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DEvelop COmpetences in Digital Era.
Expertise, best practices and teaching in the XXI century

IO2. Innovative training models, methods and tools for teachers in the digital age

NATIONAL REPORT: England

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Foreword

The present report is part of the second intellectual output of the DECODE PROJECT - DEvelop COmpetences in Digital Era. Expertise, best practices and teaching in the XXI century, an Erasmus+ KA2 - Strategic Partnerships in the field of Education.

DECODE moves from:

- the awareness that the Information and Communication Technology (ICT) is an increasingly important economic sector in Europe and the integration of these technologies in teaching practices and the development of teachers' digital competences could be strategic in this field;
- the need to fill a void of information on real teaching practices.

ICT Competences in Digital Era are crucial for promoting digital literacy, media literacy, the overcoming of digital divide, the promotion of social innovation and social inclusion. Digital competences are strategic to respond the new demands of the information and learning society and to develop innovative education systems. DECODE is an action research project, which aims to create the best conditions of exchange best practices in teaching digital skills; but the main objective of DECODE is to contribute to the improvement of the school digitization processes by:

- the spread of best practices at European level, and the improvement of media and digital literacy;
- the understanding of the real organizational and educational processes, useful in providing important sources of information to policy and decision makers;
- the improvement of teachers' strategic skills in the use of ICT in education and didactical activities;
- the experiment a new training model for teachers.

For this reason DECODE has built a partnership among universities, research centers, training institutions, schools, schools associations, including various approaches and experiences. Partners of the project are:

- from Italy: Fondazione Link Campus University (FLCU); Centro di ricerca CRES-IELPO, Dipartimento di Scienze della Formazione - Università Roma Tre; ANP Associazione nazionale dirigenti e alte professionalità della scuola;
- from Spain: Fundació per a la Universitat Oberta de Catalunya;
- from Finland: Omnia, the Joint Authority of Education and Regional Center in Espoo;
- from Romania: Institutul de Ştiinţe ale Educaţiei;
- from United Kingdom: Aspire International.

The main activities will be developed, during the next three years, following a stepwise approach. The first step involved defining the research design (IO1), which was shared with all partners in

relation to: methodology, instruments, and outputs. In this step, DECODE produced two important reports: a European Digital Pattern for Education and a Template for national research and tools.

In this step, DECODE aims to produce five National Researches Reports on "Training models and pedagogical teaching methods for teachers in the digital age" (IO2). Each Partner country conducts its qualitative research on the bases of IO1, identifying more interesting training models and pedagogical teaching methods for teachers to improve their digital skills and favor their incorporation of digital resources in their daily teachers practices. This report presents the national report for England produced by Aspire-I Ltd.

In a third step, DECODE aims to produce "Guidelines for Assuring Quality in the process of Integration of ICT tools in the teaching-learning process" (IO3). Partners have to involve around 30 key actors from national and local institutions in in depth interviews based on a common standard.

In a fourth step, each country conducts a quantitative research and produces a report, titled "Practices, skills and training needs of digital teachers" (IO4), based on the results of national online survey.

During the fifth step, DECODE aims to produce the training testing to improve teachers' competence (IO5), and then to realize a national report to share evidence of testing.

The sixth step intends to gather all intermediate national reports to elaborate the Comparative international Report. This output contains all the notes and operative tools to transfer DECODE into other contexts, countries and situations.

The seventh step explains the communication plan. This is a relevant and transversal action, which will accompany the entire project.

National reports have to be very concrete tools for identifying, at national level, actions targeted to the introduction, in the educational system, of training models and successful methodologies to integrate into the school staff (teachers, headmasters, administratives, etc.) digital, methodological and socio-relational skills requested by digital era.

Objective of the national researches - "Innovative training models, methods and tools for teachers in the digital age" - is to explore the governance practices, and to understand the following areas of analysis:

❏ Innovative policies implemented in partner countries;

❏ Significant experiences spread in partner countries;

❏   Classification of profiles and skills of educational institutions professionals in the ICT field;

❏   Best practices and educational successful methodologies, spread in the partners countries, for training teachers to facilitate integration of ICTs in educational context and processes.

To reach the objective, the national research presents:

❏   a reconstruction of the national scenario: trends and policies activated at national level in relation to the introduction of training models and successful methodologies to integrate into school staff digital competences;

❏   a framework of the main national laws and legislative funding programs;

❏   a framework of contractual rules and career perspective in relation to the digital challenges

❏   the identification of local good or best practices.

The used methodology expects a qualitative approach.

Focus group and in-depth interviews methodologies will be used to collect data from key actors.

Introduction

With the advent of the Internet, the way to produce and manage knowledge has changed profoundly, thanks to an extraordinary technological development.

The Eurydice report (2011), Key Data on Learning and Innovation through ICT at school in Europe, recommended the promotion of innovative pedagogical approaches, to enable students to learn in appropriate ways.

The report confirms that ICT are widely promoted by the central authorities as a tool for teaching and learning but there are still major disparities regarding their implementation.

At the level of primary and secondary school, most countries recommend, or suggest, a wide range of innovative teaching methods based on active and experiential learning, to increase student engagement and help to enhance their results. There are few countries, which have already implemented e-portfolios as an approach for the evaluation, Italy being not among them. Moreover, there are not widespread training courses, or updating and validation of digital skills in school. There are few countries where there is the dissemination of guidelines for integration and enhancement ICT in educational settings and teaching processes. Few countries recommend, at the central level, the use of ICT to assess students in compulsory education, Italy being not among them.

The EU member states have recognized the importance of teacher training and they are committed, with the European Council (2007), to develop digital skills in the initial training of teachers, and to continue to promote them through the top of the support career and continuing professional development (OCSE, 2015).

The current document is intended as a non-exhaustive partial overview, aimed at providing some elements related to policies on ICT in teaching across England. The goal is to present a common pattern to the project partners, to focus the development of the political and legislative context in which is located our research.

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1. National context of ICT in teaching in England

In the UK there are a number of differences and similarities in the education systems across the four constituent countries. These arrangements partly reflect the geography, culture, complexity and relative population sizes of the regions and they are also linked to differences in the legal and constitutional responsibilities that apply. With a population of around 62 Million as at the 2011 Office for National Statistics Survey, the UK can be broken down in to population by percentage: England 84%, Scotland 8%, Wales 5%, and Northern Ireland 3%.

For this study we will focus on the English context

Education in England is overseen by the Department for Education and at local level it is the responsibility of local government authorities to establish and put in place educational policies. In England, children must start school from the age of 5 and remain in school until they are 16 years of age.

Although the school leaving age is 16, young people must remain in some form of education until they are 18 years of age (The Education and Skills Act 2008 raised the age to 18). This education from the age of 16 until 18 can take various forms – academic in a Sixth Form College which is for students between the ages of 16 to 18 who are preparing for AS or A Levels. Some students choose a Further Education College or follow the vocational route and take up an Apprenticeship which is on the job training together with classroom learning.

Within these categories are Key Stages – fixed stages into which the National Curriculum (a set of standards and subjects which schools must follow) is divided:

- **Key Stage 1** – ages 5 -7
- **Key Stage 2** – ages 8-11
- **Key Stage 3** – ages 11-14
- **Key Stage 4** – ages 14-16
- **Key Stage 5** – ages 16-18

In England there are 5 stages of education which include the following various types of educational institution:

- **Early years** (ages 3 – 5) (State/private nursery schools)
- **Primary** (ages 5 -11)
- **Secondary** (ages (11-16)
- **Further Education** (ages 16+) (college/sixth form/vocational/apprenticeships)
- **Higher Education** (ages 18+) (undergraduate/postgraduate courses at university/college)

It should also be noted that within primary and secondary education there are a number of different types of schools:

- **Local Education Authority (LEA) controlled schools** – these are administered centrally by the LEA and so must follow the national curriculum, centrally set spending and funding commitments (e.g. pay levels for staff) etc.
- **Faith schools** – these are run as above but are free to set their own religious studies curriculum
- **Academies** – these are publicly funded independent schools. Academies do not have to follow the national curriculum and can set their own term times. They still have to follow the same rules on admissions, special educational needs and exclusions as other state schools. Academies get money directly from the national government, not the LEA. They are run by an academy trust which employs the staff (and so can set pay levels etc.).
- **Free schools** – as academies but can be set up by individual groups (parents, teachers, charities etc.)
- **Private independent schools** – these are independent from government control, charging fees for students to attend. Therefore, they do not have to follow the national curriculum or rules on admissions etc.

How do we define digital competence of teachers in England

In a 2016 report JISC (the Joint Information Systems Committee) states that; "Teachers hold the key to unlocking enhanced learning experiences through technology. Students using technology in the classroom is not enough in itself—they only translate this experience into key digital skills through good teaching and following good role models" (2016). As a result, teachers need to keep up with the latest digital technology. Teachers can create interactive learning materials online and also make use of the technology available to them in the classroom. Teachers who can use social media in the classroom allow for interaction between themselves and students and in turn, schools which can show that their teachers are digitally savvy are attractive to potential students.

These ideas have been developed further by JISC through their 'Building Digital Capability' project which has defined 6 elements that make up the framework of digital competence for teachers:

1. ICT Proficiency – the ability to use ICT based devices, applications software
2. Information, Media and Data Literacy – the ability to find, evaluate, manage, organize and share digital information
3. Digital Creation, Problem Solving and Innovation – the ability to design and create new digital materials
4. Digital Communication, Collaboration and Participation – the ability to communicate effectively in digital media

5. Digital Learning and Development – the capacity to benefit from digital learning
6. Digital Identity and Wellbeing – the ability to develop and project a positive digital identity and to be able to look after personal health, safety and relationships and work life balance in digital settings (2017)

With this definition in mind, we will provide an overview in the following paragraphs of the policies, legislation, processes and frameworks that contribute to the development of digital skills of teachers in England. We will also look at future trends and best practices in training models and methods that have been adopted to develop teachers' skills in ICT in various institutions.

1.1 Strategies, policies and legislation related to ICT in teaching/in the curriculum

The UK Government's interest in digital skills is being driven by its wider digital strategy for the economy as a whole, as making sure that young people have the correct level of digital competences and literacy is central to this policy's success. This is evident in the Home Office's report "Digital Skills Crisis" which states; "Given the pace of technological advances, it will always be a challenge for schools to keep up with the latest innovations. As digital skills are increasingly becoming essential for industrial sectors, schools will need to invest in offering high quality computer science courses and up-skilling teachers so that digital skills can become more main stream rather than as a standalone subject" (2016).

However, there is no formal legislation. Instead, the government's approach has been to hand responsibility to individual institutions to develop their own approaches and strategies towards the use of ICT in the classroom. Institutions/practices which work particularly well are monitored by the government, who then circulate and promote best practice examples. To aid this, the Government appointed Matthew Gould as its first Director General for Digital and Media in October 2016. Based in the Department for Culture, Media and Sport, Gould suggested at the time of his appointment that the barriers faced by schools without the appropriate digital infrastructure would be addressed and schools would be helped to build upon their knowledge and understanding of technology. Similarly, within further education the JISC-sponsored Further Education Learning Technology Action Group (FELTAG) report gave impetus to ideas and developments around online and digital teaching. Yet, this did not lead to any concrete policy developments – instead it influenced thinking and innovation at a grassroots level within the sector.

Whilst there is no national coordination point, there was anecdotal evidence throughout the national research that more regional, informal cooperation and knowledge sharing is taking place. This is particularly true amongst academy chains and school associations. It is often the case that one member of the chain is more advanced in digital teaching than the others and so can share knowledge, helping others adopt their best practices. It was also clear throughout the research

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that those institutions considered as best practices within the industry are happy to share experience – there was no obvious sign of competition "to be the best". This included the independent sector being willing and actively interested in working with state schools who may be lacking resources to help develop digital strategies.

The approach taken by most schools who are actively pursuing a digital strategy seems to be to appoint a digital lead with the responsibility for the development of the strategy etc. However, with no government support, funding for these staff costs needs to be found from within existing budgets. In schools and colleges with more resources (independent schools, further education colleges etc.) this digital lead may be a full time position, with this staff member responsible for strategy, the delivery of training to staff around digital skills, and the development of ICT/digital resources. Nevertheless, these roles seem to be the exception rather than the rule. In most schools the digital leader role is subsumed into the wider responsibilities of non-(digital) specialist staff (teaching or IT support). Therefore, less time can be dedicated to this and so the range of activities, Continuing Professional Development (CPD) training, resources etc. available are more limited.

Across the national research a common message was that time and financial constraints are the biggest challenges for teachers etc. when it comes to adopting and developing ICT and digital resources. In recent years school budgets have come under increasing pressure, which means that there is not always the capacity or commitment to do invest in digitalisation. Overall it was apparent that buy-in from senior management was the main driving factor as to whether a school was prepared to free up time and money to invest. Interestingly few people mentioned infrastructure as an issue – high-speed broadband which can support large volumes of users at once is needed but this seems to be an accepted part of modern school life (at least in institutions willing to invest in ICT), and so is something easily rolled out across school sites. Equally, training was not perceived as an insurmountable challenge. Some staff many still require support to improve their digital skills but the CPD opportunities and support exists. This is largely due to the established commitment to staff development embedded within English education, as digital skills training can be seamlessly slotted into wider training programmes throughout the school year.

In their report into the impact of digital technology on learning, Steven Higgins, ZhiMin Xiao and Maria Katsipataki observed that training for teachers (and for learners), when it is offered, usually focuses on technology skills (i.e. how to use the equipment). Yet, this is not usually sufficient to support teachers and pupils in getting the best from technology in terms of their learning. Instead, on-going professional development and support to evaluate the impact on learning is likely to be required (2002). As a result, the use of digital technology is usually more successful as a supplement rather than as a replacement for usual teaching. Technology is not introduced into a

vacuum. It is therefore important to identify carefully what it will replace or how the technology activities will be additional to what learners would normally experience.

Monitoring and Assessment of Digital Strategies

Ofsted (Office for Standards in Education, Children's Services and Skills) inspects services for children and young people to ensure that standards are maintained in all educational settings. Following the 2013 recommendations from the FELTAG Group, Ofsted agreed to provide significantly greater guidance and training in the area of learning technology for its inspectors. Also, awarding organisations have been encouraged to invest more resources into the development of online and technology assisted assessment.

Furthermore, a number of studies have been commissioned in recent years to assess and monitor the growing use of ICT and digital tools in English classrooms. The Education and Training Foundation reflected upon the importance of learning technologies in the new Professional Standards for Teachers in the Further Education and Skills sector in a report published in May 2014. This resulted in the Foundation developing CPD training in learning technologies for the further education and skills sectors. The Government encouraged the Education and Training Foundation and JISC to put more resources into training this workforce to enable them to make better use of learning technology. The confidence of education professionals must also be raised so that going forward, they will be digitally competent.

Some schools are far more prepared than others in terms of the digital competence of their staff. The Royal Society Report "Shut Down or Restart" concluded that pupils are not inspired, often due to their teachers having only basic digital skills and these teachers are not receiving development in these skills (2012). Education systems in the United Kingdom must be designed to equip everyone with strong literacy and numeracy and technological skills to prepare them for a future where technology is constantly evolving.

Ofsted has suggested that the impact of digital technology in teaching has been varied because of differing levels of investment and levels of support offered to teachers. There is also a varied level of broadband/internet connectivity throughout the country, especially in rural areas. Also the level of technology varies from school to school; some pupils have access to computers every day and in every class whilst others only have the use of them in ICT lessons. Some pupils have access to computers at home to follow on from their lessons while others only have access to technology in school (see 1.2 below).

Targets for ICT at a National Level

In terms of targets, institutions are not driven by national targets. However they are aware that the level of digital teaching etc. found within a course is now something considered by Ofsted

inspectors; alongside more formal targets (such as that by the end of Key Stage 3 students are expected to know, understand and apply the skills detailed in the relevant curriculum).

Similarly, schools are mindful that there is an expectation from national government (if no formal support or targets) that they are embracing digital tools. For example, within further education, the FELTAG report made recommendations that 10% of teaching was delivered online by 2016/17 (2013). Whilst this was never adopted as formal target by government, most further education institutions saw it as an 'unofficial' expectation and so have invested in online courses, digital learning etc. to meet this figure.

1.2 How digital skills are embedded into teaching practices at organisational level

In terms of concrete academic research, the Ofsted Report "ICT in Schools 2008-2011", compiled using information from primary, secondary and special schools, offers the most recent and complete picture of digital skills being embedded into the classroom (2011). A conclusion of the report was that primary schools came out much better – teachers at these schools were given time off for training and development. In some secondary schools, teachers' digital skills were classed as only satisfactory. On a positive level, many different devices were used in many different subjects and schools were seen to be making provision for those pupils with no access to technology at home.

Among the recommendations of this report were that the Department of Education should:

- Use the information from the report in its review of the National Curriculum
- Provide teachers with specific subject support and professional development
- Ensure that all students have access to ICT tools across the whole of the curriculum

However, the anecdotal evidence gathered during the national research suggests improvements have been made since 2011. Broadly speaking schools and colleges are free to set their own strategies for how ICT tools are used in their classrooms. The use of programmes such as Word, Excel etc. has long been part of teaching and is now expected by staff and students. Yet, during the focus groups it also became evident that there is now a range of digital tools and resources being used by school staff. Most schools have an online platform (e.g. Moodle) which helps staff and students collate digital resources and tools. Often this includes a student e-mail system which allows staff to easily circulate handouts, resources and updates to students. As well as teaching material, this is also useful for support and pastoral care – e.g. at the end of a meeting with a careers advisor an action plan is usually drawn up. Whilst this is handwritten during the session, a photo of the document can be easily shared via email, meaning both the staff member and student involved do not have to worry about translating notes into word-processed documents. The email system is also used for the submission of homework etc., as it can be accessed both on

site and remotely (with staff given access in some schools to plagiarism check apps etc. as an added control in this process). One of the greatest benefits of this remote access has been the fact that students who are absent from school can still keep up to date with the learning that they are missing, and so they do not fall far behind when they are ill.

Professional Training and Awards

In terms of formal accreditation, schools can apply for the ICT Mark which is awarded by NAACE (National Association of Advisers for Computers in Education). The award is given to show that a school has made the best use of technology to support teaching and learning and in the daily administration of the school. Schools must complete a self-review framework before applying for the ICT Mark – there are self-review framework support courses arranged by NAACE which can help schools to achieve the Mark.

The Career Colleges Trust has the remit of increasing the range and choice of vocational education opportunities for 14 to 19 year olds. The College was commissioned by the Education and Training Foundation (ETF) to develop 4 digital CPD courses to improve the digital skills of teachers. The courses were launched in December 2016 at the House of Lords. Each course is 4 hours long, with the content covered including:

- Video learning
- Social media in teaching and learning
- Online assessment
- Effective use of online meeting and webinar technology

On completion of one or more of the above courses, teachers will be able to progress on to the nationally accredited NCFE Level 4 Technology Enabled Educator Award which is also run by the Careers Colleges Trust.

JISC has also recently completed a project called Digital Launchpad, which aimed to help professionals in the Further Education and Skills sector to improve their digital capabilities. The project ran for 18 months and ended on 31st January 2017. The 17 Partners for this project included the College Development Network, the Collab Group, The Education and Training Foundation and the Association of Employment and Learning Providers. It built on JISC's digital capabilities framework to offer resources and support to staff around the developed of enhanced, digital learning.

Another current JISC project is Building Digital Capacity which works with staff in colleges and universities to enhance their digital skills. The project will run until 31st August 2017 and the partners include the National Union of Students, the Association for Learning and Technology and

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the Universities and Colleges Information Systems Association. The project aims to provide clear guidance on the digital skills which are needed for a range of roles.

The Main Uses of ICT in Teaching

Across education institutions in England tools such as the use of Virtual Learning Environments, Personal Learning Environments, Interactive Whiteboards etc. are now an established feature. 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. During the national field research several specific examples also emerged.

In many schools students are encouraged to keep e-portfolios of work and resources to aid learning (with programmes such as Google Docs and Kerboodle used to achieve this). Staff are also encouraged to develop supplementary digital learning resources to complement in-classroom teaching (e.g. using Padlet to curate secondary sources). There is also a growing acceptance of blended learning as a cost-effective and impactful way of delivering teaching (particularly in further education where formal classroom teaching makes up less of the course content). Therefore, colleges are looking to invest in and develop online teaching content which can replace and complement formal face-to-face learning. Across further education there is a growing movement to deliver 10% of teaching online, with some colleges targeting more than this. These blended learning courses are usually integrated into the college's Moodle (or equivalent VLE), as this allows staff to track their use and impact, whilst also negating the risk of introducing another tool for students to learn how to use.

However, schools are also aware that they cannot keep up with the speed of technological advancements and so some of the most 'cutting-edge' uses of ICT within education are being driven by students. This includes the growing use of apps such as Facetime to facilitate homework and study groups outside of the classroom. Similarly, staff reported a growing use of quiz apps to aid revision, where students write their own revision quizzes and then share these with friends to help test their knowledge ahead of exams.

The level of social media adoption within teaching varies across institutions and staff members. Whilst some worry about security, others find it a useful tool for communicating with students outside of formal lessons. Nevertheless, institutions are also recognising that digital communication involves several different stakeholders and so a differentiated approach is needed. Whilst social media may be a good way to keep in contact with students, their parents also want to be kept up-to-date. Indeed, parental buy-in and understanding around why ICT and digital resources are necessary to secure long-term success. Therefore, in some schools, the use of e-newsletters, blogs by the headmaster etc. are becoming a growing part of the way they communicate to parents. Not only does this make sure that they feel 'involved' in the latest

developments around their child's education, but these channels offer a direct connection to parents and so avoid the need for students to 'pass messages on' (e.g. paper newsletters remaining in the bottom of backpacks).

Funding for the Use of ICT in Teaching

The Education and Skills Funding Agency (formerly The Education Funding Agency until April 2017), manages £54 Billion of funding per annum to support all state provided education in the UK. This is provided for 8 million children between the ages of 3 to 16 and for 1.6 million young people aged 16 to 19. There is no documentation of any specific funding available towards ICT in teaching by this government body.

However, in the UK Digital Strategy Policy Paper published in March 2017, the Government stated that it will address the barriers faced by schools in regions not connected to appropriate digital infrastructure and will invest in the Network of Teaching Excellence in Computer Science to help teachers and school leaders build their knowledge and understanding of technology. Whether this feeds through into increased funding is yet to be seen.

It should also be noted that in some respects English provision is behind that found in other home nations. For example, Wales also has its own Educational Digital Strategy which has been formulated by Education through Regional Working, which is an alliance of six local authorities who work together to agree a regional strategy and a business plan to deliver school improvement services. They have developed a suggested pathway to digital competence for every school, the first stage being where a school identifies a member of staff to lead and support digital competence. Similarly, in Scotland there is a Digital Learning and Teaching Strategy in place which creates conditions to allow Scottish teachers, learners and parents to take advantage of all that digital technology can offer.

As a result, this lack of funding from a Government level means that it is increasingly common for English schools to request that parents make a financial contribution to the ICT resources used by their children. For example, a growing number of schools provide iPads for use in the classroom to students. Yet, it is impossible for schools to fund the provision of this equipment themselves due to the lack of national funding. Therefore, parents are asked to pay a small monthly contribution to hire these iPads for their children (with financial support only offered in some cases for the most disadvantaged within a cohort). Most schools have found parents receptive to this approach. Yet, during the focus group, there was anecdotal evidence of some schools meeting resistance, as parents resented being asked to pay for technology which they saw as failing to add value to the classroom. The reasons given for this misconception, was poor communication between the school and the parents (interestingly these institutions also lacked well-developed digital communication channels).

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The Main Challenges in Developing the Digital Skills of Teachers

Schools need to have adequate budget to keep up with the advances in technology. For example, access to the latest digital equipment and a good broadband connection. There is often a great disparity between the standard of digital equipment in schools, with some having state of the art technology and others having ancient computers. Also the time taken to set up the required ICT before a class could encroach on the time available for actual teaching, and so teachers need to be confident and competent in setting up the equipment.

Teachers must be allowed time out of school for CPD which means that schools must have adequate cover for their absence. Teachers have been known to undertake CPD in their own time at evenings or weekends. 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 development.

The national field research demonstrated 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 to ensure that these young people maximize the potential impact of digital tools in the classroom. To address this, most participants in the national research highlighted an approach which sees institutions look internally within their existing resources to pool knowledge and develop 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.

Similarly, whilst 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.

In terms of the CPD and support offered to staff to improve their digital skills, the national research showed that this was far more developed in those institutions where dedicate 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.

For example, one challenge for staff identified in the research was being able to critically assess the tools available without becoming overwhelmed. Yet, in schools where there is a dedicated digital leader, the work of assessing tools can be taken by the specialist staff member. This has led some schools to develop recommended digital 'toolkits' for staff to use, an approach which has proven to be time effective for all involved. It means that staff do not have to start from scratch when looking for apps, programmes etc., but also means CPD can be focused on using these specific tools, something which helps it become more effective.

Interestingly, findings from the national survey around CPD showed that age and subject matter expertise of staff had far less of a bearing on 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, which highlights the benefits for staff and pupils that 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/Moodle above).

1.3 Key actors and institutions

The Education System in England

The Department of Education is the ministerial department which is responsible for education in England.

This department has responsibility for:

- Early years and primary education
- Education provision of young persons under the age of 19 in secondary schools and in Further Education (FE)
- Providing support for those work with young people
- Enabling those children who are disadvantaged to achieve their maximum potential

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At local level, the LEAs are responsible for setting in place educational policies. The LEAs are responsible for all state schools in their area and have input into funding, employment and dismissal of staff and deal with school admissions.

The Department of Education is supported by several agencies including:

- Ofsted - This is a non-ministerial department of the UK Government with the responsibility for inspecting educational institutions in England
- Ofqual - this is the Office of Qualifications and Examinations Regulation which deals with examinations, qualifications and assessment in England
- Education and Skills Funding Agency – deals with funding for education and training for children, young people and adults
- Standards and Testing Agency - this organisation sets the tests to assess children in education from early years to the end of Key Stage 2 (age 11)
- Higher Education Funding Council for England - this organisation is responsible for the distribution of funding to universities and colleges of Further Education in England

Teacher Training in England

There are different structures for teacher training across the United Kingdom. Qualified Teacher Status (QTS) is needed to teach in England, whereas in Wales teachers are awarded this by the Education Workforce Council (EWC) (although this is also recognised in England). Teachers who have trained in Scotland and Northern Ireland need to apply for their QTS so that they can teach in schools in England.

The National College for Teaching and Leadership (NCTL) is the authority responsible for the teaching profession in England. It is an executive agency sponsored by the Department for Education. It awards the QTS on behalf of the Secretary of State and has 300 staff who are based in London, Nottingham, Coventry, Manchester, Sheffield and Darlington

The NCTL is responsible for:

- Making sure that high calibre candidates enter teacher training
- Managing teacher trainee places and any financial assistance to schools and universities
- Is the competent authority in England for awarding the Qualified Teacher Status (QTS)
- Ensuring schools develop and deliver quality CPD
- Overseeing cases of professional misconduct, ensuring that teachers involved are prohibited

For student teachers working towards a QTS in England, there are a number of different routes into teaching. The Department for Education website Get into Teaching is a comprehensive

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resource for all the different routes to becoming a teacher in the UK. The website details how to apply, what funding is available, as well as practical advice on how to apply and what it is like working in a school.

There are two Higher Education routes into teaching – Undergraduate and Postgraduate:

- Undergraduate - University courses leading to Qualified Teacher Status (QTS) take 3 or 4 years at undergraduate level. Candidates should apply via the UCAS, which is the centralised service for applying to university in the UK.
- Postgraduate - For those who already have a degree, there is the Postgraduate Certificate in Education (PGCE) course which takes and 1 or 2 years. These graduates can apply to Teacher Training through the UCAS Teacher Training Programme.

As well as these higher education routes, there are a number of 'school led routes' which also allow people to gained teaching qualification:

- Teach First - is a social enterprise which runs an employment based teacher training programme. Students work towards the QTS via a 2 year training programme in primary or secondary schools. Schools need to have more than half of their pupils coming from the poorest 30% of familiies to be part of the scheme.
- School Centred Initial Teacher Training (SCIIT) and School Direct Training for Graduates - is an option for graduates who would like to learn on the job. This usually involves training at 2 different schools and gives the student the chance to gain valuable experience and advice from teachers while the student is working towards QTS. Depending on their degree classification and the subject the student is specialising in, scholarships and bursaries may be available (e.g. for trainee Science teachers). Otherwise there may be eligibility for tuition fee and maintenance loans.

Other Key Actors in Teacher Training and Providing Support to Schools/FE/HE Institutions

The Education and Training Foundation was established in 2013. It receives grant funding from the Department of Education and the Ministry of Justice. Commercial income and grants are generated through a variety of sources. The Foundation is owned by the further education and training sector and has charitable status. In 2014, the Foundation (in partnership with Coralesce Ltd.) produced a survey into the use of technology in teaching. This involved the following sections of the learning and skills sector in terms of providers and respective stakeholder organisations:

- Specialist Colleges for students with learning difficulties and disabilities
- Local Authority Adult and Community Learning
- Voluntary sector community organizations
- General FE Colleges (Medium and Large)

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- Entrepreneurial Colleges
- Sixth Form Colleges
- Employer led Skills Academies

The findings highlighted that that there is not a 'one size fits all' approach when considering technology in teaching and learning.

Such sentiments were also present in the national field research, as participants expressed that, whilst national initiatives, training programmes etc. may exist, individual institutions were largely responsible for developing and delivering their own CPD to staff. Given the lack of any national coordination around digital skills, this means that the training available and the skills of professionals varies significantly from institution to institution. Equally, there is a wide range of approaches to training even amongst those institutions who are committed to developing a strong digital strategy, as different schools and colleges focus on certain digital skills to meet their unique institutional expectations and needs around ICT in the classroom. Within FE, the contribution which JISC made (e.g. through the FELTAG agenda) to the theory behind, and development of the digitalisation of teaching was referenced. Similarly bodies such as British Educational Communications and Technology Agency (BECTA) were cited as contributing to the initial development of ICT use in classrooms. However, changes in government policy and funding cuts means that these actors have either disappeared or their involvement has been curtailed.

For those working in further education, the FELTAG group has also made important contributions. This group was set up in January 2013 by Matthew Hancock, former Minister of State for Skills and Enterprise, as a sector group to make practical recommendations aimed at ensuring the effective use of digital technology in learning, teaching and assessment in Further Education and Skills. The group highlighted the need to develop the whole workforce, calling for 'significant investment in the knowledge, skills and understanding of the learning technology's potential among policy-makers, governors, principals, senior and middle management, teachers and support staff. The action group is no longer convened but the work to implement the recommendations continues.

For example, the Blended Learning Consortium (see best practices below) in part developed to meet the needs of the further education sector following the FELTAG report. However, the initial development of the consortium also illustrates the patchy, variable nature of staff skills and how it can hinder a more coordinated, national approach. The idea was that the consortium would pool resources and expertise, with individual institutions leading on the development of different online blended learning modules. Yet, whilst the subject matter experts could be sourced across the consortium, the specific digital skills needed to create digital resources were concentrated in only a few colleges. Therefore, the consortium's approach to development had to evolve to meet this challenge. Now all members are involved in choosing what content to develop, and all can provide subject matter expertise. However, the technical team involved in creating the digital

resources themselves is concentrated at the Heart of Worcestershire College. The central team also offers practical support for other members in terms of CPD and helping staff in other colleges fully make use of the blended learning tools.

2. Embedding the use of ICT in teaching at organisational level

2.1 Contractual frameworks

Types of Teacher Contracts

The Education Act 2002 gives the Secretary of State power to issue guidance on the pay and conditions of teachers in England (and Wales). LEAS and governing bodies of schools must adhere to this guidance. The statutory guidance document is produced every year to come in to force in the September of each year. The annual document details the percentage pay rise, which if awarded, comes in to effect on 1st September annually. The report also details remuneration for those teachers with leadership responsibilities as well as pay details for headteachers.

However, the type of contract a teacher is given depends on the type of school they are employed by. For example, Academy and Independent schools operate outside of LEA control and so are free to set their own pay grades etc., whereas schools which remain funded by the LEA must employ staff on the standardised central contractutal framework (this includes headteachers). This framework also includes expectations around health and safety and disciplinary standards which must be adhered to.

As for working days and hours within the contractual framework, a teacher working full time must complete 195 days per school year, of which 190 must be teaching pupils and the 5 remaining days are for other duties. A full time teacher is expected to work 1,265 hours over the school year, plus additional time for associated duties such as planning lessons, assessing work and attending parents' evenings. All teachers are entitled to guaranteed Planning, Preparation and Assessment time (PPA) as part of the 1,265 hours. PPA must be not less than 10% of their timetabled teaching time.

There are four pay ranges for teachers who do not have leadership or headship responsibilities

- Main pay range
- Upper pay range
- Leading practitioner pay range
- Unqualified teacher pay range

Qualified teachers can apply to be paid on the upper pay range once during the school year. They must prove that they meet the competencies and standards required for the higher pay level.

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Other allowances are paid for those who take on extra responsibilities such as a Teaching and Learning Responsibility (TLR), a Special Educational Needs (SEN) allowance and an Acting allowance which is those carrying out roles higher than their actual duties but without being promoted to the role. Teachers should have a very good knowledge of their subject area and be able to plan interesting and structured lessons to account for the capabilities of all pupils. All teachers are entitled to training and professional development.

Teachers are obligated to set high expectations which inspire, motivate and challenge pupils. They should also provide a safe learning environment and set targets for pupils according to their capabilities. They are also responsible for pupils' progress and attainment levels and have the capacity to manage behaviour effectively, following clear guidelines. They should reward good behaviour and equally should issue sanctions for inappropriate behaviour within the policy of the school. It goes without saying that teachers should carry out their roles with a high standard of professionalism.

Recruitment of Teachers in England

The teaching profession in England is facing a shortage of staff and so there is a concerted effort from the UK Government to develop initiatives which support the recruitment and retention of teachers. This is of particular concern given that the number of students, especially within secondary education, is rising.

For example, the House of Commons Education Committee has stated that, whilst the Government consistently tries to recruit new teachers, it should also concentrate on retaining existing teachers in their posts. Many teachers cite their heavy workload as the reason for leaving the profession. Teachers must be valued and must receive CPD throughout their careers (2016). There are also regional differences in teacher supply, as many graduates on Initial Teacher Training places tend to remain in the same area after their training.

In March 2016 the Government published a white paper entitled 'Educational Excellence Everywhere' which outlined initiatives for recruitment and retention. In this Report, plans were outlined for a National Teaching Service to encourage teachers to work in the areas where they are needed most. However, the National Teaching Service was dropped in December 2016 after a pilot scheme in the North West of England had little success – only 54 out of the target of 100 teachers were recruited.

Professional Bodies for Teaching

The General Teaching Council for England (GTC) is the professional body for teaching in England. It works in the public interest to help improve standards of teaching and learning. Similarly, the National College for Teaching and Leadership (NCTL) is an executive agency which is sponsored by

the Department of Education. The aims of the NCTL are to improve academic standards by recruiting a workforce which meets the needs of the school system.

A Chartered College of Teaching has also been established. This College is run by teachers for teachers. Membership is voluntary and teachers receive support throughout their career. The remit of the Chartered College of Teaching is to support teachers to gain expertise to achieve the best outcome for the children and young people they teach.

In terms of a teaching union, the National Union of Teachers (NUT) members and ATL (Association of Teachers and Lecturers) members have voted to amalgamate. The new Union, which will be called the National Education Union (NEU), will come in to being on 1st September 2017. It will have around 450,000 members. The National Association of Head Teachers (NAHT) is an independent trade union and professional association which represents members in England, Wales and Northern Ireland. The National Association of Schoolmasters Union of Women Teachers is a Union led by teachers for teachers in the United Kingdom. The Union campaigns on behalf of teachers regarding employment related issues.

2.2 Professional profiles and skills of teachers in England

National 'Job Profile' for Teachers in England

The National Careers Service details job profiles for primary and secondary schools on its website. The information is updated regularly. For example, the National Careers Service Job Profile for a Secondary School Teacher in England set outs the requirement as follows:

"To become a secondary school teacher, you'll need:

- GCSEs (A* to C) in English and Mathematics, or equivalent qualifications
- Passes in Numeracy and Literacy skills tests
- some school experience
- enhanced background checks by the Disclosure and Barring Service (DBS)

If you have a degree, you can train through a postgraduate teacher training course. There are 2 main routes: school-led and university-led. Both provide you with the practical skills and theoretical knowledge needed for teaching, but are delivered differently. For those who don't have a degree, they can qualify by taking a Higher Education course that awards qualified teacher status (QTS).

Skills required to become a teacher are the ability to inspire and motivate, IT and organisational skills, creativity to design activities and materials and the ability to manage classes including challenging behaviour" (2017).

In terms of digital and ICT skills, it was clear from the national research that few teachers will ever possess technology skills which match or exceed those of their students. Nevertheless, many possess digital skills which are far more advanced than they realise. This is because many staff fail to draw a link between the ICT and digital skills they use in their free time and those demanded in a professional capacity. For example, the majority of staff will use the internet for shopping etc. at home, an activity which requires reasonably advanced skills when it comes to searching for and selecting information. Similarly, searches of databases etc. are a fundamental part of teachers' day to day roles but, when carried out in a workplace setting, people lose their confidence.

Indeed, the main requirement of teachers when it comes to IT is a knowledge of tools and resources which is simply adequate enough to facilitate the full exploitation of these tools by the students. Only a small proportion of the ICT tools used directly relate to the act of teaching in front of a class. Instead, most digital resources are used during group work, independent study by students etc., all of which require the staff to act as a gatekeeper, who facilitates and guides students to use tools on their own.

Whilst there is no national strategy to help teachers develop and validate these digital and ICT skills, teachers can attend CPD courses to improve or enhance their digital skills if their schools have the time and the budget for them to attend (see above). Similarly, there are a number of qualifications which education staff can take, including the Cambridge International Certificate/Diploma in Teaching with Digital Technologies for practising teachers. This qualification recognises teachers who use digital technology effectively in the classroom and shows that they have demonstrated an ability to adapt to new techniques in order to improve their teaching.

Challenges for Teachers in Using ICT in Teaching

Teachers need to understand that learners come from all types of educational and social backgrounds and that not all students have access to IT equipment in their homes. They should be aware that technology can be used as a teaching tool across all subjects and also by the learners. Teachers who lack confidence in their own IT skills will find it hard to inspire students and engage with them. Teachers need to be aware of individual students' abilities and also take in to account personal and social factors such as learning difficulties or disabilities.

During the field research, most digital practices highlighted involved giving control of at least part of the teaching process to the students themselves, with learning driven by their engagement with ICT tools. However, giving some responsibility over to the students also presents a challenge to staff, as they need to find strategies which allow them to stay in overall control of the learning, whilst also ensuring that students use ICT resources securely and safely. In some schools this has led to the restriction of what can and cannot be done by students whilst using school equipment,

broadband etc. This includes the blocking of certain websites and apps for students and the creation of a separate staff network which allows greater access and freedom. However, a balance needs to be found when doing this, as some websites can be useful teaching aids, as well as distractions (e.g. YouTube).

In schools where equipment is not available for all, another noted challenge during the research was how to facilitate group work using shared resources. E.g. a classroom may only have a few iPads available and so these must be shared. However, this creates the risk that one student will dominate and so impact on the learning of others.

An ongoing battle with the fast paced development of ICT and digital resources is that staff need to constantly be updating and evolving the manner in which they deploy technology within the classroom. In particular, the impact of any digital tool will be lost if students view it as outdated, something which means hardware quickly becomes obsolete. This also applies to brand recognition – work carried out on an iPad is more likely to be embraced by students than that carried out on (an equally capable) entry level device. To help to combat this many schools lease their iPads on short term agreements, with 3 year agreements being the average. This enables them to introduce newer, updated models into the classroom in a more cost effective way, as less of an upfront investment is needed.

Future Trends in Teacher's Skills and Use of ICT

Looking to the future, there is an acceptance across education professionals that ICT and digital tools and resources will only become more integrated into the classroom as technology advances futher (e.g. Virtual Reality) and best practice examples and evidence of success spreads across the sector from early adopters. Yet there is also an awareness amongst staff that technology is not the answer for everything and that truly impactful and effective teaching requires a good balance between the old and the new. For example, as long as formal assessments (e.g. GCSEs, A Levels etc.) remain as hand-written exams, the skills of being able to write coherently without tools such as spell check etc. or the ability to correct and rework text, still need to be practiced by students. Similarly, not all students enjoy learning via ICT. During the national research, this attitude was found as much in schools which are heralded as ICT trailblazers as in those who have been slower to adopt ICT methods. Indeed, one digital leader stated that the strength of their digital strategy lay in a "tech-aware" rather than a "tech-centric" approach as; "if you go tech forget everything else".

The use of technology in the classroom will, therefore, need to evolve so that it plays a part in learning alongside traditional methods, enabling students to learn at their own pace using their preferred device. For example, although video and game based learning is being used more in the classroom, the teacher still plays a very important role in all of this. A key element of the learning

process, at any age, is the dynamic relationship shared between a student and their contemporaries, and between student and teacher. It is the role of the educator to foster these relationships. As education techniques evolve, schools and universities will extend the physical classroom by giving students the ability to interact with teachers and peers on their own time and schedule using social media, blogs and online discussion forums.

As the author Mark Prensky states in a recent BBC News Report on the future of technology in the classroom; "We have to rethink the 19th Century curriculum". For him a whole new core of subjects is needed, focusing on the skills that will equip today's learners for tomorrow's world of work. These include problem-solving, creative thinking and collaboration (2015). Whether changes will be this radical remains to be seen. However, what is certain is that for teachers' skills, the unabated growth in digital and ICT tools will mean a greater pressure on understanding when and where to use these resources to maximise their effect and meet expectations (from students, school leaders, Ofsted etc.). These tools may enhance teaching but students will still also benefit from a teaching approach which mixes these with more traditional methods. As teacher Mohammed Telbany, who is a proponent of flipped learning, states in the same BBC report; "The teachers facilitate, rather than standing in front of the children telling them what to do", a change in teaching style which will massively impact on the competences and demands placed on staff (2015).

2.3 Quality assurance

The use of technology within the classroom is a component of Ofsted inspections, whether the overall quality of education provision within a school is assessed. However, as these are only sporadic checks, the main responsibility for ensuring quality within the use of ICT in the classroom falls on schools themselves. Therefore, once again this is patchy across the country.

In many schools ICT co-ordinators are appointed to ensure that ICT is used throughout the school curriculum and to liaise with subject teachers to make best use of technology in their own subject lessons. They also ensure that any equipment is well maintained and is used properly by staff and pupils. They can advise on the purchase of new equipment and negotiate with suppliers. They are also responsible for the setting up of ICT provision in the school, setting up school networks etc. The ICT co-ordinator is responsible for the school's ICT policy, which is a whole school policy that details the aims and objectives for the use of ICT throughout the school curriculum.

Similarly, as ICT provision embraces more digital tools and resources, many responsibilities of these ICT co-ordinator roles are being included within new Digital Lead roles. These positions encompass the adoption of ICT and digital tools within teaching, as well as CPD delivery etc. for staff. A good example of how this can be carried out, and how quality assurance can also feed into CPD provision, was highlighted during field research with the Digital Lead at Ashford School, an

independent school in the south of England. Their digital strategy is taking a three year approach to improving and developing staff skills and the use of digital resources in the classroom. It has also recognised that a systematic, focused approach to CPD is needed.

At the start of year one all staff were surveyed on their confidence in using ICT within the classroom, with a focus on the practical skills needed (e.g. navigating iPads, opening and closing apps etc.), 56% of staff felt that they had a good level of practical skills. Therefore, these survey results fed into the CPD programme for the first year, as the training went back to basics and focused on the practicalities of using the technology available in the school's classroom. At the end of the year the survey was repeated and 96% of staff now felt that they had a good level of knowledge.

The school is now in the programme's second year and the focus this year has been on digital pedagogy. Thus, at the start of the year staff were once again surveyed, this time with a focus on their confidence in using technology within education delivery. 50% of respondents felt they had a good skill level. As a result, the CPD for this year has been developed to address the specific deficiencies uncovered in the survey. The survey will be repeated at the end of the year with the aim of having 90+% of staff respond that they now have good skills for using technology in education delivery. Providing that this is achieved, the third year's CPD programme will move on to focus on content creation, with a survey once again used to assess the current state of play and highlight needs amongst staff. If this year's target is not met, next year's CPD programme will look to readdress the issue of using technology in education delivery until the 90% target is reached.

3. Best practices in developing the digital skills of teachers

Overview of major success factors and developments in England. Include any political endorsements, international rankings, overall impact and evaluation.

3.1 Innovative training models for improving the digital skills of teachers

Best Practice 1
Title:
JISC Building Digital Capability project.
Objectives:
This project will run for 3 years and 2 months and will end on 31st August 2017. The Budget

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is £1 million. Project partners are

- The Association for Learning Technology – ALT
- The National Union of Students – NUT
- The Society of National College and University Libraries – SCONUL
- Universities and Colleges Information Systems Association – UCISA
- Russell Universities Group of IT Directors - RUGIT

To ensure that staff at universities and colleges in the UK have the digital tools and skills they require to equip them for their roles. Also to ensure that they keep up to date with the changing digital environment and to equip these staff members with the resources they need to improve their digital capability.

Methods (design, participants, materials, procedures)

Regarding digital capabilities, JISC developed a framework which is now often used by digital leaders in their work. The framework describes the skills needed by staff from a wide range of academic settings to perform well in a digital environment.

 The framework has 6 elements –

1. **ICT Proficiency/ICT Productivity (Functional Skills)** – proficiency implies the confident use of technology, be that existing or new and the ability to keep up to date with changing technology. Users should also be able to solve ICT issues when they occur. Productivity means knowing how to select the right technical application or system for a task and complete the task efficiently
2. **Information, data and media literacies (Critical Use)** – this is the ability to interpret digital information for academic, professional and vocational purposes. The ability to collate information and use this in spreadsheets and databases is a requirement which also includes the understanding of how personal information may be collected and protected. Media literacy is the capacity to receive and send messages in a range of digital media such as audio, video as well as the ability to understand digital media as a social, political and educational tool
3. **Digital creation, problem solving and innovation (Creative Production)** – this is the ability to create new digital materials , for example digital imaging, digital code and web pages. This also involves using digital evidence to solve problems and for data analysis. A competence in this category is to be able to take on board and develop new digital practices in different settings
4. **Digital communication, collaboration and participation (Participation)** – the capacity to communicate effectively in digital media such as on line forums, social media etc whilst maintaining respect and privacy and to deal appropriately with false communications. Collaboration infers the ability to work in digital teams and working groups and to understand the tools used for this collaboration, to establish contacts

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and to share messages across networks. This category also promotes the need to understand how digital media can influence social behaviour

5. **Digital learning and development (Development)** – this is the capacity to use digital learning resources to participate in learning via digital media. To use digital tools to record progress and achievements and to participate in digital assessment and digital feedback. Staff must be able to support others in digital settings, for example teaching, developing learning opportunities to support learning with the understanding of the educational value of these resources

6. **Digital identity and wellbeing (Self-actualising)** – this is the capacity to establish and maintain digital reputation, both personal or in the workplace across a range of platforms. Digital wellbeing is the capacity to look after personal health, safety and relationships and work life balance – the use of digital skills to achieve personal goals such as health related targets or to participate in social and community activities in a safe manner

The framework is used to support discussions around the capabilities required in a digital organisation and to plan staff development and review the curriculum using the above elements. The elements of the framework also offer a facility to highlight skills gaps among staff and to plan development accordingly.

Results

The project has developed a number of useful case studies detailing its results:

Anglia Ruskin University

http://repository.jisc.ac.uk/6635/2/DigicapAngliaRuskinUniversity.pdf

Bournemouth University

http://repository.jisc.ac.uk/6636/1/DigicapBournemouthUniversity.pdf

Salford City College

http://repository.jisc.ac.uk/6626/1/DigicapSalfordCityCollege.pdf

The Open University

http://repository.jisc.ac.uk/6641/1/DigicapTheOpenUniversity.pdf

Key implications for our research

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This project deals with the use of digital technology in the field of learning. It has developed a set of elements which enable staff to provide a better learning environment for students, which in turn can lead to a better return on the investment put in to digital technology by the university or college.

Link

https://www.jisc.ac.uk/rd/projects/building-digital-capability

Best Practice 2
Title:
NAACE ICT Mark
Objectives:
This accreditation is awarded to schools for the best use of technology and learning and in the day to day running of the school. NAACE is the national association for those who are interested in technology in education. The cost to UK schools (which includes assessment, moderation and receiving of the Award) is £550 for primary schools and £650 for secondary schools. The Award is valid for 3 years from date of receipt. Schools who achieve this award have demonstrated that they are committed to the use of technology for the overall benefit of the school. Among the benefits of a school having the ICT Mark are that parents and the whole school community will understand the commitment of the school towards technology and showcases the school as a go to hub for technology among its peers.
Methods (design, participants, materials, procedures)
Schools complete a self-review framework before applying for the ICT Mark. Basically this review is an overview of the way technology is used in a structured way in the school. The self-review framework is periodically revised after consultation with teachers and headteachers. When a school is ready to apply for the ICT Mark assessment they must complete an online application form. Then, after the evidence from the self-review has been checked, they will be contacted by an ICT Mark assessor to arrange a suitable date for a visit. NAACE has developed a range of courses to help school staff to complete the self-review framework. The assessment visit takes half a day and begins with a tour of the school to see how ICT is playing a part in the overall life of the school. The assessor will then meet with the

headteacher and senior leadership team and selected subject teachers. They will also meet parents, governors and selected pupils. The assessor will not give a definite pass or fail verdict at the end of the visit, rather he or she will discuss their recommendation. They will prepare a report for NAACE who will respond with the outcome within 10 days of the visit. The school will receive a copy of the certificate if they have passed together with details of certificates etc. If the school has not been successful, they should refer to the report for areas where improvement is needed.

It should be noted that the assessor must not be a person who has supported the school in its ICT provision at any time, an assessor must be impartial.

Results
Case Study – a school for ages 11 to 18 years of age with 1,280 pupils. The school uses ICT widely for learning and teaching and decided to apply for the ICT Mark in recognition of this. Evidence was gathered from pupils and staff from many subject areas on IT provision in the school. The school has 4 ICT teachers who work in pairs with teachers from other subject areas. The ICT Mark "provided due recognition for the ICT department's very active role in promoting learning and teaching with ICT across all subjects". The self-review also highlighted areas for development such as the setting up of an online system for students to comment on lessons, so that the students have a voice in the school.
Key implications for our research
The NAACE ICT Mark is a way for teachers who use ICT in their day to day teaching across many subject areas to receive the recognition for this. As schools invest more in technology, the ICT Mark allows them to show that they are getting the best value from this investment and the best commitment from school staff
Link https://www.naace.co.uk/school-improvement/ict-mark/

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3.2 Innovative training methods for improving the digital skills of teachers

Best Practice 3
Title:
Education ICT Conference
Objectives:
This annual conference brings together schools and colleges to learn about the skills needed to make the best use of technology in their institutions. Delegates explore the application of new technologies and how they can buy the best technology to suit their needs
Methods (design, participants, materials, procedures)
The 2017 conference programme demonstrates well the approach taken by this event. A representative from the Department of Education will talk about the way in which schools can procure technology within their allocated budget Representatives from a college, an independent school and a primary school will chair a panel discussion "Balancing ICT Needs and the Budget" – • Addressing student needs to access technology supporting their learning, meeting teacher technology requirements, and providing digital tools within budget • Looking at how schools manage and update tech requirements while remaining innovative in its classroom use • Examining how schools invest in the right resources to enable daily use of ICT across the curriculum, as well as tech-based cross curricular lessons The representative from the Chartered Institute for IT will talk about "Training and Upskilling Teachers for Technology and Computing in the Curriculum" - • Enhancing teaching skills to promote and support excellence in Computer Science education • Developing the Network of Teaching Excellence in Computer Science, in line with the Government's Digital Strategy, through £2 million Department of Education funding to help teachers and school leaders build their knowledge and understanding of technology • Building upon the 88% increase among teachers receiving Network of Excellence support, to improve teacher confidence in teaching computing in the classroom • Working in partnership with Computing at Schools and the Department for Education

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to foster computer science champions through the Master Teacher programme, involving 150+ hubs for learning across the UK

A representative from a primary school will talk about "Making Education available for All Through Virtual Learning Environments" –

- Developing the 21st Century classroom enabling increased accessibility to technology enhanced through a virtual learning environment (VLE)
- Exploring how a Self-Organised Learning Environment (SOLE) allows children to engage and connect with information and educational mentoring online, improving learning outcomes
- Developing children's learning through collaborative learning online, sharing knowledge and resources, with participants in four continents
- Developing pupil's research skills at all key stages by learning how to use modern technology to improve student information access

Results

Feedback from previous events includes:

"A great opportunity to learn from other's experiences and discuss what does and doesn't work in planning for delivering a device digital learning infrastructure" – Director of IT, Grammar School

Benefits of attending the event

- To learn how to effectively train and upskill teachers for technology and computing in the curriculum
- To explore best practice case studies that enhance learning through the innovative use of technology in the classroom
- To Discover how Virtual Technology and Virtual Learning Environments for blended learning are impacting classrooms and driving forward education

Key implications for our research

The conference addresses the innovative use of technology enhanced learning in the classroom setting and how teachers can make the best use of this knowledge. Exhibitors meet an audience of over 200, including headteachers, heads of digital learning, heads of IT, directors of blended learning from organisations such as primary and secondary schools, the

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Department for Education, Local Education Authorities

Link https://enhancingeducationtech.co.uk/

Best Practice 4
Title:
Blended Learning Consortium
Objectives:

The Blended Learning Consortium was launched in 2015 by the Heart of Worcestershire College to support Further Education Colleges to meet accredited guidelines and to share quality digital/online learning resources for further education. The Heart of Worcestershire College recognised how it was hard to find high quality digital resources targeted to the needs of the further education sector and therefore decided to solve this themselves.

Blended Learning is a mixture of traditional classroom methods and online digital methods. The consortium is sponsored by City and Guilds (a UK vocational educational awards body). The consortium produces learning resources which cover different learning levels and subjects. Colleges in the Consortium can share good practice by contacting other members through discussion forums or by using the blog which has been set up by the project team at the Heart of Worcestershire College. The Blended Learning Consortium was set up to offer a solution to providing face to face contact time for 100% of a course which was proving difficult due to budget reductions.

Methods (design, participants, materials, procedures)

Colleges in the Blended Learning Consortium pay an annual membership fee of £5,000 – this money is pooled to pay the staff in colleges who have responsibility for developing learning resources. Further education colleges do not have the financial resources to do this on their own and there is no support at a national level. All members can benefit from these resources and they also receive support and training from the content development team at the Heart of Worcestershire College via telephone, email or videos.

Content files can be downloaded from the central consortium team but they are then rebranded by the Colleges. This means that students often do not realise that they are using

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content which has not been developed in-house by their tutors. This maintains a consistent image for each college, which helps to boost their digital reputation and ensures that learners recognise resources as an integrated part of a college course rather than as an add-on product produced by an external company.

At the Heart of Worcestershire College staff take part in CPD courses which always include the use of digital technology. Staff members are encouraged to take online courses and Massive Online Open Courses (MOOCs) – these are online courses with an unlimited number of participants. There is a digital technology tip of the week for staff and they are actively encouraged to try new technology. The Heart of Worcestershire College has been delivering a blended learning curriculum for over 5 years.

In the wider Blended Learning Consortium, colleges submit ideas for content. These ideas are then voted on by the consortium, who select the most popular ones to develop. A specialist at a member college is then appointed to write the content for this course. Initially it was planned that the digital development would also be shared across the consortium. However, in reality there was a shortage of technical expertise in colleges. Therefore, once the content is written, it is passed to the central team at the Heart of Worcestershire College, which has been expanded to provide capacity to turn specialist content into online modules.

Results

A recommendation by FELTAG was that 10% Further Education teaching was to be delivered online by 2016/17. Whilst this never became an official requirement, many colleges have adopted this target which in part helped the development of the Blended Learning Consortium.

As of 2016, nearly 40% of further education colleges are now part of the Blended Learning Consortium. There is a good spread of Colleges across the United Kingdom.

http://www.blc-fe.org/members.html

In order to address staff skills and maximise the impact of the blended learning content, effective and targeted CPD has been developed. This allows tutors to upskill their digital competences whilst also providing them with practical, useful online resources which are tailored to their sector and subject area.

The blended learning resources are made available on the colleges Moodles (or other VLEs). This standardised approach allows for the impact, use, issues with courses etc. to be better monitored, meaning resources can be constantly reviewed and improved.

Key implications for our research
The Blended Learning Consortium focuses on the effective use of digital technology in further education institutions and the sharing of knowledge between staff members. The end result of this collaboration is high quality digital resources which are developed for the further education curriculum. Quality support is provided for the development of staff members' digital capabilities; they can develop their skills to produce content which can be cascaded across the Blending Learning Consortium network.
Link http://www.blc-fe.org/

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4. Findings from the National Surveys

Following the extensive research with stakeholders through both focus groups and in-depth interviews the following conclusions about the current strengths, weaknesses etc. within upskilling teachers' digital skills can be drawn:

Strengths:
- Growing committment to introducing digital elements
- General CPD already central part of school activities

Weaknesses:
- Lack of national coordination
- Lack of dedicated budgets
- Pressures on staff time from elsewhere

Opportunities:
- Freedom for innovative approaches
- Growing collaboration in education
- Knowledge sharing between staff/students

Risks:
- Uneven coverage impacts students
- Unwillingness of staff to learn new skills

Strengths:

Although the adoption of digital tools within schools and colleges across England remains patchy, there are a growing number of institutions whose leadership recognise the value in digital learning. This is leading to an increase in both the use of digital tools in the classroom and an investment in upskilling teachers. Within the independent sector (where money is less of an issue), dedicated trainers are being appointed to oversee schools' digital strategies and CPD for staff. However, even in schools where budget is more limited, the principle of offering staff CPD is a core principle (both through dedicated training days at the start of school terms and shorter sessions throughout the year). This means that training specifically focussed on digital skills can be integrated into established training programmes, helping to maximise reach and impact.

Weaknesses:

A lack of coordination and policy on a national level means that it is left to individual schools to decide the level of digitalisation they adopt. Therefore, the uptake and integration of digital learning is reliant on the commitment and vision of individual school leaders. Furthermore, even when school leaders want to introduce digital tools, the lack of national promotion and support can limit their abilities to do this. For example, there is no dedicated national funding for the roll-out of digital tools, resources and infrastructure in schools. This means each school has to find the money within their own budgets to cover any expenditure of ICT etc. For many schools, the solution to this has been to pass on some of the cost to parents and pupils. This is evident in the fact that, whilst many schools now encourage students to use iPads in the classroom, these iPads have to be rented from the school at a cost to their parents. For some this cost is unworkable, whilst the lack of a national campaign around the benefits of digital learning mean other parents resent being asked to pay.

As well as cost, the development of digital tools and skills needs an investment of time. However, this is not always possible as staff have several other competing tasks and responsibilities to balance. Therefore, they sacrifice spending time on improving their own digital skills, resources used in their teaching etc. in favour of other tasks. Without any overriding national requirements or policy to compel staff to focus on digital teaching and skills, there is no incentive to prioritise this over other tasks.

Opportunities:

Nonetheless, the lack of a national framework is also acting as an opportunity in those schools and colleges where digital teaching and skills have been embraced. Rather than having to follow generic national policy or expectations, individual institutions are given the freedom to address the specific needs of their learners in an innovative way. This has led to a number of effective solutions being developed which are both cost and time efficient. What is more, changes to how education is structured in the UK (in particular the growth of academy chains) has led to a greater pooling of knowledge, as schools recognise the benefits and savings which can be made by sharing insights and learning from each other. Therefore, these innovative practices are beginning to spread from institution to institution organically, as each shares their learning points and best practices. This greater collaboration also offers a potential solution to the patchy adoption of digital technologies within schools in England. Whilst the costs involved in buying in specialist equipment, employing specialist staff, developing specific training etc. may be too great for individual schools to afford on their own, institutions which are part of academy chains (or equivalent associations) are able to pool resources and so share the investment burden.

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In addition, institutions are recognising the capital which students possess when it comes to digital skills. They often are far more digital competent than staff, whilst they are also usually far more aware of the latest developments and trends in terms of apps, devices etc. Thus, some schools are beginning to successfully harness this knowledge as part of their digital strategies. This includes involving digital student councils in decisions on technology procurement etc., as well as appointing particularly knowledgeable students as digital leaders, to help both staff and their fellow students understand how to make the most of the technology available to them.

Risks:

Whilst some institutions may thrive when given the responsibility for developing digital learning, this is not the case for all. Therefore, a multi-stream approach is developing across England, where some schools are leading the adoption of digital tools (including staff training), whilst others keep faith with traditional methods. As digital aspects become a more integrated part of both education and the world of work, this risks impacting on students' performance and prospects – especially when it comes to the need for well-developed digital literacy skills when they enter the labour market. Given that investment in digital tools etc. is often greatest within the independent education sector (with state schools struggling to find money to invest within constricting budgets) this digital inequality also risks exacerbating social segregation and limiting social mobility.

Another risk is the unwillingness of some staff to learn the new skills needed to fully exploit the potential of digital learning. Across the national survey it was clear that it was individual staff attitudes, rather than age, subject area etc. which influenced this. It was also evident that the solution for this lay is a more well-rounded training approach, which combined support to improve digital skills with information and evidence on the impact and benefits of digital learning for both staff and students (i.e. time saved from switching to paperless teaching, improved engagement with digital native students through technology etc.).

BBC News (February 2015): Technology in Schools – Future Changes in Classrooms

http://www.bbc.co.uk/news/technology-30814302

Cambridge International Examinations (2017): Certificate or Diploma in Teaching with Digital Technologies 2017

http://www.cie.org.uk/images/171355-digital-technologies-2017.pdf

Career Colleges Trust (November 2016): Online digital skills courses for teachers

http://careercolleges.org.uk/2016/11/30/career-colleges-trust-wins-contract-to-develop-digital-skills-training-courses/

Chartered College of Teaching website

https://www.collegeofteaching.org/

Department for Education website

https://www.gov.uk/government/organisations/department-for-education/about

Department for Culture, Media and Sport (March 2017) Policy Paper – UK Digital Strategy 1 March 2017

https://www.gov.uk/government/publications/uk-digital-strategy

Department for Education and Ofsted (December 2011), ICT in Schools 2008-2011

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/181223/110134.pdf

Education and Training Foundation Digital Skills Support website

http://www.et-foundation.co.uk/supporting/support-practitioners/learning-technology-support/

FELTAG Further Education Learning Technology Action Group (2013) Recommendations, Paths Forward to a digital future for Further Education and Skills

http://feltag.org.uk/wp-content/uploads/2012/01/FELTAG-REPORT-FINAL.pdf

General Teaching Council for England website

http://www.gtce.org.uk/

House of Commons (June 2016) Digital Skills Crisis, Second Report of Session 2016-17

https://www.publications.parliament.uk/pa/cm201617/cmselect/cmsctech/270/270.pdf

House of Commons Education Committee (February 2017) Recruitment and Retention of Teachers

https://www.publications.parliament.uk/pa/cm201617/cmselect/cmeduc/199/199.pdf

Joint Information Systems Committee (JISC) (2016): Teachers key to delivering digital skills:

https://www.jisc.ac.uk/news/teachers-key-to-delivering-digital-skills-15-jun-2016

JISC (2017): Building digital capabilities: The six elements defined: http://repository.jisc.ac.uk/6611/1/JFL0066F_DIGIGAP_MOD_IND_FRAME.PDF

JISC (2017); Digital Launchpad: https://www.jisc.ac.uk/rd/projects/digital-launchpad

NAACE website

www.naace.co.uk

National Curriculum website

https://www.gov.uk/national-curriculum/overview

National Careers Service website

https://nationalcareersservice.direct.gov.uk/

National College for Teaching and Leadership website

https://www.gov.uk/government/organisations/national-college-for-teaching-and-leadership

National Union of Teachers website

https://www.teachers.org.uk/

Professor Steven Higgins, ZhiMin Xiao, Maria Katsipataki, School of Education, Durham University (November 2012) The Impact of Digital Technology on Learning: A Summary for the Education Endowment Foundation

https://v1.educationendowmentfoundation.org.uk/uploads/pdf/The_Impact_of_Digital_Technologies_on_Learning_FULL_REPORT_(2012).pdf