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Becta leading
next generation
learning

E-portfolios for apprentices:

A guide for providers and employers

Full report



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1. Overview

We think that e-portfolios are going to be important for apprenticeships.

In *Harnessing Technology: Next Generation Learning 2008–14* (2008²), Becta states that, together with its partners, it wishes to 'produce specific advice and guidance for e-assessment and digital portfolios to include the apprenticeship programmes' (Becta, 2008:52²). Becta shares a vision of learning and training in which personal learning environments bring a range of learning opportunities and resources to a single place. This would mean learners having their own personal online space to support learning and training both at work and at providers.

The benefits of e-portfolios are:

- the potential to enhance teaching, learning and assessment practices
- encouragement of reflective learning
- increased learner autonomy
- a means of recording progress over time
- support for student counselling and accreditation processes
- empowerment of learners to showcase their skills and qualities
- help for learners in developing their skills in writing, digital literacy and communication
- being relatively easy to maintain, portable and capable of being shared with others across geographical distances
- being suitable for use with most forms of learning and offering something for most kinds of learner
- support for learning by students with a wide range of abilities and the flexibility to catalogue learning, especially when the learner is remote from the institution
- being capable of being easily revisited and revised at any time.

Becta wishes to offer providers and employers a range of information, advice and guidance to encourage the adoption of these technologies in the apprenticeship system. By summarising the information currently available on the use of e-portfolios, this guide aims to help you find guidance that is most relevant to their use on apprenticeship programmes.

In our conclusion, we have identified gaps in the existing provision of information and guidance on e-portfolios, and made suggestions on appropriate interventions to assist Becta in delivering the aims of its further education (FE) and skills implementation plan (Becta, 2008¹) and its wider e-strategy (Becta, 2008²).

It has become evident in undertaking this review that there is a considerable body of information on e-portfolios but that very little of it is targeted at learning providers and employers offering apprenticeships, or at apprentices themselves. Most of the available information relates to the use of e-portfolios in the higher education (HE) sector and there are few case studies of exemplary practice from apprenticeship programmes.

While there is substantial overlap between the needs of the apprenticeship sector and other educational phases, there remains a need for tailored advice and guidance on the use of e-portfolios on apprenticeship programmes in order to drive up e-portfolio uptake, particularly in the light of evidence that e-portfolios offer an additional tool to help providers demonstrate that they are continuing to meet their targets and so retain funding from the Learning and Skills Council (LSC) (DCSF/DIUS, 2008³).

Two key documents were identified from the literature that provide comprehensive information on e-portfolio implementation and use. These are sufficiently generic to be useful to any learning provider:

1. The JISC Infokit: e-portfolios (2008⁴) contains constructive advice and guidance on many aspects of e-portfolio definition, purpose and perspective.
2. The QCA's guide to e-assessment (2007⁵) takes into account the current UK-wide developmental review of vocational qualifications. It contains a wealth of information and guidance on e-portfolio systems, from scoping to implementation, in addition to its core discussion of the use of e-portfolios for assessment.



2. Introduction

2.1 Implications of the Leitch review for apprenticeship programmes

The Leitch review (2006⁶) identified a need for the UK to commit to becoming a world leader in skills by 2020, with the key objective of focusing on economically valuable skills. The UK faces a challenge to improve these skills to help increase productivity and maintain or improve international competitiveness in the long term (DCSF, 2008⁸). To cope with this challenge, Leitch (2006⁶) set out the need for a new system of demand-led vocational qualifications for both adults and young people and recommended an increase in provision for adult skills at all levels.

Lord Leitch also recommended that the Government work with employers to deliver a major improvement in the UK's intermediate skills base and advised the development of a joint Government-employer programme to train all eligible employees to a full qualification at level 2. More specifically, the Leitch report (2006⁶) advised the Government to increase apprenticeship placements to 500,000 by 2020.

The Government's response to the Leitch review is set out in *World Class Skills: Implementing the Leitch Review of Skills in England* (DIUS, 2007⁹), where it states its intention to raise the nation's skills base, build productivity, increase social inclusion and improve economic competitiveness. In turn, the aspiration is that these actions will assist with the long-term goal of achieving 80 per cent employment.

In order to meet the Leitch aspiration of 500,000 apprentices in England by 2020, the Department for Innovation, Universities and Skills (DIUS) and the Department for Children, Schools and Families (DCSF) have signalled that apprenticeships are now a Government priority and are expected to bring significant benefits to businesses and the economy as a whole (DCSF/DIUS, 2008³). The Government feels that skills are fundamental to creating a workforce that is able to adapt quickly and effectively to change, and states that 'never before have the benefits of remaining in education or training been more apparent'. (DCSF, 2008⁸).

In pursuit of this, the Government intends to introduce a legal requirement for all young people to remain in education or training until the age of 18 by 2015. Funding for apprenticeships is increasing to over £1 billion by 2010–11 (DCSF/DIUS, 2008³). In order to encourage young people to consider apprenticeships as a feasible option post-16 (DCSF/DIUS, 2008¹⁰), the Government plans to guarantee an apprenticeship place at an appropriate level to all young people who want one by 2013. This may include some placements on programme-led (i.e. classroom-based) apprenticeships, known as PLAs (DIUS, 2008³).

The LSC is working towards achieving greater participation by young people in a more diverse array of exciting and motivating learning opportunities that will enable them to progress to further learning or work (LSC, 2007¹¹). Key to this will be the further development of the work-based learning offer through apprenticeship programmes.

The Government also wishes to increase the skills of those who have already completed compulsory education by making significant provision for apprenticeships for adults aged 25 and over (DCSF/DIUS, 2008³). Improving the skills of the adult workforce is the key to

creating a highly skilled and highly productive nation (DCSF/DIUS, 2008¹²). The LSC (LSC, 2007¹⁰) proposes to integrate the apprenticeship offer for those aged over 19 into Train to Gain, thereby increasing its stake in adult apprenticeships. The Government is also encouraging more adults to participate in learning that they value sufficiently to invest in themselves, where they can afford to do so.

The proposed increase in funding should expand the number of apprenticeship places to 281,000 for 16–18-year-olds and 125,000 for adults by 2011 (AoC, 2007¹³). Sector skills councils have a key role to play, and the Government intends to work with them to generate further apprenticeship places by developing frameworks in sectors where they do not currently exist (DCSF, 2008⁸). There are at present approximately 180 apprenticeship frameworks across 80 sectors, and as they expand, the frameworks are being reformed (DSCF, 2008⁸). Work is also well under way to establish a Qualifications and Credit Framework (QCF). This should ensure that adult vocational qualifications meet the needs of individuals and employers, while at the same time focusing on economically valuable skills (DIUS, 2007⁹). In the light of this, the LSC has indicated that it will prioritise funding for the qualifications that sector skills councils identify as being most valued by employers (LSC, 2007¹¹).

To facilitate the development of apprenticeships, the Government has created a new National Apprenticeship Service (NAS), which will have end-to-end responsibility for the apprenticeship programme. The NAS should be fully functional by April 2009 and will operate at a local and national level. Among its functions will be: managing the performance of providers in terms of quality and value for money; establishing and maintaining a national matching service to enable employers to advertise their positions; and enabling prospective applicants to search and apply for apprenticeship posts through a national portal (DCSF/DIUS, 2008¹⁵). The national matching service will assist providers by significantly easing the administrative burden of recruitment. It will provide them with a forum on which to advertise their placements nationally, and will allow potential applicants to search for availability by postcode (DCSF/DIUS, 2008¹⁰). The NAS will take over from training providers responsibility for the co-ordination of apprenticeships and will also manage centrally the information currently looked after by sector skills councils and training providers (AoC, 2008¹⁶).

2.2 Personalised learning and e-portfolios

Lifelong learning places learners, and their work, achievements, reflections and goals at the centre of the learning process. Within a few years, e-assessment and e-portfolios will be integral to modern learning and teaching; they are vital elements for personalising learning with benefits for both learner and practitioner (Becta, 2006¹⁷). It is now much more common for learners (particularly those aged 14 and over) to learn in multiple locations, for example at work-based learning providers, their place of employment or at college (Becta, 2006¹⁸). With this in mind, it is more important than ever for learners to take ownership of their learning and to reflect on where they are, the learning achievements that have brought them there, where they want to go next, and the learning they need in order to get there (FD Learning, 2004¹⁹).

In 2004 the Qualifications and Curriculum Authority (QCA) published a five-year vision and blueprint for England, which stated that awarding bodies should be in a position to accept and assess e-portfolios by 2009 (QCA, 2004²⁰). In support of this, and following the success of the Association of Learning Providers (ALP) Learning Innovation Grant scheme, the LSC released a further £4 million in capital funds to encourage the work-based learning sector to make more innovative use of technology and e-learning to broaden participation and achievement and support the growth of apprenticeship programmes (ALP, 2008⁷). Evidence shows that when providers use technology effectively, the benefits are inspiring: improved results and retention rates, greater participation by learners and increased effectiveness of trainers. E-portfolios can provide a vehicle to facilitate these benefits because they use technology to allow learners to collect and organise artefacts in many media types, enabling them to track progress, carry evidence of their work across transition points, reflect on their learning and build a skills profile across a lifetime (Barrett, 2006²¹; Becta, 2006¹⁷).

The drive by the Government to increase apprenticeship placements and their take-up, and the fostering of personalised learning are combining to push providers further towards greater use of online and blended learning. The use of e-portfolios is a vital part of this transition, and Becta aims to provide a full range of information, advice and guidance to encourage the adoption of these technologies in the apprenticeship system.

At the present time, the sector skills councils and standards-setting bodies responsible for approving apprenticeship frameworks have not issued clear policies on using e-portfolios. With the release by the LSC of additional capital funds for learning innovation that supports the growth in apprenticeships (ALP, 2008⁷), there is now an additional, financial incentive for providers to consider using e-portfolios within their apprenticeship programmes.



3. Apprenticeships

3.1 What is an apprenticeship?

An apprenticeship is a form of vocational training based on a mixture of work-based and theoretical learning. Apprenticeship programmes are funded by the LSC and administered by a network of approved learning providers.

Apprenticeships allow employers to train both their existing staff and any new young people they are thinking of recruiting (LSC, 2007²²). All apprentices follow an apprenticeship framework based on the apprenticeship blueprint introduced by the LSC in 2005²³.

Apprenticeships and advanced apprenticeships should be available to any person from the age of 16 who possesses the required entry criteria (DCSF/DIUS, 2008³).

For the Government to count training as an apprenticeship, the apprentice must have spent a period of time as an employee during the apprenticeship, and have employed status at the time of completion. During the course of the apprenticeship, the apprentice is expected to contribute to the productivity of the employer and to undertake the requisite learning. Part of this learning is off-the-job tuition, which is usually undertaken with a learning provider such as an FE college, group training association (GTA) or work-based learning (WBL) provider (DCSF/DIUS, 2008³).

The Leitch review (2006⁶) proposed that both the demand for post-16 education and training and employer demand for qualifications at level 3 will grow. It is expected that demand for level 2 apprenticeships and level 3 (or advanced) apprenticeships will also grow (DCSF/DIUS, 2008³).



There are two additional programmes that include apprenticeship in their title: young apprenticeships and programme-led apprenticeships (PLAs). Young apprenticeships give 14–16-year-old pupils the opportunity to pursue industry-specific applied learning programmes in colleges and in partnership with employers. PLAs provide a route through which young people can acquire the underpinning knowledge and skills that are required for successful completion of the full apprenticeship framework in the future. With work-based learning providers, PLAs comprise either a period of planned initial training or a work placement with an employer. In FE colleges, learners on PLAs are enrolled on full-time vocational programmes with the intention of progressing to employment, preferably through an employer-led apprenticeship (DCSF/DIUS, 2008³).

The completion of an apprenticeship framework shows employers that the holder has achieved competence in the skills covered by the apprenticeship, has demonstrated the knowledge required by the apprenticeship programme and has attained the level of transferable skills required by all apprenticeship frameworks (LSC, 2005²³).

Progression after successful completion of an apprenticeship programme is available; a satisfactorily completed apprenticeship in one employment sector should provide entry to the corresponding advanced apprenticeship in the same sector (LSC, 2005²³). The Government is also striving for learning achieved through an apprenticeship to count towards a diploma (and vice versa). Apprenticeships offer clear benefits for learners' transition and progression, with current policy stating that the Government is 'committed to ensuring that all Apprenticeships offer appropriate progression routes, including to Higher Education' (DCSF, 2006:7²⁴).

3.2 What are the individual elements of an apprenticeship?

The LSC (2005²³) has isolated four certifiable elements of an apprenticeship:

- Knowledge based – the theory underpinning a certain job and industry. This element is most commonly delivered by a learning provider and is often certified with a technical certificate. This element must be designed to provide evidence that the apprentice has demonstrated the relevant theoretical knowledge for his or her employment sector.
- Competence based – the ability to carry out the functions of a certain occupation. This element must be assembled from the National Occupational Standards (NOS) from the employment sector for which the framework is designed and (if required) other employment sectors. The competence-based element is usually certified via a national vocational qualification (NVQ).
- Key skills – literacy (communication) and numeracy (application of number). This element of an apprenticeship must include an end test unless an exemption applies and key skills must be independently accredited, although they may be delivered as part of other qualifications.

- Employment rights and responsibilities (ERR) – All apprentices must understand their responsibilities for equal opportunities, health and safety, and the safe learner concept. Employers and providers need to select the most appropriate methods and timescales for this element's inclusion in the individual learning plan. There is no requirement for formal assessment, but it is the responsibility of the provider and employer to ensure that all aspects of the specified content have been covered. Regular reviews with learners involving both the provider and employer should be carried out to measure progress towards the achievement of ERR targets and outcomes (TDA, 2008²⁵).

Individual apprenticeship frameworks are defined by sector skills councils (SSCs) or standard-setting bodies (SSBs) in accordance with the basic guidelines laid down in the LSC blueprint (DCSF/DIUS, 2008³).

Areas of flexibility within the blueprint (LSN, 2006²⁶) are as follows.

- The content of the competence element may be determined by the SSC or SSB and employers.
- Assessment methods may be determined by the appropriate SSC or SSB in collaboration with the QCA.
- The knowledge element may be integrated with the competence element at the discretion of the SSCs or SSBs and their employers.

See Appendix 2 for examples of apprenticeship and advanced apprenticeship frameworks.

The apprenticeship blueprint has recently been reviewed and the Government is now strengthening it to allow apprentices to develop generic employability skills (DCSF, 2008¹⁴). The QCA has published a set of personal learning and thinking skills (PLTS), which include team working, independent enquiry, self-management, reflective learning, effective participation and creative thinking. PLTS are the skills that are consistently described by employers as those that best equip young people to take an active and effective role when entering the workplace (DCSF, 2007²⁷). The Government believes that the new apprenticeship blueprint should incorporate the development of these skills within the knowledge-based elements of the apprenticeship (DCSF/DIUS, 2008³).

From 2010, the Government intends to replace the key skills element of apprenticeships with a new set of functional skills (DCSF, 2008²⁸), following a pilot (QCA, 2008²⁹). Functional skills are 'the core elements of English, maths and ICT that provide an individual with the essential knowledge, skills and understanding that will enable them to operate confidently, effectively and independently in life and at work'. The design and development of functional skills are led by the QCA in consultation with practitioners, teachers, awarding bodies and employers.

3.3 Apprenticeship assessment and verification methods

The knowledge-based element of an apprenticeship can often lead to the award of a technical certificate. This element is often delivered by a learning provider who assesses an apprentice's skills and knowledge in the technical aspects of his or her job.

The NVQ component of an apprenticeship assesses professional competence and is designed around the skills the apprentice uses at work. NVQ assessment methods vary between sectors and are determined for apprenticeship frameworks by the appropriate SSC or SSB and employers in collaboration with the QCA (Parliament publications and records, 2007³⁰).

As part of the NVQ, apprentices normally accumulate a portfolio of supporting evidence showing the development of skills and their application in the workplace. Progression on an apprenticeship programme is monitored by the learning provider and assessment continuous over the course (Darlington College, undated³¹). For the purposes of NVQ assessment, assessors may be teachers or trainers who have contributed to the development of the programme, or assessors from outside the programme. According to the QCA³², the primary role of the assessor is to make accurate decisions about the competence of candidates against the national standards. Assessors' judgements of suitable evidence must be recorded and logged in the learner's portfolio as a witness statement. The QCA advises that a range of methods should be used to assess NVQs, driven by learners' normal activities in the workplace.

Examples of assessment methods can include:

- practical assessment
- presentations
- questioning to test underpinning knowledge
- assignment work
- written tests
- oral tests
- observation in a real working environment
- reviews of self-observation in a real working environment.

The QCA³² also states that awarding bodies should review their assessment guidance to ensure that centres are advised of the full range of assessment techniques and methods of presenting evidence that are acceptable in the occupational sector(s) under consideration.

Internal verifiers must ensure that accurate, auditable records of assessment are maintained. Verifiers must also be able to interrogate assessors' judgements by focusing on the critical features that distinguish between candidates that are competent and those that have not yet reached the required standard.

3.4 Apprenticeship qualification pilot

Within the current apprenticeship programme, there are demands for improved delivery, increased flexibility, more rigorous quality assurance, stronger management of the programme, and clearer progression from level 2 to level 3 and beyond. In January 2006, the QCA was asked by the then secretary of state for education and skills to advise on the potential for a qualification for apprentices (QCA, 2006³³).

After a period of research and consultation, the QCA (2006³³) proposed that a unit- and credit-based apprenticeship qualification would provide the additional flexibility that many sectors require. It added that developing the current apprenticeship framework into a fully regulated qualification would enhance its status with learners and employers. As a result of this recommendation, apprentices in five participating SSCs in England are taking part in a three-year pilot that will test the effectiveness of a qualification for apprentices (Council for Administration [CfA]³⁴).



4. E-portfolios

4.1 What is an e-portfolio?

There are a number of definitions of e-portfolios. According to Beetham (2005³⁵), definitions of an e-portfolio tend to include some of the following elements:

A collection of digital resources that:

- provide evidence of an individual's progress and achievements
- are drawn from both formal and informal learning activities
- are personally managed and owned by the learner
- can be used for review, reflection and personal development planning
- can be selectively accessed by other interested parties.

Shane Sutherland of Pebble Learning and also the CETIS Portfolio SIG describe an e-portfolio as 'purposeful aggregation of digital items ideas, evidence, reflections, feedback etc which "presents" a selected audience with evidence of a person's learning and/or ability' (Sutherland & Powell, 2007³⁶). The Educause Learning Initiative (2005³⁷) defines an e-portfolio as a digitised collection of artefacts including demonstrations, resources and accomplishments that represent an individual, group or institution. Pebble Learning (2007³⁸) adds to this definition that an e-portfolio is not just a file or asset store, but a presentational device that draws on a large pool of evidence to tell a story.

According to Graham Attwell (JISC Infonet, undated³⁹), an e-portfolio has seven functions which can be mapped against different pedagogic processes: recognising, recording, reflecting, validating, presenting, planning and assessing learning.

E-portfolios can be specific to a particular discipline or broadly encompass a person's lifelong learning journey as they measure learning and development over time (Butler, 2006⁴⁰). An e-portfolio can be anything from a personal webspace or blog to a structured template for storing evidence of achievement tagged against objectives. Thus the process of capturing personal progress and achievement is far more important than the format used (Becta, 2006¹⁸).

Among the types of e-portfolio listed by Becta⁴¹ is the qualification or evidence portfolio. Particularly relevant to apprenticeships, this is used to gather evidence that will be used to validate formal qualifications. It requires external authentication of held records and is also used for e-assessment. It may also contain the learner's qualification history.

4.2 What is an e-portfolio used for?

According to Shane Sutherland of Pebble Learning (2007³⁸) and the Centre for Recording Achievement (2007⁴²), an e-portfolio has a variety of purposes:

- performing formative and summative assessment
- presenting selected material to institutions or employers
- allowing reflection and self-appraisal
- organising personal information held in distributed databases
- supplying evidence for personal advancement through promotion or transition.

4.3 What sort of material does an e-portfolio contain?

An e-portfolio is usually a collection of work or artefacts selected by a learner to showcase their abilities, provide evidence that learning has occurred, or prove that learning outcomes have been met (HEA, 2004⁵⁰). The processes required to create an e-portfolio include capture and storage of material, selection, assessment, reflection and presentation using a variety of hardware and software tools (Becta, 2007⁴³). One of the most attractive features of e-portfolios is the diversity and richness of artefacts that can be associated with learning (HEA, 2004⁵⁰). According to Butler (2006⁴⁰), many different types of evidence can be used in an e-portfolio and include:

- samples of writing
- photographs
- videos
- research projects
- observations by supervisors, assessors or mentors
- reflective thinking about all these.

Educause (2005³⁷) states that an e-portfolio can contain text-based, graphic or multimedia elements archived on a website or on other electronic media such as CD or DVD. Becta (undated⁴⁴) adds that it is essential that the e-portfolio is able to accommodate any file type; audio and video evidence provide a 'real-life' assessment opportunity while digital pictures and scanned images will give learners many more opportunities to provide and present evidence.

This flexibility may be very important for learners who are not confident, comfortable or accustomed to expressing themselves in a written format (Attwell, 2005⁴⁵). Some vocational learners are not confident in the use of text as a means of recording and reflecting on learning, and the rapid development of web 2.0 tools for exchanging a wide range of digital artefacts may help these learners. Besides, for apprentices, competence is usually reflected in the ability to make and observe things. Such competence can best be recorded using digital artefacts rather than textual explanation. Furthermore, the

ability to populate an e-portfolio from evidence stored on a mobile device, personal digital assistant (PDA), telephone or digital camera means learning can be recorded where it happens in the workplace rather than relying on recall (Attwell, 2008⁴⁶).

An e-portfolio may contain examples of the following types of content (FD Learning, 2004¹⁹; JISC/HEA, 2007⁴⁷):

- coursework
- assessment work
- achievement of individual learning outcomes
- aggregated credit towards awards
- evidence of achievement for assessment
- planning and reflection
- statements about other entries
- skills and competences
- outcomes of appraisals or interviews
- links between entries
- entries shared with peers, trainers or mentors
- feedback from peers
- other pieces of work or personal material.

4.4 Benefits of e-portfolios

E-portfolios have the potential to enhance teaching, learning and assessment practices as they encourage personal reflection through the exchange of ideas and feedback to the learner. They increase learner autonomy and provide a means of documenting progress over time. E-portfolios can support student counselling, credential documentation and programme accreditation processes and empower learners to learn, develop and showcase their skills and qualities. They can help learners become critical thinkers, and aid in the development of their writing, digital media literacy and communication skills through the process of submitting information to an e-portfolio. E-portfolios are relatively easy to maintain and are easy to carry, share with others and transport into a new system or working environment (Educause, 2005³⁷; Butler, 2006⁴⁰; Centre for Recording Achievement, 2005⁴⁸; FD Learning, 2004¹⁹; JISC RSC South East, 2005⁴⁹; JISC/HEA, 2007⁴⁷).

E-portfolios can celebrate all forms of learning and offer something for all kinds of learner. They support the learning outcomes of students with a wide range of abilities (Becta 2007⁴³) and offer the flexibility to catalogue learning, especially when the learner is remote from their institution or work placement (HEA, 2004⁵⁰). E-portfolios can be revisited and added to at any time, thus helping to consolidate understanding of past

achievement and formulate intentions. Their use can assist with vital points of understanding whilst making progress and attainment more obvious to both teachers and learners – a prompt response from a tutor or trainer to e-portfolio content can assist with comprehension far more quickly than traditional formative assessment methods (Butler, 2006⁴⁰; JISC, 2006⁵¹).

4.5 Relevance of e-portfolios to apprenticeship programmes

As discussed in the introduction, there is a recognised need for the UK to have a better skilled and knowledgeable population. Radical action is needed to improve the current performance of the UK skills system, including a sustained national drive to reduce the number of adults with poor basic skills and an expansion of provision at levels 2 and 3. Apprenticeships are an important part of this skills campaign (AoC, 2007¹³) and progression in learning is vital to both national economic success and social inclusion (LSN, 2004⁵²).

Priority 2 of the Government's e-strategy (DfES, 2005⁵³) stated that integrated online personal support for learners should be achieved by 2008 with all learners having access to a personal online learning space with the capacity to support an e-portfolio. The visions for e-assessment by 2014 says that e-portfolios will play a significant role in the assessment of courses delivered at FE and HE institutions and even that e-portfolios may be exchanged as microchips in a business card (JISC, 2006⁹⁹).

The use of e-portfolios to support apprenticeship programmes is likely to be a key factor in ensuring the ongoing success of vocational qualifications in the digital age, thereby contributing to the skills campaign and ultimately the acquisition of world-class skills. E-portfolios have the potential to bring together learning from different contexts, allowing for the co-ordination of classroom-based provision and work-based training. Within apprenticeships, e-portfolios can provide a tool for planning and reflection on authentic work practices, assist with assessment processes and allow learners to monitor evidence of their developing skills. The use of e-portfolios for apprenticeships and/or NVQs has allowed some learning providers to cut down on assessment visits, improve relationships with learners, and increase the retention and throughput of learners, which has in turn led to increased productivity and hence profitability for the employer. The case studies in section 5.14 illustrate e-portfolio use by a variety of learning providers.

5. Review and analysis of information on e-portfolio systems

5.1 General information

Three of the publications reviewed provide general or overarching support for e-portfolio choice, implementation and use, and these are relevant to any organisation considering the implementation of e-portfolios to support apprenticeship programmes.

The first is the QCA guide (2007⁵) to e-assessment, which takes into account the current UK-wide developmental review of vocational qualifications. It contains a wealth of information and advice on adopting an e-portfolio system, from scoping and implementation to their use for assessment purposes. Assistance and information is built on case studies and proprietary guidance documents issued by awarding bodies and technology suppliers. The guide covers a plethora of staff roles and responsibilities in relation to e-portfolios (2007:15–18⁵), as well as identifying the knowledge, skills and authority required by senior managers, technical staff, teaching staff and assessors in managing, administering, supporting and using e-portfolios in the context of benefiting learners.

Second, the Enhancing Learner Progression (ELP) project⁵⁴ website has a section dedicated to e-portfolios. This includes FAQs on implementing an e-portfolio, the types of system available and the use of e-portfolios for assessment, particularly for learners on work placements. This information will be genuinely useful to learning providers as the advice given is generic and relevant to any organisation considering using e-portfolios, particularly for assessment purposes.

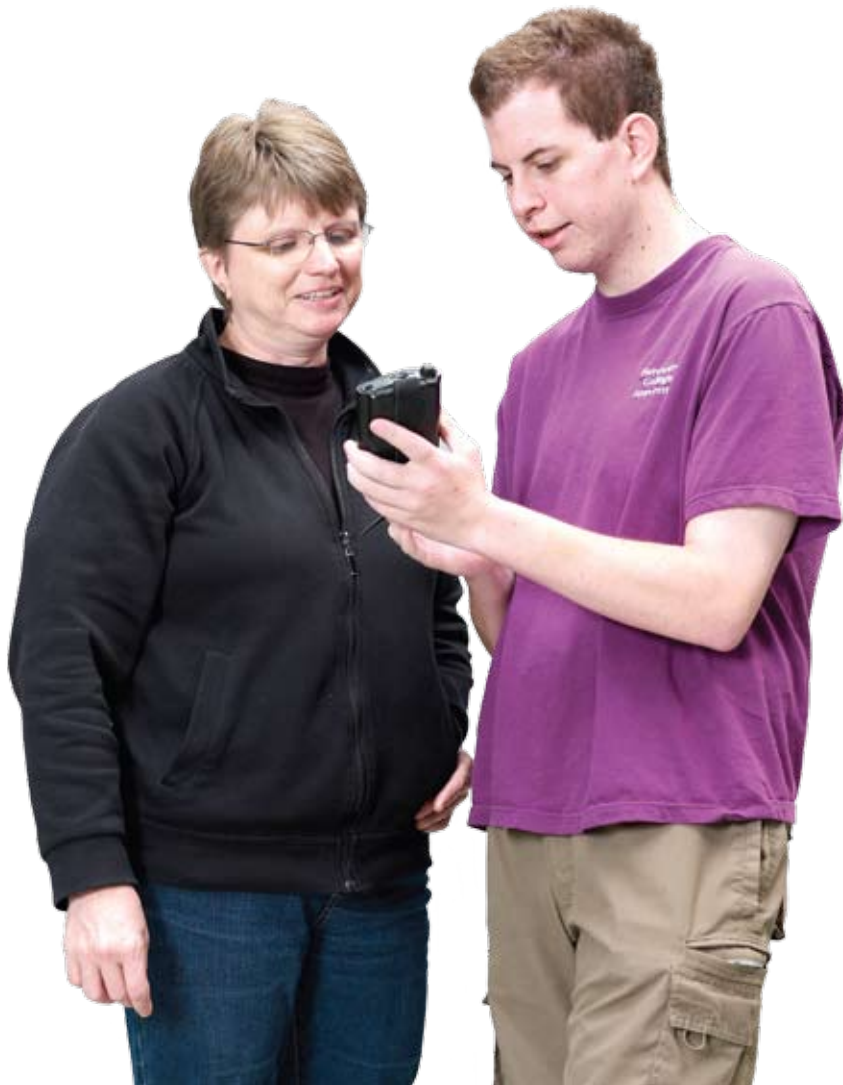
The third publication is the JISC Infokit: e-portfolios (2008⁴), which contains constructive advice and guidance on many aspects of e-portfolio definition and purpose. The kit includes a useful checklist of factors that providers may like to consider when implementing e-portfolios.

5.2 Information on advantages for learning providers and third sector organisations

Learning providers and third-sector organisations that currently contract with the LSC to deliver apprenticeships are naturally an essential part of the provision. The learning provider works in partnership with all three apprenticeship stakeholders: the learner, the employer and Government (LSC, 2005²³). Working closely with the LSC, learning providers have improved apprenticeship completion rates significantly since 2004 (ALP, 2007⁵⁵). Tackling the skills needs of the economy requires not only higher achievements at level 2, but also at levels 3 and 4, where skills shortages in the economy are more acute. Demand both from young people who now require clearer paths to occupational competence and adults who want or need to upgrade or change occupations (ALP, 2007⁵⁵) is increasing. For people who wish to pursue an apprenticeship to achieve occupational competence or to change occupations, building an e-portfolio to demonstrate their achievements and show personal growth and learning could be a valuable incentive to completing the programme and demonstrating their competence and new skills to employers.

The apparent variability in the quality of learning providers and third sector organisations delivering apprenticeships can be perceived as a barrier by some employers (LSC, 2007¹¹). The Government has announced arrangements to measure providers' responsiveness to both employers and learners through employer and learner surveys. The LSC will use its analysis of this survey of the quality of apprenticeship provision to inform its contracting decisions, with performance also being assessed against the latest available data from external sources and supplemented by self-assessment (LSC, 2007¹¹). E-portfolios offer an additional means for learning providers to demonstrate that they continue to meet their targets and so retain funding – an important consideration in the light of the fact that the LSC has stated its intention to remove public funding from employers, learning providers and colleges with unsatisfactory performance (DCSF/DIUS, 2008³).

Apart from helping to meet the obvious requirement to maintain operational status by continuing to receive funding, e-portfolios bring other benefits to learning providers. Specific information concerning the benefits of adopting and integrating e-portfolio systems within apprenticeship programmes is available from the QCA (2007⁵), Beetham (2005³⁵), Becta (2008⁷²), eNVQ⁵⁶ and City & Guilds. In summary, these documents and websites claim that e-portfolios can:



- supply evidence of technical competence to awarding bodies that recognise the e-portfolio
- save assessor time by improving the efficiency of site visits
- reduce the need for additional visits outside those mandated by the awarding body
- improve assessment turnaround time
- improve learner motivation and raise attainment levels by removing barriers for underachieving learners
- improve assessor motivation
- raise standards
- promote transparent internal communication
- improve and secure communications between delivery organisations and the employer
- reduce trainer workload by cutting the amount of paperwork required
- increase the confidence of mentors and assessors in the use of ICT
- raise staff morale
- improve security and confidentiality
- save money
- track learner progress
- be used for evaluation and benchmarking
- offer the opportunity for dynamic course feedback
- help to support work placements
- demonstrate the success of the institution
- drive up retention and completion rates by increasing the engagement and motivation of learners, thus making them more likely to finish their learning programme.

Learning providers offering the information technology qualification (ITQ) will already be conversant with the use of e-portfolios for their learners. The ITQ was developed by the sector skills council e-skills⁵⁸ and it forms part of the apprenticeship programme for IT users in England and Wales. The ITQ uses evidence collected in an e-portfolio for assessment purposes. Candidates' work is scanned into a portfolio system or uploaded directly into a password-protected area. Feedback to the candidate is entered directly into the portfolio or linked to an email response. The ITQ is capable of customisation and employers can add the specific software skills they need to the ITQ framework and include these in the qualification. For a number of success stories regarding delivery of the ITQ, see the IT West Midlands website⁵⁹.

5.3 Information on advantages for learners

In 2007, the ALP commissioned a survey (ALP, 2007⁶⁰) of learners participating in apprenticeship and Entry to Employment (E2E) programmes to investigate:

- the extent to which learners have access to and use ICT and e-learning
- what learners are using ICT and e-learning for
- learners' views on the value of ICT and e-learning.

Nearly all learners surveyed had access to a computer and the Internet and most used them for their apprenticeship or E2E programmes. Over 90 per cent of learners thought that ICT had been useful in helping them create, organise and store evidence for their portfolios. Other uses cited as useful by over 90 per cent of learners included contacting their tutors, completing online tests, working with other learners and assessing what was required for learning at the start of the programme (presumably as part of their individual learning plans (ILPs)). Most learners felt that technology had a positive effect on their learning by allowing a greater degree of personalisation, which in turn improved motivation, with over half of respondents saying they would like to use technology more often during their programmes.

According to the ALT-C conference report (2005⁶¹), e-portfolios can allow non-traditional learners to reflect on their life experiences, skills and learning, which boosts their confidence even when their experience of formal learning has been less successful. Where e-portfolios are used for assessment or job applications, they may give learners more confidence and control over the way they present themselves. This is applicable to any learning context and thus may be relevant to learning providers attempting to engage non-traditional learners on apprenticeship programmes.



Learner achievement depends on learners understanding that they are not only making progress in terms of certification, but that they are also developing skills that will help them progress into work or further learning. In 2005, the DfES stated that there is a clear need to monitor and record progress in key skills, basic skills and any personal targets that promote the needs and interests of learners (DfES, 2005⁵³). As well as the learning provider monitoring each learner's progress, there is an increased focus on learners taking responsibility for their own achievements. The process of completing an e-portfolio helps learners set challenging but realistic goals and work towards achieving them (Rees Jones, 2004⁶²).

There is no definitive list specifying the advantages of using e-portfolios for learners, although Beetham (2005³⁵) and JISC/HEA (2007⁴⁷) mention many of the following, with other advantages collated here from a wide range of literature:

E-portfolios:

- can be transferred between employers and between learning providers
- may more effectively assist learners with disabilities in recording evidence
- make contact with learners easier and more efficient
- allow for better information sharing
- enable the learner to continue with study in a work-based environment
- can be shared with interested parties
- can enhance learner IT skills, which is a core element of an apprenticeship
- can be used to store apprenticeship course credits, which can be transferred between apprenticeships and also between employers and/or learning providers
- are flexible – learners choose when they work on their e-portfolio
- can be used to create individual learning plans
- can be used to tie in evidence to details stored on the apprenticeship national database
- can be used both for assessing and recording personal thinking and listening skills, which are part of the proposed apprenticeship blueprint
- promote creativity by encouraging learners to populate an empty repository with artefacts created in a variety of formats
- can help learners organise their work requirements, resources and time
- can help learners gather together assets from non-formal learning.

5.4 Advice on choosing an e-portfolio system

There is a bewildering choice facing any provider considering implementing an e-portfolio system, and it is important to know how to identify the most appropriate product to suit particular needs. In the simplest terms, there are four different types of e-portfolio system to choose from, each with advantages and disadvantages (Educause, 2005³⁷; Centre for Recording Achievement, 2005⁶³; Butler, 2006⁴⁰; JISC/HEA, 2007⁴⁷):

- in-house systems, where an institution's IT department develops a customised system locally
- open source solutions, where open source technology is publicly available at no charge
- commercial systems, where an institution purchases a system from a vendor, including the customary licensing and support fees
- common tools, where an institution uses commonly available tools such as an html editor or website development software to create its own e-portfolio system.
- Educause (2005:9–10³⁷) provides some useful information on the pros and cons of each of these solutions which will be useful to any provider considering e-portfolios for the first time.

Butler (2006⁴⁰), the QCA (2007⁵), JISC (2008⁶⁴) and Tolley (2008⁶⁵) provide detailed information on the practical and technical requirements of choosing an e-portfolio system that is relevant to any organisation.

Whichever system is chosen, it is important to ensure that the awarding body recognises or endorses it. The QCA (2007⁵) warns that although awarding bodies do not currently stipulate which e-portfolio system a centre should use, centres should nonetheless check that the e-portfolio system they intend to adopt meets awarding body approval. Awarding bodies are likely to have criteria that the system is required to meet and will need to approve the choice made. For the future, the qualifications regulators are supporting the development of a set of protocols to cover e-portfolio systems for vocational qualifications (QCA, 2007⁵).

Two bodies responsible for awarding apprenticeships have published their own guidance on selecting an e-portfolio system to fulfil their particular requirements. OCR's publication *Getting started with e-portfolios: Information for NVQ centres* (2007⁶⁶) provides a checklist for learning providers offering NVQs, including information on choosing an e-portfolio system and its use in formative assessment. The Edexcel⁶⁷ document *Minimum Standards for NVQ E-Portfolios* provides information to centres offering Edexcel NVQs and users of e-portfolio software packages for Edexcel NVQs. Edexcel's publication includes guidance on access for assessors and learners, usability and recording learner progress. As an NVQ is a central part of any apprenticeship, learning providers using any awarding body should find this information useful and relevant in considering what sort of e-portfolio system to adopt.

According to Futurelab (2007⁶⁸), City & Guilds is a major player in its use of e-portfolios for assessment. Provided an e-portfolio can be audited by a verifier, City & Guilds does not impose requirements on the selection of e-portfolio systems by centres. Although it finds that the marketplace is generally not well informed about the existence of e-portfolios, City & Guilds has seen real benefits in their use, including gains in transparency and quality. It claims that e-portfolios give learners greater visibility of progress and improves the quality of contact with their assessors.

To assist organisations in choosing an e-portfolios system, the Centre for Recording Achievement (2006⁶⁹) conducted a survey of e-portfolio products to ascertain what was available in the pre-19 sector. However, this list is now somewhat out of date and not necessarily relevant to all learning providers offering apprenticeships. To assist learning providers in navigating the turgid waters of e-portfolio product choice, a project is currently being conducted on behalf of the LSC Eastern Region's Train to Gain team and the Association of Colleges in the Eastern Region (ACER) as part of a capacity-building programme. The project's outcomes include a Which? guide to e-portfolios for Train to Gain providers and a website featuring an up-to-date product overview. The project will identify current awarding body protocols and incorporate key elements from the QCA's guide to e-assessment (2007⁵). At present, the website is being developed for Train to Gain providers in the East of England with a link to the LSC's main website. There is, however, scope for developing it as a national Train to Gain resource later in 2008/09 (Merritt Associates, 2008⁷⁰).

5.5 Advice on implementing e-portfolio systems

The implementation of an e-portfolio system is a serious consideration for an organisation. One of the findings of the ePISTLE project (JISC, 2006⁵¹) was that e-portfolios need to be introduced as part of a considered and planned curriculum, and that uptake and consequent success depend on an understanding of the best fit of an e-portfolio to the organisation's curriculum and needs. Barrett (2006²¹) finds that the organisation concerned must determine the primary purpose for using e-portfolios, because the goals for the e-portfolio will certainly determine its content, creation process and evaluation.

The QCA (2007⁵) identifies several reasons for considering e-portfolios, including meeting the needs of increasing numbers of learners who may not go into the learning centre frequently, but can be assessed in their workplace – such as apprentices.

Many recommendations to assist the successful implementation of an e-portfolio system can be found in the JISC/HEA (2007⁴⁷) report, including aspects of implementation relating both to staff and learner needs. Additionally, JISC (2005⁷¹) has developed a list of questions to assist providers in implementing systems to support their learners effectively which will be an aid to conversation with institutional colleagues and learners. There are also useful pointers for learning providers to consider when implementing an e-portfolio system for the first time.

5.6 Information on constructing an e-portfolio

In her literature review, Butler (2006⁴⁰) identifies several important considerations that need to be made when constructing an e-portfolio:

- What is the purpose of the e-portfolio?
- Who decides what should be included in the e-portfolio?
- How should the evidence be organised?
- What kinds of artefacts are suitable as evidence?
- What kind of input should various stakeholders have throughout the process of constructing the e-portfolio?
- How should it be assessed?
- What should happen to the e-portfolio after it is finished?

These points should be considered by learning providers with the learner to ensure that the e-portfolio is serving the needs of both. An additional important consideration for learning providers is that for any commercially available product, some or all of the above points are prescribed. This could be both a benefit and a limitation for learning providers that want the freedom to consider each point separately when constructing an e-portfolio system.

Butler believes that e-portfolios should be integrated across the whole learning process because learners recognise the value of creating and using an e-portfolio when they know it is available long term. Learners are more motivated to work on their portfolios when they can see what they will get from the experience, so to improve learner buy-in, it is vital to consider how e-portfolios are promoted to learners.

5.7 Information on using e-portfolios

A key factor to consider is the intended use of e-portfolios (JISC/HEA, 2007⁴⁷), for example as a learning or assessment tool. In fact, a single e-portfolio may be used for more than one purpose, either because it has been adapted by the author, or the medium through which it is presented allows alternative audiences to see a customised version of its contents.

According to a recent survey (Becta, 2008⁷²), there are differences in use and motivation to use technology in relation to support for apprentices. Most apprentices are able to access technologies at home, at their learning provider and/or at work. Access in the workplace may be restricted due to the work environment and/or company policy regarding usage. Thus ICT is widely used by apprentices for undertaking and submitting assignments, and for collecting, creating and collating evidence for portfolios. Becta (2008⁷²) has further information on the use of technology to support apprenticeships.

5.8 Information on developing e-portfolio maturity

Once an organisation has decided to collect and store learner evidence digitally in an e-portfolio, according to Educause (2004⁷³) there is a five-step development path of e-portfolio maturity to be travelled. These five stages are:

- scrapbook
- CV
- curriculum collaboration
- mentoring
- evidence for assessment, evaluation and recording.

The Educause report offers organisations guidance on identifying where they are in this process and how to move to the next level. It warns that a richer educational experience for all will not be realised until educators embrace e-portfolio concepts and apply them at their highest levels of maturation. The advice within the report is sufficiently generic to be applicable to all learning providers, or indeed any organisation undergoing this process.

5.9 Information on using e-portfolios for planning learning

At the start of an apprenticeship, assessors will often draw up an individual learning plan (ILP) with the apprentice and employer. The ILP outlines the programme of learning agreed between the three parties. Electronic individual learning plans (e-ILPs) are now being used by many 14–19 pathfinders and FE colleges to develop learning contracts between learners, practitioners and employers (Becta⁴¹). The approach is to provide a service through which the learner and practitioner can agree appropriate objectives, track progress, deal with problems and record evidence of achievement. Reviewing and setting targets can motivate learners to achieve, and ensure that adequate assistance is provided throughout the programme to address any difficulties. The involvement of all parties in this process can increase engagement and ensure that the needs of learners and employers are met and the requirements of the framework addressed (LSN, 2006²⁶).

As an incentive to learning providers and following its evaluation of apprenticeship programmes, Ofsted (2007⁷⁴) recommends that ILPs should be used more effectively throughout apprenticeships. With the proposed introduction of personal learning and thinking skills (PLTS) to the apprenticeship framework, the Council for Administration (CfA, 2006⁷⁵) advises that PLTS should be incorporated into the ILP to reinforce the development of these skills, create a formal record of their attainment and provide confirmation to employers that these skills have been acquired. The CfA has also taken the lead in publishing guidance for embedding PLTS into level 2 of the technical certificate in business and administration (TCBA), which is one of its young apprenticeship programmes (CFA, 2006⁷⁵). The CfA publication includes a detailed description of each personal learning and thinking skill, which could be useful to providers wishing to incorporate these skills into their technical certificate.

Using initial assessments, providers can develop a delivery plan for each unit of an apprenticeship with realistic and achievable targets. These can form part of the apprentice's e-portfolio (LSN, 2006²⁶). Learner progression, achievement and development is more likely to occur when learners have their progress regularly reviewed against targets and the outcomes recorded and celebrated (DfES, 2005⁵³). E-portfolios used for planning should include a means of creating and storing the plan, with the capability to record experiences on an ongoing basis (Centre for Recording Achievement, 2005⁶³).

5.10 Information on using e-portfolios for assessment

According to Barrett (2006²¹), Butler (2006⁴⁰) and JISC/HEA (2007⁴⁷), e-portfolios can be used both for assessment **for** learning (formative assessment) and assessment **of** learning (summative assessment). In assessment **for** learning, artefacts from the e-portfolio are selected by learners to tell the story of their learning. These are reviewed with the learners and used to provide feedback to improve learning. When used for formative assessment, e-portfolios have the potential to improve success and learner self-esteem. Using e-portfolios in the assessment **of** learning requires the submission of specific, required artefacts in accordance with the apprenticeship framework. These artefacts act as evidence to demonstrate that specific learning outcomes or standards have been met. Using the material within an e-portfolio for assessment may make learners more active in terms of taking a greater role in their learning as a whole, and it can give learners more ways of demonstrating their knowledge, thereby revealing information not made known by other assessment methods.

The QCA guide to e-assessment (2007⁵) acknowledges that e-portfolios can be used for assessing or matching against specified criteria, for example evidence for an NVQ (which forms part of an apprenticeship). It finds that the use of e-portfolios in assessment has now been adopted by many awarding bodies and accepted by the qualifications regulators. The QCA adds that where e-portfolios are used, much of the assessment can be conducted remotely, which can be of real assistance. It advises that the scope of what can be submitted via an e-portfolio for assessment purposes may be anything from a small part of the evidence to all the evidence required for a complete qualification, an important piece of advice for providers when considering how much of apprenticeship evidence to submit to an awarding body. Further advice from the QCA guide on artefacts presented within an e-portfolio for assessment includes the following:

- Artefacts must be in a form capable of being validated.
- There must be a secure area to hold the evidence to ensure its validity.
- Evidence must form part of an auditable trail.
- Evidence must be capable of being added to over time to aid successful completion, provided a valid auditable process is adhered to.

As the NVQ element of an apprenticeship is a credit-based qualification, this information is particularly relevant to providers who wish to use e-portfolios to award NVQ credits to their apprentices.

FD Learning (2004¹⁹) suggests that e-portfolios have a great deal to offer in supporting assessment and the accreditation of learning. They are particularly useful for supporting credit-based awards such as the NVQ part of apprenticeships because they can record the whole range of information about the achievement of units that contribute to the award. They also support authenticated access to appropriate parts of the e-portfolio for assessors and may even support the transfer of credit information between institutions. The flexibility of e-portfolios helps learners think about their experience and work as relevant evidence for credit and awards. The Centre for Recording Achievement (2007⁴²) states that an e-portfolio system primarily designed for assessment management will probably facilitate the organisation of material linked to learning outcomes and cross-referencing between them. Material used for assessment can be collected from the e-portfolio and stored on a portable device such as a pen drive and sent to whoever needs to see it. This is of particular relevance to providers and apprentices for whom evidence is assessed and shared with a significant number of people, for example assessors, internal verifiers, employers and external verifiers.

The flow of information to and from a learner's e-portfolio for the purposes of assessment and (eventually) awarding of an apprenticeship is summarised in Figure 1 below.

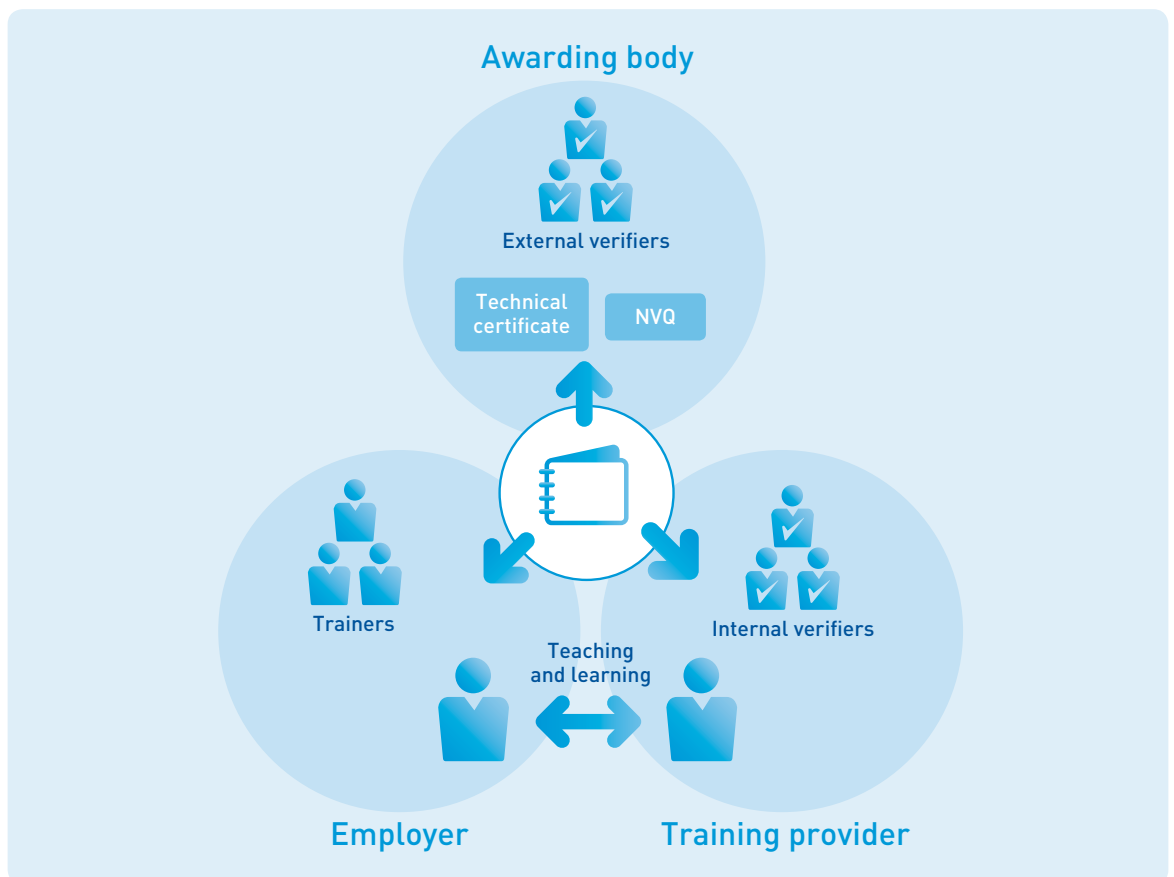


Figure 1: Information flow between stakeholders in an apprenticeship programme

Note: Adapted from a diagram produced by the e-portfolio supplier Learning Assistant (www.learningassistant.com)

Some interesting ideas and methods for using e-portfolios for assessment come from suppliers of commercial e-portfolio products tailored to the NVQ market. More information on these products is available on company websites, and a summary of the main products on offer is given below.

NVQ Online⁷⁶ advises that e-portfolio systems can be developed as a website with the facility for assessors and learners to conduct assessment discussions online. The vendors of OneFile⁷⁷ suggest that the e-portfolio can be used to move evidence from learners to assessors and verifiers during peripatetic assessment. With this system, providers can apparently automatically cross-reference assessments against the standards to which a learner is studying. The vendors of Ecordia⁷⁸ e-portfolios advise that evidence submitted to an e-portfolio can be modified at any time until it is submitted for assessment. Axia Interactive⁷⁹ has developed its e-portfolio system (NowNET) so that learners can access a list of the skills they need to demonstrate to receive their certification, and can view their personal progress reports and percentage of completion reports. Assessors can also view all the evidence that has been claimed for a particular skill so they can assess the sufficiency and currency of this evidence. The Skillwise⁸⁰ e-portfolio allows the assessor to automatically receive an email alerting them to the presence of new evidence awaiting assessment. Learning Assistant⁸¹ advises that assessors can use the evidence in an e-portfolio to review competence claims before awarding the individual units of the course, or return the competence claim to the candidate with instructions for further work. Finally Skilsure⁸² adds that once the evidence in an e-portfolio has been accepted in support of one unit of a qualification, it can be used again in support of other relevant units, making for a shorter, more efficient development path for candidates.

When using e-portfolios for assessment, Barrett (2006²¹) suggests using three different solutions that communicate electronically. These comprise a digital archive of learners' work, a learner-centred e-portfolio and a central database to collect tutor/trainer- or mentor-generated assessment data based on tasks and specifications. This type of system supports both formative and summative assessment and provides institutions with the means to report on learners' progress, competence and achievement whilst empowering individuals to take control of their own learning. This tripartite system could be used by providers to undertake assessment and provide feedback to apprentices, particularly as Barrett (2006²¹) and Becta (2007⁴³) both see feedback as a vital part of the assessment process, with the tutor or mentor evaluating each artefact (with any accompanying reflection) to decide whether it meets the specification for official assessment purposes.

5.11 Information on using e-portfolios for reflection

According to the JISC Infokit: e-portfolios (JISC, 2008⁸³), reflection is a critical process that supports the creation of an e-portfolio. Reflection develops a range of skills that underpin personalised learning including self-assessment and critical thinking.

Reflection on learning to aid progression is not an obligatory part of an apprenticeship programme, yet there is a perception among academics that reflection is a valuable tool to support any kind of learning (AoC, 2008⁸⁴), including that undertaken as part of an apprenticeship programme. Encouraging reflective practice within apprenticeships should ultimately benefit the learner since such reflection can help them to define their own success. The delegates of the ALT/SURF/ILTA spring conference (2005⁸⁵) recognise that e-portfolios can be an aid to reflective learning, and that reflection has value across the disciplines as a means of developing transferable skills. It also appears that using e-portfolios helps some learners to improve the efficiency and effectiveness of their learning (Becta 2007⁴³).

Butler (2006⁴⁰) states that learners can be assessed on how their evidence and reflection show their learning gains as they can revisit previous contributions and see the development of their skills, particularly through images of completed items or videos of activities. Such assessments are seen by some as more authentic as they rely on more than one piece of evidence and show the development of thinking, thus more accurately measuring learner ability. Beetham (2005³⁵) adds that the rich information contained in the learner archive provides material for reflection and self-evaluation, action-planning, goal-setting and the identification of personal strengths and weaknesses.

For providers considering encouraging reflection as part of the apprenticeship programme, Educause (2005³⁷) advises that it is important to consider what they need to do to encourage learners to use their e-portfolios effectively in this way. Guidance on how to reflect on and analyse learning will help the learner to make appropriate selections and facilitate ongoing understanding (Centre for Recording Achievement, 2005⁶³).

5.12 Information on using e-portfolios for presenting learning

E-portfolio presentations are collections of e-portfolio items made for a purpose, such as demonstrating competence in a field (ALT/SURF/ILTA, 2005⁸⁵). E-portfolios enable learners to provide evidence of their achievements to a variety of chosen audiences, for celebration, assessment or applications (Becta, 2007⁴³). The Centre for Recording Achievement (2007⁴²) notes that many e-portfolio systems allow selected contents of the e-portfolio to be viewed over the Internet. Users can create pages containing their chosen items from the portfolio, and control access to these pages, thus creating a personal web presence for others to view. This could be a useful tool for apprentices who wish to submit their own evidence of competence to assessors, or have their employers do so. All the aforementioned commercial e-portfolio suppliers operate their products in this way.

Beetham (2005³⁵) adds that individuals can use the archive of learning held in their e-portfolio to present a wide range of their achievements, for example at a job interview, professional review or application to higher education. In this way, an apprentice may use the evidence in his or her e-portfolio to demonstrate the fulfilment of the apprenticeship to an employer.

5.13 Information on issues to consider for e-portfolio implementation and use

According to the Centre for Recording Achievement (2005⁶³), JISC/HEA (2007⁴⁷), Educause (2005³⁷), Becta (2006¹⁷), the QCA (2007⁵), Beetham (2005³⁵) and Butler (2006⁴⁰), the functional and technical issues to be considered when implementing and using e-portfolio systems include:

- accessibility of hardware and software
- interoperability
- technical problems and IT support
- support and scalability
- plagiarism
- data protection
- ownership of intellectual property
- storage space and bandwidth
- authentication of learners' work
- development of technology skills
- staff buy-in
- long-term maintenance
- transfer of e-portfolios to new systems and phases of learning
- communication within and across organisations
- sources of funding for e-portfolio development
- learner choice
- 24/7 access
- security
- e-safety.

Beetham (2005:21–22³⁵) covers specific issues for providers to consider in using e-portfolios. Further information and guidance relevant to apprenticeship providers is detailed below.

Accessibility

The accessibility both of the e-portfolio system being used and the type of content used to populate it are important points for consideration in making e-portfolios available to all learners across all learning programmes. It is clearly essential that an e-portfolio should enhance access to opportunities rather than putting up barriers (Beetham,

2005³⁵). JISC TechDis (2003⁸⁶; 2006⁸⁷; 2007⁸⁸) states that digitising content and promoting its interoperability and shareability through e-portfolio use are processes that support the aim of increased accessibility, and advises that equity of access is key to implementing e-portfolios for any learning provider. Learners with profound disabilities may benefit more than most from e-portfolios, which can hold film or photographic records of their achievements, and where paper-based assessment would be inappropriate. According to Charlesworth & Home (2004⁹²), when developing an e-portfolio system, an institution should consider groups of learners who may be disadvantaged by the adoption of such a system and wherever possible take appropriate measures to ensure that alternative solutions are applied to reduce or remove those disadvantages.

Butler (2006⁴⁰) observes that the technical knowledge required to create an e-portfolio may unfairly disadvantage learners who are less IT literate, and there is a danger that learners may end up being assessed more on their technological prowess than their subject knowledge or competence. On the other hand, the progress of learners with certain disabilities (for example, dyslexia) may be severely hampered in a traditionally assessed course. This barrier can be mitigated by gathering evidence that does not rely on writing, whilst bearing in mind that apprenticeships include literacy as a key skill. It follows that an e-portfolio system needs to be extremely flexible so that it can be adapted to fit both providers' and learners' levels of technical skill, as well as individual learners' levels of ability (or disability) and confidence over time.

Interoperability

Beetham (2005³⁵) states that the systems involved in producing, maintaining and exchanging learner information must be interoperable with one another. According to the Centre for Recording Achievement (2005⁶³) and JISC/HEA (2007⁴⁷), interoperability of e-portfolio systems is important for two reasons: first, learners may wish to transfer their e-portfolios from one organisation to another; and second, efficiency in sharing data between systems, both within and between organisations, is a central tenet of the Managing Information Across Partners (MIAP) programme, which aims to streamline the collection, handling and sharing of information on learning and achievement for education and training organisations. The MIAP learner record is an aggregation of records about an individual's learning that have already been collected by UK education bodies with an initial focus on qualifications. As evidence of learning stored in e-portfolios may form part of the learner record, the e-portfolio clearly needs to be developed to published interoperability standards. The newly published JISC Infokit (JISC, 2008⁹⁰) contains some technical specifications regarding interoperability standards that relate to e-portfolios.

IT support

As with any new system, staff and learners will need training and be able to obtain assistance when necessary with technical or usage problems (JISC/HEA, 2007⁴⁷).

Plagiarism

In her literature review, Butler (2006⁴⁰) documents learners' concerns over the privacy of their material on a web-based platform. Students as well as staff require assurances that personal data will be protected from unauthorised exposure in the public domain, and be reassured that their work cannot be plagiarised due to e-portfolios being publicly available. The JISC Plagiarism Advisory Service⁹¹ gives guidance on preventing and detecting plagiarism that is relevant to any organisation considering using web-based e-portfolios.

Data protection

Under the Data Protection Act 1998, all institutions that exercise some control over data-gathering and its use must inform the Information Commissioner's Office (ICO) of this, and indicate the purpose of the data-gathering exercise (JISC/HEA, 2007⁴⁷). It is imperative to ensure that institutional notification covers the intended operational use of the e-portfolio system. This is of particular importance if there is any intention to permit data transfer from the e-portfolio system to third parties (Charlesworth & Home, 2004⁹²). For more information specifically about data protection and e-portfolios, see the FAQs published by JISC (2005⁹³).

Intellectual property rights

Under the Copyright, Designs and Patents Act 1998, ownership of creative works is generally held by the person who created the work (JISC/HEA, 2007⁴⁷), although ownership of the content of e-portfolios is not as clear. According to Charlesworth & Home (2004⁹²), an educational institution may create, possess and eventually destroy data about its learners, although learners also have rights relating to the retention and use of that data, including the data placed in an e-portfolio. In practice it may be very difficult to separate the commingled ownership of the content of an e-portfolio system. The QCA (2007⁵) states that the learner is the owner of the e-portfolio and can determine the access rights of others. However, as part of the arrangements for assessing the evidence it contains, learners must agree access to the evidence area of the e-portfolio by awarding bodies and assessors. The DCSF anticipates a new generation of technology where an e-portfolio for lifelong learning will no longer be an institution-based package, but learner-owned and interacting with services accessed over the web (JISC, 2006⁹⁴).

Authentication of learners' work

Butler (2006⁴⁰) raises the difficulty of authenticating the evidence in an e-portfolio – is it really the work of the student in question? One means of authenticating the stored artefacts is to require the submission of images of intermediate work in progress (Futurelab, 2004¹⁰⁹). Educause (2005³⁷) suggests that when assessment portions of e-portfolios are tied to artefacts or student accomplishments that relate to predefined standards (such as an apprenticeship framework), it is important to consider who is validating the artefact as an authentic work of the student. Is evidence internally authenticated by the learning provider, or externally by an employer-appointed assessor?

Staff buy-in

The QCA (2007⁵) states that the human aspect of choosing and implementing e-portfolios includes assessing whether the organisation has access to appropriate staff skills. This view is supported by Beetham (2005³⁵), who states that the onus is currently on institutions to create and maintain learner records, yet not all learning providers will have the physical or human resources to do this effectively. The staffing checklist in the QCA's (2007⁵) e-assessment guide can be used to ensure that the right expertise is identified or developed within an organisation wishing to implement and use e-portfolios. This checklist can be used as the basis for identifying training needs for staff, or workshops for learners.

Learner choice

Educause (2005³⁷) believes that it is important to consider whether any programme of learning should specifically require learners to use an e-portfolio or whether this should be optional. The delegates of the ALT/SURF/ILTA spring conference (2005⁸⁵) go a step further and state that learners who do use e-portfolios need to have discretionary control over their time, and thus choose to engage voluntarily.

Hardware and software considerations

According to Educause (2005³⁷), organisations will need to ask a number of hardware – and software-related questions if they are to implement e-portfolios:

- How will an e-portfolio system impact on other institutional software systems?
- How many and what kinds of server will be necessary to hold the required number of e-portfolios?
- What is required to maintain and back up these servers?
- What plug-ins, file formats and browsers will be required?
- What technologies will be used to implement an offline e-portfolio that authors and/or assessors can take with them?

Access

Broadly speaking, there are two systems for accessing e-portfolio systems. The first of these is Internet-based, using an online management system for the assessment and verification of competence-based qualifications. Learners can submit and store evidence, coursework and assignments and receive feedback from their assessor. The second type is non-Internet based, where software is loaded onto a laptop or workstation for learners or assessors who require access to the e-portfolio whilst not online. Data from this type of e-portfolio is usually synchronised when the learner or assessor next has Internet access (QCA, 2005⁹⁵).

Providers need to consider which of these types of access will be most beneficial to their learners and assessors. Another consideration will be when to provide access. Will this only be when the learner is present at the learning provider's premises? Will it be at the place of employment? Will learners have access at home, and will access be provided from other institutions, or anywhere with an Internet connection? These questions are discussed in JISC/HEA, 2007⁴⁷.

In order to address some of these issues when choosing and implementing an e-portfolio system, the QCA (2007⁵) includes a checklist in its e-assessment guide to assist organisations in dealing with e-portfolio suppliers.

5.14 Case studies of e-portfolio use

The following case studies have been chosen for their relevance to learning providers offering apprenticeships. They include examples of best practice and innovation in the use of e-portfolios.

EAGIT

EAGIT is a private-sector learning provider based in Norwich with Centre of Vocational Excellence (CoVE) status. EAGIT decided that one way to provide a more flexible offer to learners studying for engineering NVQs was through the use of e-portfolios to capture evidence in the workplace (QCA, 2007⁵). The project enjoyed success with assessors who collected the evidence on visits, reviewing it with the learner and uploading it onto their laptops for later synchronisation. Some learners took this a step further by sending their evidence to the assessor by email. This is an ongoing project and EAGIT has since developed its e-assessment capabilities by extending the use of e-portfolios. For project updates, see the efutures website .

JHP Training

A study conducted by the Mackinnon Partnership on behalf of Becta (2004⁹⁷) into the use of e-learning in the workplace found that some work-based learning providers were experimenting with e-NVQs, with learners keeping e-portfolios of tasks completed. This system allowed learners and their managers to get a clear sense of the learner's progress since it showed clearly how much they had completed. At the time of the study, JHP Training in Leeds was delivering e-NVQs for call centre operatives in large companies and small- to medium-sized enterprises (SMEs). Candidates submitted electronic copies of evidence for their NVQ portfolios (sometimes scanning in paper-based evidence), which was held online. This was done using software supplied by e-NVQ Ltd. As well as the information technology qualification (ITQ), NVQs were being undertaken in administration, management, team leading, customer service and call handling. At the time of the survey, JHP Training was enjoying good uptake, with over 200 learners undertaking some of their work-based learning using e-portfolios. The recorded benefits included greater motivation among participants and cost savings as a result of transferring paper-based materials to CD (Becta, 2005⁹⁸).

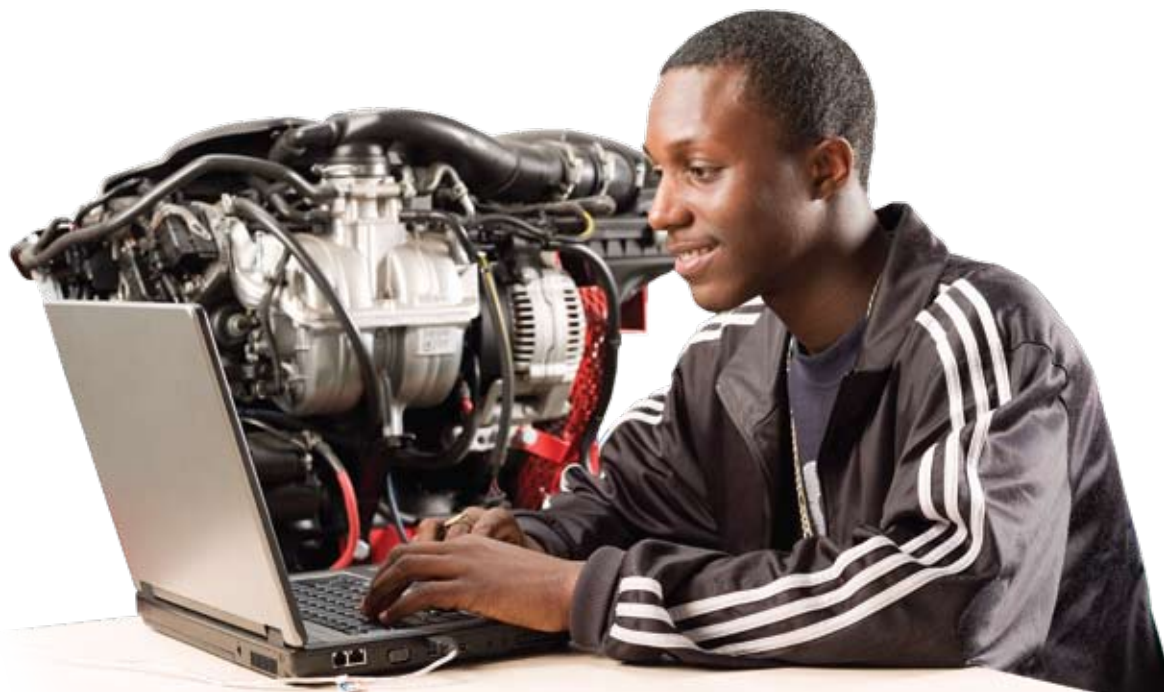
West Suffolk College

West Suffolk College (JISC, 2006⁹⁹) investigated ways to help learners who were finding written assignments a barrier to reaching their full potential. This was particularly apparent on vocational courses where learners performed well in skills assessment but had difficulty producing written evidence for their portfolios. In this particular case study, photographic evidence was designed to assist students in demonstrating their practical skills. Photographs were then bluetoothed to the college via the tutor's laptop where they were assessed and commented on. The college has been able to demonstrate an increase in retention and achievement rates since using this form of assessment.

e-scape

e-scape is an ongoing project run by the Technology Education Research Unit (TERU) at Goldsmiths College, University of London and TAG Learning (TERU, 2005–09¹⁰⁰). It focuses on the assessment of collaborative working and methods of recording evidence for a design technology project using e-portfolios. Learners undertake coursework in the classroom (using hand-held digital tools) and their resulting portfolios emerge automatically (and dynamically as they work) onto a website where they are scored by markers.

Perhaps the most innovative part of the e-scape project is the method devised for assessing the portfolios. Each assessor sees two example portfolios on his or her screen and makes a judgement about which one is better, eventually ranking all the portfolios. Then another person somewhere else in the country looks at the same sample, again completely randomly. Once all the assessors have ranked the projects, an overall ranking of the projects emerges. In the pilot, each e-portfolio was judged at least 17 times by seven different judges, which makes for a highly reliable set of results. In phase 3, the team will explore the scalability issues of making e-scape into a national system of assessment in association with the awarding bodies, Becta, the DCSF and the QCA.



Distributed e-learning

One case study¹⁰¹ which formed part of the JISC-funded distributed e-learning (DEL) programme focused on the use of e-portfolios to support childcare learners on a key skills programme. It is often difficult to get learners interested in key skills and for them to understand how these relate to their main course but, because the e-portfolio reminded them of social networking software, they were interested in finding out more. As a result of using an e-portfolio on their course, learners became more motivated and were keener to attend.

Acacia Training

Acacia Training and Development Ltd (NIACE¹⁰²) have invested in MP3 players and recorders for all their assessors to collect evidence for learners' NVQ e-portfolios. After initial training, the assessors found that the technology helped them become more efficient in collecting and collating evidence from the candidates, who were studying for qualifications in health and social care and hospitality. For both assessors and learners, having access to digital recording technology has made collecting evidence more creative and less restrictive. Assessors have been able to record evidence of progress rather than taking written notes, which has allowed them to concentrate on the learners themselves during observations. Furthermore, the internal verifier welcomed digital audio files as evidence as this allowed greater standardisation across the company.

Lauder College

Lauder College co-ordinated a June Start Exit programme as part of its employability programme¹⁰³. This focuses on young learners who have come from local high schools to complete their studies at the college. The creation and use of e-portfolios on the course is reported as being extremely successful. The case study records how young learners have engaged with modern technology such as digital video cameras and mobile phones to create personal e-portfolios.



Training Express Group

Training Express Group is a private training company offering NVQs in the construction, industrial and land-based sectors. It decided to use e-portfolios to make the process of NVQ completion quicker and easier (Training Express Group¹⁰⁴). This was deemed better for the learners who may not have had the required literacy skills to complete a traditional portfolio of evidence. The e-portfolio software is automatically populated with the relevant NVQ units and assessors record evidence on cameras as video clips or photos before uploading them. Candidates can see their portfolios and revisit the evidence they wish to submit. All e-portfolio evidence is checked and confirmed by internal verifiers.

Once all the NVQ units are complete, the provider (which has direct claim status) claims the NVQ certificate from the relevant awarding body. Using e-portfolios in this way has enabled candidates to get through an NVQ far quicker than using a paper portfolio and as a result retention levels are noticeably higher. Assessors can turn NVQs around in about three months, meaning the provider can process higher numbers of candidates and thus claim more funding.

Robert Wiseman Dairies

Robert Wiseman Dairies used a commercial e-portfolio product to support learners undertaking NVQs¹⁰⁵. The company found that the process was speeded up, with learners able to achieve completion in half the time taken in comparison with using paper-based portfolios. For the assessor, time was saved both when cross-referencing the criteria and when visiting learners, since learners forgetting to bring their portfolios was no longer a problem. An internal verifier stated: "I used to waste a lot of my time in travelling. I am now able to verify remotely and track what is happening with a lot more ease." The decrease in time taken to complete NVQs means that the company is enjoying higher retention levels and reduced costs as remote assessment and verification has cut down on travel expenditure.

Guildford College

Guildford College has recently enabled the use of e-portfolios for learners taking an NVQ in plumbing at level 2¹⁰⁶. It found that the system was very successful for the following reasons.

- Even during the summer break, assessors were able to check whether any work had been submitted to them.
- The learners preferred to submit electronically, rather than writing by hand. They felt this fitted in with their lifestyle better.
- The learners enjoyed the flexibility of working from home in the evenings and sending work electronically to the assessors.
- The turnaround time for assessment was faster than the traditional approach because assessors could assess and feed back to the learners more promptly.

6. Conclusion

This report has reviewed the existing published information and guidance on e-portfolios as they relate to apprenticeship programmes. It is evident that there is a considerable body of information on e-portfolios but very little of it is targeted at providers and employers offering apprenticeships or at apprentices themselves. This may be due to the fact that the pace of technological development is faster than the response of the evaluation and research communities (CEL, 2007¹⁰⁷). E-portfolio development has taken place in the context of existing paradigms of education and training, and has been dominated by universities and the assessment goals of higher education (Attwell, 2005¹⁰⁸). While there is substantial overlap between the needs of the apprenticeship sector and other educational phases where e-portfolios have been implemented, there remains a need for tailored advice and guidance for providers of apprenticeships in order to drive up e-portfolio uptake.

Gaps in information and guidance to support e-portfolio use within apprenticeships in the published literature comprise the following:

- Information on selecting, implementing and supporting e-portfolios within apprenticeships is limited. There is a general lack of guidance on the use of e-portfolios for planning, reflection and assessment, which are all vital components of the apprenticeship framework. These areas have not been explored fully across existing e-portfolio use and practice. Specific challenges of e-portfolio implementation within apprenticeships are: the need for transferability of data between the learning provider, employer, awarding body and apprentice; and the requirement to transfer data to entirely disparate organisations as apprentices proceed on their learning journey.
- There is a very limited amount of specific information on technical considerations that relate to the use of e-portfolios within apprenticeships. The support requirements of staff and learners and the budgeting and business case considerations of e-portfolio purchase, deployment and maintenance are equally under-reported. At the present time, the sector skills councils and standards-setting bodies responsible for approving apprenticeship frameworks have not issued clear policies on the use of e-portfolios to support apprenticeships.
- Specific information and guidance on the issues of business process re-engineering, staff and learner training, software tools and systems to support the implementation of e-portfolios on apprenticeships programmes is inadequate. The many different apprenticeships and the associated diversity of learner activity mean that generic information for this sector will have some use but will not be able to support adoption across all areas of the sector. An assessment of the suitability of different e-portfolio implementation approaches across the full range of available apprenticeships is a challenging prospect, but would lead to an understanding of the suitability of each of the apprenticeship frameworks to e-portfolio use.

Becta has identified the desire to work with partners to supplement the existing literature and produce tailored information for providers wishing to explore the use of e-portfolios within apprenticeship programmes. Such a project would need to take the following issues into consideration:

- From the standpoint of assessment, the rationale for using e-portfolios to support apprenticeships is clear; the ability to create, design, reflect, modify and preserve are all-important goals for any stage of education (Futurelab, 2004¹⁰⁹). However, business processes are very different across the various organisations offering apprenticeships, and it may not be entirely helpful to offer generic information about the use of e-portfolios for assessment since each use would be specific to a particular apprenticeship. For example, video is a very good evidence tool for a digital aerial installer, but would not be suitable for a counsellor as it would breach client confidentiality. The task of examining each apprenticeship in turn and dissecting it standard by standard to determine appropriate forms of electronic evidence would be a very complex piece of work.
- External verifiers need to be aware of the forms of evidence that are acceptable and be supportive of and confident in the use of the technology.
- Specialised skills and software will be required to take the relevant parts of evidence from e-portfolios and quickly and easily present these for internal assessment and external verification. These new processes are likely to require high-speed networks and robust underpinning systems, along with careful consideration of the security concerns of granting external assessors access to what are essentially private networks. The issues regarding business process re-engineering, organisational change management and cultural change indicate that an organisation will need to invest in a number of areas including workforce training before being able to reap the full benefits of e-portfolio use. This can take anything from 12 months to two years or more.



- An e-portfolio is not necessarily one technology and apprenticeships are unlikely to be well served by a single system. There are potentially requirements for more than one space where work can be kept and it is likely that e-portfolios for apprenticeships will have a significant number of additional tools built in. Apprenticeship programmes require e-portfolios both to store evidence against prescribed standards (such as NVQ criteria) and to collect academic materials and evidence of reflective practice. The combination of these uses has not been documented as being implemented in any of the commercial e-portfolio products currently available. Existing commercial offerings may therefore form only part of the solution for apprenticeships. It is likely that a truly successful implementation of e-portfolios for apprenticeships would require the further development and customisation of existing systems to suit individual apprenticeship frameworks.
- Most apprenticeship assessment currently uses paper portfolios and is heavily reliant on worksite visits. Implementing virtual collection methods would change working practices enormously. Job roles change as a result of e-portfolio implementation, with assessors moving from being on the road for perhaps 80 per cent of their time down to 20 per cent of their time once a system is in place. Individuals may choose to leave their jobs as a result of changes of this magnitude. Failure to equip an organisation with the skills required to use new technologies can result in a backlash from staff, with assessors rejecting the use of e-portfolios, and practitioners resisting any future attempts to introduce them as a result of an under-resourced attempt to implement an e-portfolio system.

Despite these problems in the implementation of e-portfolios in apprenticeship programmes, it is generally acknowledged that e-portfolios do help learners develop skills that support their lifelong learning. In particular, e-portfolios have the potential to motivate learners and increase their confidence and self-esteem. E-portfolio systems that start by taking account of the needs of tutors, trainers and learners, and that provide different types of professional development to suit varying requirements appear to be successful across many educational phases (Becta, 2007⁴³). If an e-portfolio system is installed properly and there is appropriate management, the retention and throughput of learners can be dramatically improved as learners experience a shorter time to completion. Improvements can also be made to assessor intervention with a massive reduction in travelling costs and travelling time. Moreover, candidates from a wider geographical area can be recruited as these learners become economically viable as a result of the decreased need for contact assessment.

With the reported release of additional capital funds from the LSC to support the growth of innovative technology in apprenticeship programmes (ALP, 2008⁷), providers should seriously consider relevant technological enhancements to take advantage of these additional funds. In order for learning providers to accommodate the proposed increase in the number of apprenticeships over the next 10–15 years, changes in business processes need to be implemented. One of the proposed changes is to implement and use e-portfolios to increase the capacity of the apprenticeship programme, bringing

benefits to both assessment and verification, and widening the range of evidence apprentices can present.

With these considerations in mind, the time for learning providers to take advantage of technology is definitely at hand. Given that Becta is intending to produce specific information and guidance for e-portfolios in other programmes, it would be useful to take some of the lessons learnt in these areas and apply them to developing specific information and advice for providers of apprenticeships. If appropriate support is available in the areas of selecting, implementing and using e-portfolios for apprenticeships, an increasing number of providers will want to use technology to deliver their apprenticeship programmes.

Disclaimer

Every effort has been made to provide information that is accurate at the time of writing. This report includes information from published works, personal conversations and websites. External links are provided to point readers to additional information and resources. The author does not endorse any external sites, is not responsible for their content and cannot guarantee the accuracy or quality of information on sites to which this report has links with regard to existing e-portfolio products or future development.



Appendix 1

List of Government National Strategy and National Delivery Partners

Association of Colleges National Information and Learning Technology Association (AoC Nilta)

Association of School and College Leaders (ASCL)

Association of Learning Providers (ALP)

Association of Learning Technology (ALT)

British Educational Communications and Technology Agency (Becta)

Centre for Excellence in Leadership (CEL)

Confederation of Children's Services Managers (Confed) – now the Association of Directors of Children's Services (ADCS)

Department for Children, Schools and Families (DCSF)

e-skills UK (a sector skills council)

Futurelab

General Teaching Council for England (GTCE)

Higher Education Academy (HEA)

Higher Education Funding Council for England (HEFCE)

Joint Information Systems Committee (JISC)

JISC regional support centres (JISC RSCs)

Learning and Skills Council (LSC)

Learning and Skills Network (LSN)

Lifelong Learning UK (LLUK) (a sector skills council)

National Association of Advisors for Computers in Education (Naace)

National Association of Head Teachers (NAHT)

National Institute of Adult Continuing Education (Niace)

National College for School Leadership (NCSL)

National Strategies

Office for Standards in Education, Children's Services and Skills (Ofsted)

Partnerships for Schools (Building Schools for the Future)

Qualifications and Curriculum Authority (QCA)

Quality Improvement Agency (QIA)

Regional broadband consortia (RBC)

Specialist Schools and Academies Trust (SSAT)

TechDis

Training and Development Agency for Schools (TDA)

United Kingdom Education and Research Network Association (Ukerna)

University for Industry (Ufi)

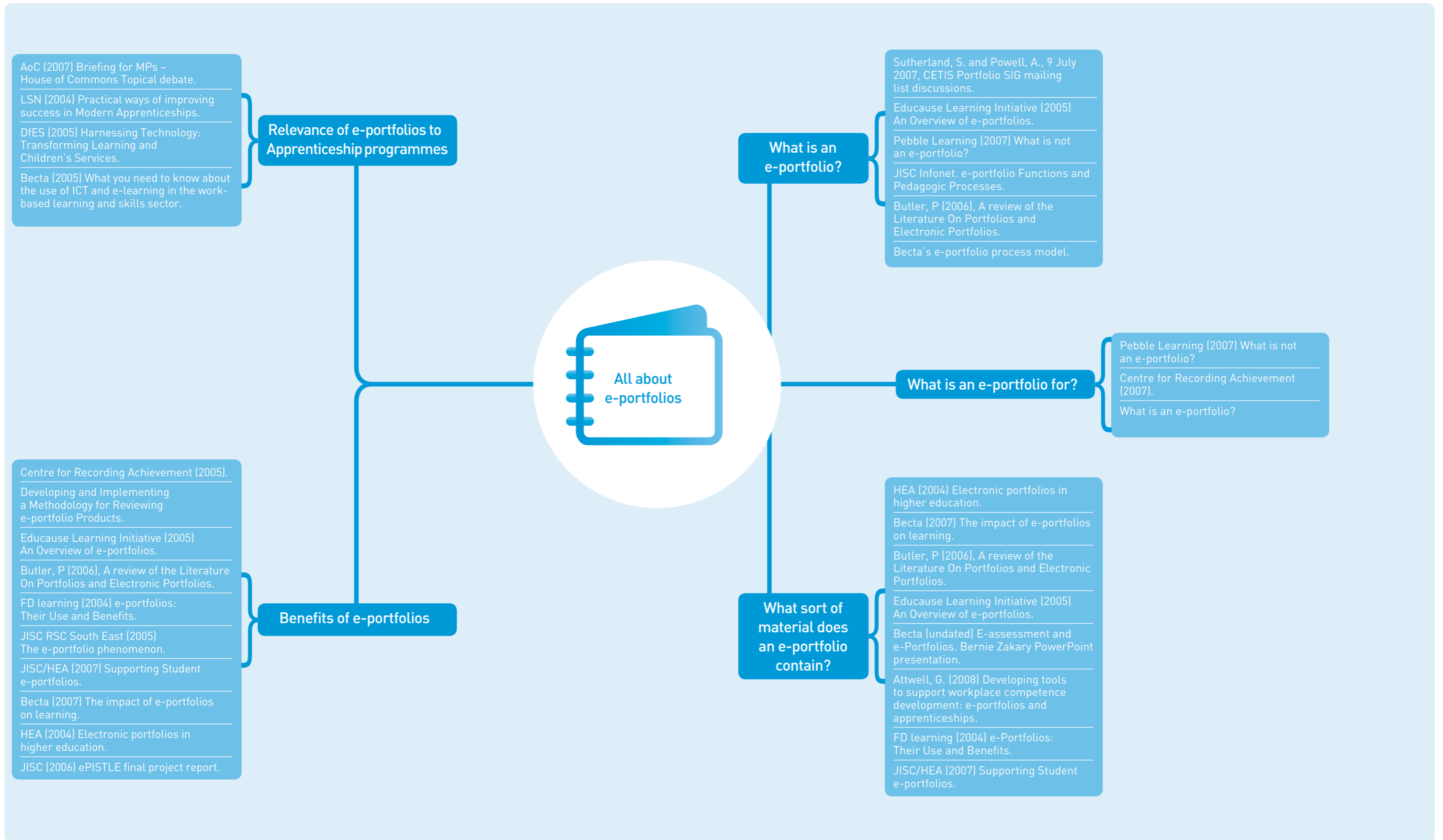
Appendix 2

Example of proposed framework for an apprenticeship in supporting teaching in schools¹¹⁰

Apprenticeship (England)	Advanced Apprenticeship (England)
<p>NVQ: Level 2 NVQ in supporting teaching</p>	<p>NVQ: Level 3 NVQ in supporting teaching</p>
<p>Key skills: Level 1 application of number Level 2 communication Level 1 information technology</p>	<p>Key skills: Level 2 application of number Level 2 communication Level 2 information technology</p>
<p>Technical certificate: As a minimum, the underpinning knowledge for the mandatory units of NVQ at level 2 and, where applicable, aligned with optional units.</p>	<p>Technical certificate: As a minimum, the underpinning knowledge for the mandatory units of the NVQ at level 3 and, where applicable, aligned with optional units.</p>
<p>Employment rights and responsibilities (ERR) As specified in the revised guidelines for ERR developed by TDA. The TDA will require a statement signed by the apprentice, employer and provider as evidence that the ERR component has been successfully completed.</p>	<p>Employment rights and responsibilities (ERR) As specified in the revised guidelines for ERR developed by TDA. The TDA will require a statement signed by the apprentice, employer and provider as evidence that the ERR component has been successfully completed.</p>

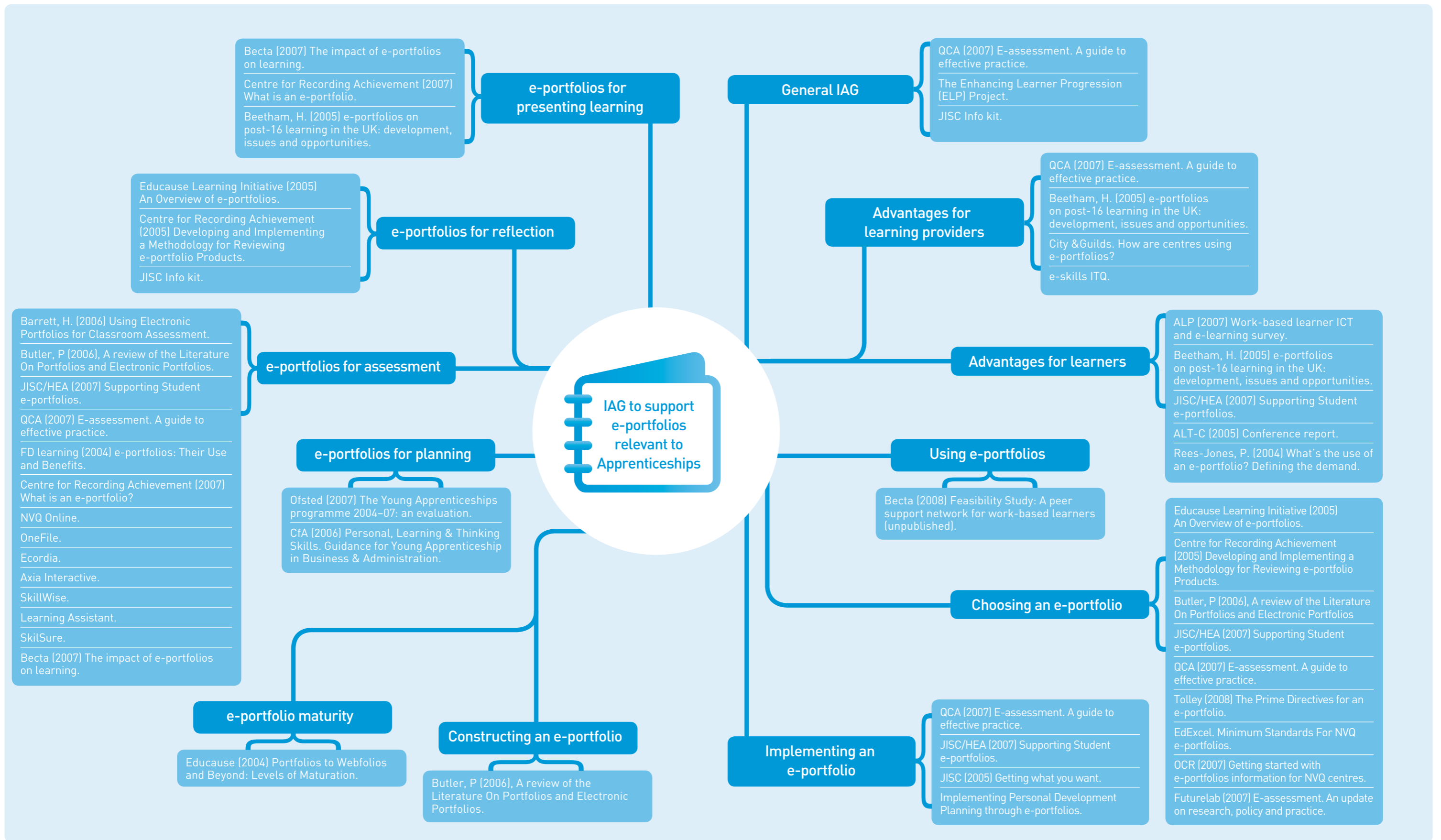
Appendix 3 Mindmap

All about e-Portfolios



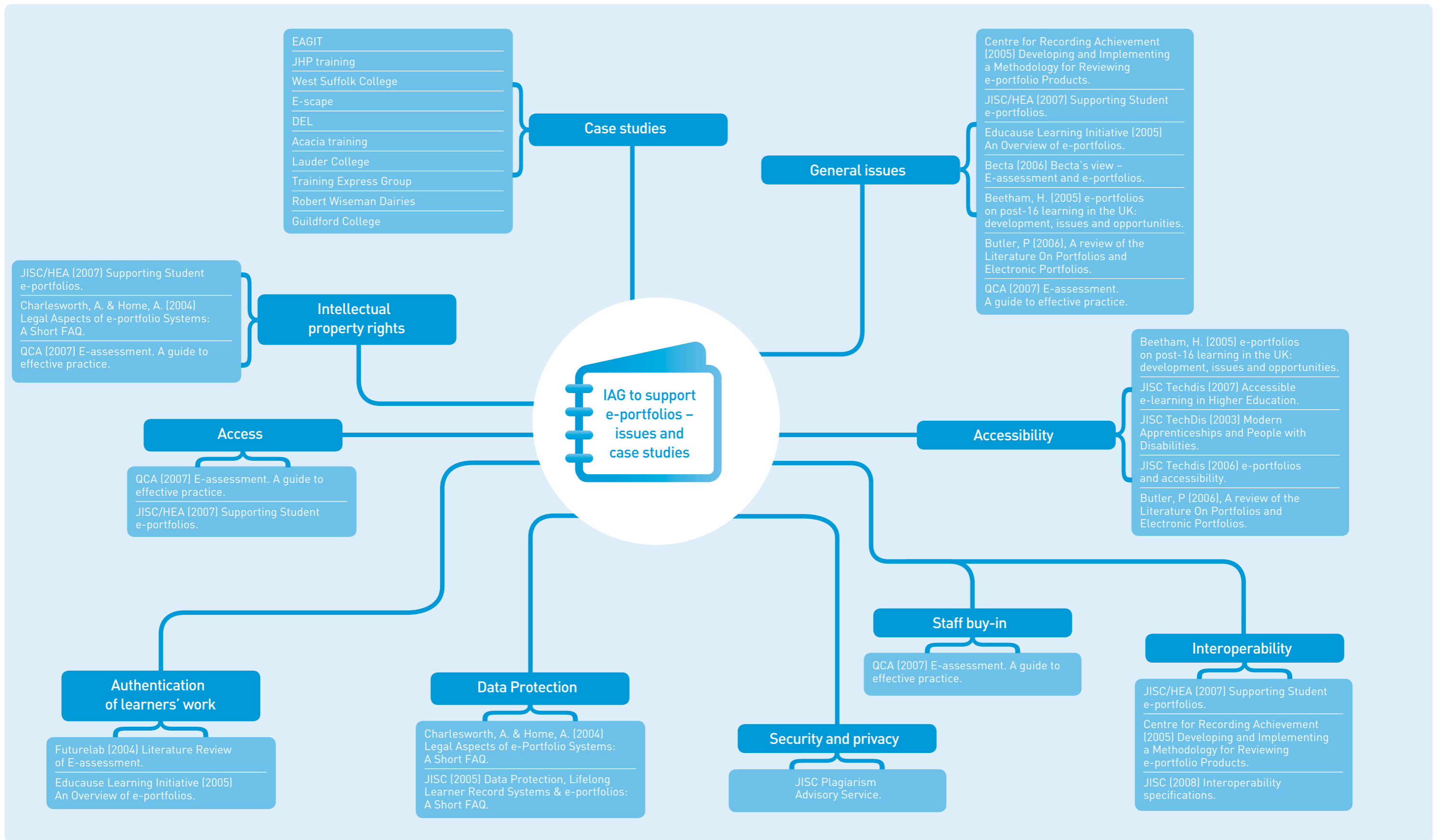
Appendix 4 Mindmap

Information supporting e-portfolios relevant to Apprenticeships



Appendix 5 Mindmap

Information supporting e-portfolios – issues and case studies



Bibliography

- ¹ Becta (2008) *Technology strategy for further education, skills and regeneration. Implementation plan for 2008-2011*. Available at <http://publications.becta.org.uk/download.cfm?resID=36018>
- ² Becta (2008) *Harnessing Technology: Next Generation Learning 2008-14*. Available at <http://publications.becta.org.uk/download.cfm?resID=37348>
- ³ DCSF/DIUS (2008) *World-class Apprenticeships: Unlocking Talent, Building Skills for All*. Available at www.dius.gov.uk/publications/world_class_Apprenticeships.pdf
- ⁴ JISC (2008) *Infokit. e-portfolios*. Available at www.jiscinfonet.ac.uk/infokits/e-portfolios
- ⁵ QCA (2007) *E-assessment. A guide to effective practice*. Available at www.qca.org.uk/qca_13702.aspx
- ⁶ Lord Leitch (2006) *Prosperity for all in the global economy – world class skills*. Available at www.hm-treasury.gov.uk/media/6/4/leitch_finalreport051206.pdf
- ⁷ ALP (2008) *Providers of the Future*. Available at http://alp.qia.oxi.net/files/downloads/Upload_Documents45/ASLP_Summ_spring08.pdf
- ⁸ DCSF (2008) *Raising Expectations: staying in education and training post-16*. Available at www.dcsf.gov.uk/publications/educationandskills/docs/Raising%20Expectations.pdf
- ⁹ DIUS (2007) *World Class Skills: Implementing the Leitch Review of Skills in England*. Available at www.dcsf.gov.uk/skillsstrategy/uploads/documents/World%20Class%20Skills%20FINAL.pdf
- ¹⁰ DCSF/DIUS (2008) *Impact Assessment of Apprenticeships Review Policies including the creation of the National Apprenticeships Service*. Available at www.dcsf.gov.uk/publications/draftApprenticeshipsbill/downloads/ImpactAssessmentDraftApprenticeshipsBill.doc
- ¹¹ LSC (2007) *Our Statement of Priorities*. Available at <http://readingroom.lsc.gov.uk/lsc/National/nat-statementofpriorities-nov07.pdf>
- ¹² DCSF/DIUS (2008) *Raising Expectations: enabling the system to deliver*. Available at www.dcsf.gov.uk/consultations/downloadableDocs/Raising%20Expectations%20pdf.pdf
- ¹³ AoC (2007) Briefing for MPs – House of Commons Topical debate. Available at www.aoc.co.uk/download.cfm?docid=C4D5E6DF-EBF8-4478-84CDC02883FA0E75
- ¹⁴ DCSF (2008) *Promoting achievement, valuing success; a strategy for 14-19 qualifications*. Available at www.dcsf.gov.uk/publications/14-19qualifications/pdfs/14-19Qualifications.pdf
- ¹⁵ DCSF & DIUS (2008) *Draft Apprenticeships Bill*. Available at [www.dfes.gov.uk/consultations/downloadableDocs/7798-DIUS-Apprenticeship%20Bill%20\(2\).pdf](http://www.dfes.gov.uk/consultations/downloadableDocs/7798-DIUS-Apprenticeship%20Bill%20(2).pdf)
- ¹⁶ AoC (2008) *Briefing paper on World Class Apprenticeships: Unlocking Talent, Building Skills for All*. Available at www.aoc.co.uk/download.cfm?docid=1C51526D-55C6-4B0E-99F23160F625A6B3

- ¹⁷ Becta (2006) *Becta's view – E-assessment and e-portfolios*. Available at <http://excellence.qia.org.uk/page.aspx?o=ferl.aclearn.resource.id13337>
- ¹⁸ Becta (2006) *e-portfolios – Technical processes, assumptions and implications*. Available at http://partners.becta.org.uk/index.php?section=pv&catcode=_pv_ep_02&rid=13637
- ¹⁹ FD learning (2004) *e-portfolios: Their Use and Benefits*. Available at www.citizenshipin.eu/wp-content/uploads/2007/12/e-portfolio.pdf
- ²⁰ QCA (2004) *A proposed blueprint for delivering e-assessment*. Available at www.qca.org.uk/libraryAssets/media/6995_blueprint_for_e-assessment.rtf
- ²¹ Barrett, H. (2006) *Using Electronic Portfolios for Classroom Assessment*. Available at <http://electronicportfolios.org/portfolios/ConnectedNewsletter-final.pdf>
- ²² LSC (2007) *Apprenticeships: A Great Idea for Business. Employers' Guide*. Available at http://readingroom.lsc.gov.uk/lsc/NorthEast/Apprenticeships_Employer_Guide_2007.pdf
- ²³ LSC (2005) *Blueprint for Apprenticeships*. Available at www.Apprenticeships.org.uk/NR/rdonlyres/A28D2CFF-725E-4D00-9110-429A77CCA2C6/0/ApprenticeshipBlueprintFinalV215Sep05.pdf
- ²⁴ DCSF (2006) *Raising Expectations: supporting all young people to participate until 18*. Available at www.dcsf.gov.uk/14-19/documents/raising_expectations_supporting_all.pdf
- ²⁵ TDA (2008) *Apprenticeships for supporting teaching and learning in schools: ERR Guidelines*. Available at www.tda.gov.uk/upload/resources/pdf/a/atl_emp_resp_rights.pdf
- ²⁶ LSN (2006) *Apprenticeships: a review of recent policy and practice*. Available at www.lsneducation.org.uk/user/order.aspx?code=062481&src=XOWEB
- ²⁷ DCSF (2007) *Key Stage 4 Engagement Programme*. Available at www.qca.org.uk/14-19/11-16-schools/downloads/14-16_EP_ASDAN.pdf
- ²⁸ DCSF (2008) *Functional Skills FAQ*. Available at www.dcsf.gov.uk/14-19/index.cfm?go=site.home&id=3&pid=225&lid=339&ctype=FAQ&ptype=Single
- ²⁹ QCA (2008) *Functional Skills FAQ*. Available at www.qca.org.uk/qca_19077.aspx
- ³⁰ Parliament publications and records. Available at www.parliament.the-stationery-office.co.uk/pa/cm200607/cmhansrd/cm070509/text/70509w0019.htm
- ³¹ Darlington College. Available at www.darlington.ac.uk/index.asp?id=116
- ³² QCA, *NVQ Portfolios*. Available at www.qca.org.uk/qca_7130.aspx
- ³³ QCA (2006) *A qualification for Apprentices*. Report to the Department for Education and Skills
- ³⁴ CfA. *Pilot project: A Qualification for Apprentices*. Available at www.cfa.uk.com/qualifications/qfa_apps_pilot.html

- ³⁵ Beetham, H. (2005) *e-portfolios on post-16 learning in the UK: development, issues and opportunities*. Available at www.jisc.ac.uk/media/documents/themes/elearning/eportfoliopdf.pdf
- ³⁶ Sutherland, S. and Powell, A., 9 July 2007, CETIS Portfolio SIG mailing list discussions. Available at www.jiscmail.ac.uk/archives/cetis-portfolio.html
- ³⁷ Educause Learning Initiative (2005) *An Overview of e-portfolios*. Available at <http://educause.edu/ir/library/pdf/ELI3001.pdf>
- ³⁸ Pebble Learning (2007) *What is not an e-portfolio?* Available at www.pebblepad.co.uk/pp_website_resources/What_is_not_an_eportfolio.doc
- ³⁹ JISC Infonet. e-portfolio Functions and Pedagogic Processes. Available at www.jiscinfonet.ac.uk/InfoKits/effective-use-of-VLEs/e-portfolios/e-portfolio-models-ped-processes
- ⁴⁰ Butler, P (2006), *A review of the Literature On Portfolios and Electronic Portfolios*. Available at <https://eduforge.org/docman/view.php/142/1101/ePortfolio%20Project%20Research%20Report.pdf>
- ⁴¹ Becta's e-portfolio process model. Available at http://partners.becta.org.uk/index.php?section=pv&catcode=_pv_ep_02&rid=13627&pagenum=1&NextStart=1&print=1
- ⁴² Centre for Recording Achievement (2007) *What is an e-portfolio?* Available at www.recordingachievement.org/downloads/DrafteportfoliobriefingpaperSGRW13.pdf
- ⁴³ Becta (2007) *The impact of e-portfolios on learning*. Available at http://partners.becta.org.uk/upload-dir/downloads/page_documents/research/impact_eportfolios_learning.pdf
- ⁴⁴ Becta (undated) *E-assessment and e-portfolios*. Bernie Zakary PowerPoint presentation. Available at http://excellence.qia.org.uk/media/ferl_and_aclearn/ferl/resources/organisations/becta/ferl/presentations/Enfield%20e-portfolio%20and%20e-ssessment.ppt
- ⁴⁵ Attwell, G. (2005) *Recognising Learning: Educational and pedagogic issues in e-portfolios*.
- ⁴⁶ Attwell, G. (2008) *Developing tools to support workplace competence development: e-portfolios and Apprenticeships*. Available at www.pontydysgu.org/2008/01/developing-tools-to-support-workplace-competence-development-e-portfolios-and-Apprenticeship/
- ⁴⁷ JISC/HEA (2007) *Supporting Student e-portfolios*. Available at www.heacademy.ac.uk/assets/ps/documents/practice_guides/eportfolios_JISC.pdf
- ⁴⁸ Centre for Recording Achievement (2005) *Developing and Implementing a Methodology for Reviewing e-portfolio Products*. Available at www.jisc.ac.uk/media/documents/programmes/buildmlehefe/epfr.pdf
- ⁴⁹ JISC RSC South East (2005) *The ePortfolio phenomenon*. Available at www.rsc-southeast.ac.uk/uploads/1134559738_e-portfolios,_George_Roberts.ppt

⁵⁰ HEA (2004) *Electronic portfolios in higher education*. Available at www.heacademy.ac.uk/assets/York/documents/resources/resourcedatabase/id446_electronic_portfolios.pdf

⁵¹ JISC (2006) *ePISTLE final project report*. Available at www.jisc.ac.uk/media/documents/programmes/distributedelearning/epistlefinalreportJuly2007.doc

⁵² LSN (2004) *Practical ways of improving success in Modern Apprenticeships*. Available at <http://readingroom.lsc.gov.uk/pre2005/learningopportunities/adults/practical-ways-modern-Apprenticeships.pdf>

⁵³ DfES (2005) *Harnessing Technology: Transforming Learning and Children's Services*. Available at www.dcsf.gov.uk/publications/e-strategy/docs/e-strategy.pdf

⁵⁴ Enhancing Learner Progression Project. Available at www.elp.ac.uk/faq.html#Key_questions

⁵⁵ ALP (2007) *The Development of Apprenticeships – Increasing Skills for the Economy – Volumes, Coverage and Completion Rates*. Available at www.learningproviders.org.uk/file/?id=21&type=item

⁵⁶ eNVQ www.envq.co.uk

⁵⁷ City & Guilds. How are centres using e-portfolios? Available at www.cityandguilds.com/cps/rde/xchg/SID-504A6C67-3AE5621B/cgonline/hs.xsl/19389.html

⁵⁸ eSkills ITQ <http://itq.e-skills.com>

⁵⁹ IT West Midlands success stories. Available at www.itqwestmidlands.co.uk/success.asp

⁶⁰ ALP (2007) *Work-based learner ICT and e-learning survey*. Available at http://alp.qia.oxi.net/files/downloads/Upload_Documents45/alp_e-learner_survey_final_report.pdf

⁶¹ ALT-C (2005) *Conference report*. Available at www.jisc.ac.uk/news/stories/2005/09/e_portfolio_news080905.aspx

⁶² Rees-Jones, P. (2004) *What's the use of an e-portfolio? Defining the demand*. Available at www.nottingham.ac.uk/eportfolio/specifyinganepportfolio/keydocuments/presentations/PRJNottingham%2008%2006%2004.ppt

⁶³ Centre for Recording Achievement (2005) *Developing and Implementing a Methodology for Reviewing e-portfolio Products*. Available at www.jisc.ac.uk/media/documents/programmes/buildmlehefe/epfr.pdf

⁶⁴ JISC (2008) *Infokit e-portfolios – technologies*. Available at www.jiscinfonet.ac.uk/infokits/e-portfolios/processes

⁶⁵ Tolley (2008) *The Prime Directives for an e-portfolio*. Available at www.maximise-ict.co.uk/Prime%20Directives-2.pdf

⁶⁶ OCR (2007) *Getting Started With e-portfolios*. Available at www.ocr.org.uk/Data/eassessment/eportfolio_Getting_Started_info_for_NVQ_Centres.pdf

- ⁶⁷ EdExcel. Minimum Standards For NVQ e-portfolios.
Available at www.edexcel.org.uk/Content.aspx?id=300219
- ⁶⁸ Futurelab (2007) *E-assessment. An update on research, policy and practice.*
Available at www.futurelab.org.uk/resources/documents/lit_reviews/Assessment_Review_update.pdf
- ⁶⁹ Centre for Recording Achievement (2006) *e-portfolios –pre 19.* A survey of what is around. Available at www.recordingachievement.org/downloads/e-portfolios_Pre19_Survey_Feb06.pdf
- ⁷⁰ Merritt Associates (2008) personal communication
- ⁷¹ JISC (2005) *Getting what you want: Implementing Personal Development Planning through e-portfolios.* Available at www.jisc.ac.uk/uploaded_documents/Guidance_final.doc
- ⁷² Becta (2008) *Feasibility Study: A peer support network for work based learners.* Unpublished
- ⁷³ Educause (2004) *Portfolios to Webfolios and Beyond: Levels of Maturation.*
Available at <http://net.educause.edu/ir/library/pdf/eqm0423.pdf>
- ⁷⁴ Ofsted (2007) *The Young Apprenticeships programme 2004-07: an evaluation.* Available at www.ofsted.gov.uk/vgn-ext-templating/v/index.jsp?vgnextoid=4e918415e7fc6110VgnVCM1000003507640aRCRD
- ⁷⁵ CfA (2006) *Personal, Learning & Thinking Skills. Guidance for Young Apprenticeship in Business & Administration.* Available at www.cfa.uk.com/ya/downloads/Partner/pers_learn_think_skills.pdf
- ⁷⁶ NVQ Online www.nvqonline.co.uk
- ⁷⁷ OneFile www.onefile.co.uk
- ⁷⁸ Ecordia www.ecordia.co.uk
- ⁷⁹ Axia Interactive www.axiainteractive.net
- ⁸⁰ SkillWise www.skillwise.net
- ⁸¹ Learning Assistant www.learningassistant.com
- ⁸² Skilsure www.skilsure.com
- ⁸³ JISC ePortfolio Infokit – Reflection. Available at www.jiscinfonet.ac.uk/infokits/e-portfolios/processes
- ⁸⁴ AoC (2008) personal communication
- ⁸⁵ ALT/SURF/ILTA (2005) *Spring conference Research Seminar.*
Available at www.jiscinfonet.ac.uk/Resources/external-resources/alt-surf-ilta-spring-conf-2005
- ⁸⁶ JISC TechDis (2003) *Modern Apprenticeships and People with Disabilities.*
Available at www.techdis.ac.uk/resources/files/Theme6.1.pdf

- ⁸⁷ JISC Techdis (2006) *e-portfolios and accessibility*. Available at <http://metadata.cetis.ac.uk/members/accessibility/meetings/2006/sig13/techdispt>
- ⁸⁸ JISC Techdis (2007) *Accessible e-learning in Higher Education*. Available at www.jisc.ac.uk/publications/publications/delaccfinalreport.aspx
- ⁸⁹ The MIAP project. Available at www.miap.gov.uk
- ⁹⁰ JISC (2008) *Interoperability specifications*. Available at www.jiscinfonet.ac.uk/infokits/e-portfolios/interoperability
- ⁹¹ JISC Plagiarism Advisory Service www.jiscpas.ac.uk/index.php
- ⁹² Charlesworth, A. and Home, A. (2004) *Legal Aspects of e-portfolio Systems: A Short FAQ*. Available at www.jisc.ac.uk/uploaded_documents/Legal_Aspects_FAQ.pdf
- ⁹³ JISC (2005) *Data Protection, Lifelong Learner Record Systems & ePortfolios: A Short FAQ*. Available at www.jisc.ac.uk/uploaded_documents/Data_Protection_FAQ.pdf
- ⁹⁴ JISC (2006) *e-portfolios. What institutions really need to know*. Available at www.jisc.ac.uk/uploaded_documents/JISC-BP-ePortfolio-v1-final.pdf
- ⁹⁵ QCA (2005) *Review of e-assessment process models*. Available at www.qca.org.uk/libraryAssets/media/PDF-05-1892_reviewprocessmodels.pdf
- ⁹⁶ Efutures case studies. Available at www.efutures.org/graphics/case_studies.html
- ⁹⁷ Becta (2004) *Research into the use of ICT and e-learning for work based learning in the skills sector*. Available at http://partners.becta.org.uk/upload-dir/downloads/page_documents/research/wbl_biblio.pdf
- ⁹⁸ Becta (2005) *What you need to know about the use of ICT and e-learning in the work based learning and skills sector*. Available at http://foi.becta.org.uk/content_files/corporate/resources/foi/archived_publications/wbl_need_know.pdf
- ⁹⁹ JISC (2006) *Roadmap for e-assessment*. Available at www.jiscinfonet.ac.uk/InfoKits/effective-use-of-VLEs/resources/roadmap-for-eassessment
- ¹⁰⁰ Goldsmiths College, University of London (2005 09) Technology Education Research Unit. Available at <http://www.gold.ac.uk/teru/projectinfo/projecttitle,5882,en.php>
- ¹⁰¹ JISC Childcare e-portfolio case study. Available at www.jisc.ac.uk/whatwedo/programmes/programme_edistributed/regionalstories/filepass.aspx
- ¹⁰² NIACE. ACL e-Learning Exemplars. Available at www.niace.org.uk/exemplars/teaching_and_learning.htm

¹⁰³ Lauder College Case Study.

Available at www.assist-it.org.uk/lauder_college/content/what_portfolio.html

¹⁰⁴ The Training Express Group case study.

Available at www.trainingtheworld.co.uk/view_news.php?NewsID=18

¹⁰⁵ Robert Wiseman Dairies case study.

Available at www1.onefile.co.uk/casestudies.aspx?CaseStudyID=11

¹⁰⁶ Guildford College case study. Available at www.skillwise.net/our_customers/guildford_college

¹⁰⁷ CEL (2007) e-gazing. Further horizons for leaders.

Available at www.centreforexcellence.org.uk/UsersDoc/egazingFurtherHorizons.pdf

¹⁰⁸ Attwell, G. (2005) *Recognising Learning: Educational and pedagogic issues in e-portfolios. Paper produced for Eifel 2005 annual conference.*

Available at <http://eduspaces.net/gattwell/files/486/1465/eportfoliopaper.doc>.

¹⁰⁹ Futurelab (2004) Literature Review of E-assessment.

Available at www.futurelab.org.uk/resources/documents/lit_reviews/Assessment_Review.pdf

¹¹⁰ TDA (2008) Apprenticeships for supporting teaching and learning in schools: proposed mandatory outcomes. Available at www.tda.gov.uk/upload/resources/pdf/a/atl_prop_mand_out.pdf

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