toolkits for other schools to hire for free. These boxes are curated by the staff at Sevenoaks based on their own experience with digitalisation, something which they recognised is more advanced than in many of the other local schools (in a large part due to their bigger budget from being a private school). As a result, the focus of the toolkits has been on digital tools, ICT etc. that can add value to learning but many schools find prohibitively expensive to buy. This means that other local schools with more limited budgets do not have to invest in technology they may not use every day, but can source it from Sevenoaks School when it is needed. Thus, the boxes are helping to improve the use of cutting-edge technology in education across the local area.

Job Interview Game

Following cuts to funding for the National Careers Service website, which had been the go-to website for guidance resources for staff in England, many practitioners now make use of the tools available on the Careers Wales website (partly because the two nations have closely aligned education systems and so many tools are transferable). One such tool is the Job Interview Game, which can be used in sessions with young people preparing to enter the world of work (either part-time or full-time). Players role play through the stages needed to prepare for an interview; from what clothes to wear, to the sort of places to look for information on prospective employers. The game then takes players through the interview process, encouraging them to think about issues such as body language and how to answer interview questions. For young people, facing their first interview can be a daunting prospect. Equally, the skills needed to successfully complete an interview are not always ones which they will have learnt through education. Therefore, the game allows young people to practise what having an interview may be like in a safe environment, whilst for schools there is no extra cost as the game can be accessed for free from any computer. Crucially, whilst traditionally such simulations may have been carried out face-to-face, the game has proved an effective way of disseminating information. This is because young people associate online games with fun rather than learning and so are more receptive to the learning points in the interview game.

Useful Resources

Ofsted School Inspection Handbook / *Common Inspection Framework*

These two documents form the basis for Ofsted inspections. For schools, particularly school leaders, they are the main point of guidance as to what can be expected during a visit, the standards that they should be aiming for etc. This makes these documents highly valuable for any institution which is subject to an inspection from Ofsted.

Naace Self-review Framework

This framework can be used by either teachers or school management to benchmark their ICT and digital provision against a set of standards. The framework lists a number of criteria, against which the school ranks its compliance 1-4 (1 being the best, 4 the worst score available). Whilst this document provides useful guidance on the stages that need to be completed for a school to move towards digitalisation, it is a voluntary tool that schools must subscribe to in order to use.

UK Government's Digital Strategy

This recently published strategy sets out the UK Government's plans to address digital issues. It is useful to show the potential direction of government thinking but until any of these ideas enter into policy, the strategy lacks any real practical application.

National Curriculum

For teachers at schools that report directly to the local authority, the national curriculum sets out the content and expectations for all teaching - including the attainment targets for students. As well as general guidance, the curriculum is split into subject specific frameworks.

- National Curriculum: Computing; This is the only part of the national curriculum which focuses on ICT issues. However it is very much focussed on the teaching of computer science, rather than the general use of ICT and digital tools in learning

Recommendations for the Effective Integration of ICT in theClassroom

Whilst, as detailed above, there are no formal government recommendations for decision makers or school inspectors on the use of ICT in schools, there is one professional body which offers support to schools across England in this matter - Naace. Naace is the national association for all those interested in technology in education and so counts school leaders, teachers and other industry professionals amongst its members. Its overarching aim is to act as a national advocate for the value which technology can add to education and, as part of this work, it has developed a self-review framework which schools can use to benchmark their use of ICT.

The framework is split into six different levels, with each linked to a different aspect of school activities:

- Leadership and management
- Use of ICT in the curriculum
- Teaching and learning
- Assessment of digital capability
- Professional development
- Resources

Each of these levels contains a list of different criteria which need to be addressed in order for a school's ICT policy to be effectively meeting the unique challenges of incorporating ICT into the classroom. Crucially, the criteria have also been designed with Ofsted inspections in mind, with the aim being to help guide a school's thinking around its use of ICT in a way which feeds into the format of a school inspection. This then means that schools already have detailed examples of how they are adding quality to their teaching through the use of ICT and digital tools, which helps them easily demonstrate this added to value to the inspectors as part of their visit.

Assessments using the self-review framework are carried out by the school online, where they are asked to rank their compliance to each criteria 1-4 (1 being fully met, 4 being not addressed at all). These marks then feed into a dashboard where the aggregated score for each level is shown. As well as ranking each criteria, schools are asked to add further information to support this mark. This includes the evidence available to demonstrate how the criteria is being met, as well as the action points which they need to take in order to

reach the next level. To aid reflection on this, and to make sure that the online tool is used as effectively as possible, guidance is provided on screen in the form of suggested evidence and action planning.

One limitation with the Naace self-review framework is that, as it is a service offered by a professional association, it is a charged-for resource – with a cost of £50 per year. Whilst this is not a large amount, pressure on school budgets means some institutions may be reluctant to pay this fee. When schools register for the resource, a member of staff is nominated to take responsibility for managing the tool. In schools where a digital leader is appointed, this usually falls to them, which allows for the use of the framework to be better integrated into the school's wider digitalisation policy. This is because it is these digital leaders (or staff with equivalent responsibilities) who are responsible for developing guidelines for use internally, to help guide all teachers in a school to better integrate ICT into their classrooms.

Indeed, the field research showed that concrete recommendations and support for teachers are in great demand, with one of the greatest challenges identified by staff being their ability to critically assess the tools available without becoming overwhelmed. Without a dedicated national focal point, decisions on the format this support should take falls to each individual school, with the most common solution being for institutions to develop internal 'digital toolkits'. This sees a staff member (usually the digital leader) take responsibility for assessing all the tools available and including those they decide are best within the toolkit. This toolkit is then shared across the institution, an approach which has proved to both increase integration and add impetus to the adoption of ICT and digital tools by teachers. However, the task of developing a toolkit is not a simple one, and so staff time needs to be dedicated to this activity, something which those schools which lack full-time digital leaders etc. struggle to achieve. As a result, these toolkits (or similar guidelines for teachers) are not available in every school, which leaves many teachers feeling unsure where to begin when it comes to exploring the possibilities which ICT and digital tools present to enrich their teaching.

Teacher Training for ICT

The principle of allowing teachers time to carry out continuous professional development (CPD) is well embedded in the English education system. However, the content and format for this training varies from institution to institution and depending on individual teachers' needs. In an ideal world, all teachers would be able to take time out of class to learn about the latest developments in technology but there are budgetary issues to consider before releasing teachers for any CPD.

Field research with practitioners showed that there are two different ways in which staff's digital skills need to be developed. There is certainly a need for practical upskilling amongst many teachers who lack the knowledge or the confidence to use new ICT tools and resources. However, at the same time they need to understand how to guide students pedagogically in order to ensure that these young people maximise the potential impact of digital tools in the classroom. Although this generation of students may be considered 'digital natives' by many, a challenge for teachers is finding a balance between students' desire to use technology in learning and developing these young people's digital literacy skills so that they still learn in an effective, high-quality way. For example, whilst searching for information online may be becoming an accepted activity in many classrooms, young people lack the analytical skills to assess the quality of their search results, often accepting the first result as the definitive answer simply because it appears at the top of a search engine results page.

To address these needs, the most common approach highlighted during the research sees institutions look internally within their existing resources to pool knowledge when developing CPD. This can include identifying staff with good ICT skills and knowledge and appointing them as 'digital champions' to promote benefits and develop the skills of their colleagues. Some institutions have also looked to harness the skills of students in this regard, forming digital student councils or asking for volunteer students to help support staff and other pupils to understand how to make full use of the digital tools available to them.

The field research also showed that CPD around ICT and digital skills was far more developed in those institutions where dedicated digital leaders had been appointed. Having these skilled specialists involved in the day-to-day delivery of a digital strategy means that a more coordinated and all-encompassing approach can be taken to CPD. Therefore, whilst the sharing of learning points and best practices remains at the core of training and support, this can be complemented by specially designed training sessions and supplementary resources. An example of this working in practice can be seen through the development of the 'digital toolkits' discussed above. These toolkits collate together the most useful resources, with these recommended tools becoming the de facto ones used across all teaching. Not only does thismean that staff do not have to start from scratch when looking for apps, programmes etc., but also CPD can be more focused on how to use these specific tools, an approach which produces a more detailed and impactful upskilling of teachers.

Interestingly, findings from the national interviews around CPD showed that age and subject taught had far less of a bearing on the uptake and development of digital skills than might be expected. Instead, staff attitudes were cited as the main challenge which schools faced. For some staff the benefits of shifting to a

more digital approach to teaching were not obvious, whilst others were unwilling to learn new skills (due to time pressures or lack of perceived impact). Therefore, it became evident that CPD itself is not enough in isolation to secure a successful uptake of digital tools within education. Instead, this practical training needs to form part of a wider promotion and awareness-raising campaign that highlights the positives which can be derived from ICT tools and resources. This includes the benefits within learning, as well as the more 'hidden' benefits which come from a switch to a 'paperless' approach and more integrated provision of resources etc. (see use of email/VLE above).

National Quality Assurance and Evaluation Tools

Although there is no standalone evaluation or quality assurance tool issued from a governmental level to assess the implementation of ICT and digital resources in classrooms across England, the use of technology is a factor which informs Ofsted inspections. In particular, the extent to which a school is using cutting-edge and impactful new technology forms part of the assessment of the quality of an institution's teaching during visits. The problem with this is that these are more subjective, individual checks, which means that there is a lack of a common criteria on a formal level to help decision makers, practitioners etc. benchmark schools across the country against one another. At the same time, Ofsted inspectors only visit most schools every two to three years (depending on how successful their previous inspection was). Consequently, even these informal checks on ICT implementation carried out by inspectors are only done on a relatively infrequent basis.

However, the lack of government coordination does not mean that there are no tools, support etc. available to schools from external sources. As discussed above, one national body which can offer support to schools to help them ensure quality adoption of ICT is Naace, through their self-review framework. This framework encourages schools to reflect on their level of ICT adoption, with a focus on gathering evidence and making improvements in order to more clearly demonstrate the quality which these tools add to teaching. To strengthen the impact of the self-review framework, Naace also offers schools the possibility to apply for a Naace ICT Mark. This formalises the work carried out in the self-review framework and adds a level of external quality assurance to a school's digital strategy. The Naace ICT Mark is a recognised standard for schools wanting "to demonstrate both effective and mature use of technology"[2] and can be applied for once a school has achieved a level two ranking in all six aspects of the self-review framework. After an application for an ICT Mark is made, Naace first validate the information entered into the framework online, before an external

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assessor visits the school to check that the information provided is correct. As long as they agree with the school's own assessment, an ICT Mark is awarded. These marks last for three years, after which a school has to apply to renew the award.

Schools who have received the award report a number of benefits; from external recognition of the school as an ICT centre of excellence, to improved relationships with suppliers, and increases in staff morale and willingness to further explore ICT and digital solutions. Yet, much like with the self-review framework, the process of applying for this quality mark comes at a cost for institutions (as it is offered by a professional association rather than a publically-funded body). This cost varies depending on the size of the school, with most institutions paying between £400-650. Hence, much like many of the approaches discussed elsewhere in this report, the adoption of the ICT Mark differs across the country, with mainly only those schools who already possess a committed and developed ICT strategy taking part.

In many ways this is because these committed institutions also often possess a full-time digital leader. Therefore, the tasks of evaluation and quality assurance are carried out by these staff members, meaning that comprehensive strategies and resources can be developed, with capacity to undertake extra tasks such as apply for the ICT Mark. Yet, where this role does not exist, these tasks often fall under the more general ICT co-ordinator, who may have many other tasks associated with the school's overall ICT infrastructure and policy. Hence, less time can be spent on maintaining robust evaluation and quality assurance tools, and so applying for added extras such as the ICT Mark are not a priority.

Conclusion

Despite the lack of an overarching national policy or point of coordination, the integration of ICT in schools in England shows good elements of innovation. Most schools now possess basic digital infrastructure (student email, VLEs, internet connected classrooms etc.), with these tools forming part of daily school life. At the same time, several schools have shown a good level of development in terms of cutting-edge technology – harnessing the potential of technology such as virtual reality to enrich the learning experience. The problem is that the level of uptake of these tools varies massively between schools. This is because, with no national funding or compulsory guidelines to follow, schools are free to choose their own level of investment in ICT. Thus, it is often only those schools with more generous budgets (e.g. private schools) or with a leadership team who take an active interest in technology that actively pursue an innovative digitalisation policy.

However, most students have little choice as to which school they attend, meaning that they face a lottery as to whether they attend a school with a well-developed ICT and digital strategy or not.

The onus for addressing this uneven development should not fall on the schools themselves. Institutions are already overworked and under financed and so are in desperate need of external (government) support when it comes to digitalisation. As a result, a more coordinated national policy which provides a clear framework for schools to aim towards and benchmark themselves against would be ideal. This should also include practical support, such as that seen in some schools already through digital toolkits and dedicated CPD. Similarly, specific national funding for this area would also allow more schools to invest in full-time digital leader roles. Without this national development, the risk is that the gap between the most digitally advanced schools and other institutions will continue to grow, something which will negatively impact the attainment of students in those schools which are left behind.