



**An evidence-informed account of how e-portfolio
practice has demonstrated relevance to adult,
employment-based learners**

Literature and Practice Review

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Examples of practice:

 - Claiming experiential learning for academic credit through a paper-based Portfolio 'Professional Development Unit' and 'Learning contracts'.
 - Tailored approaches to supporting employees on Programmes at different levels.
 - Planned e-portfolio practice to support employee learners.
 - 5.3 **A review of technology supported portfolio practice in higher education and on transition to employment.**

Examples of practice:

 - Technology supported portfolio practice supporting trainee doctors and other NHS professionals.
 - Portfolio practice supporting graduate trainees in legal education and in a workplace setting: hybrid support through e- and paper tools.
 - 5.4 **A review of technology supported portfolio practice for employees engaged in higher education level learning**

Examples of practice:

 - Technology supported portfolio practice supporting employee part-time learners in an HE in FE setting
 - Technology supported portfolio practice supporting trainee teachers in an HE in FE setting
 - Technology supported portfolio practice supporting employee part-time learners in a University setting (1), (2)
 - Technology supported portfolio practice supporting employee part-time learners in a University setting in the UK and abroad
 - Some current and earlier JISC projects exploring e-portfolio practice to support work-based learners
 - Employee learners supported by e-portfolio practice through a lifelong learning network
 - Employee learners supported in planning their personal learning pathway through a lifelong learning network web-based information, advice and guidance service

- Technology supported portfolio practice supporting employees studying at The Open University
- Technology supported CPD in a higher education setting
- Technology supporting CPD for membership of a Chartered Institute (1), (2)
- Exploring the use of e-portfolio tools to support CPD for membership of a Chartered Institute

5.5 International perspectives on e-portfolio practice to support work-based learners.

1. Executive summary

1. This review is part of the HEFCE-funded Employer Engagement and Workforce Development Project, being led by the Centre for Recording Achievement. The review remit was to identify instances of existing e-portfolio practice supporting employee and employer engagement in higher level learning, and to provide an evidence informed account of how such e-portfolio practice has demonstrated relevance to adult, employment based learners.
2. The review has two interrelated elements: a literature review and a review of practice.
3. The literature about work-based higher level learning encompasses definitions, principles, models, feasibility studies, theoretical considerations, and a range of practice, but literature about existing e-portfolio practice implemented with the community of work-based learners is sparse.
4. There is a wide range of work-based learning at higher levels in the UK. This may be, but is not invariably, associated with higher education provision.
5. In alignment with sectoral policy, work-based learners engaged with established higher education provision are normally supported by personal development planning /portfolio practice. The practice is sometimes called by another name, such as professional development or learning contract.
6. There is a wide range of e-portfolio practice in higher education developed for use with traditional campus-based learners, and emerging practice associated with cross-institutional or cross-organisational provision, some of which has been developed for use with work-based learners.
7. Technology supported portfolio practice to support the community of work-based learners is at varying stages of development across the sector. In some instances, elements of the practice, such as guidance, or templates to complete, may be provided online. In fewer instances, implementation of personal development planning is supported by technology more comprehensively, as e-portfolio practice.
8. Instances of relevant e-portfolio practice to support workforce development are typically small scale and represent mainly pilot implementations, resourced through project funding.
9. Some Chartered Institutes use technology-supported portfolio practice, or bespoke web facility, for applicants or members to evidence CPD, to support application to, or maintained membership of, the professional body.
10. Current issues identified in implementation of technology to support portfolio practice for employee learners relate to practice being at an early stage, planned or under development; lack of an appropriate model or tool to suit the particular context; or concerns about resources for sustainability, including for staff development.
11. To date, there has been little evaluation of the impact of e-portfolio practice on learners' progress or achievement of intended learning outcomes. Elements of effective practice or relevance of practice to adult, discontinuous learners have

rarely been identified. Instances of evaluation of elements of effective use have indicated critical reflection on learning as a key element, especially where there is a peer collaborative element in the process. Examples articulated of how practice has demonstrated relevance to adult, discontinuous learners are: maintenance of membership of a professional body, peer support in CPD, development of IT skills, building confidence, and self-discovery (e.g. recognition by learners through self-audit of skills, that their skills are wider than those of which they had been previously aware.)

12. Identification of critical reflection as an element of effective e-portfolio practice with adult discontinuous workers aligns with earlier evidence of the benefits on learning of personal development planning processes with various learner communities.
13. Internationally, e-portfolio practice is being used in association with employment, for a range of purposes similar to those encountered in UK practice, including: workplace professional development; presentational purposes to demonstrate evidence of competences or other qualities in the context of transitions, such as in application for employment or re-entry to education, (as distinct from support of workplace learning); and presentational purposes for assessment, through demonstrating evidence of learning and skills.

2. Introduction

The HEFCE has commissioned this review as part of the Employer Engagement and Workforce Development Project, being led by the Centre for Recording Achievement.

The Employer Engagement Project aims to contribute to, encourage and support policy development in the UK higher education sector, to ensure that the continuing learning needs of part time, discontinuous, work-based learners are given full recognition and support alongside more traditional learners, through technology supported portfolio practice. Refining best practice within technology supported portfolio use will enable both employer and employee to engage in higher level learning, reflection and development.

The report brief required the review to identify existing relevant sectoral practice, to research current issues in the use and implementation of e-portfolio and cognate practice for employees and employers, and where available, to provide evaluations of the impact of e-portfolio practice on learning outcomes, with a view to demonstrating how e-portfolio practice has demonstrated relevance to adult, work-based, discontinuous learners.

3. Scope and structure of the review

For the purposes of the practice review, the reviewer sought typically to identify instances of existing practice, which are characterised by:

1. e-portfolio practice supporting employees,
2. who are undertaking part-time higher education level learning,
3. where the learning is work-based, and
4. for which, associated with the work-based learning, either
 - a. there is a tri-partite partnership between the HE provider, relevant employer and employee, or
 - b. the learning is intended to meet both individual and organizational development needs. (The organisation is normally an employer, a voluntary or professional body, or a client, if the learner is self-employed, (Garnett, Workman, Beadsmoore and Bezencenet, 2008)).

The review did not seek to capture information about practice where only some of the above characteristics were represented. Thus it did not seek to identify complementary practice in which:

- i. learners are not employees; (therefore the review did not focus on practice with full-time campus-based or placement or 'sandwich degree' students, including where these are on professional vocational programmes),
- ii. employees are part-time higher education level learners, but there is no associated supporting e-portfolio practice,
- iii. employees are undertaking higher education level learning with e-portfolio support, but without employer engagement,

- iv. technology supported portfolio practice, to support employee part-time higher education level learners, is planned or under development as distinct from being existing practice.

The literature documents many examples of such complementary practice, and an indicative selection are referenced in this review. Additionally, the review inevitably encountered instances of complementary practice during the consultation process, and a few illustrative examples are included.

The literature and practice review is presented from four interconnected perspectives, to illustrate their contributions to evolving e-portfolio practice supporting workplace learning, and to draw these together to reflect current and proposed practice. The perspectives are:

- Policy context
- A Review of work-based learning and workforce development
- A Review of technology supported portfolio practice in higher education and on transition to employment
- A Review of technology supported portfolio practice for employees engaged in higher education level learning.

Additionally, an indicative international perspective is included.

4. Outline of Method

Instances of relevant practice in the UK and elsewhere have been gathered through a combination of literature search, emails and conversations with colleagues in the higher education sector in the UK and internationally, and with members of professional bodies. Consultations have taken place with colleagues in Project partner organisations, Lifelong Learning Networks (LLNs), the National Action Research Network (NARN), the inter/national coalition on research into PDP and e-portfolio, and others in higher and further education with a remit to support work-based higher education level learners.

An invitation to practitioners, to share their experience of e-portfolio practice to support part-time work-based learners, with the practice reviewer, was made in one of two ways: Project University partners were invited at their initial face to face meeting with the project co-ordinator; all other potential contacts were invited through individual email invitations.

In both instances, the reviewer followed up invitations with telephone semi-structured interviews with those who agreed, together with harvesting of accounts they had produced or knew about.

In some instances, a contact replied by email, without a follow-up consultation.

In some instances, an initial contact suggested follow-up consultation with one or more colleagues whom s/he deemed better placed to provide the sort of information sought.

In identifying characteristics of effective relevant practice, the information sought focused on:

- Which Degree(s)/qualification(s)?

- What level? (e.g. foundation, postgraduate)
- How many learners?
- Which Employer(s)?
 - Is there a partnership between the institution and employer(s)?
- What's your experience, e.g. –
 - When did PDP/e-portfolio practice with these learners start?
 - What processes are involved? For what learning outcomes?
 - What have you seen as the impact on learning/attainment/performance? (Any evidence of this?)
 - What elements of practice are most effective? (Any evidence for this?)
 - How has the practice demonstrated relevance to adult, work-based, discontinuous learners?
 - What helps part time work-based students and employers to engage in e-pf practice?
 - What are the issues and/or barriers to engagement?
- What e-portfolio technology/tool do learners use?
- Is there a web resource describing the practice – e.g. a case study? (where?)

Information from the consultation process was collated onto a spreadsheet. Interview and emailed information has generally been presented using the respondent's phrases. Each respondent was sent the extract of the spreadsheet report pertaining to their consultation, to check it for accuracy. Selected instances of relevant and complementary practice from the spreadsheet were used to illustrate the range of practice encountered in the review process. These also were sent to the relevant contributor to be checked for accuracy.

5. Literature and practice review

5.1 Policy context

The remit of the Project 'E-portfolio practice supporting Employer Engagement and Workforce Development' is to *"support policy development for the UKHE sector by ensuring that the learning and support needs of part-time, discontinuous work-based learners are given full recognition alongside more traditional learners"* through technology supported portfolio practice.

The Project will therefore build on and complement practice and policy developed over many years, which align with successive governments' agenda for a more highly skilled employable workforce.

Ward and Richardson have explored much of the policy context connecting into e-portfolio practice in relation to workforce development in two recent reports. Their report to the HEFCE (Ward and Richardson, 2007a) concerned the role of personalised learning plans in LLNs to engage and re-engage vocational learners in higher education level learning, and the potential role of technology supported tools to support that practice. Their report to Becta (Ward and Richardson, 2007b) concerned e-portfolio developments to support the 14 – 19 Diploma, which has the potential to connect into e-portfolio practice in higher level learning. The report highlighted three interrelated policy drivers – personalisation of learning and development, emphasis upon a holistic approach to individuals and their development, and competitiveness, upskilling and

success in the global marketplace, - which align closely with social inclusion and economic performance,

During the 1980s and '90s, a key priority of government policy was the reform of higher education (HE) to make it more responsive to the needs of the changing economy, so as to maintain international competitiveness. An important role was considered to be that of developing a workforce with vocationally relevant higher level skills. The 1987 White Paper set out the case for widening access to a more vocationally orientated HE, and this has been a major influence in setting the agenda of reforms and developments over the past two decades (Department of Education and Science DES, 1987). There was increasing emphasis on a closer relationship between education and work, bringing together learning opportunities in the workplace and in higher education, and through initiatives such as the government-funded Enterprise in Higher Education initiative (EHE, 1988-96), on preparing students more effectively for the world of work. EHE encouraged the development of review, reflection, recording and planning within higher education, as part of a drive to help learners be more aware of the higher level skills being developed and their potential role in employability.

At the same time, there was pressure on employers to explore and invest more in learning opportunities for employees. The concept of a 'learning society' as one which 'invests in knowledge' was emphasised by both a European Commission White Paper (European Commission, 1995, cited by Gallacher & Reeve, 2000), and, in the UK, through the National Committee of Inquiry into Higher Education, also known as the Dearing Report (NCIHE, 1997). Both affirmed the need to establish closer links between education and the world of work and for learning opportunities to continue throughout a person's working life – as a framework for lifelong learning.

More recently, the Leitch Review of Skills (DfES, 2006) has re-emphasised the need for the workforce to demonstrate higher level skills, commensurate with higher education level learning and skills development.

This is important in the context of placing the UK in a competitive position with respect to global economies, to realise the ambitions of the European Union objective, adopted in the Treaty of Lisbon (2000), which sets out a vision and strategy for making the European Union the most competitive and dynamic knowledge-based economy in the world. The Agenda has three pillars: economic, social and environmental. Workforce upskilling, with improved competencies to enhance employability, is central to the economic pillar of the strategy, which envisages full employment by 2010. The importance of e-portfolio practice in this context is that it can make a significant contribution to demonstrating evidence of skills and competencies, which in itself may facilitate mobility of employability.

An additional potential role of e-portfolio and cognate practice, including personal development planning (PDP), is in the context of facilitating retention. The National Audit Office (NAO, 2007) reported that retention is much lower among part-time than among full-time learners studying for a first degree (BSc, BA). Effective e-portfolio practice has been reported to help retention, by providing opportunities for non-traditional learners to 'keep in touch' with one another through their learning journeys (JISC Infonet, 2008b, 2008c).

In the Academic Infrastructure¹ Codes of Practice and Guidance, the QAA makes no distinction between provision for full-time and part-time learners. For example, there is an expectation that opportunities for provision including personal development planning should be available to all students.

In reviewing provision of FDs from 2002-2005, the QAA identified a number of areas "where further supported development from policymakers and other major stakeholders can help to strengthen and help to assure quality and standards of FDs." Crucially, these included as two key priorities: the further promotion of Foundation Degrees to students and employers and the increased involvement of employers (see: QAA, 2005, 'Implications for other stakeholders').

HEFCE has been developing policies and strategy on flexible, lifelong and workplace learning since publication of the Government's first skills strategy (DfES, 2003).

In its strategy for employer engagement, HEFCE (2006) set out its developing approach to supporting HE to engage more effectively with employers, to provide the higher level skills needed by employers, learners, the economy and society, through a two stage process. The first stage has been to establish the current baseline of involvement, and, primarily through pilot activity, has aimed "*to test how HEFCE, with its partners, can enhance employer investment and involvement in HE in the longer term*", and the second stage aims "*to foster the creation of a shared strategy between HEFCE, our partners and the HE sector*".

The HEFCE Strategic Plan 2006-11 (updated 2008) sets out a commitment to strengthening the links between the HE sector and employers, as well as promoting opportunities for workplace, work-based and flexible routes which enable lifelong learning. In it, HEFCE sets a target for the proportion of HE institutions reporting high levels of employer engagement to increase to 80 per cent by 2009, and the number of employer co-funded learners to increase to 20,000 by 2010/11 (HEFCE, 2008).

Connecting to this Project, Paragraph 75 of the Strategic Plan refers to the goal to help universities and colleges to use new technology to enhance learning and teaching as effectively as they can, so that it becomes a normal part of their activities, and the intention to continue to encourage innovation by implementing the HEFCE strategy to support e-learning. (HEFCE, 2005)

HEFCE notes that employer engagement presents opportunities for HE to widen participation by offering coherent and connected learning routes at all levels from level 3 to postgraduate, particularly through enhancing links to 14 – 19 'Specialised Diplomas and progression for vocational and work-based learners into and through HE (a key remit of LLNs). However there is also a recognition that more needs to be done to support sector-wide approaches to shared curriculum and programme development, so that prospective employee students at level 3 can progress to higher HE learning levels.

They note that employer engagement funding contributions to undergraduate programmes are mainstream in the teaching, healthcare and social care sectors, in

¹ The Academic Infrastructure provides key reference points that HEIs use, with other reference points, to guide their policies for maintaining academic standards and quality.

which the employers are large public sector organisations, but that in other sectors, employer funding of HE is minor.

E-portfolio practice aligns with the anticipated advantages to learners and employers of the proposed new academic attainment record Higher Education Achievement Report (HEAR), recommended by the Burgess Group (UniversitiesUK, 2007), and being piloted² (since October, 2008) by eighteen higher education institutions (HEIs), drawn from across the sector. The HEAR has the potential to describe achievement more completely and to provide a wider range of information, that may be more useful to students and to potential employers than the current Honours degree classification system³. As well as documenting achievement in formal examinations, it may contain information on a learner's qualities relating to project work, presentations, group work, dissertations, extracurricular activities, volunteering, work experience and professional recognition. As an electronic record, information can be added to the HEAR as a student progresses through their course. The HEAR thus has features associated previously with the HE Progress File (NCIHE, 1997), and with e-portfolio and e-PDP systems, which are already used widely across the sector (Strivens, 2006).

The HEAR pilots are using data for learners who graduated in 2008 in English, Creative Arts, Biology, and Accountancy. This will allow the Centre for Recording Achievement, the Higher Education Academy, and the Joint Information Systems Committee to explore the development of student record systems, software requirements, and the provision of information.

5.2 A Review of Work-based learning and workforce development

The literature about work-based learning in the context of higher education spans more than a decade and encompasses definitions, principles, models, feasibility studies, theoretical considerations, and a range of practice.

Several recent reviews and studies have provided comprehensive accounts of the literature of work-based learning, but these have not been concerned with the potential role of e-portfolio practice or tools to facilitate workforce development. This literature and practice review builds on those reports by considering also the emerging literature and evidence of e-portfolio practice to facilitate workforce development and employer engagement.

The Higher Education Academy has recently published a set of three reports in the area of work-based learning, available online and in print (Higher Education Academy, 2008a, 2008b, 2008c). The HE Academy online introduction to these indicates that *“Two of these are the synthesised reports of case studies commissioned to: explore the experience of employees and their employers engaged in work-based learning, and the impact that this learning has for them; and to develop a costing model for work-based learning and to apply it to compare costs between work-based and campus-based provision. The third captures a year’s discussion of a self-identified group of ten higher education institutions for whom workforce development provision is a priority activity. The focus of the work of the group has been to engage in a pedagogic discourse that will consolidate excellent practice, and also lead to an articulation of the principles and*

² Supported by the Higher Education Academy.

³ A Foundation Degree Exemplar has also been produced.

nature of that practice in such a way as to support other institutions that wish to develop similar provision.”

Within these, individual accounts give examples of a range of work-based learning practices, to illustrate contexts, frameworks, principles and models.

Tallantyre (2008) sets out the context of workforce development, and discusses implications for employers, employees and higher education. Garnett, Workman, Beadsmoore and Bezencenet (op cit) consider structural factors (including instruments, policies, regulations, procedures, codes, culture, networks and practices) that enable and facilitate work-based learning. They illustrate diversity in the range of provision through case studies of established practice at two universities. In discussing implications for staff development, to realise the transformational change to the traditional models of delivery in higher education required to support and enable employers to meet their organisational objectives, Eyres, Hooker and Pringle (2008) draw on experience of practice at four universities in England, and one in Australia.

Walsh (2008) discusses principles and describes models of work-based learning, pointing to different implications of learner-centred or employer driven practice. Walsh points out that an academic credit framework in the UK for work-based learning, has been in existence since 1986, when the CNAA [Council for National Academic Awards] established a Credit Accumulation and Transfer Registry, and explains the situation before then: *‘Before that, work-based learning for academic credit in higher education was off limits, beyond thought even’* (Evans, 1993, p.175, cited in Walsh, 2008). Taking up the theme of frameworks for accreditation of work-based learning, Graham, Helyer and Workman (2008) consider principles and models of accreditation, drawing on exemplars of practice at three universities. Willis (2008) discusses how an explicit work-based learning framework can offer more flexibility for curricula than a standard framework structure.

In the context of creating and managing partnerships, Banim and Evans, (2008) provide examples of practice of one university with both public and private sector employers, whilst Payne, Addicott and Saunders, (2008), discuss the scope for partnerships with the voluntary sector, evidenced through a collaborative feasibility study between seven HEIs in Wales.

In discussing assessment models and arrangements, Irving (2008) mentions e-portfolios, referring to the potential benefit of ‘personal and professional development processes, such as e-portfolios’ for initial assessment purposes. However, no examples of practice are cited.

As part of the work for the CBI, HEFCE and Universities UK (UUK) project on encouraging workforce development through employer-higher education partnership, two CBI reports (CBI, 2008a, 2008b) have covered - respectively – a review of recent research in the area of work force development, and thirteen in-depth case studies, where there is an effective collaborative partnership between a HE and commercial organisation. Neither the literature review nor case studies have commented on the implementation or role of personal development planning, or portfolio practice to support workforce development. This potential additional aspect of those collaborative partnerships would merit further exploration.

The CBI literature review considers: 1) reasons why universities and businesses might work together to enhance the skills of the workforce, from perspectives of employer (improving performance, drawing on expertise in a particular sector, convenience of location for the company's workforce and where business-university links have been established, suitability of HE qualification), employee (potential to achieve a qualification), HE (diversifying learner markets); 2) the nature and scale of the current activity, identifying which types of higher education institutions are engaged (predominantly post-1992 in Foundation degree provision, and pre-1992 in postgraduate provision) and noting that organisations with over 250 employees are significantly more likely to engage with universities to address the learning and development needs of their workforce; 3) how HE institutions and businesses have responded to the higher level skills and workforce development agenda to draw out the characteristics of effective engagement and practice; 4) issues, challenges and sensitivities that have to be overcome for businesses and universities to work effectively together in addressing higher level skills needs in the workforce, including competing pressures, implications of cost and resources, lack of senior management commitment, lack of understanding about the value and impact of learning and development; 5) potential benefits, noting that many employees and employers feel that the HE programmes of study had met or even exceeded their expectations, whereas there is little evidence available on the benefits and impact that HE institutions have gained in building partnerships with employers to address the higher level skills needs.

Through their experience of practice, the thirteen in-depth case studies suggest practical ways in which employers, universities and Government can help to improve partnerships and programmes. The twelve key issues identified for effective workforce development partnerships were:

“Action by universities to generate demand for higher level skills having the right infrastructure to respond to employers; the right people to deliver the programmes; streamlining the processes involved in accreditation; better mutual understanding – between universities and employers and between teaching staff and potential participants; agreement on objectives and measures of success for programmes; recognising both the employer and learners as clients in different ways; building wider support for employer engagement within universities and recognition of the value of skill enhancement within businesses; adapting teaching style to the learners; delivering programmes in ways that suit employers and participants; considering what happens after the programme finishes; and working out the funding mix.”

Recently, as part of its work relating to employer engagement and workforce development from a range of perspectives, the HEFCE has commissioned a programme of twenty-six pilot transformation projects, which combine two related goals. These are, firstly, in partnership with employers, the design and delivery of HE courses which focus on employer needs, and secondly, to increase the number of learners in the workplace supported by their employers. Information about each pilot project is available at <http://www.hefce.ac.uk/econsoc/employer/projects/>. At least one project will pilot technology supported e-portfolio practice. This will be based on use of web2.0 tools.

Kingston University KUBIS Project (Kingston University Building Interaction with small and medium-sized enterprises (SMEs)) will provide flexible work-based learning

opportunities, for employees who have little formal education and who work in the manufacturing sector, for a range of qualifications from Foundation to Masters level, e.g. the FD in Business Process Development, tailored for SMEs. Learners will use ELGG to create work-based learning communities of practice in their programme and sector. Although individual learners may be in niche sectors, with very few others in the UK in the same sector, such as a sash window manufacturer, the online communities have the potential to become global, and to share good practice with others in the same sector world-wide. One project aim is that SMEs might learn best practice from non-competitors, through sharing either with the same sector at a distance, or with other sectors nearby. Learners will also develop 70 per cent of their own curriculum in the workplace through a negotiated e-learning contract. Staff-created learning resources will be hosted on the Drupal OS content management platform, for the distance e-learning course provision, which will be flexible as to time, place and content (Thomas, C, personal communication).

As part of the South West Higher Skills project, managed by HERDA South West with funding from HEFCE, Bolden and Petrov (2008) have compiled a comprehensive review of literature and research pertaining to the agenda of the Leitch Report (Department for Education and Skills, 2006), in encouraging higher education institutions to engage more effectively with employers in the delivery of higher level skills. Their account includes seven key themes: higher skills context, market, systems, culture, promotion, pedagogy, and leadership and management. Within each section, key research findings are considered in relation to employers, HEIs, policy makers, skills brokers and learners. Their key conclusions highlight issues encountered and some approaches to address these.

The authors draw a number of conclusions. In particular they point to the risk, that *“alongside the anticipated benefits from closer engagement between universities and employers, as these add to, and compete with, existing demands on universities, there may be unanticipated and undesired outcomes for more traditional provision of the higher education landscape, consequent to the substantial cultural and structural changes required.”* They provide the following statements to support this view:

“The vast majority of university systems lack the flexibility demanded by more employer responsive provision”.

“There is a mismatch between Employers’ reasons for investing in higher skills (strategic and operational reasons) and learners’ reasons (normally qualifications for career progression and personal development) which needs to be recognised and addressed.” (This is the key point made in the paper by Lyons and Young (2008), who provide supporting evidence from learners themselves).

Bolden and Petrov point out also that *“Government support is largely in the form of subsidy (for employers and HEIs) and the provision of brokerage services. For this provision to be expanded, it requires a more formalised and scalable model of engagement than that based on personal relationships that has been the basis of effective practice up to now”.* They note that *“the extent to which this is possible without compromising the quality of relationships and provision is, as yet, unproven”.*

In particular, they note that *“the need to collaborate with employers and other organisations in the design, delivery and assessment of learning may erode traditional*

academic autonomy” and that “Increasingly, HEIs may find themselves moving from being the principal providers of HE to assuming a quality assurance, coordination and accreditation role”.

They consider that *“there is a risk of fragmentation of the sector as pressures on universities to excel in different aspects of teaching, learning and research expand.”*

They conclude: *“The literature reviewed in this report reveals that there are no easy answers or quick fixes to the issues of employer engagement and higher skills development. Whilst the benefits and opportunities are many, so too are the risks and challenges. In presenting a summary of perspectives it is hoped that this report will help sensitise the reader to important concerns and considerations so that they are better able to judge what may or may not be appropriate within a given situation”*

Hardacre and Schneider (2007) reviewed the literature on work-based learning, as part of the Skills for Health project, which aimed to investigate new ways of work-based learning and how these may be more effectively recognised and valued. Although the study pertained particularly to health care settings, the report documents broader generic findings concerning work-based learning, including the four main characteristics of work-based learning specified by Dewar et al (2003)⁴, a range of models of work-based learning (citing Sangster et al., 2001, and the University of Lancashire), relevance of models to skills enhancement, and application of National Occupational Standards to demonstrate competence-based learning and assessment of that learning. Their list of processes and tools identified as supporting work-based learning include PDP, negotiated learning contracts, and individual learning plans. They also identified factors which help to make work-based learning successful, including synergy between personal goals and workplace goals and engaging in critical review and feedback.

Leitch (DfES, 2006) has focused on ‘training’ and ‘value to the employer and economy’ aspects, whereas higher education traditionally emphasises learner-centredness. Lyons and Young (2008) point to this difference in emphasis, and to the narrow vision of the Leitch agenda with its focus on skills required by employers to do the job, as distinct from analytical and research skills and developing theories, which are more appropriate to higher education and to lifelong and lifewide learning. They found that employees’ reasons for undertaking study in a Learning at Work Programme, which is managed by a negotiated Learning Contract, were primarily for their personal aspirations, including to enhance academic qualifications and for career progression, although most learners believed their employers or companies would also benefit, through development of new skills in the workforce.

⁴ 1) a tripartite relationship between employing organisation, education institution and student; 2) employer and educational institution both contribute to the student’s learning process; 3) work activities and professional roles are the starting point of work-based learning, and structured learning is relevant to workplace activities; 4) work-based learning recognises and accredits the process as well as the product (outcome) of the learning, encouraging the student to reflect on, and articulate, what they have learned ‘along the way’. It provides a structure to support student autonomy: the student is responsible for identifying learning needs, and for planning how they will be met; academic and workplace tutors facilitate learning.

The HEFCE (2006, 2008) refers to the need for flexible provision for workforce development. The wider literature also identifies a requirement for “curricula that are flexible and tailored to an individual learner’s needs through negotiation between the learner, employer and provider” as an important feature of workforce higher level learning. Lester (2008) notes that “*Negotiated work-based learning (NWBL) can include learning that is for work and takes place at work, but its main feature is that it centres on learning through work - active and reflective engagement with work activities that produces academically valid and practically useful personal and professional development*”. In addition to definitions of levels and a useful explanation of negotiated workforce learning, his paper provides illustrative scenarios of how learners may engage in a range of higher level learning.

Aligning with this, the University of Bedfordshire focus is “*how is the learning drawn out of the workplace?*” Their approach is that “*in the workforce, people are undertaking activities, and the question is ‘what are you learning through those, if you looked at them analytically?’*” They emphasise the coherent linkage between recognition of prior learning, processes that inform work place practice, and e-portfolio processes, in a cyclical loop (practice review communication).

Graham, Helyer and Workman (2008) focus on accreditation processes as the basis of flexible curricula. They describe and provide examples of accreditation models, leading to agreed amounts and levels of credit. These include: mapping or credit equivalence (of in-company training programmes against a set of learning outcomes in existing university provision), accreditation of prior experiential or prior certificated learning (claimed by a learner, through submitting a portfolio of evidence); short tailored university based courses which give academic credit for continuing professional development through a learner submitting a portfolio of evidence of their learning and experience on the course, and hybrid approaches where a company delivers a programme on its premises, overseen and quality assured by university academic staff (assessed by reports and presentations).

The practice review identified a range of provision in which employees are undertaking work-based learning, for which there is a tri-partite agreement between the learner, higher education institute (HEI) and Employer.

In alignment with sectoral policy, the review found that almost all work-based learning practice reviewed, included structured activities cognate with personal development planning processes or portfolio practice. The practice was sometimes called by another name, such as professional development, or negotiated learning contract. However, there were few instances of technology supported portfolio practice. In some instances, e-portfolio practice was planned or under development, or elements of the practice, such as guidance, or templates to complete, were provided online. Elsewhere, technology supported practice was not currently planned for various reasons. Reasons included that learners preferred a paper format portfolio, or that an appropriate model or tool had not been identified.

Practice at the University of Middlesex Institute of Work-based Learning, The University of Portsmouth Foundation Direct CETL, and the University of Bedfordshire provide examples of personal development planning practice within work-based learning curricula. Key elements of the practices are summarised below.

Claiming experiential learning for academic credit through a paper-based Portfolio

At **Middlesex University, Institute for Work Based Learning (IWBL)**, all registered learners are full time workers and part time learners. The institute has worked with many employers, including public sector employers such as the Police, NHS Trusts, Driving Agency, and Training and Development Agency for Schools (TDA), as well as private enterprise, both large corporations and small businesses, whilst learners range from individuals working in the public sector to those leading large corporations, small businesses or self employed.

The Institute offers work-based learning at every level of higher education, including accreditation of a company's in-house programmes, through HE Certificates, Diplomas, Foundation Degrees, First Degrees (BA, BSc), Post Graduate Certificates & Diplomas (PGCert, PGDip), Masters Degrees (MA, MSc, MProf) to Research Degrees (MProf, DProf).

Using University guidance individuals build their own portfolio to claim experiential learning for academic credit. The portfolio is paper based, and evidence is varied including certificates from a variety of training events, and products from their achievements.

Currently there are no plans to transfer to electronic portfolio tools, partly because there has been some resistance to this, and also the Institute has not yet found a model that works for them on every level. Space and time are both issues for these learners, who are described as '*mature learners, not an e-generation, and many are not comfortable with these tools*'. Space is an issue because, to include certificates in their portfolio, they would have to be scanned in, and scanned documents have large e-space requirements which requires additional university support. Time is an issue, because scanning documents takes time and specialist resources, and learners question this, when they have the physical certificates in their hands.

Some learners produce an electronic portfolio of their own accord particularly in Arts and Design, whose students are using online social spaces to build conceptual portfolios and a community of practitioners.

Research on the accreditation process has shown that students benefit from the recognition of their achievements and experience a significant boost in their personal and professional confidence, although they do find it challenging. For those learners who respond positively to this mode of learning their critical thinking and reflective capabilities are developed and consequently enable them to make a considerable contribution to their workplaces.

An indication of the range of tailored degrees and their impact on learners and their organisations is available from <http://www.mdx.ac.uk/wbl/casestudy.asp>

‘Professional Development Unit’ and ‘Learning contracts’: tailored approaches to supporting employees on Programmes at different levels

The University of Portsmouth has well-established Foundation Degree (FD) Programmes, and is the home of Foundation Direct, the only CETL with a remit exclusively focusing on learning provision for Foundation degree students. Currently there are about 600 FD students, all of whom are in full time employment, and are part time learners. Employers include the NHS, the Royal Navy, the Police, education and business and management organisations.

The University has developed tailored support for foundation degree students through its Professional Development Unit (PDU) (Christie & Holford, 2006). The professional development unit emphasises interaction, collaboration, the development of reflection and active learning, with the aim of developing students within online communities of professional practice (Lyons & Buckley, 2009). Further information is at: <http://fd.port.ac.uk/EY1/introduction/homepage.html>

The Professional Development Unit (PDU) provides PDP- cognate practice in several Foundation degrees as a strand running through the degree. In year 1, there are three areas of assessment: Benchmark statement, Developing a community of practice, Progress Review. The reviews help students, their mentors and tutors to track each learner’s development. The documents form the basis of the Professional Development Portfolio for year 1. Further PDUs are provided throughout the degree providing a (CPD) record to take into future professional life.

Students are also encouraged to find a workplace mentor who will also support them in their practice by acting as a critical friend in their reflection and thinking about personal and professional development.

Coursework assessment takes a variety of different forms including case studies, reflective reports, essays, presentations and group work.

In the Partnership Programme, through which bachelors and masters degrees are awarded, both reflection and planning are essential. Practice includes developing negotiated learning contracts, reviewing and reflection. The learning contract is predicated on the basis of reflective production of an APEL claim, by the learner, as to ‘what I have learned already that is relevant to this goal’, and planning ‘what units do I need to study to achieve what I want to do?’ The learner/learning is supported by an academic tutor, and a workplace mentor.

The review has also encountered complementary practice in some Foundation Degrees, in which there may be elements of ‘learning in the workplace’, and in which learners may be studying on a full-time basis. In these instances, learners are more likely to be on ‘placements’ leading to ‘work-integrated’ learning, as distinct from being employees. Among institutions which have contributed information to the study, the review has found that there is rarely an office or individual with a remit for overview of awards for, and programmes studied by, work-based learners. There is also some variation in what provision is understood to be included within ‘work-based learning’, or ‘workforce learning’. Asked about programmes of study available to work-based part-time learners, some interviews have focused on Foundation degrees, even though some of these may be studied on a full-time basis, with either work placements or simulated work place learning.

For example, the University of Bedfordshire provides a raft of Foundation degrees, and many students registered on these are described as full-time ‘eighteen to nineteen year olds’ studying at the university.

Planned e-portfolio practice to support employee learners

The University of Bedfordshire has well-established PDP models (see for example, Atlay, 2006), and traditionally has used a paper-based portfolio tool to support learners' recording claims and evidence. The University is piloting and rolling out an e-portfolio tool (PebblePad) over the current academic year.

The University is conducting an audit to explore aspects of existing work-based learning practice across the university. Early responses to the audit (n=22 as at 18/12/08) have indicated that 59% respondent programme leaders have had conversations with employers about either the employer's PDP or employer's in-house CPD schemes, and 9% have had talks in connection with linking the University's PDP or portfolio system with an employer's CPD one. 41% respondents were using a paper portfolio tool, 4.5% were using the University online tool and 18% respondents were developing an e-portfolio using the University's e-portfolio tool. However, further exploration revealed that probably none of the disciplines that have responded to date have learners who are already part of the full-time workforce.

However, the University does have further planned practice to support workforce part-time learners from May 2009. It is anticipated that twenty learners will be enrolled on 'travel' programmes of study. The University will be working with a large travel company, TUI UK and Ireland plc, and will be using a purpose-built version of Mahara to support learners on this degree. The University also plans to offer, later in the year, a degree in 'Leisure Management', working in partnership with Woburn Estates Ltd and others. Learners on this degree will use the University e-portfolio tool, PebblePad, to record their learning, and thus link the University's PDP/e-portfolio with their PDP, work-based learning and company CPD practices. Further information is available from: <http://www.beds.ac.uk/courses/award/foundation> and <http://www.fdtom.ac.uk>.

Looking further to the future, additional work-based learner projects are being developed to link with local authority (LA) workforce learners' CPD and with their professional body. The University is hoping to link LA workforce learners in with higher level awards 'from MBA downwards'.

Accounts of PDP or cognate practice supporting work-based learners in higher education level learning have included reviews centred on lifelong learning networks (LLNs) and Foundation degrees (see, for example, Strivens, 2009). Shortly after inception of the lifelong learning networks (LLNs), Ward and Richardson (2007a) reviewed practice and processes associated with personalised learning plans (PLPs) in supporting vocational learners into and through higher education, and explored with LLNs how they were using PLP processes and tools (either paper or online) to support those learners. Personalised learning plan practice was found to include key elements in common with PDP, CPD and e-portfolio practice, such as demonstrating evidence of planning, recording, reviewing and documenting progress. This congruence was emphasised in the review of practice, in which LLNs identified the main purpose of PLP practice as *"helping learners to become more independent and autonomous (learners), particularly through goal setting and critical reflection"*. Moreover, elements associated with effective use were identified as *"support that encouraged learners' critical reflective thinking, motivation and confidence building, through validating and celebrating existing achievement and action planning, and tutor involvement in these processes"*. Perhaps most importantly in the current context, PLP practice was considered to support not only the initial engagement of learners, but also their re-engagement with learning. At that time, online PDP/portfolio provision for this community was relatively underdeveloped, as just five LLN partners reported using any online provision to support PLP processes.

Of the reports referenced in this section, only the final report was concerned with whether and how technology was being used to support portfolio practice with employee learners. Following sections of this review focus on the e-portfolio practice dimension of support for workforce development.

5.3 A Review of Technology supported portfolio practice in higher education and on transition to employment in professional disciplines

There is a wide range of e-portfolio practice in higher education developed for use at individual institutions with traditional campus-based learners. There is also emerging practice associated with cross-institutional or cross-organisational provision, some of which has been developed for use with learners going on work placements, or for use with work-based (employee) part-time learners.

The primary purpose of e-portfolio practice in UK higher education, as evidenced in the recent survey undertaken on behalf of the Higher Education Academy (Strivens, 2006), is regarded as supporting the implementation of Personal Development Planning (PDP). In some disciplines, particularly those leading to vocational and professional qualifications, portfolio based practice and recording is used also to evidence learning, for purposes of monitoring, assessment or accreditation of learning towards a qualification or continuing professional development (CPD), including for re-validation purposes.

The literature on e-portfolio practice in higher education documents developments from a range of perspectives.

Grant, Rees Jones & Ward (2004) explored relationships between personal development planning and e-portfolio practice and systems. Reports of online personal development planning and e-portfolio practice have provided accounts of technical developments, systems and tools, for a range of UK sectors, including higher education (Richardson and Ward, 2005), post-16 education (Beetham, 2006), 14 – 19 education (Ward and Richardson, 2007b), or from an international perspective (Cambridge, 2004).

Recent accounts have focused increasingly on practice or on learners' experiences of online PDP, e-portfolio or cognate practice and systems or tools.

For example, the JISC Infonet (2008c) case studies of practice include a range of perceived institutional and learner centred benefits of e-portfolio implementation, whilst the JISC publication 'In their own words' draws together a selection of learners' experiences of e-learning, (JISC, 2008b), including learning from the JISC ePistle Project (e-Portfolios Informing and Supporting Teaching, Learning and Evaluation), which highlighted four key points for effective embedding of e-portfolio practice into the curriculum. These were: ensuring systems are fully embedded before use by learners and practitioners, establishing an understanding of the value of engaging in lifelong learning, supporting practitioners in developing new models of practice, and developing learners' confidence in secure transfer of data between institutions. A more detailed account of the ePistle project is at:

<http://www.jisc.ac.uk/whatwedo/programmes/edistributed/regionalstories/epistle.aspx>.

The JISC has funded a range of projects, which have developed, piloted or implemented e-portfolio tools or practice with a focus on supporting lifelong and lifewide learning,

cross-institutional provision, application to employment or education, or widening participation. As well as developing and piloting e-portfolio implementation to support traditional campus-based learners on conventional progression routes into higher education, the projects have explored and developed approaches to support for students on work placements and for non-traditional learners, including work-based part-time learners on vocational progression pathways.

The JISC MLEs4LL programme (2002- 2005) supported ten multi-institutional projects across a range of sectors and organisations to support learning and progression, through the development of both management/ business-centred and learner-centred 'fit for purpose' systems. This was to enable a joined-up approach to lifelong learning records, including those to support PDP and e-portfolio processes, to more effectively support the sharing of learner information between organisations and across transitions. Published programme outputs (JISC, 2006a) include a series of briefing papers on e-portfolios, cross-institutional provision, and lifetime learning across the educational landscape (JISC, 2006b, 2006c, 2006d respectively), together with a pictorial representation of how interoperation between tools and systems used within individual organisations might work in practice to support lifelong learning in study and work environments (JISC, 2006e).

'Effective Practice with e-Portfolios' (JISC, 2008a) and JISC Infonet e-portfolios Infokit case studies (JISC Infonet, 2008a), summarise the learning from recently completed projects. Each Infonet case study also includes sections on: background, technology used, success factors, and further resources.

Exemplar case studies relating to work-based learners are in section 5.4. The table below indicates three cross-institutional and lifelong learning projects, two where the focus was on supporting learners undertaking work placements, and one which aimed to support learners from any educational background. The information is based on the JISC project websites indicated.

<p>HELPP - Higher education learning portfolio for placements (led by Hull College) http://www.jisc.ac.uk/whatwedo/programmes/elearningcapital/heinfe/help.asp The aim of the project was to take a developmental approach to addressing the pedagogical issues around communications between students, employers and tutors when undertaking a work placement. It was anticipated that by using e-portfolios, students would make use of a variety of media to articulate their placement experiences, rather than concentrating on written work.</p>
<p>REMORA (led by Thames Valley University) http://www.jisc.ac.uk/whatwedo/programmes/elearningcapital/xinsti2/remora.aspx The aim of this project was to explore the use of mobile devices in supporting social work students and mentors when students undertake their placements. As with many other professions, the training of social workers requires students to be placed in social work settings and to undergo assessment in the workplace. Currently the social work professional bodies indicate there is a lack of e-learning support for all stakeholders involved in the placement assessment process. .</p>
<p>EELLS – East of England Lifelong Support Project (led by the University of Hertfordshire) http://www.jiscinfonet.ac.uk/case-studies/e-portfolios/hertfordshire The project explored the issues and benefits of setting up a regional portal based e-portfolio service for lifelong learners. The aim was to give learners in the East of England, from any educational background, access to a range of e-portfolio and other services that operate independently of institutional systems, using software developed by Phosphorix for the SHELL</p>

Project in the earlier MLEs4LL Programme. The EELLS e-portfolio practice was supported by five tools available from the menu-driven learner portal. Typically, an EELLS generated e-portfolio might consist of a personal archive containing personal information, records of achievement and artefacts of evidence, transcript-type data supplied from official institutional transcripts, information on the people and organisations to which the owner has granted access, and a presentational CV. However, the EELLS Project found that '*not many part-time students took part and no full-time work learners were involved*'. (Source: EELLS case study, JISC Infonet, 2008a).

The DeL eTools Projects, phases I and II, of the Distributed e-learning programme (DeL⁵), included Subject Centre based e-portfolio Projects, which aimed to develop subject community e-portfolio practice to support lifelong learning. Links to these projects are available from the e-portfolios key documents section of the CRA pages at:

<http://www.recordingachievement.org/downloads/Distributede-learninge-portfolio....pdf>.

ESCalate (Education Subject Centre Advancing Learning and Teaching) is a key example of a study of e-portfolio models, practice and learner evaluations, mainly in education but also comparatively, across professional disciplines (available at <http://escalate.ac.uk/eportfolios>).

Subject community publications include the proceedings of a Conference organised by the Higher Education Academy Subject Centre for Medicine, Dentistry and Veterinary Medicine, focusing on e-portfolios, identity and personalised learning in healthcare education (Higher Education Academy, 2008d), and a guide to e-portfolios and case studies of practice by the Subject Centre for Legal Education (UKCLE, 2008).

Some recent initiatives have piloted e-portfolio support across transitions to employment in professional disciplines, including Medicine and Law, for full-time traditional learners becoming workplace graduate trainees.

An example of each follows:

Technology supported portfolio practice supporting trainee doctors and other NHS professionals

NHS Education for Scotland (NES) began piloting an e-portfolio tool in 2005, and has been using it since with a range of health professionals. There are currently around 20 versions of the software, being used by about 35,000 users. Most users are trainee doctors in either Foundation (FY1) or speciality training year, who may be working in hospitals/NHS Trusts anywhere in the UK. The FY1 doctors are NHS employees, but also continue under the care of the University for the two years training programme, managed by the Postgraduate Dean. Other groups using the e-portfolio include trainee dentists in Scotland (5 groups currently, the most recent being those at the Glasgow Dental School, where it was launched in Autumn 2008) and qualified pharmacists using the e-portfolio as part of CPD provided by NES.

In spring 2009, NES will be launching their first version for nurses, in a joint pilot project with NES, the University of Dundee, the University of the West of Scotland and Robert Gordon University.

Discussions are underway with undergraduate and CPD providers around the transfer of material to and from the NES system to enable learners' portfolios to follow them throughout their careers.

Early and on-going evaluation has been used to improve functionality on a regular basis. The

⁵ "The HEFCE funded Distributed e-Learning Programme (DeL), 2004-6"
<http://www.jisc.ac.uk/whatwedo/programmes/edistributed.aspx>

NES team has taken on board a number of technological improvements identified by the pilot. The initial e-portfolio tool was created largely to provide for assessment, but the product has been steadily diversifying to support reflective practice, professional tools and to deliver e-learning. There have been some small scale evaluations of the work to date, but the first substantial evaluation is currently being completed.

Elements of effective use include: automated collation and analysis of assessment (saving considerable resource); an effective messaging system, including automated reminders for users; early flagging of poor performance; and a more versatile transferable format.

This description is based partly on a short case study available at: <http://www.ukcle.ac.uk/newsevents/lilac/2007/papers/eportfolios.html>.

More general information about the NES ePortfolio is at www.nhseportfolios.org.

Portfolio practice supporting graduate trainees in legal education and in a workplace setting: hybrid support through e- and paper tools

The UK Centre for Legal Education (UKCLE) at Warwick has been developing e-portfolio practice to support students and graduate trainees, through the '[Using e-portfolios in legal education](#)' project, which gives advice for [students](#), [staff](#) and [employers](#) on using e-portfolios. One of their published case studies is of particular relevance to this HEFCE practice review. It describes how one law firm, allowed its graduate trainees to continue to use elements of an e-portfolio tool, PebblePad, that they had used in their undergraduate courses at the Glasgow Graduate School of Law at the University of Strathclyde (GGSL), to record and present their CPD for the firm's three-monthly review process. They are calling this approach 'portfolio-lite', as in the workplace this is a paper, instead of an electronic, format.

The post-graduate learners had used PebblePad (alongside the GGSL bespoke VLE), during the Graduate Diploma in Legal Practice course (the post-degree course for solicitors in Scotland). They were introduced to PebblePad through a general introduction to portfolios and a system tools demonstration. They took part in exercises aimed at aiding reflection, at relevant intervals during their study. These included a skills self-assessment, an exercise identifying the skills of a good lawyer, completing an individual personal statement, followed by a one to one meeting with the tutor, a critical incident report, and a final one-to-one meeting with their tutor. The final e-portfolio, in the form of a webfolio linked to other assets, was assessed.

The graduate trainees work for Law Firms which range in size from small practices to large global companies.

Employers have raised concerns over client confidentiality and commercial sensitivity, if employees (in this instance, graduate trainees) are allowed to use an e-portfolio tool for CPD in the work place. Alternative CPD models are explored in the case study (GGSL, 2008).

The regulatory body, Law Society of Scotland, are undertaking a review of legal education training at all levels from undergraduate to CPD. It is understood that it is anticipated as 'very likely' that the review will recommend that implementation of e-portfolio tools will be a recommended route to qualification, and will explore ways that may be implemented in the future. This might have potential benefits for accessibility to courses for para-legal employees with wide experience, but without a formal law degree.

Part of this information is available as a case study by Karen Barton (GGSL, 2008), published in association with The UK Centre for Legal Education [UKCLE], as part of UKCLE's 'Using e-portfolios in legal education' project, which also includes advice on using e-portfolios from a range of stakeholder perspectives (UKCLE, 2008). UKCLE is the Subject Centre for Law.

5.4 A Review of Technology supported portfolio practice for employees engaged in higher education level learning

Technology supported portfolio practice to support work-based learners, engaged in higher level learning, is at varying stages of development across the sector. In some instances, elements of the practice, such as guidance, or templates to complete, may be provided online. In other instances, implementation of personal development planning or continuing professional development is supported by technology more comprehensively, as e-portfolio practice, allowing learners to upload and manage their information.

Instances of relevant e-portfolio practice identified are typically small scale and mainly represent pilot implementations, resourced through project funding. Some of the pilot implementations are current or previous JISC projects.

This relative underdevelopment is perhaps surprising in view of the fact that it is well over two decades since introduction in the UK of a framework allowing experience in work-based learning to contribute to academic credit, (Evans, 1993, cited by Walsh, 2008, p10), and many such academic awards are well established.

Other than JISC case studies and reports, there appears to be little literature which describes e-portfolio practice to support employees engaged in part-time higher level learning, or explores its outcomes. The paucity of relevant literature may be because the practice itself is relatively recent, so has not yet been reported. This possibility is supported by the repeated finding during practice review consultations, that interviewees rarely knew of instances of web information about the practice available to point others to (e.g. event presentations, case studies).

The practice review found that elements of effective practice or relevance of practice to adult, discontinuous learners have rarely been identified. Where this has occurred, instances of evaluation of elements of effective use have generally indicated the use of critical reflection on learning as a key element, especially where there is a peer collaborative element in the process.

There are even fewer instances of evaluation which show how practice has demonstrated relevance to adult, discontinuous learners. This may be partly because such practice itself is relatively sparse, so there is little to be evaluated, or because it is relatively recent, so may not yet have been evaluated, or a combination of these factors.

Examples articulated of how practice has demonstrated relevance to adult, discontinuous learners are maintenance of membership of a professional body, peer support in CPD, development of IT skills, building confidence, and self-discovery.

For example, a group of Dosimetrists began to realise the broader range of skills they possessed beyond the complex, but in their own view, 'narrow' occupational skills required for their day to day work. The process and outcomes of (collaborative) critical reflection might therefore be said to be examples of how e-portfolio practice had demonstrated relevance to adult, discontinuous learners. This is unsurprising in view of the established view and documented evidence of the positive impact of personal

development planning (of which reflection is a key element) on learning⁶ (Gough, Kiwan, Sutcliffe, Simpson, and Houghton, 2003).

Illustrative instances of practice reviewed and included are:

- Technology supported portfolio practice supporting employee part-time learners in an HE in FE setting
- Technology supported portfolio practice supporting trainee teachers in an HE in FE setting
- Technology supported portfolio practice supporting employee part-time learners in a University setting (1), (2)
- Technology supported portfolio practice supporting employee part-time learners in a University setting in the UK and abroad
- Some current and earlier JISC projects exploring e-portfolio practice to support work-based learners
- Employee learners supported by e-portfolio practice through a lifelong learning network
- Employee learners supported in planning their personal learning pathway through a lifelong learning network web-based information, advice and guidance service
- Technology supported portfolio practice supporting employees studying at The Open University
- Technology supported CPD in a higher education setting
- Technology supporting CPD for membership of a Chartered Institute (1), (2)
- Exploring the use of e-portfolio tools to support CPD for membership of a Chartered Institute.

⁶ The review questions were “What empirical research has been undertaken on the use of PDP in higher and related education?” and “What evidence is there that processes that connect reflection, recording, planning and action improve student learning?”

The JISC SpaceFD Project is an example of one which has focused on implementing e-portfolio technology to support employee part time higher level learners, in an FE setting. Aspects of the practice and outcomes are described below.

Technology supported portfolio practice supporting employee part-time learners in an HE in FE setting

Bradford College provides HE in an FE setting. They are a partner institution in the Yorkshire and Humber East LLN, and the lead College, with three college partners, in the JISC SpaceFD Project (Supporting personalised and collaborative e-Learning in foundation degrees <http://www.jisc.ac.uk/whatwedo/programmes/elearningcapital/heinfe/spacefd.aspx>).

All students are employees, and part-time learners. Qualifications include a range of levels. For example, the FD in Metallurgy and materials, with optional top up to B.Eng. caters for about 60 students per cohort, with an age range 22 - 66. Learners have to add at least 60 credits of new learning to obtain their FD. The FD provision is in conjunction with Leeds Metropolitan University.

The College uses two e-portfolio type tools to support learners in different ways. Learners use ELGG for a range of purposes through various activities: e.g. to reflect on their study as well as on learning outside work or curriculum, to develop learning contracts, to develop peer support communities and to upload assessment results ('decisions'). ELGG provides opportunities not only to support learners on their course, but also for continuing lifelong learning. Moodle is used for institutional purposes, such as making assessment decisions, which learners can access to upload into their ELGG e-portfolio.

Ninety percent of learners' employers are SMEs. The large corporate employers include Body Cote Materials Testing, and BAE systems.

As well as students using Moodle and ELGG, the College is encouraging employers to be involved via ELGG in the assessment of work-based learning. As one of the 11 outcomes of the SpaceFD project they are setting up an industrial support group in ELGG. They will be piloting this for a qualification in 'Casting' (which is outside Space FD Project), so that potential employers and employees in casting can set up a dialogue between them around 'how they can support the learner'. This aspect is being developed now, and anticipated to be 'live' very soon. A similar pilot is planned in Metallurgy in 2009.

Features of the e-portfolio practice associated with effective use, include:

1. Separate tools for institutional and learner purposes, but a seamless experience between the tools.
2. Learners understanding the expectation that it is their responsibility to build communities of practice.
3. Learners having choices as to whether to 'invite' staff to view/ collaborate/ contribute to their portfolio.
4. The 'human' element: face to face meetings with employer partners initially has aided understanding of contexts and led to building a firm foundation for collaboration.

Technology supported portfolio practice supporting trainee teachers in an HE in FE setting

Another example of effective practice is at Telford College of Arts and Technology, where trainee teachers, who are employed by a range of employers including the Local Authority are working towards the Post Compulsory Certificate in Education (PCCE) Award. There are normally around 40 trainee teachers in each cohort, and 43 in this current academic year. The trainee teachers are working in a range of Lifelong Learning contexts including FE colleges, prisons, work-based learning, and private training providers. Some of the trainee teachers teach students who are themselves employed in a range of vocational areas eg management and computer studies.

The College has never had an institutional VLE, and over the past 4 years has been implementing PebblePad as an Institutional e-portfolio tool, which is used as an integral part of the (Post Compulsory Certificate of Education) PCCE course.

PebblePad use started within teacher training to support reflective practice, capturing thought processes as teachers reflect on their development with tutors and peers. As well as using Pebblepad as a reflective tool, trainee teachers are also using the e-portfolio as a Webquest to enable a blended learning approach. Within the CTLLS (Certificate in Teaching in the Lifelong Learning Sector), learners are required to research into an area of teaching/learning. The webquest offers a complete and discrete electronic package to support the research including linked sources for research and documents used to present findings. To ensure that effective communication is maintained between students tutors, learners use a blog (another tool within Pebblepad) to notify of useful resources and seek guidance from tutor and peers. Monitoring the blog enables tutors to check learner activity and identify any emerging issues or problems.

An added dimension is that students whom the trainee teachers are teaching are also starting to use PebblePad to support their reflective learning within Health and Social Care and Childcare. At present approximately 50 learners, whose teachers were introduced to e-portfolio on PCCE, are using the technology, and this number is growing as the cascade process continues. For example students studying Health and Social Care Foundation Degree are sending monthly reflections on their practice to peers and their tutor. The reflective cycle continues as students are encouraged to reflect further when peer and tutor responses are received.

Feedback from trainee teachers identifies a major benefit in the immediacy of supportive response to reflections, especially when new teachers have had a particularly challenging experience. The College recognises the benefits of self-direction and increase in learner autonomy.

The Telford College PCCE course was a partner in the JISC ePistle Project, for which a case study referring to Telford College practice is available at <http://www.jisc.ac.uk/whatwedo/programmes/edistributed/regionalstories/epistle.aspx>

Illustrative examples of existing relevant practice with a range of learner communities in other settings are outlined below.

Technology supported portfolio practice supporting employee part-time learners in a University setting (1)

At the University of Northumbria, work-based learners may take the Professional Practice Award at various levels from entry level 3 to pg level 7, including options for a sub-degree award, FDs, and individual modules. Approximately 450 employees/work-based learners will be registered in the current year for HE programmes. Of these, 17 are supported by e-portfolio practice across 2 employer organisations, a local NHS Trust and North Tyneside LA.

Each Employer is working in partnership with the University. The Employer identifies its Organisation's need against its own targets for competences requirements. Each learner identifies their current level of skills and knowledge against the Employer requirements, and the 'learning gap' between the two as the basis for their individual learning curriculum.

Example 1: Radiographer dosimetrists are employed by a local NHS Trust Regional Medical Physics Department. Seven (2008) Radiographer Dosimetrists have designed a bespoke e-portfolio tool to record and reflect upon their CPD for organisational, professional and academic recognition.

Learners cross map their skills and knowledge to three different sets of stakeholder requirements, and provide examples of their skills learning and knowledge based against those criteria, and demonstrate evidence for their claims. They also undertake various reflective exercises which they present with the evidence.

Dosimetrists use a MS Excel spreadsheet as a bespoke online CPD tool, which is populated with 3 sets of criteria, which meet requirements of 3 stakeholder requirements: i) NHS Trust Knowledge and Skills Framework, ii) University CPD module towards Professional Practice Award, iii) their employer's in house CPD. Learners use the 'red flag' comment boxes to insert their evidence, e.g. a dose planning regime for a brain tumour composed of a cross sectional brain image with measurement, together with process of calculations to determine medication dosage, demonstrating the individuals competence in this area.

Reflective practice has been seen to be a key element in the practice. Learners reported they hadn't appreciated the 'wider than just scientific procedural practice', more generic practices they had developed in their dosimetrist practice, such as innovative work, team work, and leading staff development events. They report that they have begun to internalise their CPD, and to record it as part of their daily routine, rather than doing it because it's a requirement of their employment.

Example 2: ICT school teachers are developing themselves through (North Tyneside) LA-run programme for IT teachers to develop ICT curriculum in schools.

The IT teachers use the LA intranet (which is used for pupils' lesson plans etc), to demonstrate their work with children in the classroom, through, e.g. videos, children's pictures, cartoons etc, to demonstrate types of online learning and pedagogy that they have used with children to develop an IT infrastructure for their school. The teachers' reflective practice is evidenced through a viva voce assessment situation, which is also videod. At the time of the viva assessment, the online tool is 'closed', and their IT development pedagogy etc put together with their viva video on a CD-ROM.

The extent to which the members of the set used documented reflection varied considerably. The University could chart this against the ontogeny of each person. The younger members of the set were recently qualified. They had been trained to reflect upon the outcome of their teaching, but not to problematise their own actions with a view to evolving and generating theory and principles that would be of use to them in their professional lives. This also was discussed by all the members. One member who had considerable experience as a trainer took this opportunity to reflect on the purpose and appropriateness of the electronic format and had problematised this for future consideration. The more recently qualified teachers only completed the journal in retrospect and, only when they had seen examples, considered how they may personally have used them. The University training unit has identified this as a skill to address in their curriculum for professional development.

Example 3: Some learners are undertaking training of teachers in post 16 education. They are using the PebblePad 'Reflect' tool. Further information about this group or outcomes of using the tool is not currently available.

Technology supported portfolio practice supporting employee part-time learners in a University setting (2)

At the **University of Kent**, Centre for Work and Learning, Division of Dentistry, ten mature students in a range of dental care employments, such as dental hygienists, dental assistants and peripatetic dental care advisers in schools, are studying towards the BSc degree in Primary Dental Care. The degree emphasises principles supporting whole team dentistry, including

leadership and inter-professional and collaborative working, to enhance the quality of patient care.

Students come in to the University about once a month over a weekend for face to face, interactive teaching (e.g. seminars, tutorials, peer-led discussions). Each year of the degree combines this contact teaching (minimum 120 hours) with 1080 hours learning through work, personal reflection and self study.

The work based learning element involves study based on the student's role within the Primary Dental Care (PDC) workplace. Learners assess the nature of their contribution within the workplace using personal journals and professional peer group discussions. They use the webfolio tool within PebblePad to make reflective journal entries on a regular basis. In this, their first year, they select and submit two of these for feedback and assessment. The College has created proformas within the e-portfolio tool, with professional standards to work towards. Learners also use e-portfolios (together with assignments) to provide evidence of acquisition of module learning outcomes, based on learning and investigation within their work based setting, underpinned with theory.

The degree and its embedded use of e-portfolio practice started in September 2008. Early feedback from the mature students is, that now they are familiar with using the software, they are concentrating on improving their reflective writing. Thus, an important part of the learning from initial experience with the practice has been around building expertise in the Division of Dentistry on how to teach reflective writing in an effective way. The Curriculum Development team and the Curriculum Convenor for Dentistry have worked closely to facilitate this.

Further information about the course is at:

<http://www.kent.ac.uk/studying/undergrad/subjects/dentistry.html>, and more specifically about the mode of study at: <http://www.kent.ac.uk/studying/pdfs/dentistry.pdf>

Technology supported portfolio practice supporting employee part-time learners in a University setting in the UK and abroad

At the University of Wolverhampton, part time learners in full-time employment are registered on a Foundation Degree in Travel, through a partnership with TUI travel company. . Employees learn in the workplace across the world, such as on cruise ships.

PebblePad is tailored to the particular requirements of this group of learners, by being populated with relevant industry competency requirements for (self-) audit.

PebblePad is a learner-centred tool that may be used for a wide range of PDP activities, such as reflective blogs, uploading digital files to evidence competency or other requirements, collaborative learning. The tool is web-based and therefore available for the learners' use wherever they are in the world, provided they have an internet connection.

The University is aiming for more effective employer engagement, with employers taking a more active role in supporting the e-portfolio practice by collaborating with learners through the tool.

Some current and earlier JISC projects exploring e-portfolio practice to support work-based learners are tabulated below.

ComPort – a comparative study of e-Portfolio implementation in work-based learning (led by Gateshead College). In one strand of the project, at the School of Teaching and Learning Development, Gateshead College, approximately 50 trainee teachers on the PGCE/Cert Ed Programme are using ePet tool for a range of practice, including as a reflective tool for: a 'learning autobiography' (blog), Professional Development file, log of teaching hours, tutorial records and personal action planning. Trainee teachers are encouraged to use the tool to learn

<p>collaboratively, through sharing their e-portfolio with other learners. In the workplace, the trainee teachers are working in a range of vocational occupations, (such as hairdressing, building, plumbing), and they are teaching apprentices in those occupations. In a focus group discussion, learners' feedback, on benefits to them of using an e-portfolio tool, have been enthusiastic. Elements of effective use, benefits and relevance that they identified included: 'helping to develop computer skills and confidence with that' (even to the extent that a learner who had '<i>hardly known how to switch a computer on</i>' had now '<i>mentored another learner in IT skills</i>'); using the reflective tool - '<i>seeing how far I have come</i>'; reassurance from tutor feedback of progress in their learning; and '<i>linking to other learners</i>' and the sense of confidence gained through shared collaborative learning. The project website is at http://comport.gateshead.ac.uk/comport.</p>
<p>UsPaCe (led by University of Plymouth) is a regional, cross-institutional, collaborative project that is exploring the application of suitable Web 2.0 technologies to support: Foundation Degree (FdSc, FdA) and HNC learners engaged in work-based learning; learners progressing from Foundation Degree to the final year of an Honours degree; and WBL mentors. They are using various web 2.0 tools, to develop the UsPaCe activity space including: iGoogle and Del.icio.us to collect, notate and share useful web pages, ELGG as a social networking platform with eportfolio capabilities, to provide e-portfolio space and blogging facilities to allow employers and tutors to comment, enhance and feedback on e-portfolios, Mediawiki to create webpages and edit them collaboratively, and interface them with ELGG to provide community workspace. http://www.jisc.ac.uk/whatwedo/programmes/elearningcapital/xinstit2/uspace.aspx</p>
<p>WoLF (led by Leicester College) explored the use of pocket pcs to support e-portfolio practice by teaching assistants on FD courses. The project included development of a model for integrating institutional VLEs and personal mobile devices for the purpose of supporting learning in work-based settings. http://www.jisc.ac.uk/whatwedo/programmes/elearningcapital/heinfe/wolf.aspx</p>
<p>E.W.E – e-portfolios for work based environments (led by Loughborough College) The project is developing and piloting an e-portfolio model for use with adults engaged in learning in the workplace, who require flexible access to Higher Education and flexible delivery which supports progression within the context of lifelong learning. The college has over 400 management trainees in Luminar Leisure Industries who are working in diverse geographical locations throughout the country. The College had developed an online administration system to enable staff in managing training events, online assignment submission and marking, and the project aimed to develop this further and integrate it into an e-portfolio model. http://www.jisc.ac.uk/whatwedo/programmes/elearningcapital/xinstit2/ewe.aspx</p>
<p>PROSPERO - Processes for Support of Personal Development Records Online (led by QMC, London) developed online PDP support for mature, workforce learners (employed by BT) who were studying part-time, for a degree in computer sciences, with the Online and Distance Learning Unit (ODL) at QMC (Somerville, Smith and, Lodge, 2005). Exploring the current status of the provision developed at that time has indicated that nineteen full-time BT employees are currently studying a part-time degree (BSc Computer Sciences). However, the PROSPERO online PDP provision is no longer operative: "<i>with changes in the offering that QMC was able to make, BT became less interested in funding HE</i>". The contract between QMC and BT is anticipated to remain effective only until graduation of those learners who are currently registered on the degree. The learners use JIVE software discussion forum to support collaborative learning through communication with one another, with students on the full-time course and with lecturers.</p>

On potentially larger scales of implementation, lifelong learning networks have developed or are developing e-portfolio practice to support work-based learners' progression on vocational pathways into and through higher education. In some instances, the LLN implementations are building on the practice and using technology developed through former JISC projects.

For example, MOVE, the LLN for the East of England is currently funded to promote progression to Higher Education through vocational routes in three employment sectors: Creative and Cultural Industries, Health and Social Care, Sustainable Built Environment and Land-based Industries. MOVE works with 11 HEIs and 34 FECs, and with Sector Skills Councils and employers within the East of England.

MOVE is using an e-portfolio service developed through the SHELL Project (MLEs4LL Programme) and EELLS project (e-learning capital programme). MOVE e-portfolio practice aims to help learners to reflect on their life experiences and achievements and to more effectively plan and develop their future. Practice includes planning future learning, documenting existing knowledge, skills, and abilities, tracking personal and educational development, evaluating personal performance and contacting potential employers. For example, posting a CV on the MOVE e-portfolio gives access to all MOVE registered employers. Further information is at:

http://www.move.ac.uk/index.php?option=com_content&task=view&id=24&Itemid=35.

Lifelong learning networks have a central role in supporting entry and re-entry of discontinuous vocational learners into higher education. Reed and Sowden (2008) have mapped development status of a range of e-systems, including use of e-portfolio tools, across all thirty LLNs. This indicated that, at that time (September, 2008), four LLNs had 'live' tools, in use; five had tools at various stages of development, and five other LLNs were in planning stages. The four LLNs with 'live' e-portfolio practice were Cheshire and Warrington LLN, Greater Merseyside and West Lancashire LLN, Hereford and Worcester LLN, and Leap Ahead - the LLN for Nottinghamshire and Derbyshire.

The e-portfolio implementation of the Lifelong Learning Network for Nottinghamshire and Derbyshire builds on e-portfolio developments to support learners across transitions in a regional context (Hartnell-Young, Smallwood, Kingston and Hartley, 2006).

Employee learners supported by e-portfolio practice through a lifelong learning network

Leap Ahead, the Lifelong Learning Network for Nottinghamshire and Derbyshire, are rolling out a range of HE qualifications in the target sectors of Construction, Retail, Engineering, Hospitality and Tourism. Included within this initiative are trials of sponsored ePortfolio in a variety of different sectors.

E-portfolio practice includes supported 'presentational portfolios' for a range of purposes, such as application to employment, based on various activities, such as creating and reviewing an action plan, a CV, PDP, Group project work, evidence for assessment, or a work placement report, Skills/APEL, Progress review, CPD overview, Presentation/website.

A selection of these pilots involve courses where there are either existing partnerships with employers or where their students include work-based learners: including professional development planning in the Museum and Heritage Sector (Nottingham Trent University); comparison of use of two established commercial e-portfolio tools with learners in the construction and ICT sectors, to determine, through various projects, the most appropriate tools and methodologies to be employed at Chesterfield College; ILPs with Engineering Diploma students at Derby City College, and skills recognition and evidence building for those working in the Building Services sector with SummitSkills Sector Skills Council.

The technical ePortfolio strand of Leap Ahead is delivered by the Centre for International ePortfolio Development at the University of Nottingham.

There are 1000 sponsored licences for registered learner accounts, with 'institution-independent'

learner centred e-portfolio tools. Some courses are using PebblePad and others are using iWebfolio. The e-portfolio tools are hosted externally, to support in-house lifelong learning, which is proving to be an attractive feature in terms of flexibility for both learners and practitioners. The e-Portfolio strand is possibly the most ambitious amongst the LLNs and the approach of using sponsored licences has meant that pilots have been initiated more rapidly.

Learners are understood to be taking use of the tools in their stride. They are “not worrying too much about the systems”.

Some LeapAhead Project partners are using the pilots to inform formal recommendations to Senior Management. This may result in carrying on with the particular systems they are using, or will give them capacity to know what they want and what user requirements will be within their own particular sector and course types, as well as to be more knowledgeable about the real time (and cost) involved in introducing new technology and supporting it.

Further information (in progress) can be found from <http://www.leapahead.ac.uk>, with a link to e-portfolio.

The web address for the showcase E-portfolio event held in December 2008 is:
<http://webapps.nottingham.ac.uk/elgg/ciepdproj/weblog/1305.html> .

Complementary to e-portfolio practice, web-based information, advice and guidance services (IAG). provide key elements in the planning process for employee learners to design their personal learning pathway. Eleven LLNs, have developed web-based IAG services (Reed and Sowden, 2008). An illustrative example is provided by the Greater Manchester Strategic Alliance, GMSA LLN service ‘GMSA Advance’.

Employee learners supported in planning their personal learning pathway through a lifelong learning network web-based information, advice and guidance service

The **Greater Manchester Strategic Alliance, GMSA LLN**, has developed a web-based service ‘GMSA Advance’, a learner interface and portal, which enables individuals and employers to find single, HE credit-bearing modules from universities and colleges across Greater Manchester, and build these into higher education qualifications tailored to the needs of adults in work. The GMSA Advance concept (focusing on individual modules instead of traditional ‘whole degree’ awards) and the tailor-made Advance learner interface are being piloted with about fifty learners across about twenty employers between February and May 2009. The employee learners typically are taking single modules for CPD purposes. A module is typically worth between 10 and 20 credits, and 30 or 40 in some cases, at HE Levels 4 - 7.

GMSA Advance learners may be offered the opportunity to be supported by e-portfolio practice at the institution delivering the module they are taking at any one time, depending on the agreement between the individual learner and the institution, and on the tool being used at the institution delivering the module, e.g. PebblePad at Manchester Metropolitan University, or Moodle at the University of Bolton.

The Advance learner interface, which is going live in late February 2009, is a tool to search for, save searches and make enquiries about specific HE modules/courses. Learners will be able to apply for a module by sending an application directly from the interface, recording their relevant personal details (prior qualifications etc) in the interface for that purpose, and managing and tracking their combination of selected modules and credits awarded, without needing immediate reference to information systems hosted at the participating institutions. It is planned that the next functionality developments of the GMSA Advance learner interface will be an action planning tool and CV builder, to be available in Autumn 2009.

GMSA Advance is an essential part of the planning process for these learner employees to

design their personal learning pathway. There are three elements to the information, advice and guidance (IAG) provision to GMSA Advance learners. These combine face to face and online services:

1. The people in charge of Advance learner support at GMSA inform the learners about the IAG provision at the institution at which the learner will be taking a module, i.e. Advance learners will be guided to appropriate people at institutions.
2. The Advance learner interface provides some basic information on how the “bite-sized chunks” of learning available through the Advance module catalogues can be added together for the purpose of applying for a larger HE award.
3. The Advance learner support team at GMSA provides additional IAG relating to what larger awards are possible and how to gain them.

Further information about ‘GMSA Advance’ is available from:

<http://www.gmsa.ac.uk/page.asp?id=460>

In work complementary to the employer engagement project, the JISC Curriculum Design Project ‘Supporting Responsive Curricula’ (SRC) project <http://robingj.wordpress.com>, at Manchester Metropolitan University, one of the partner HEIs in GMSA, will focus on four subject areas: Law, Physiotherapy, Financial Services, and Digital Creative. The Project will define a competence framework to represent the competences required by employers and professional bodies of the four subject areas. The University’s internal academic database will be modified to allow definition of courses and units in terms of competences, so that staff can search for units that meet particular needs and students can identify the competences they should be acquiring on a particular part of their course. The course will link PebblePad to its academic database to allow students to produce e-portfolios that map onto the identified competences.

Elsewhere, the Anglia Ruskin University ‘Ultraversity Project’ (2003 – 2006), and, more recently, the University of Bolton ‘Inter-disciplinary inquiry based learning’ (IDIBL) framework, have adapted the ‘patchwork text’ curriculum model (Winter, 2003), for employee work-based learners, supported by an e-portfolio approach. This curriculum model is typified by personalised learning journeys, in which learners undertake short structured narrative pieces of writing at regular intervals during their course, and ‘stitch’ these ‘patches’ together through a final reflective commentary and synthesis. In this synthesis, the learner reviews the relationships between the separate pieces, interconnecting theory, practice and learning, with meaning to him-/herself as an individual and professional identity, as exemplified by Sobiechowska, Maisch, and Bailey (2006).

An important concept of patchwork text curriculum design is its emphasis on effective approaches to deep learning. The shared learning for assessment takes place through collaborative learning groups, (set up by a tutor), in which peers share and comment on each other’s work (Winter, 2006). In the work-based learning scenarios of IDIBL and Anglia Ruskin University, the complete course, including peer collaborative learning elements, is accessed online. *“Students engage in the processes of inquiry together as a cohort, making it possible to collaborate, and support (one another) in the online communities without plagiarising, because they are studying in their own work context.”* (Millwood, Powell, and Tindal, 2007, 2008).

The course design avoids specific subject material in favour of process skills which may be applied to improve the learner’s individual work practice, and, by using an e-portfolio

approach, learners have an opportunity to express themselves through a range of media and technology such as video, audio, websites and weblogs.

The Open University (OU) provides a diverse range of programmes and modules, and has recently made available an e-portfolio tool to all learners. This e-portfolio provision is maintained indefinitely after graduation. The OU continues to host learners' e-portfolios, free of charge on its server, for continue use to support lifelong learning.

An outline of some ways in which the e-portfolio tool is used to support learners is indicated below.

Technology supported portfolio practice supporting employees studying at The Open University

At the Open University, approximately 70% - 80% of students are employees. There are approximately 200,000 registered students at any one time, across all courses and all levels (where levels 1, 2, 3 equate respectively to years 1, 2, 3 in a traditional university undergraduate course). Many OU students are sponsored by employers and some Employers have courses tailored to their employees.

The OU e-portfolio tool, MyStuff, which uses Moodle technology, was launched in 2008. In development, MyStuff was piloted with a number of courses, and in addition to generic templates, templates have been tailored to the needs of specific courses. These include templates contributed by some professional or accreditation bodies.

Some courses are now using MyStuff, with their learners, although it has yet to be heavily marketed to students across all courses. It is attracting 28,000 users who store up to 300 items every day. Learners' e-portfolios will continue to be hosted by the OU and remain available for use, free of charge, to alumni for up to 3 years after students have completed their study.

Courses now using MyStuff with their learners can be used as part of individual Foundation Degrees, used as standalone courses or towards a range of qualifications. For example, the course 'U122' 'Make your experience count' provides an opportunity to gain credits for prior learning. This course can be used towards any degree programme.

The portfolio tool is sometimes used also in employment, but is not necessarily an employer requirement (that is, the employee is choosing to use it). There are therefore a variety of instances where employers are likely to be benefiting from their employees using an e-portfolio but where this is not necessarily explicit.

The following examples are courses in which e-portfolio practice is linked with an employer and/or professional or accrediting body. This is not an exhaustive list as new partnerships are being constantly developed.

Example 1: Health Sciences in Practice, Level 1. The NHS is an example of an Employer actively using MyStuff with learners.

Learners employed in a health care setting, such as paramedics and NHS technicians, use MyStuff to record competences. These competences have been identified through discussions with the College of Paramedics, Operating Department Practitioners and also individual Ambulance Trusts and Health Trusts. Employer representatives were involved in critically reading the course throughout its development.

The web information for the course (available from <http://www.open.ac.uk/study>, by following links to S110 (Health Sciences in Practice), explains that learners will build an online portfolio of evidence to document their knowledge and skills.

On S110, learners are supported by a tutor throughout their course and specific competences are signed off by the learner's mentor, who will be someone from their workplace. Although the course is only just approaching the completion of its first cohort, experience has shown that learners are keen on the elements of the course that focus specifically on their work and activities they need to go away and complete. The structure of the reflective work has had to be flexible to deal with the complexities of competences for different levels in the workplace. The need to accommodate seasonal fluctuations in the workplace has resulted in the course lasting 17 months to ensure that certain competences can be achieved. Part of the end of course assessment is the learner's electronic portfolio along with evidence of how they have progressed from the start of the course.

Example 2: Computing - a work-based approach, Level 2. Learners have been using an externally developed e-portfolio tool 'Career Developer System', which provides an opportunity to accumulate evidence of learning, reflect on achievements, and create a CV. The British Computer Society developed the tool. There may be the potential to adapt relevant templates for use in MyStuff in future.

Example 3: The Department of Languages have made an external framework available to students; the European Language Portfolio is accredited by the Council of Europe. Students complete the ELP framework, which is provided as templates integrated into MyStuff. They can then export and use the completed framework templates to apply for accreditation.

With the flexibility of location and the framework of supported open learning at a distance, many employers sponsor students on OU courses. It is important to note that developments relating to e-portfolio usage are relatively recent and partnerships are still evolving.

The OU is a partner in one of the HEFCE transformational employer engagement projects 'Enabling higher education to compete in the online CPD market'. Project information is available at:

<http://www.hefce.ac.uk/econsoc/employer/projects/show.asp?id=29> (For link to all the projects, see Annex 3).

Technology supported CPD in a higher education setting

The University of Cumbria, Centre for the Development of Learning and Teaching (CDLT) is leading Flourish, a two year project funded under the JISC Users and Innovation Capital Programme, which started in March 2007.

As part of the Flourish project, each member of staff at the University has the opportunity to have a PebblePad account to support their CPD.

To induct staff in effective use of the tool, the University introduced an 'e-learning retreat' in 2007, held again in 2008. Applicants for the Retreat had to apply as teams, and explain in their application how they would use PebblePad to benefit their team's CPD. Attendees on the course had two days away (in a hotel), to learn how to use the software. They used the e-portfolio tool to support a range of objectives including: for their own CPD; for how they could use it to support other colleagues, such as when a colleague may be applying for a Teaching Fellowship; and to encourage collaborative use between working peers. In 2007: fourteen members of staff, in 4 teams, attended the Retreat. In 2008, nine members of staff in 4 teams attended. There are some encouraging instances of continued use.

Ways in which PebblePad has been used subsequently by retreat attendees include: one team has continued to use it to support their research activities, one team has used PebblePad to put together a bid for external funding to support some work around use of an e-portfolio, another team is using it to support preparation for their annual appraisal process. (The appraisal process

is normally paper based; PebblePad has been used with the appraisal process itself in two pilots.)

The retreats were judged to be a key element of effective use. Another department is planning to replicate the practice associated with the Retreat (with a different source of funding).

PebblePad is being used for CPD in a range of Faculties. Examples include: staff using PebblePad for accreditation purposes with their professional body, e.g. Chartered Society of Physiotherapy; and staff who are registered on the University Postgraduate Certificate in Learning and Teaching in HE for new lecturers, (compulsory for all teaching staff with less than 3 years experience in HE) are especially encouraged to use PebblePad e-portfolio tool during their course, and to continue to use this afterwards,. There are some encouraging instances of continued use.

About forty staff enrol on the course. Depending on work role, around half - potential HE lecturers - take the full award, and half (mainly NHS contracts and learning support staff) do the first module as a 'stand alone'.

PebblePad is currently being used with selected groups of students. Examples of Faculties with students using PebblePad and with an interest in participating in the Employer Engagement Project include the Health Faculty, because there is a long tradition of keeping a portfolio, and the Faculty of Education, because PebblePad can list competences for QTS (Qualified Teacher Status) standard.

Concerns that have arisen around implementation have included: 1) the importance of the attitude of all involved in using PebblePad in any particular context; 2) maintaining resources for training staff to use the software, and sustaining that training as new staff join; 3) the changing context in which the University is operating, and the dispersed nature of the campus: encouraging and supporting all staff across three widely separated university campus sites, including the former St Martins College, Centre for the Institute of the Arts, (CIA), and Cumbria campuses of UCLAN, brought together as one University in 2007.

More information about Flourish is available from:

<http://flourish.pebblepad.co.uk/viewasset.aspx?oid=12116&type=webfolio>

Professional bodies and chartered institutes have a long established role in their members' developing higher level skills and knowledge, through CPD. The project reviewer contacted several chartered institutes individually, and additional professional bodies responded to an approach made through the CPD Forum. In some instances, a web facility is available to support CPD application and maintenance accreditation, although it may not necessarily be described as an e-portfolio.

The Professional Associations Research Network, PARN, undertook some research in 2007-8, which looked at how professional bodies are using online technology to support their members' CPD, including the provision of recording, planning and reflection tools as well as providing online courses. Friedman, Williams, Hopkins and Jackson (2008, cited by PARN, undated), "*explores the ways professional bodies are using online systems to support all aspects and stages of their members' CPD – from planning to reflecting. It investigates why certain professional bodies have chosen the online path, how the development process has been negotiated, how members have responded, and what kinds of problems – and solutions – have been encountered on the way.*"

Current and planned e-portfolio practice to support their members' CPD by a range of professional bodies, two of which are partners in the project, is outlined below.

Technology supporting CPD for membership of a Chartered Institute (1)

The Institute of Physics (IoP) has 35,000 registered members, who are required to undertake CPD as part of chartered membership requirements. The Institute's code of practice requires members to demonstrate breadth and depth of physics knowledge and a high level of professionalism, and continually to advance their competence through CPD. Evidence of reflection is a key part of the requirements.

Chartered Physicist (CPhys), Chartered Engineer (CEng) or Chartered Scientist (CSci) status requires at least five years of experience after formal higher education has been completed (that is normally, at least five years from completing a relevant accredited integrated degree: Physics, M.Eng or multi-disciplinary sciences). Candidates who have also completed an accredited company training scheme (ACTS) accredited by the IoP are more likely to reach the required level of competence in the minimum time period.

The Institute has recently been developing online tools to facilitate submission of CPD evidence. This is a bespoke tool, designed by the IoP, and developed in partnership with an external software supplier. There are about one thousand registered users.

The IoP CPD requirements include reflection on learning and skills, e.g. "What have you learned and how have you demonstrated outcomes of that learning?" In order that assessors can check that candidates have met outcome-based requirements, the 'portfolio of evidence' is open to the assessor as well as the individual. However, learners can mark areas as 'complete' or 'incomplete', with an understanding that assessors will not peruse 'incomplete' work.

The key element of effective use is reflection: The interviewee said *"Users get more from the process if they genuinely reflect on what they have learned. They have a tendency to just record factual information without thinking about it; so if I was starting again, I would add in some prompt questions to help them do this, such as 'what went well, what went badly, what have I learnt, how will I use that, what am I going to do next?"*

The relevance to adult discontinuous learners is that the e-portfolio belongs to them, not their employer or their University- they can take it with them anywhere (provided they remain a member of the Institute). If they do reflect, it allows them to look back, and forward, and to capitalise on all kinds of learning events, including incidental learning from project work or new challenges.

More information about the underpinning model and processes of CPD within the IoP is at <http://www.iop.org/activity/cpd/index.html>, which includes guidance to gaining chartered status at: [http://www.iop.org/Membership/Becoming Chartered by the Institute/Chartered Titles/CPhys/file_9838.pdf](http://www.iop.org/Membership/Becoming%20Chartered%20by%20the%20Institute/Chartered%20Titles/CPhys/file_9838.pdf) .

The Institute for Learning (IfL) reported that it has an obligation to provide its members with the mechanism for recording a minimum of 30 hours CPD, and that *'there was an aspiration to do so much more than this'*. IfL began working with Pebble Learning on the concept of REFLECT in 2007. IfL Deputy Chief Executive says *"I was firm in my belief that technology would play an essential part in continuing professional development and communities of practice. It didn't have a name at the time, but I wanted to give every member of the IfL an online personal learning space, somewhere they could reflect on their practice, learn at their own pace, describe the impact of their learning on their practice and, critically, share their practice and professional learning in a secure way with colleagues and peers."*

The IfL advocates a model of dual professionalism for teachers in further education and skills – in essence teaching practice is the marriage of two factors: the ‘what’ in terms of subject specialism or expertise and the ‘how’ with regard to teaching and learning approaches. By and large teachers come to work in FE because they are professionals, experts in some area of business, industry or commerce, that FE needs to teach. They develop as teachers in addition to this first professionalism, giving them dual professional identities. This is important in terms of the underpinning philosophy of REfLECT as the IfL is unique as a professional body in that it cannot dictate or control the subject development that teachers need to undertake, but has an active interest in this happening to continually improve practice. Members are expert teachers, but are also chefs, engineers, carpenters, accountants, etc.

Technology supporting CPD for membership of a Chartered Institute (2)

The Institute for Learning (IfL) uses the REfLECT version of Pebble Pad, which ‘*achieves all that is required for the IfL and much more*’. IfL prefer not to refer to REfLECT as an e-portfolio, ‘*as that makes it appear one dimensional and often presents a barrier in terms of what teachers understand e-portfolios to be from their experience within their organisations*’. REfLECT is considered to be a key benefit of membership and underpins a number of processes in addition to the planning, recording and reflection on CPD, such as professional formation – the post-qualification evidencing of skills, knowledge and experience that members have to undertake to achieve Qualified Teacher Learning and Skills (QTLS) status.

REfLECT is a development of the core Pebble Pad system with a number of features bespoke to the IfL. Scaffolding to record CPD that arises from a range of diverse activities – not just formal learning such as courses, conferences and events, but professional conversations, peer review, action research, reading, (on the basis that ‘*if it develops my thinking and impacts on my practice it is CPD*’), reporting tools to output consolidated information to the IfL and other key parties such as the employer or awarding bodies, and signposting to a range of information and support for CPD, such as the programmes offered by national support agencies.

The Deputy Chief Executive said “*REfLECT is a powerful online learning tool that works for me in a number of different ways. I can use it to plan my CPD; I can use it to record an event I attend or an activity I undertake; I can use it to capture the informal learning I do when I least expect it – the thought that arises from a conversation with a colleague or the inspiration I draw from something I read; I can share any aspect of my learning or practice with colleagues and peers – through REfLECT or, if they don’t use it, securely through the web; I can draw together different aspects of my learning and practice and publish this in the form of a webfolio; I can utilise webfolios and blogs in my teaching and use REfLECT to generate online learning material for my learners; I can store documents and files securely and access them from any PC, anywhere I have internet access.*”

He continued “*I have used REfLECT to build an online CV; to create a webfolio drawing together a range of evidence to support my professional formation and claim for QTLS status; to create a micro web-site for sharing some of my skills, knowledge and learning with peers; to share thoughts, ideas and comments with colleagues; to make good use of train journeys back from events and conferences to capture my reflections and, importantly for me, to ensure I have the material I use regularly, such as PowerPoint presentations, available online. REfLECT isn’t something I use to satisfy the IfL that I am doing my CPD; it is a tool I use to work effectively and efficiently and is rapidly becoming an indispensable part of my life.*”

IfL currently has 25,000 members using REfLECT on a regular, systematic basis – ranging from its core functionality and intent as a personal learning space, through the application for QTLS status and professional formation, to ‘*fantastic examples of whole organisation approaches where*

REfLECT now acts as the single vehicle for organisational learning and development'. With 180,000 members, this represents 14% of the IfL's membership. "Taken at face value this may seem relatively modest – but REfLECT was only launched in April 2008 and this is the first time that all teachers have had access to a single platform for e-learning and development. Growing at a rate of 750 – 1000 users per month, REfLECT has caught the imagination of the sector and is now influencing the way other national partners plan their work (for examples Learning and Skills Improvement Service's (LSIS) eCPD programme) – so it can be easily captured and recorded within REfLECT."

In terms of evidence of effective use – key is the ability of teachers to submit applications for QTLS status, gathering evidence from a wide range of sources, and present this to the IfL through a web-folio or online submission. With these portfolios being first peer reviewed and then subject to formal online assessment, REfLECT has enabled the IfL to deliver a major business process involving thousands of professionals and hundreds of reviewers solely via the web. The use of Flash technology means that this approach is platform independent and carries very little cost for the IfL and participants.

In addition IfL has a number of case studies of REfLECT in action – Thanet College has transformed its approach as a learning organisation by providing all staff with a learning space and changing organisational processes such as appraisal, performance management and standards, so that they are all delivered through REfLECT (or Pebble Pad for support staff). Knowsley Community College was one of the first to see all teaching staff registered with the IfL, and has quickly realised the benefit of all staff sharing a learning platform. Copies of case studies are available through the CPD team at IfL, from beckybowers@ifl.ac.uk; or michellejennings@ifl.ac.uk.

With respect to support, the IfL has a national network of hundreds of volunteer colleagues in colleges and other learning providers, who have committed to undertake training to provide local support in the use and application of REfLECT and to champion it as a learning tool. In addition, all Centres for Excellence in Teacher Training (CETTs) will have a dedicated REfLECT focus for 2009/10 – embedding online personalised learning through REfLECT in initial teacher training. The IfL provides many events, workshops and bespoke training for REfLECT users.

Thanet College has been working with the IfL to develop effective practice to support CPD, although the College is continuing to use the full PebblePad tool, as it has additional functionality, such as proformas, which the College customises to suit individual CPD activities, and a gateway function, which facilitates sharing of e-portfolios with selected communities of learners. The College views this as '*a personal learning space given to the learner and tutor for both personal and private use, to be used as a tool to aid, record, reflect upon and share instances of personal development and goal-achieving activity. There is a major emphasis on private reflection, as well as reflection with others, as a means to support and record learning*'. The tool is available to all members of staff, (and was being used by 330 in March 2009). A power point presentation encompassing the pedagogy, initial data on use, and illustration of use has been published on the IfL website at:

<http://www.ifl.ac.uk/services/docs/1208/Thanet%20College%20Presentation.ppt>.

Twenty staff have shared their e-portfolio stories on YouTube (February 2009) at:

<http://www.youtube.com/watch?v=E4MWfUAzEEc> .

Further information is available in case studies at:

<http://excellence.qia.org.uk/page.aspx?o=157923>, and at

<http://www.jisc.ac.uk/media/documents/publications/effectivepracticeportfolios.pdf>

There is also a short video '*personalised learning spaces at Thanet College*' at <http://thelearningcurve.thanet.ac.uk> (from link within the left-hand menu 'staff area').

Exploring the use of e-portfolio tools to support CPD for membership of a Chartered Institute

The Chartered Institute of Librarians and Information professionals (CILIP) reported that they have been using portfolios to assess applications for membership and for CPD purposes 'for a while'. To become chartered, librarians and Information professionals submit a portfolio as evidence and claims of their professional development against CILIP criteria. Employers include HE employers for those working in academic libraries, and local government employers for those working in public libraries. Members also work in a variety of other information services.

Currently portfolios are paper based, but CILIP is looking to use online portfolios, and is currently considering several options, including Premier IT (a commercial portfolio product, surveyed by Ward and Richardson, 2007), which is used by a range of professional bodies; and Moodle (an open source VLE with portfolio tools), which CILIP considers may fit well with their requirements of a 'statement supported by evidence' and with recent graduates' anticipated familiarity, in using it for their HE course modules.

Further information about CILIP membership is available at:
<http://www.cilip.org.uk/qualificationschartership>

Additional examples of Professional bodies using a web facility to support CPD follow.

Professional body	Technology supported practice for CPD: practice and impact/value to members
British Psychological Society (BPS)	<p>The BPS has an online CPD planning and recording system for members to use. This was developed in-house and launched in 2004. They have released two versions of the system since, with amendments based on member feedback, and a third release is scheduled for April 2009. There is also a dedicated CPD website (available at www.bps.org.uk/cpd-homepage). This also will undergo some changes before April 2009, with a new dedicated training and development website launched to include online searchable CPD provision and booking. They will also be adding downloadable podcasts and video to this, as well as e-learning.</p> <p>The Online CPD System was initially launched to help Chartered members with the renewal of their Chartered status, but the system has now been expanded to include support for all members of the Society. The system has a dedicated assessment module for online assessment of CPD submissions by CPD assessors. This is a two-way blind system. There is also an administration area of the system for staff. The user-end of the system incorporates online help functions, a downloadable resources area, and a feedback loop for members. Members, when using the system, are able to identify a planned activity (and set an automatic email reminder for this if they wish), record an activity (including a description, learning outcomes and reflective evaluation) and identify further development needs. Members are able to generate a report of their CPD over any time period they wished and could print this to a PDF and save this custom report to the system for later reference. The Society also has other online systems support for members including the ability to manage subscription renewals and member details.</p>
Chartered Institute of Educational Assessors	<p>The CIEA uses Premier IT, a commercially developed system. It is used to support Membership for IRIS/CPD, including to upgrade membership/portfolio of achievements to date in the form of evidence/online submission and peer review & moderation/re-accreditation of Chartered status every 3 years.</p>
Chartered Society of	<p>The CSP recognises that "high quality [service] can only be delivered by staff who maintain and develop their professional knowledge and skills." The CSP</p>

Physiotherapy	has made available PebblePad to members to support their CPD. http://www.csp.org.uk/uploads/documents/csp_cpd_learning_cpd11.pdf .
Institution of Civil Engineers	The ICE use a tool developed in house. It is a voluntary facility, available to plan and record CPD activities only. It has no link to assessment by the Institution or to applications. Some, not all, find it helps; many record their CPD activities by hand; many do not formally plan or record. It is considered possible that some members may undertake CPD activities but never record these.
Institution of Engineering and Technology	<p>The IET have an online professional development system, which allows IET to support member CPD records through them setting objectives against recognised industry frameworks and record their training activities and development activities. This system, Career Manager, has been developed with an outside provider (Infobasis) and is accessible to all members through the IET website. One of the key benefits of this system is considered to be that all members' CPD records are stored in one place and this is accessible 24/7 from any internet ready PC.</p> <p>The IET also have a number of other areas on the website that members can use for CPD including online videos of conferences through their IET.tv offerings and also through discussion forums, technical and professional networks (which keep them up to date on relevant news and articles in their sector) and through their academic database Inspec (also available online).</p> <p>Additional information about use of the online tool 'Career Manager' for professional development for membership registration and CPD is available from the Institution of Engineering and Technology website (http://www.theiet.org). A series of short films, with guidance on using Career Manager in different stakeholder roles, is available online. For example, Online Career Manager - A film for individual users includes an introduction to Career Manager, and guidance on how this online tool can help members in structuring and tracking their professional development, preparing and submitting an application for professional registration and planning career progression “</p>
Royal Aeronautical Society	<p>The RAS http://www.raes.org.uk/cmspage.asp?cmsitemid=Membership_ProfessionalDevelopment shares the on-line Professional Development System (PDS) that has been developed by the Engineering and Technology Board (etb). This is illustrated by a series of brief videos at the etb professional development web page: http://www.etechb.co.uk/skills_&_careers/professional_development/continuous_professional_development.cfm</p> <p>The CPD section of the on-line PDS is for the individual to use and currently is not linked to any sites, other than those chosen by etb or by the individual. It enables individual professionals to accurately track and verify their development activities.</p> <p>The CPD solution allows individuals to:</p> <ol style="list-style-type: none"> 1. Create different plans – either action plans against recognised professional competencies (by linking the plan to the required competency framework provided within the tool), plans to achieve long term goals or analysis of strengths, weaknesses, opportunities and threats. 2. Self assess against appropriate self-selected competence frameworks. Any courses or training materials offered by the Professional Institution or the individual's Company, appropriate to the person's development needs, then appear automatically. 3. Upload evidence to support CPD activities. 4. Create reports based on etb's development partner, Skillsure's, industry leading relational database, that allows point and click reporting tailored to an Institution or Professional Body's requirements. 5. The tool also encourages an individual to reflect on their CPD activities and

	the benefits gained.
UK Actuarial Profession	<p>The UK Actuarial Profession (UKAP) requires all qualified members to undertake a minimum amount of CPD (depending on the CPD category in which they fall); the CPD undertaken and category must be recorded on an on-line system. This is accessible to individual members via log-in to the profession's website which links directly to the membership database. The CPD recording system was commissioned in-house and developed by an external provider to link to the membership database.</p> <p>Members are required to enter the number of CPD hours undertaken, the type of CPD (technical, professional or other), a description of the CPD and the provider (such as in-company training, training by the profession or by a commercial provider etc). If appropriate, the training can also be marked as 'external' (defined as the audience being mainly from firms other than the member's own) and 'verifiable' (where the learning or outcome can be observed by others e.g. attendance at a meeting or other event where attendance is recorded, studying for and passing an exam, preparing and delivering learning to colleagues). There is also the facility for the member to detail the learning outcome - essentially, the benefit of the training.</p> <p>In terms of using electronic tools to provide CPD and other learning and development opportunities, UKAP currently provides webcasts of their sessional meetings; Additionally, mp3 recordings of many of these meetings and some other events are also available via the website (see http://www.actuaries.org.uk/knowledge/publications/sessional_meetings).</p> <p>UKAP are also starting to make use of webinars; having held the first such event in September 2008, they are planning others for the future. They have also been involved in the last year or so in two global webinars, which have been produced in conjunction with actuarial bodies in the USA and Japan. Feedback on all three events was 'very positive' and they plan to feature webinars more heavily in their events programme going forward, as they consider they are an excellent way to deliver learning to members in a cost-effective manner, without requiring members to take time out of the office.</p> <p>UKAP are also starting to make use of discussion boards to enable members to network electronically and discuss issues of interest. The recently established forum on the current global financial crisis has proved popular and enables members to engage in discussion (and thus stimulate learning) in a time- and cost-effective manner. Consideration is being given to whether involvement in a discussion forum should count for formal CPD purposes.</p>

5.5 International perspectives on e-portfolio practice to support work-based learners.

As in the UK, international implementations of e-portfolio practice and tools have been primarily with traditional learners in formal education. There are also instances of use in the workplace, especially in the education sector. The following is an indicative sample of literature and practice in Australia, New Zealand, USA, Canada and Europe.

In **Australia**, the Australian ePortfolio (AeP) Project reported on existing levels of e-portfolio use by university students in Australia (Hallam, Harper, McCowan, Hauville, McAllister, and Creagh, 2008). The researchers found a high level of interest in the use of e-portfolios in the context of higher education, and emphasised the potentially important role of "helping students to become reflective learners, conscious of their personal and professional strengths and weaknesses, as well as to make their existing and developing skills more explicit". Although an employability related concept of e-

portfolio practice was explored, the report was not concerned with e-portfolio use by employees who are also part-time learners. This area has been little researched and is in its infancy there.

Examples of existing and planned use have been provided by personal communication. An example of existing employee related e-portfolio practice in Australia is at Queens University of Technology (QUT, the lead institution in the AeP Project), where with the university as employer, staff in the IT division are using the QUT ePortfolio for staff development, and some may also be studying. Planned developments include a pilot starting soon with twenty library professionals who will be starting to use PebblePad. This will be a sector study, in which the participants work for a range of employers (public, academic, special and FE libraries). The learner sample includes students, new career and mid career people. A component of the project is that managers/mentors are part of the process to review and provide feedback on the development of the e-portfolio.

A potential example may be the paramedic course at QUT. In this instance, there is a sole employer, the Queensland Ambulance Service. However, due to industrial issues, there has been little commitment to supporting students through their practice use with e-portfolios.

Two further potential future examples at QUT for which there is little current information, involve the Law Faculty which has some work integrated learning activities with an ePortfolio tool as the central component of capturing the learning; and a postgraduate management course for the Defence Force using e-portfolio practice which is reported as 'about to happen'. (G Hallam, personal communication, December 2008).

New Zealand is the 'home' of Mahara, open source portfolio software and practice which originated and was developed in NZ - with Government funding - through the eLearning Collaborative Development Fund (eCDF). The eCDF ePortfolio Project contracted four universities to develop an e-portfolio application for the NZ tertiary sector. Mahara was developed as an e-portfolio tool that works with Moodle (utilising Single Sign On, to make it easier to interlink use of the two interfaces), but which can also be used independently. Mahara supports the creation of online communities of learning through a weblog facility, resume builder and social networking system. Available initially, as a pilot, to organisations participating in the eCDF ePortfolio Project, in the second half of 2007, access for use was extended to education users generally, with the ultimate goal of providing a lifelong learning environment for all New Zealanders. It is also now freely available in the UK, and being used by people in the workforce as well as in education. Eight case studies of practice, which aim to provide guidance on lessons learned and challenges faced during the implementation of a typical e-portfolio system, are available online at

http://eduforge.org/docman/?group_id=176. In some instances learners included people who were working full time whilst studying part-time but this was incidental rather than an intended purpose of the implementation. One such example is the Auckland University School of Education case study of Mahara implementation with student teachers.

There are several examples of Mahara in use with work-based learners specifically to support CPD. Also, before Mahara was developed, Moodle was - and still is - being used as an e-portfolio tool in workplace contexts. For example, public sector employees use

Moodle in a course for training in executive management run by the NZ Government Leadership Development Centre.

Butler (2006) reviewed the literature on e-portfolios as part of the eCDF project. The literature review discusses aspects of portfolio use in tertiary education institutions in general, but draws most of the general statements about portfolios from the education literature, because *“teacher education is the sector most advanced in thinking about portfolios”*. In her list of main e-portfolio uses, Butler includes use by graduates *“while moving into or through the workforce”* as a way for *“graduates or those already in the workforce to gain licensure or registration, to showcase their qualifications and competencies in job interviews, for appraisal, or for promotion, as well as for critical reflection and learning purposes”*.

In the **USA**, Milman & Kilbane (2005) investigated the role of digital teaching portfolios⁷ in teachers' professional development and classroom practice in two states in the USA. Their findings, obtained through document analysis and telephone interviews with six teacher participants, indicated that processes involved in creating digital teaching portfolios appeared to foster authentic ongoing professional development, and that engagement in creating a portfolio aided these teachers' self-discovery and learning.

Additional illustrative examples of e-portfolio use from the USA (and one from the Netherlands) are included at JISC Infonet, 2008a. Most of the international case studies are concerned with e-portfolio provision for full time students, whilst registered at a single higher education institution. An exception is eFolio Minnesota, which is available to all residents in the state of Minnesota. Its purpose is to support lifelong and lifewide learning, encouraging users to document their learning and performance in the workplace, family, and community; and to provide a 'space' for thinking about how these fit together, including, perhaps, how to manage conflicting goals. eFolio Minnesota (eFolio) is used for a range of purposes, centred around educational planning. When used as a presentational e-portfolio, eFolio is used primarily to share with new audiences, such as potential employers, at transitions between employment. When used by adults returning to learning, it encourages them to reflect on life experiences and how experiences in the workplace relate to their learning. At George Mason University, there are instances of eFolio use by employees within the University to document their work-based learning. Some students work part-time as helpers in the computer labs, and the University facilitates them to create a portfolio to document what they are doing, to facilitate leadership development and to apply it to their further professional aspirations. Some full-time employees in the Academic Technology Services Institutional Resource Centre have a role in helping staff to use technology in their classes. Each year, the Resource Centre staff create a portfolio to document their work and progress. (Cambridge, personal communication). Cambridge (2008) studied ways in which eFolio is proving valuable to its active users in either anticipated or unanticipated ways. He found that users who found it had a significant impact on their learning were likely to see it as a 'living document, with a strong connection to audience, and representing self across multiple roles and time (integral 'layering')'.

⁷ Compilations of professional materials that present a "structured documentary history of a set of coached or mentored acts of teaching, substantiated by samples of student portfolios" (Shulman, 1998, p. 37, cited by Milman & Kilbane, 2005).

The following example concerns specifically work-based learning e-portfolio practice provided through higher education distance learning courses. For more than 30 years, Excelsior College, Albany, NY (formerly Regents College) has provided courses for work-based learners. Its distance learning courses cater for 'discontinuous' learners across the world. Initially the degrees were designed to cater for the nursing profession and for the particular circumstantial learning needs of military personnel, in recognition both of the challenges to continuous study occasioned by the nature of their work, and that a degree could facilitate return to civilian life. The courses allow transfer in of credit for courses taken elsewhere, and also accredit work-based learning. Its bachelor degrees in Business

([https://www.excelsior.edu/Excelsior College/School of Business and Technology](https://www.excelsior.edu/Excelsior_College/School_of_Business_and_Technology)), and in Liberal Arts,

([https://www.excelsior.edu/Excelsior College/School of Liberal Arts/Bachelors Degrees in Liberal Arts](https://www.excelsior.edu/Excelsior_College/School_of_Liberal_Arts/Bachelors_Degrees_in_Liberal_Arts)) permit assessment by Portfolio, which can allow credit earned from work, community or volunteer experiences. The College provides a 'simple' assessment e-portfolio tool comprising a spreadsheet 'front end' with relevant course modules listed. The learner completes the required information, including claims of evidence of learning, and reflection, in relevant individual cells, and uploads files in stores elsewhere by hyperlinks from the spreadsheet. The portfolio is normally submitted in stages, as learners progress through their courses. About twenty students per cohort of the Business degree and many more on the Liberal Arts degree are currently taking the portfolio assessment route. A sample 'front page' can be viewed from the Eportic pages at <http://www.europartic.uvsq.fr/United-Kingdom.127.0.html>, (a learning portfolio tool of this type is also available for use by learners in Europe; see following). Some learners registered on the portfolio assessment route at Excelsior College have chosen to use an additional portfolio tool alongside, and are understood to use PebblePad (commercial, UK) or Mahara (OS) (Palmer, personal communication). All learners using the Portfolio Assessment route are encouraged to tell employers what they are doing, as assessment by portfolio normally requires an employee's line manager to sign off claims and evidence. Employers also need to see and sign off portfolio elements being submitted for CPD for professional bodies, which can be used as credit towards some degree modules (e.g. Insurance module in the Business degree). Issues that have arisen have included the recognition that not all learners have adequate reflective skills, and that some learners submit far more material than is required. To address these, selection procedures for learners to take the portfolio route have been tightened, and learners have been required to submit one element for one course initially, for guidance and feedback. However, this in itself has resulted in costing problems for the business model. Other potential issues are the need to respect confidentiality, as well as the security of privacy of selected portfolio areas.

In **Canada**, from a rather different perspective, but one which is highly relevant to workforce mobility, Barker (2006) has considered the potential role for e-portfolio use by skilled immigrants, to help employers to recognise training and work experience acquired outside Canada, as an approach to enhancing their employment prospects.

In **Europe**, an ongoing project developed during the past three years is focusing on employability processes such as career progression, re-employment and re-training, through the concept of an 'employabilityPortfolio' as the (virtual) placeholder for all related 'human factor data and competency profiles'. The employability Portfolio can hold an unlimited number of relevant employability data elements about individuals for

recruitment purposes⁸. The idea was initiated when Nedcar.nl⁹ needed to lay off 1400 people, and there was a need to help people back into work, which involved many employability processes. Maximising employability of workers who had become unemployed, was considered to be concerned with outcomes from educational processes, using a person's data for the 'next process in line', whether that was to re-enter education, training or employment, rather than in education processes associated with individuals *per se*. Further information is available at <http://www.w3.org/2006/07/privacy-ws/papers/01-vervenne-portfolios/> (source: Luk Vervenne: personal communication, and Synergetics: <http://www.synergetics.be>, January, 2009).

⁸ For security of information, this will be completed with an 'end2end trust architecture' developed in the TAS project www.tas3.eu

⁹ NedCar, situated in Born in the Limburg province, is the only large-scale automobile producer in the Netherlands.

Annexes

Annex 1

Terms of reference – the context setting out the remit, scope and aims of the review

Phase 1 of the Project proposal plan¹⁰ included the following output¹¹:

'An evidence-informed account of how portfolio practice has demonstrated relevance to adult, employment-based learners.'

The account will contribute to a fuller report¹²:

'A report which collates evidence and identifies best practice using e-portfolio technology to support employer and learner engagement in higher level learning.'

Its remit includes: *'collating and analysing existing practices and evidence of their effectiveness'*¹³, through activities stated as follows¹⁴:

'A Review, led by the central Project team, of key learning from e-portfolio and related practice in employment and professional CPD contexts, including that based upon existing partnership arrangements with HE.

Emphasis upon evidence of the ways in which e-portfolio practice has demonstrated relevance to adult, employment-based learners.

Lessons also drawn from the inter/national coalition for electronic portfolio research and the National Action Research Network for researching and evaluation PDP and e-portfolio practice.'

¹⁰ Developing sectoral policy in e-portfolio practice to support employer engagement and workforce development. Proposal submitted by the Centre for Recording Achievement. Available from:

<http://www.recordingachievement.org/downloads/CRA-EE-Proposal-Summary.pdf>

¹¹ Section E: Methodology and Plan: Phase 1.

¹² Section F: Project outcomes: 1.

¹³ Appendix B: Outline Project Plan: 1.

¹⁴ Appendix B: Outline Project Plan: 1. Collating and analysing existing practice and evidence: Activities.

Annex 2

Table of institutions and organisations which have provided the Project with information about existing or planned practice by interview or email. Information about selected practice is contained in the Review text. (Additional information - for Project Partners - is contained in the Project Practice Review Spreadsheet).

INSTITUTION/ORGANISATION
Bradford College
British Psychological Society (BPS)
Chartered Institute of Educational Assessors
Chartered Institute of Librarians and Information professionals (CILIP)
Excelsior College, NY
Gateshead College
George Mason University, Fairfax, Virginia, USA
Glasgow Graduate School of Law /UKCLE
Greater Manchester Strategic Alliance (GMSA)
Institute for Learning
Institution of Civil Engineers
Institution of Engineering and Technology
Institute of Physics (IoP)
Middlesex University
NHS Education for Scotland (NES)
Northumbria University
Nottinghamshire-Derbyshire LLN (The LeapAhead Project)
Queens University of Technology, Australia
Royal Aeronautical Society
Telford College of Arts and Technology
Thanet College
The Open University
University of Bedfordshire
University of Bradford
University of Cumbria
University of Hull
University of Leicester
University of London, Queen Mary College
University of Nottingham
University of Plymouth
University of Portsmouth
University of Southampton
University of Wolverhampton
Yorkshire & Humber East LLN

Annex 3

Additional web resources

A selection of web resources related to employer engagement and workforce development that have informed the review.

<p>(The) Council for Industry and Higher Education CIHE is a high level partnership between leading people from a wide range of businesses, universities and colleges. The Council leads in developing an agreed agenda on the learning issues at higher education level that affect our international competitiveness, social cohesion and individual development. http://www.cihe-uk.com/index.php</p>
<p>Employer Investment in Learning at National Qualifications Framework Level 4 – 8 A report to HEFCE and LSC by GHK Consulting http://www.hefce.ac.uk/pubs/rdreports/2008/rd15_08/rd15_08.pdf</p>
<p>Engineering Subject Centre - Provides links to resources that are relevant to employer engagement agendas and delivery of the engineering curriculum through work-based learning. http://www.engsc.ac.uk/er/wbl</p>
<p>E-portfolio Case Studies Twelve completed UK (JISC funded) case studies and three international case studies of e-portfolio practice, relevant to lifelong learning including work-based learning. http://www.jiscinfonet.ac.uk/case-studies/e-portfolios</p>
<p>E-portfolios in the professions: experiences from law, medicine and veterinary medicine education. http://www.ukcle.ac.uk/newsevents/lilac/2007/papers/eportfolios.html</p>
<p>Excellence Gateway: 1) "Optima-ising skills in the fast lane" is a video case study showing how construction workers with Optima - the management agent for the Highways Agency, are fast-building their IT skills through NVQs that they are undertaking online (with PeopleServe, a national human services provider). The provision of e-portfolios for assessment of their learning and skills development means these shift workers can work at their own pace, at any time, and any place, with quicker and accessible support from their assessors. 2) "PeopleServe 'best practice' case study" around using OneFile e-portfolio solution to enable employee NVQ students to record and document evidence of their work-based experiences. http://excellence.qia.org.uk/page.aspx?o=170196</p>
<p>Foundation Degree Forward (fdf), in the context of innovating Workforce Development, seeks to stimulate, support and sustain employer partnerships with higher education to meet the demands of workforce development, business improvement and the knowledge economy. www.fdf.ac.uk.</p>
<p>HEFCE: Twelve transformational employer engagement pilot projects, focused on the development and delivery of HE programmes co-funded by employers, have been set up to explore various aspects of employer engagement and workforce development. http://www.hefce.ac.uk/econsoc/employer/projects/</p>
<p>HEFCE: Reports on employer engagement themes available from HEFCE web-site. http://www.hefce.ac.uk/pubs/rdreports/2008/ For example, Quality assurance and employer engagement in HE learning i) Report by the Quality Assurance Task Group on employer engagement and HE learning ii) SQW report to the Quality Assurance Task Group A report by QA Task Force, and accompanying research report from SQW Ltd, presents the findings and recommendations from the Quality Assurance Task Group on employer engagement. The Task Group considered the quality assurance needs of employer-led and funded provision and advised on whether any additional support is required for the higher education (HE) sector. <i>"The report highlights that, overall, issues of quality assurance are not viewed by the HE sector as a primary barrier to the expansion of HE for workforce development. The current Quality Assurance Framework (QAF) is viewed as important for the maintenance of confidence in HE standards, and as being generally supportive. However, the Task Group highlights that the HE</i></p>

<p><i>sector is at an early stage in developing employer engagement and there is a need for sharing of successful QA strategies within the sector. The report highlights some of these strategies for use by institutions in their own contexts.</i></p> <p><i>The Task Group's recommendations include the establishment of demonstrator projects to explore specific areas where more support is needed and to inform the ongoing review of the QAF as employer engagement becomes more embedded in the HE sector."</i></p> <p>http://www.hefce.ac.uk/pubs/rdreports/2008/rd13_08</p>
<p>Higher Education Academy Employer Engagement pages focus on the Academy's research, policy debate and support related to current agendas associated with employer engagement. The main emphasis is on the quality of the student experience of work-based learning in higher education.</p> <p>http://www.heacademy.ac.uk/ourwork/institutions/engagement</p>
<p>Higher Education Academy Employer Engagement study publications – generic webpage – http://www.heacademy.ac.uk/resources/detail/EmployerEngagement/work_based_learning_publications</p>
<p>Higher Education Academy Networks</p> <p>The HE Academy has three networks related to employer engagement:</p> <ul style="list-style-type: none"> Pro Vice-Chancellors' Network Special Interest Group on Employer Engagement/Workforce Development Workforce Development Exchange Group Work-Based Learning Researchers' Network <p>http://www.heacademy.ac.uk/ourwork/institutions/engagement/networks</p>
<p>Information about the HE Academy piloting the HEAR.</p> <p>http://www.heacademy.ac.uk/news/detail/higher_education_achievement_report</p>
<p>JISC Grant 11/08: Funding Call for Institutional Innovation projects in lifelong learning and workforce development</p> <p>http://www.jisc.ac.uk/fundingopportunities/funding_calls/2008/10/instinnolll.aspx</p>
<p>Learn direct pages – learning through work 'for you' and 'for your staff'</p> <p>http://www.learningthroughwork.org/</p>
<p>Mahara (open source) e-portfolio tool</p> <p>http://mahara.org.</p> <p>To request a Mahara account, and read about the Mahara community and case studies of practice. Information about the e-Learning Collaborative Development Fund (eCDF) Project (New Zealand), including case studies and implementation guides, from the partners in the pilot project that started in 2007, are available at http://eduforge.org/docman/?group_id=176, from which links can be followed to ePortfolio project introduction, to find out more about the Project, to ePortfolio Research Report to see the literature review, and research, and, under ePortfolio Implementation Case Studies, to see individually named case studies of practice. Additional information about the NZ eCDF is available at: http://www.tec.govt.nz/templates/standard.aspx?id=755</p>
<p>Moodle use for the NZ government Leadership Development course.</p> <p>http://www ldc.govt.nz/</p> <p>A presentation from the Leadership Development Centre Project (2006) at a NZ Moodle conference about their work is at:</p> <p>http://moodlemoot.org.nz/moodle/mod/resource/view.php?id=236 and http://moodlemoot.org.nz/moodle/mod/resource/view.php?inpopup=true&id=543</p>
<p>QAA (2001).</p> <p>The framework for higher education qualifications in England, Wales and Northern Ireland includes descriptors of the five levels of higher education academic qualifications (Certificate, Intermediate, Honours, Masters and Doctoral), and guidance on their implementation (January 2001) at http://www.qaa.ac.uk/academicinfrastructure/fheq/EWNI/default.asp#annex1</p>
<p>QAA (2005) Foundation Degree reviews by providing college or university http://www.qaa.ac.uk/reviews/reports/fdDelList.asp</p>
<p>QAA Code of practice for the assurance of academic quality and standards in higher education http://www.qaa.ac.uk/academicinfrastructure/codeOfPractice/default.asp</p>
<p>QAA (2009) Revised PDP Guidelines</p>

HEFCE Project: E-portfolios supporting employer engagement and workforce development
Literature and Practice Review: Final Report for HEFCE: March 2009.

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SouthWest Higher Education Research and Development Association: Higher Skills Project. (Lists the projects.)

<http://www.herda-sw.ac.uk/currentprojects/HigherSkills/tabid/94/Default.aspx>

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