Learning in a Digital Age
Extending higher education opportunities for lifelong learning
JISC supports UK further and higher education and research by providing leadership in the use of Information and Communications Technology (ICT) in support of learning, teaching, research and administration. JISC receives funding from all the UK further and higher education funding councils.

The aim of the JISC e-Learning programme is to enable UK further and higher education to create a better learning environment for all learners, wherever and however they study. Its vision is of a world where learners, teachers, researchers and wider institutional stakeholders use technology to enhance the overall educational experience by improving flexibility and creativity and by encouraging comprehensive and diverse personal, high quality learning, teaching and research.

www.jisc.ac.uk/elearningprogramme
Learning in a Digital Age

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## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>5</td>
</tr>
<tr>
<td>Exploring lifelong learning in higher education</td>
<td>6</td>
</tr>
<tr>
<td>Extending opportunities in a digital age</td>
<td>8</td>
</tr>
<tr>
<td>Building understanding of technology-enhanced lifelong learning</td>
<td>10</td>
</tr>
<tr>
<td>Support for lifelong learners</td>
<td>14</td>
</tr>
<tr>
<td>Providing assistance at pre-entry and induction</td>
<td>14</td>
</tr>
<tr>
<td>Fostering self-directed learning</td>
<td>15</td>
</tr>
<tr>
<td>Enabling transition</td>
<td>15</td>
</tr>
<tr>
<td>Case study 1: Managing transition into higher education, University of Bradford</td>
<td>16</td>
</tr>
<tr>
<td>Case study 2: Supporting higher education learners, Leicester College of Further and Higher Education</td>
<td>18</td>
</tr>
<tr>
<td>Responsive curriculum design</td>
<td>20</td>
</tr>
<tr>
<td>Enabling agile curriculum design processes</td>
<td>20</td>
</tr>
<tr>
<td>Facilitating collaboration in curriculum development</td>
<td>20</td>
</tr>
<tr>
<td>Establishing a common vocabulary</td>
<td>21</td>
</tr>
<tr>
<td>Case study 3: Engaging stakeholders in curriculum design, Birmingham City University</td>
<td>22</td>
</tr>
<tr>
<td>Case study 4: Developing demand-led provision, University of Gloucestershire and partners</td>
<td>24</td>
</tr>
<tr>
<td>Learner journey: Returning to learning</td>
<td>26</td>
</tr>
<tr>
<td>Flexible curriculum delivery</td>
<td>28</td>
</tr>
<tr>
<td>Widening access to learning</td>
<td>28</td>
</tr>
<tr>
<td>Enhancing learning in the workplace</td>
<td>28</td>
</tr>
<tr>
<td>Providing a seamless learning environment</td>
<td>29</td>
</tr>
<tr>
<td>Case study 5: Using e-portfolios in work-based learning, University of Wolverhampton</td>
<td>30</td>
</tr>
<tr>
<td>Case study 6: Adopting a learner perspective, University of Oxford</td>
<td>32</td>
</tr>
<tr>
<td>Assessment, feedback and accreditation</td>
<td>34</td>
</tr>
<tr>
<td>Increasing the range of assessment methodologies</td>
<td>34</td>
</tr>
<tr>
<td>Providing timely and efficient feedback</td>
<td>35</td>
</tr>
<tr>
<td>Accrading prior experiential or certificated learning</td>
<td>35</td>
</tr>
<tr>
<td>Case study 7: Acquiring an award via an e-portfolio, Thanet College</td>
<td>36</td>
</tr>
<tr>
<td>Case study 8: Providing feedback via web conferencing, Cardiff Metropolitan University</td>
<td>37</td>
</tr>
<tr>
<td>Case study 9: Exploring the accreditation of prior experiential learning (APEL), University of Plymouth Colleges and partners</td>
<td>38</td>
</tr>
<tr>
<td>Learner journey: Learning in the workplace</td>
<td>40</td>
</tr>
<tr>
<td>Stakeholder engagement and sustainable partnerships</td>
<td>42</td>
</tr>
<tr>
<td>Stakeholder engagement</td>
<td>42</td>
</tr>
<tr>
<td>Developing sustainable partnerships</td>
<td>42</td>
</tr>
<tr>
<td>Managing work-based provision</td>
<td>43</td>
</tr>
<tr>
<td>Case study 10: Improving labour market information, University of Nottingham and partners</td>
<td>44</td>
</tr>
<tr>
<td>Case study 11: Building partnerships in work-based programmes, The Edinburgh, Lothians, Fife and Borders Regional Articulation Hub (ELRAH) and partners</td>
<td>46</td>
</tr>
<tr>
<td>Sustaining the momentum</td>
<td>49</td>
</tr>
<tr>
<td>Institutional responses to lifelong learning</td>
<td>50</td>
</tr>
<tr>
<td>Glossary</td>
<td>52</td>
</tr>
<tr>
<td>Further information</td>
<td>54</td>
</tr>
<tr>
<td>Supplementary online resources</td>
<td>56</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>57</td>
</tr>
</tbody>
</table>
“...education should not stop when a person leaves school. The opportunities and enjoyment it offers should be available to people throughout their lives in different forms: full-time and part-time; academic and vocational, whatever will help them achieve their goals at that stage of their life.”

Higher Education: Students at the Heart of the System (Department for Business, Innovation and Skills, 2011)
Introduction

We live in a world of rapid economic and technological change. Digital technologies permeate every aspect of our lives, affecting how we communicate, find and provide information, build relationships, trade and purchase goods and, critically, how we learn and teach.

Increasingly, individuals bring to higher education rich experiences gained from a technologically enhanced world. Younger learners grow up using mobile devices, games consoles and other electronic equipment for communication and entertainment. Mature learners, meanwhile, are increasingly likely to have internet access at home and to use technology at work.

Government and employers look to formal education and training to make a significant contribution to individuals’ learning in this complex technological and economic world. At a personal level, the capacity of individuals to respond and adapt to change depends on their ability to learn throughout their lives.

Learning in a Digital Age explores ways in which technology can help higher education institutions meet the challenge of lifelong and work-based learning. For example, technology can help improve access to learning, streamline institutional processes, and provide more efficient and effective support for people at entry, on courses and beyond.

The guide does not cover the entire spectrum of learning encounters individuals may experience throughout their lives, rather it is concerned with touch points where higher education makes a contribution to a learner’s journey. The guide focuses not only on the interaction between higher education and young full-time undergraduates, but also with learners at other stages of the learning journey: the adult returner, the employee, the parent undertaking a career change, or the professional seeking to learn new skills.

These touch points are aspects that not only help individuals maximise their potential, but also play a key role in economic performance and success. UK Government policy, embodied in documents such as the Leitch Review of Skills (2006), makes clear that national competitiveness and sustainability depend upon a workforce skilled to a high level and able to respond to the need for continuing professional development (CPD).

Learning in a Digital Age demonstrates, through a range of case studies, how institutions are using technology to attract and retain diverse groups of learners, offer professional development opportunities for their staff, and enhance engagement and collaboration with employers and other organisations with a stake in effective lifelong learning.

Further information

Learning in a Digital Age is designed for individuals in further and higher education who have an interest in lifelong learning: academic staff, lecturers, tutors, learning support staff, learning technologists, and information, advice and guidance professionals. The publication signposts some of the effective higher education practice taking place in the UK and addresses the benefits and challenges that arise in a digital age. Supplementary resources, including video case studies and extended versions of the case studies, are available online.

www.jisc.ac.uk/digilifelong
www.jisc.ac.uk/digilifelongresources
Exploring lifelong learning in higher education

Universities and colleges are already contributing to lifelong learning through their existing learning and teaching, research and partnership activities. But the fast-changing economic climate and diminishing numbers of younger entrants are making it more likely that the demographic profile of higher education programmes is set to change, with the needs of adult learners perhaps taking a more prominent role than they have done in the past.

Learners entering higher education later in life, however, present different needs to those of traditional entrants. Mature learners may possess a broad range of prior educational achievements but are more likely than younger learners to have greater responsibilities, fitting learning around other commitments. For these lifelong learners, success in higher education depends on the ability of the institution to respond flexibly to their needs.

The capacity of mature learners to incorporate rich life experiences into their learning creates opportunities for practitioners to explore different approaches to teaching and curriculum design. It could, in fact, be argued that lifelong learning should be placed at the core of further and higher education practice. Developing curricular, pedagogic and administrative practices and processes that facilitate greater involvement in learning by a wider diversity of learners and stakeholders both creates an inclusive learning environment and may improve institutions’ chances of increasing market share. An inclusive learning environment benefits all participants, including disabled, overseas, distance and work-based learners and their employers.

Work-based learning as a dimension of lifelong learning

Whilst recognising the importance of education in promoting equity and improving the life chances of learners from different backgrounds, government education policy in the UK is clearly aligned with that of Europe and the 20 major economies (known as the G-20) in that it adopts a strong economic perspective on lifelong learning.¹ The emphasis is on the critical role that education, employers and individuals at all stages of life play in business growth and financial prosperity.

The strategies of the Department for Innovation, Business and Skills, the Department for Employment and Learning in Northern Ireland, and the National Assembly for Wales all express similar aspirations: higher education has a role to play in increasing access to higher level skills and preparing learners for the world of work. A key focus underlying Scottish Government policy in higher education is the interaction and transition between different education and training sectors. For example, five hubs, including the Edinburgh, Lothians, Fife and Borders Regional Articulation Hub (ELRAH),² have been created, with the brief to develop more effective entry into and exit routes from degree courses.

To meet the needs of lifelong learners, institutions need to collaborate better with employers to align curriculum design in higher education programmes with the requirements of employers and the workplace. Collaboration with employers might serve a variety of purposes: acquiring work placements for campus-based learners; creating professional development opportunities for work-based learners; accrediting existing employer training; or collaborating on the design of vocational and professional programmes to better equip graduates for the workplace.

¹ www.slideshare.net/Alistercrowe/lifelong-learning-strategy-g20-meeting
² www.elrah.ac.uk
“The core of any excellent education system is based on talented teachers, sound curriculum and strong leadership. Integrating digital technologies fuels new forms of teaching and learning and helps equip learners throughout our society to participate and prosper in a global digital economy.”

Delivering a Digital Wales (Welsh Assembly Government, 2010)

Where employers are funding the programme of study, business needs tend to feature as strongly as those of the work-based learner. In these situations, there is an onus on institutions to refine existing relationships with employers as well as forge new ones.

One key result of institutions’ more active engagement with employers and external stakeholders such as professional bodies and partner organisations has been the co-design and delivery of demand-led provision. Several case studies in this publication, for example case study 4, show how higher education is helping businesses to meet their strategic goals by creating customised learning programmes.

Learning in the workplace

The literature describes many approaches to learning in the workplace. The following synthesis is adapted from a model developed by the JISC project Technology-enhanced Learning to support a Welsh Centre for Workforce Development at Cardiff Metropolitan University.

The model distinguishes between three workforce development market segments, although the categories are not mutually exclusive; for example, a learner on a vocational programme might engage in learning through work whilst on work placement, but in learning for work whilst at university.

Learning in work

- Acquisition and application of new job-related knowledge. Emphasis on enhancing participants’ capability to perform current duties or respond to role changes.

Learning through work

- Accreditation of work-integrated learning outcomes. Emphasis on experiential learning opportunities that test and expand participants’ capability and contribute directly to organisational goals.

Learning for work

- Preparation for a new career or major career change. Emphasis on building participants’ capacity to perform future work.
Extending opportunities in a digital age

JISC e-Learning programme

JISC has been at the forefront of research and innovation in technology-enhanced practice. Ongoing and recently completed programmes of research relevant to lifelong learning include:

- HE in FE (completed in 2009) – exploring the use of a range of technologies with learners undertaking higher education learning in a further education context
- Lifelong Learning and Workforce Development (completed in 2011) – using technology to meet the needs of learners in the workplace and their employers
- Transforming Curriculum Delivery through Technology (completed in 2011) – investigating more flexible and creative models of delivery
- Institutional Approaches to Curriculum Design (2008–2012) – reviewing how course design and validation can be informed by technology
- Developing Digital Literacies (2011–2013) – supporting the development and implementation of institutional approaches to digital literacies across the entire workforce, and including learners
- Transformations Programme (2011–2013) – undertaking large-scale organisational change, underpinned by technology, to enhance student experience, improve operational efficiency, and improve capability for business and community engagement
- Content Programme (2011–2013) – addressing issues related to the creation and delivery of digital content, in parallel with strategies to support digitisation activity
- Assessment and Feedback Programme (2011–2014) – supporting large-scale changes in assessment and feedback practice supported by technology

For many higher education programmes, extending learning opportunities so that they better meet learners’ and employers’ needs remains a major challenge. Redesigning learning to address the needs of lifelong learners has implications for pedagogy, business processes and information technology systems.3

Institutions that extend provision to new markets often find that their internal processes do not support non-traditional modes of delivery. Admissions systems and functions that streamline the application process, adaptations to information technology services to support the rapid design of short as well as long courses, access to study support and other institutional services from any location, and more effective course and student data exchange are all technically feasible but culturally and economically challenging.

Further challenges for managers, course teams and teaching practitioners include enabling lifelong learners to demonstrate prior attainment, engaging with a greater variety of feedback and assessment methodologies, and developing cost models4 that enable comparison between different modes of learning.

When technology is applied to finding sustainable solutions to such problems, it can lead to improved productivity and efficiencies. However, the initial disruption to practice for those involved in and affected by the adoption of technology cannot be underestimated. As with any change, successful technology integration depends on effective change management, which in turn depends on clear leadership.

3 JISC, Institutional Innovation Programme. www.jisc.ac.uk/whatwedo/programmes/institutionalinnovation
Despite the above challenges, over the last decade, higher and further education institutions have made considerable progress in embedding technology to the benefit of lifelong learners. The availability and ease of use of digital technology has created new opportunities to deliver learning in locations off campus, such as in the home, community or workplace. Evidence from the case studies in this publication and other JISC and Higher Education Academy programmes demonstrates how technologies such as e-portfolios, blogs, wikis, podcasting, social networking, web conferencing and online assessment tools are being increasingly used alongside virtual learning environments (VLEs) to deliver a richer, personalised curriculum to diverse learners.

Any technological change has implications for staff development and skills. Ultimately, a flexible and adaptable institution that responds to the demands of the lifelong learner is one that has a workforce of individuals who are reflective and acknowledge the need constantly to update their skills, including information and digital literacies.

Technology can offer the following benefits

- Improved access to up-to-date institution and course information
- Faster response to initial enquiries and streamlined online application processes
- Access to institutional services from mobile devices, from any location
- Enhanced support for transition into higher education
- Easier engagement with stakeholders, particularly employers, in curriculum design and delivery
- Responsive programmes that meet learners’ and employers’ needs
- Learner choice in the timing and location of study
- Flexible ways of delivering the curriculum and assessment and providing learner support
- Opportunities to extend higher education to new markets by distance and online learning
- Increased opportunities for learners to demonstrate a range of achievements and prior attainment
- Efficient assignment-handling processes
- Rapid and timely feedback that prompts reflection
- Improved data collection and transfer across processes
- Online integrated points of access to institutional services for practitioners, learners and other stakeholders such as employers
Building understanding of technology-enhanced lifelong learning

This publication considers five overarching themes in the context of lifelong learning: support for lifelong learners, responsive curriculum design, flexible curriculum delivery, assessment feedback and accreditation, and stakeholder engagement and sustainable partnerships.

The following table highlights the relationships between the five themes, their associated issues and the case studies. It provides an insight into how higher education, in partnership with other stakeholders, is rising to some of the challenges presented by lifelong learning, including the work-related dimension.

The tools, systems and technical terms used in the publication are explained in the Glossary.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Key issues</th>
<th>How technology can help</th>
<th>Case studies</th>
<th>Benefits                                                                ’à</th>
<th>Technologies used in case study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support for lifelong learners</td>
<td>Some learners, particularly non-mainstream learners, may experience</td>
<td>Technology enables integrated pre-entry support by combining opportunities to communicate peers online. Access to learning materials and personal development tools</td>
<td>Case study 1: Managing transition into higher education, University of Bradford</td>
<td>More seamless transition into HE for learners. Reduced staff time spent on pre-entry and induction-related enquiries</td>
<td>Ning-based social networking site; online Skills and Personal Development Activity diagnostic tool; Blackboard VLE; PebblePad e-portfolio system; CampusM™ mobile technology platform</td>
</tr>
<tr>
<td></td>
<td>difficulties managing the social and academic aspects of HE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learners can lack a sense of belonging to an HE community within an FE</td>
<td>Establishing online communities of practice facilitates regular communications, reflective activities, discussions and peer learning</td>
<td>Case study 2: Supporting higher education learners, Leicester College of Further and Higher Education</td>
<td>Stronger sense of identity as HE learners. Deeper learning, increased motivation and greater resilience in learners</td>
<td>Moodle VLE; Mahara e-portfolio and social networking software; Blogger online blogging tool</td>
</tr>
<tr>
<td></td>
<td>environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsive curriculum design</td>
<td>More responsive curriculum development depends on participation from those individuals that have a stake in the outcome</td>
<td>Technologies such as audio and video can represent a rich picture of stakeholder views and demonstrate shared ownership of the design process</td>
<td>Case study 3: Engaging stakeholders in curriculum design, Birmingham City University</td>
<td>Enhanced stakeholder engagement in curriculum design. Informal capture of the curriculum development process using rich media</td>
<td>Microsoft® SharePoint®, Voxur video recording units; FlipTM digital cameras; Xtranormal animation software</td>
</tr>
<tr>
<td></td>
<td>The absence of shared vocabulary and employers’ unfamiliarity with HE level descriptors can form barriers to sustainable employer-centred provision</td>
<td>The use of online tools to streamline the curriculum negotiation process with employers supports mutual understanding</td>
<td>Case study 4: Developing demand-led provision, University of Gloucestershire and partners</td>
<td>Reinterpretation of employers’ learning requirements into academic terms. Stronger relationships between HE and business</td>
<td>The online Co-generative Toolkit (Co-genT)</td>
</tr>
<tr>
<td>Flexible Curriculum delivery</td>
<td>University admissions and other support processes cannot always adapt rapidly to the needs of diverse learners</td>
<td>Technology-based innovation can act as a catalyst for developing new, more flexible procedures or additional routes through existing institutional processes</td>
<td>Case study 5: Using e-portfolios in work-based learning, University of Wolverhampton</td>
<td>Institutional processes that can respond rapidly to and support the needs of lifelong learners</td>
<td>PebblePad e-portfolio system including webfolios and blogging functions</td>
</tr>
<tr>
<td></td>
<td>Employers and learners want smaller and shorter learning experiences</td>
<td>Providing short units of online learning that can be combined into different awards better meets business needs</td>
<td></td>
<td>Greater choice and flexibility for employers and learners including those learning in and through the workplace</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not all learners perceive their interactions with HE as a holistic experience</td>
<td>Maximising the efficiency of online processes such as course information, enrolment and payment can result in a more coherent learning experience</td>
<td>Case study 6: Adopting a learner perspective, University of Oxford</td>
<td>Simplified and streamlined technology-enhanced pre-delivery and VLE processes. Efficiency gains</td>
<td>Moodle VLE with personalised assignment-handling module. Online enrolment and payment systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Simplifying VLE processes makes it easier for staff to set up personal learning spaces for their students</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

continued overleaf
<table>
<thead>
<tr>
<th>Theme</th>
<th>Key issues</th>
<th>How technology can help</th>
<th>Case studies</th>
<th>Benefits</th>
<th>Technologies used in case study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment, feedback and accreditation</td>
<td>The need to capture staff CPD activities in a manner that respects the concept of the reflective practitioner whilst meeting the requirements of an award</td>
<td>Personal learning spaces such as e-portfolios enable learners to capture the individual stories of their learning</td>
<td>Case study 7: Acquiring an award via an e-portfolio Thanet College</td>
<td>The media-rich capture of individual learner journeys rooted in reflective practice Provision of an online environment for the assessment and verification of CPD</td>
<td>PebblePad e-portfolio system</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adobe® Connect Pro™</td>
</tr>
<tr>
<td>Finding ways of embedding feedback activities in the online delivery of learning to remote learners</td>
<td>Synchronous technologies such as web conferencing can supplement face-to-face feedback activities for learners studying at a distance</td>
<td></td>
<td>Case study 8: Providing feedback via web conferencing Cardiff Metropolitan University</td>
<td>Improvement in practical as well as academic skills of dispersed learners as a result of participation in real-time online activities supported by timely feedback Delivery of ‘just-in-time’ peer feedback and mentoring between remote learners</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PINEAPPLE web-based institutional APEL tool</td>
</tr>
<tr>
<td>Mainstream application processes do not easily recognise and accredit the prior experiences of non-traditional learners</td>
<td>Digital technology can provide a single point of online access to the institutional management of APEL</td>
<td></td>
<td>Case study 9: Exploring the accreditation of prior experiential learning (APEL) University of Plymouth Colleges and partners</td>
<td>Attracting and recruiting non-mainstream students is encouraged by the use of APEL Using the web-based PINEAPPLE tool makes the institutional management of APEL more efficient Reducing the time required to complete a course can cut the overall costs of study for lifelong learners</td>
<td>PINEAPPLE web-based institutional APEL tool</td>
</tr>
<tr>
<td>Stakeholder engagement and sustainable partnerships</td>
<td>A lack of standardisation of terminology to describe data, across key stakeholders such as information providers can prevent effective re-use and blending of data from different sources</td>
<td>Data standards can facilitate the sharing of data between stakeholders so that different types of data can be combined to create new information services</td>
<td>Case study 10: Improving labour market information University of Nottingham and partners</td>
<td>More meaningfully connected information services</td>
<td>Data standards, for example, XCRI-CAP (eXchanging Course Related Information Course Advertising Profile); Online demonstrator tool.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provision of work-based programmes depends on collaborative partnership working</td>
<td>Partners are enabled to assess their readiness to engage with work-based provision</td>
<td></td>
<td>Case study 11: Building partnerships in work-based programmes The Edinburgh, Lothians, Fife and Borders Regional Articulation Hub (ELRAH) and partners</td>
<td>The development of effective, sustainable partnerships Collaborative design and delivery of work-based provision</td>
<td>Online Work-based Learning Maturity Toolkit, WebCT VLE, Skype™, Facebook, Blackboard Collaborate™, Camtasia Studio®</td>
</tr>
</tbody>
</table>
Support for lifelong learners

The challenging financial climate and the increased competition following the implementation of the Higher Education White Paper are exerting pressure on higher education institutions to re-evaluate the quality of support offered to learners.

Ways of enabling support to be more responsive to the needs of lifelong learners include:

- Providing assistance at pre-entry and induction
- Fostering self-directed learning
- Enabling transition

Providing assistance at pre-entry and induction

Support for learners begins well before enrolment. The ways in which courses are advertised, and the level of detail about programmes – including alternative modes of study, the timing and methods of assessment, and the ability of the programme to recognise and accredit prior experience and attainment – are especially important in improving access for non-mainstream applicants.

The Higher Education Funding Council for England (HEFCE) has gone some way towards addressing learners’ need for pre-entry support, by requiring institutions from September 2012 to provide Key Information Sets on all undergraduate programmes that last more than a year, including data on what and how individuals will learn, fees and funding, accommodation costs, and course-related employment and salary prospects.

Institutions often experience challenges in collating and updating course data, however. Course information may be held in a number of disconnected databases, created and maintained by various individuals for different business functions. In response, the eXchanging Course Related Information – Course Advertising Profile (XCRI-CAP) standard has been developed with JISC funding. XCRI-CAP helps institutions express course data in such a way that the need to key and re-key course information is reduced, allowing information to be more easily collected and shared with external bodies, and also enabling better-informed business planning within the institution.5

Up-to-date course data forms part of a greater pool of information required by individuals to make decisions about their learning. The provision of information and advice via bespoke websites and using a range of media such as blogs, discussion forums and other social media helps learners to familiarise themselves with academic resources, discuss and share issues, and access support during their decision making. The Lifepilot website6 is one illustration of how institutions are assisting learners in the decision-making process. Further examples can be found in the report Managing Students’ Expectations of University by the 1994 Group.7

Lifepilot: helping adults go higher

The Lifepilot website, developed by the Western Vocational Progression Consortium, provides information, advice and guidance to adults about the range of routes into higher education in the South West. Adult learners contribute to inspiring others through more than 50 video stories showing their routes to higher-level study and how they have overcome the challenges.

Lifepilot offers a range of tools including Profile Builder, which helps adults identify skills which will be valued in higher education, a personal development planner and a search facility to help individuals find course providers. Lifepilot-registered users can save their information to a personalised area on the website so they can return to it as they plan their future study.
“Doing a part-time degree whilst working is definitely hard. You do have to be self-disciplined and put a lot of time and effort into it outside of your working hours, but it’s also beneficial because you’ve got people around who can help you.”

Student, Lifepilot

Fostering self-directed learning

Some individuals, particularly adult learners, feel uncertain of their ability to cope with the academic demands of higher education. They begin their higher education studies feeling tentative, often have high expectations of the level of contact they will have with tutors, and are ill-prepared for regulating their own learning.

Online learning spaces, including e-portfolios and social media, which provide opportunities for individuals to reflect on and plan for their learning can help prepare learners, particularly non-traditional learners, for a self-regulated learning environment such as that at university. Once learners are on a course, an institution’s online learning environment can act as a focus, bringing together a range of technologies that can foster self-directed learning and build learning communities. Examples include interactive resources to foster critical thinking, asynchronous and synchronous tools to facilitate communication with tutors and peers, blogging to encourage peer support and feedback, and personal learning spaces to capture individual learning journeys.

Enabling transition

The economic turbulence of the last few years has resulted in a much more competitive job market, with the likelihood that individuals will need to change careers several times in their working lives. Helping learners to cope with the numerous transition points they will encounter is an important function of higher education.

Many employers are seeking individuals with a range of attributes besides academic ability and subject specialism, such as communication skills, team working, interpersonal skills, problem solving, flexibility, digital literacy and, above all, a willingness to learn and continue learning. The Higher Education Achievement Report (HEAR) is extending the methods for describing, reflecting upon and recording attainment and achievement by providing vehicles to capture richer pictures of learners’ accomplishments.

Technologies such as e-portfolios, social media and other online personal spaces can assist learners in recording, revisiting and reflecting on their developing attributes and skills. As a result, the articulation of the learning that occurs across a range of contexts, including the workplace, can be repurposed to meet the needs of different audiences at different transition points. Examples include gathering evidence for an assessor as part of an accreditation process, preparing an application to an educational institution, or updating a curriculum vitae to target a particular employer.

5 www.xcri.co.uk
6 www.life-pilot.co.uk
10 Harvey et al (2002). http://tinyurl.com/84z5bc
11 www.jisc.ac.uk/whatwedo/programmes/elearning/eadministration/hear
Managing transition into higher education

University of Bradford

Context
Research by Lefever and Currant involving the University of Bradford has identified that students who make early contact with the academic or social aspects of higher education are more likely to remain involved in their courses. Develop Me! (co-funded by the Higher Education Academy and JISC as part of the e-Learning Pathfinder Programme) is an integrated online package of transition, induction and study skills support for students. It has been designed to enable students to manage the social and academic aspects of pre-entry and initial induction.

Establishing effective practice
A social networking platform, Ning, has been customised and made available to new entrants prior to their arrival at university. The Develop Me! social network lets students start making friends with their peers and sharing their hopes and fears about studying in higher education. The site remains open to students during their studies, resulting in a diverse range of users spanning different stages in the student lifecycle.

The university is aware that any support activities it develops must be inclusive and reflect a variety of student experiences and levels of competence in information technology. The Ning technology was selected because, despite students’ wide familiarity with social networking tools such as MySpace and Facebook, not all are comfortable with their use, particularly mature students who see them as spaces for younger people.

Many students migrate from Develop Me! into other social networks. However, some learners, such as mature and international students, continue to use Develop Me! beyond the initial transition phase, to support one another and to help new entrants.

Develop Me! had acquired just over 5,000 members in 2011 and is still growing, providing much valued personal contact as learners make the transition into university life.

The second aspect of successful transition into higher education identified in Lefever and Currant’s research involves the development of academic and study skills and the fostering of attributes such as reflection, motivation and autonomy. Like many higher education institutions, Bradford provides a range of online tools to give students early access to learning materials and personal development tools which help them engage with their course and which provide a sense of control over learning.

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12 www.heacademy.ac.uk/resources/detail/evidencenet/bradford_synthesis
13 http://developme.ning.com
“Our innovative use of social media pre-entry has enabled us to develop meaningful and lasting relationships with students.”
Becka Colley, Dean of Students, University of Bradford

The Skills and Personal Development Activity (SaPRA) diagnostic tool is one example of an online tool provided at Bradford. The tool offers students an opportunity to reflect on and self-assess their prior learning experiences in a number of different skills areas, such as academic reading and writing, mathematics and English or communication skills. Once students have identified their skill level, they develop an action plan which forms a part of their personal development planning. Students are encouraged to review their SaPRA results at intervals during their programme.

Moving on
The University of Bradford is determined to ensure that technology is effectively used to reach large numbers of students and engage them in the learning process. Develop Me! is already accessible via mobile technology, and the initiative has been a major driver in the university’s move towards making its resources, including those on the university’s Blackboard VLE and PebblePad e-portfolio system, more mobile friendly. The intention is to use CampusM, a mobile platform service, to move web-based content into downloadable applications for mobile devices. Learning resources and information such as details of forthcoming events, campus maps, timetables, library records, contact lists and the latest news will all then be available from any location.

Final word
Feedback from students on Develop Me! indicates that it has had a positive impact on engagement, transition, retention and progression. In addition, staff who were previously reluctant to engage with social media and online tools for supporting students now see their benefit.

The Develop Me! initiative forms part of the university’s long-term aim to develop a model of integrated support that covers the complete student lifecycle, and has put social media tools at the heart of the student communication strategy.

For detailed case studies and associated resources, visit www.jisc.ac.uk/digilifelong

Key points
- Offering pre-entry online induction sites can help facilitate a seamless transition into higher education for learners
- Increasing the confidence of students from the outset can reduce time spent on pre-entry and induction-related enquiries
Supporting higher education learners
Leicester College of Further and Higher Education

Context
Leicester College identified the need to provide its higher education students with better support in managing higher-level study. In 2010–2011, the college had 659 students enrolled on 26 higher education programmes across 11 curriculum areas. Growth in the college’s Foundation Degree provision meant cohorts of students could progress from the college to complete their studies at the validating university.

Establishing effective practice
In a college of further education, students enrolled on higher education programmes associate with learners studying a range of non-higher-education courses. Whilst this provides a rich learning environment, higher education learners do not always develop the attributes that enable them to cope with academic life when they move on to a university context.

Since the college was unable to replicate the physical environment of a university campus, it recreated some of the social and academic aspects of university life by exploiting technology. A JISC-funded project, Higher Education Lifelong Learning Opportunities (HELLO), enabled the college to establish an online community that provides all learners participating in higher education courses, and their tutors, with one point of contact within the college’s VLE, Moodle.

Fourteen course-level virtual common rooms have been created to encourage learners studying on different Foundation Degrees to share a virtual learning space for regular communication, discussions and peer learning. The aim is that students build social relationships across year groups and programmes.

Moodle lets individuals set up chat rooms, discussion forums and blogging, but the system is designed to be tutor driven. The college also wanted online spaces where students could form their own groups, therefore Mahara e-portfolio and social networking software was introduced to staff and students alongside Moodle.

The photography and video tutor developed two learning activities, both aimed at first-year Foundation Degree students, which formed a successful part of the initiative. The activities were designed to familiarise students with key elements of higher education study: reflective learning, academic writing and critical thinking.
“Students started sharing technical information with each other, and the forum turned into a real vehicle for peer coaching and learning.”

Lucy Stone, former Project Manager, Leicester College

The first activity, Show and Tell, revolved around a Moodle-based discussion forum and exploited the importance of giving and receiving feedback as a vehicle to promote learning. Students on the part-time programme were encouraged to select and upload photographs they had taken, in between the weekly face-to-face college sessions, and then invite feedback from tutor and peers.

The second activity, Keeping Warm, involved a first-year group of full-time 18- to 30-year-olds. The formative assessment activity was designed to keep students engaged with their Foundation Degree programmes over the long summer break. Students were assigned a work-based research project and asked to reflect via blogging at regular intervals, and to comment on the reflections of their peers.

For the Keeping Warm activity, both Mahara’s blogging function and the publicly available online tool Blogger were used. Support and guidance on academic and reflective writing was given to learners beforehand, with particular emphasis on the depth of reflection expected at a higher level.

Moving on

All 14 virtual common rooms have been retained since the initiative ended in 2010, at the request of lecturing staff. The tutor in photography and video is incorporating participation in the two online activities into all future learner agreements.

Key points

- Encouraging students to engage with their higher education peers helps establish a communal sense of identity
- Developing reflective learning activities encourages deeper learning, improves motivation and builds resilience in students

Final word

The two online activities proved particularly powerful in encouraging collaboration and retaining student engagement. Retention levels were vastly improved among the cohorts involved in the initiative compared with cohorts in the four previous years: for the first time, all the learners returned for the second year of the course.

For detailed case studies and associated resources, visit www.jisc.ac.uk/digilifelong

For a video on the work of the HELLO project, visit www.jisc.ac.uk/digilifelongresources

Responsive curriculum design

Flexible, streamlined curriculum design processes enable programmes of learning to be more readily aligned with diverse cohorts of learners.

Technology can assist alignment by:
- Enabling agile curriculum design processes
- Facilitating collaboration in curriculum development
- Establishing a common vocabulary

Enabling agile curriculum design processes
Curriculum design is not carried out in isolation but forms part of an iterative cycle of market research, planning, development, implementation and review. However, within some institutions, there may be barriers to designing curricula that meet the needs of lifelong learners.

For example, it may be difficult to amend or combine units of learning to form new programmes, curriculum approval and validation processes may not quickly respond to new markets, and review processes may be slow to represent in official documentation the changes that occur in curricula during delivery.

A number of the projects in the JISC Institutional Approaches to Curriculum Design programme are exploring how technology can help institutions address some of the challenges presented by systems that are incompatible with innovative curriculum design. Emerging outcomes from projects such as Manchester Metropolitan University’s Supporting Responsive Curricula, Staffordshire University’s Enable and the University of Wolverhampton’s e-Portfolio based Pedagogy for SMEs (small and medium sized enterprises) project (see case study 5) all demonstrate how technology can play a vital role in a number of ways.

Benefits include:
- Facilitating more effective information exchange between systems; for example, the automated integration of enrolment, outcomes and retention statistics into programme data to better inform programme review
- Enhancing the understanding of stakeholders about how different aspects of the curriculum are linked together, via web-based curriculum mapping software, social networking tools and case studies
- Enabling more efficient design, approval and review procedures in order to create responsive but rigorous approaches to curriculum design

Addressing curriculum design processes by means of underpinning technologies may still be in its infancy but is nonetheless a vital step in enabling an institution to respond with greater agility to the needs of stakeholders.

Facilitating collaboration in curriculum development
Today’s financial climate imposes constraints on institutions that plan to invest in new programmes and courses. More cost-effective approaches to curriculum approval and validation are therefore required. There is an argument for accurate market intelligence to form the basis of all new curriculum designs, and for those individuals who have a stake in the curriculum to participate in the design process.

A responsive curriculum design process gives institutions the ability to adjust quickly and easily to emerging or non-mainstream markets, and to create programmes that enable different modes of participation. To inform curriculum development, close engagement with stakeholders’ views and perceptions can be achieved by the use of technologies such as blogs, audio and video capture and document-sharing tools.
“It was the first time that anyone had asked us, as a firm, what we actually wanted... so we’ve had involvement in shaping the course.”

Employer, Barnwood Construction

The importance of actively engaging stakeholders in curriculum development is particularly relevant when designing bespoke programmes, for example for people in employment (see case study 4). In catering for this particular market, it is important that institutions assess employers’ needs alongside those of individual learners.

Establishing a common vocabulary

A further factor in the success of a flexible, demand-led curriculum is the ability to represent the curriculum in a way that has meaning for all stakeholders. The terminology that employers use to describe the skills and attributes they look for in employees may, however, be different from that used by academics to describe the curriculum. A shared vocabulary is therefore a prerequisite for the dialogue between employers and practitioners that must underpin responsive, collaborative curriculum design.

The University of Gloucestershire, in partnership with the University of Winchester and the Western Vocational Lifelong Learning Network, has developed the online Co-generative Toolkit (Co-genT) to inform dialogue between institutional and external stakeholders at key decision points during negotiation of the curriculum.

Co-generative Toolkit (Co-genT)

Co-genT consists of an online package of resources to support the planning, design, implementation and assessment of curricula in higher education. One element of the package is the Vocabulary Builder, which takes core terms from a set of higher education frameworks (for example, the term “analyse”), and displays the meanings of those terms as they are used at different higher education qualification levels. Once practitioners and employers have agreed the terms to be used, they can incorporate the terms into learning outcomes for specific courses, units or learning activities.

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15 http://jiscdesignstudio.pbworks.com/w/page/40489793/Institutional-Approaches-to-Curriculum-Design
16 www.celt.mmu.ac.uk/src/?page_id=3
17 www.jisc.ac.uk/whatwedo/programmes/elearning/curriculumdesign/enable
18 www.pebblepad.co.uk/cogent
Case study exploring responsive curriculum design

Engaging stakeholders in curriculum design

Birmingham City University

Context
The Technology-Supported Processes for Agile and Responsive Curricula (T-SPARC) project, part of the JISC Institutional Approaches to Curriculum Design programme, is led by Birmingham City University with the aim of developing an information and communication technology infrastructure that will facilitate greater transparency and dialogue between the stakeholders involved in curriculum design and approval. A key message emerging from the four-year project is that genuine stakeholder engagement entails a radical change in institutional practice.

Establishing effective practice
Birmingham City University reviewed its programme approval process in order to make the university more responsive to emerging market needs. Technology was fully exploited to facilitate consultation with stakeholders and document the iterative process of gathering, reflecting on and responding to stakeholders’ views.

The team viewed students as meaningful co-contributors to the design process, and sought their active participation in the pilots through the institution’s Student Academic Partner (SAP) scheme. For example, students were engaged alongside academics to interview stakeholders and capture focus-group discussions. Students used a range of technologies such as Voxur video-recording units, Sony MP3 voice recorders and Flip™ cameras.

One pilot course in the project used the Voxur units to collect responses from clinical staff in local hospitals about the intended characteristics of a new MSc Radiotherapy course, and a Flip camera to record a meeting at which clinical radiotherapy staff from across the Midlands discussed their views on the proposed modules. External stakeholders responded positively to the opportunity for meaningful engagement with course teams.

The university authored a bespoke data protection policy to enable it to share the video responses with a range of other interested groups and individuals, such as the National Union of Students and Higher Education Academy. Not all interviewees wanted to be identified on camera, however. To retain the views of these individuals whilst protecting their anonymity, the project team used the free software Xtranormal, which represented the contributions using computer-generated voices and animated characters.

19 www.bcusu.com/saps
20 Example of Xtranormal, on YouTube. www.youtube.com/watch?feature=endscreen&NR=1&v=Fr4bJYZB5sw
Once data had been collected, students led on the editing and analysis of recordings, feeding the results into the institution’s curriculum design processes. With other information such as the outcomes of staff surveys, annotated curriculum process maps, and data from the institution’s management information system, the recordings formed a body of evidence used to shape a new, more collaborative institutional design and approval process.

All stakeholders, including those most affected by the design of the curriculum – the students – as well as those tasked with approving the programmes, were able to work together to develop appropriate course aspirations, which resulted in shared ownership of the changes.

Ratified in principle by the university’s senate in July 2010, the new methodologies and systems are being piloted in three further programme areas. An institution-wide roll-out is planned from September 2012.

Stakeholder engagement was further strengthened by use of Microsoft Sharepoint, an online document management system and repository. This tool was used to underpin the workflow of the curriculum design and programme approval processes and enable programme documentation to be shared and collaboratively authored.

Moving on

Students are now replicating the practice from the pilots in order to solicit stakeholders’ opinions across a range of teaching and learning issues. Examples include: capturing the views of peers, university staff and employers on video to inform the university’s Health and Wellbeing programme; recording audio and video interviews with professionals working in art and design about how to gain access to the profession; and, finally, evaluating the student perspective on a virtual paediatric intensive care unit which prepares students for work placements.

Key points

- Engaging stakeholders actively in curriculum design calls for a radical change in institutional practice
- Using video and audio technology to facilitate dialogue between stakeholders enables curriculum development processes to be informally captured
- Creating computer-generated voices and animation can address the need for some contributors to remain anonymous

Final word

Active engagement of stakeholders in curriculum design can result in more authentic and transparent representation of courses for the purposes of approval.

For detailed case studies and associated resources, visit www.jisc.ac.uk/digilifelong

“I believe that video and audio capture offers the most effective solution to collect and share authentic stakeholder contributions.”

Professor Paul Bartholomew, Head of Curriculum Design and Academic Staff Development and T-SPARC Project Manager, Birmingham City University
Developing demand-led provision
University of Gloucestershire and partners

Context

Funded by the Higher Education Funding Council for England (HEFCE), Nexus involves the University of Gloucestershire in partnership with Gloucestershire College. Nexus uses a highly consultative approach to work with employers in Gloucestershire and develop and design bespoke programmes and services to address their needs.

The principal focus of Nexus is to achieve sustainable, employer-centred provision that can deliver more flexible higher education programmes to employees in the region. The team also works beyond county boundaries. Activities covered by Nexus include the accreditation of existing employer training programmes, re-packaging of existing programmes of learning, and creation of specialist modules, courses or degrees where there is no existing provision.

Establishing effective practice

Nexus is demand-led and works within the parameters of the University of Gloucestershire’s mainstream institutional procedures, although these internal procedures were realigned to better accommodate work-based learning requirements. Nexus relies on two important and innovative mechanisms to support its work: the Gloucestershire Framework for Personal and Professional Development and the online Co-generative Toolkit (Co-genT).

The Gloucestershire Framework for Personal and Professional Development is a non-linear, non-qualifications-focused framework which enables programmes of learning to be designed. Core modules at each level of study are combined with specialist content which can be negotiated with learners and/or employers. Learners are able to accumulate credits from small units of learning, each worth 15 or 30 credits, as they work towards a Certificate of Higher Education, a Foundation Degree, an Honours Degree or a postgraduate qualification. Bespoke programmes meeting individual requirements are developed through detailed discussions between the Nexus development team, academic tutors and employers.

An example of a co-developed programme is a Level 4, 120-credit Certificate of Higher Education, Personal and Professional Development, which focuses on developing the knowledge and skills required by middle managers in the construction industry. To develop the curriculum, the Nexus Partnerships Officer collaborated extensively with representatives of the local construction industry.

The Nexus team acknowledge that employers are subject specialists, and work closely with them as partners. Engaging with the relevant professional bodies as early as possible in the collaboration is also seen to be important. From the start, the Nexus team included the Accrediting Officer at the Chartered Institute of Building in the process. The team provided updates throughout the collaboration, seeking advice on necessary components and ensuring that modules met the institute’s professional requirements.

The team aimed to overcome the barriers that prevent successful collaboration. In particular, the team worked to create a shared understanding of key academic terms, and to build an understanding of employers’ needs for more flexible design processes within the university.

Level descriptors are an example of where language can create barriers. The terms “Levels 1, 2 and 3” are frequently used in higher education, instead of the equivalent National Qualification Framework’s “Levels 4, 5 and 6”. Businesses can find it difficult to understand why a Level 3 learner appears to progress to a Level 1 programme in higher education. This is where Co-genT (see page 21) comes into
“Of utmost importance has been a willingness of all parts of the organisation to work together to achieve something new, and to learn by doing.”

Dr Mary Mahoney, Director of Nexus, University of Gloucestershire

play. Using Co-genT, the Nexus team has been helped to re-interpret the learning requirements of employers into academic terms. At the same time, Co-genT has helped employers become more familiar with the terminology and qualification levels used in higher education.

Moving on
The Gloucestershire Framework and Co-genT have enabled Nexus to set up procedures that have streamlined curriculum negotiation and design processes to achieve a more agile and rapid response to employers’ needs. As a result of this work, several other areas of the construction and the built environment sectors have approached Nexus to discuss the development of further bespoke higher-level skills programmes.

Key points
- Using online tools to streamline the curriculum negotiation process with employers supports a shared understanding
- Engaging employers may require changes to internal processes to accommodate work-based learning

Final word
Arguably one of the greatest benefits of the tools has been the development of mutual understanding and stronger relationships between academic practitioners and their counterparts in industry.

For detailed case studies and associated resources, visit www.jisc.ac.uk/digilifelong

For a video on the work of the NEXUS project, visit www.jisc.ac.uk/digilifelongresources
Learner journey: Returning to learning

An example of a learner with family commitments re-entering education with illustrations of possible institutional responses to the challenges this presents.

Issue: Offer alternative entry routes (Accreditation)
Institution: We welcome students that have non-standard entry qualifications. We have a range of online mechanisms in place to support them, including accrediting prior certificated or experiential learning, online enrolment and payment, and the provision of an online personal learning space such as an e-portfolio where they can reflect on and evidence their learning, whether it takes place on campus or in the workplace.

I’m a single parent with two children. I’ve been volunteering at a residential home for the elderly and am interested in becoming a social worker, but I haven’t got many qualifications. I want to find out what I have to do to get qualified.

I managed to chat with a Careers Advisor and she pointed me to the Access to HE course in Social Work at my local college. I didn’t need any A levels to do it, although they did test my English and maths. I attended three days a week over a year. I loved it.

Issue: Maintain up-to-date and detailed information about the institution, provision and labour market (Supporting learners)
Institution: We always ensure that organisations that aggregate course data have up-to-date information about all our provision, including short professional courses. Our online prospectus allows learners to search by location, length of course and start dates, and includes information about assessment and progression.

I am really pleased I have found something that works for me. I was a bit nervous about whether I have the skills for higher education, especially as I am not very used to using a computer, but I was happy with all the support I was given.

Issue: Offer online pre-entry information and activities leading to induction (Supporting learners)
Institution: We provide opportunities for our students that prepare them to manage the social and academic aspects of their higher education experience. Students can interact with peers before starting their programme using social media networking and initiate the personal development planning process by engaging with online diagnostic tools and guidance material.

Because I’ve got two young children, I can’t travel far. I tried to find a degree course in social work locally, but the closest means I have to travel for just over an hour. At least it’s part time. I go to university two days a week and the rest is all online. I’m a bit nervous about going to university.

Now that I am in my final year, I can really appreciate how the feedback I have received has helped me improve and develop. I am grateful that I was encouraged to maintain a reflective e-portfolio which I can take with me when I leave and can help me prepare applications for work.

Issue: Provide flexibility of study for programmes and courses (Flexible curriculum delivery)
Institution: We offer alternate routes through a number of our professional and vocational programmes, including degree and postgraduate courses, so that they can be studied in a more flexible manner. We are expecting a growth in provision that will be delivered partially or totally online.

Now that I am in my final year, I can really appreciate how the feedback I have received has helped me improve and develop. I am grateful that I was encouraged to maintain a reflective e-portfolio which I can take with me when I leave and can help me prepare applications for work.

Issue: Provide efficient feedback, and recording of achievement (Feedback)
Institution: We have introduced an online feedback and assignment-handling process to ensure our remote and part-time learners are better supported. We have also implemented a range of technologies such as e-portfolios and other online personal spaces to assist students in recording, revisiting and reflecting on their attributes and skills.
Harnessing the full potential of technology has supported institutions in providing a far richer diversity of learning experiences than previously possible. Technology has enriched curriculum delivery by:

- Widening access to learning
- Enhancing learning in the workplace
- Providing a seamless learning environment

Widening access to learning

As learners seek increasingly more flexible learning opportunities, and as information and communication technologies become integrated into the curriculum, the traditional distinction between face-to-face contact and distance learning is starting to disappear. The growth in web-based distributed learning is challenging existing notions that curriculum delivery has to be location-bound, consist of courses of the same length with fixed start and end dates, and include summative assessments that can only take place at fixed intervals during the year.

Technology offers institutions the chance to extend learning beyond the walls of the institution, reaching out to new overseas markets to supplement face-to-face provision for UK-based learners. Even within a face-to-face context, blending technology-enhanced learning activities with face-to-face delivery can provide richer opportunities to meet learning outcomes.

The ability to combine text, audio and video content with online learning spaces, electronic communication, web-based conferencing systems, simulation software, social media and live synchronous tools is delivering flexible learning opportunities. This flexibility enables a range of individuals, particularly part-time and work-based learners, to more easily manage learning alongside their other commitments. Technologies are not only widening access to learning, but also enabling collaborative and active learning approaches that are more likely to engage learners and develop their potential. Immersive worlds and simulation technologies, for example, give learning a greater authenticity that better prepares individuals for the transition into real-world employment. For example, as part of the JISC-funded G4 Project, St George’s, University of London, designed and developed online virtual patients – that is, interactive computer simulations of real-life clinical scenarios – for the purpose of formative assessment.

Enhancing learning in the workplace

On higher education programmes, learning in the workplace may be restricted to organised work placements. Work experience while learners are on courses has usually been associated with programmes linked to professional accreditation, such as teacher training and programmes in social work, engineering, business or medicine. A number of institutions, for example Reading University, are now embedding work placements across a range of undergraduate programmes.

In recent years, there has been growing interest in the use of technology to support and deliver work-based learning opportunities. e-Portfolios, in particular, are emerging as a means to bridge the gap between institutionally owned tools for managing and delivering learning, such as VLEs, and learner-owned and managed personal online spaces. Cardiff Metropolitan University, for example, is using e-portfolios to

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22 www.jisc.ac.uk/media/documents/programmes/elearning/digiassess_assessmyown.pdf
enable learners on work placements to understand better the relationship between the practical, experiential learning they are acquiring during a work placement and the taught elements of a programme.

The University of Wolverhampton, on the other hand, is using e-portfolios to deliver short units of learning to employed learners in industry (see case study 5). The university’s e-portfolio system, PebblePad, provides learners with the means to record the incremental steps in their learning, collect and organise information which provides a record of skills development over time, share their learning with course tutors and peers, gain accreditation and plan the next steps in their learning journeys.

The adoption of e-portfolios and other technologies such as blogs, wikis and podcasts in learning has repercussions for learners’ digital skills. The findings of the Learning Literacies for the Digital Age (LLiDA) project show that although some learners are comfortable with technology for their own personal use, many have more difficulty understanding how technologies might be harnessed for learning. Learners look to practitioners for guidance, which suggests the need for institutions to adopt coherent approaches for developing the digital literacies of both practitioners and learners.

Providing a seamless learning environment

In order for flexible practices to be sustainable and efficient, it is essential to locate developments in flexible delivery within wider institutional or departmental strategies; however, this has repercussions for organisational structures – technical, managerial and administrative. A strategic approach to flexible curriculum delivery is likely to be a holistic one, because learning activities, delivery mechanisms and their associated services and business functions are all inter-related and need to operate in tandem so that learners perceive all of their encounters with higher education, from initial enquiry through to completion of studies, as a coherent process.

The approach adopted by the University of Oxford’s Department for Continuing Education to its review of curriculum delivery is an example of effective practice (see case study 6). The department identified multiple areas for improvement in its provision for adults, and prioritised for development the key aspects of provision that would most enhance learners’ experience whilst also leading to greater efficiencies. With funding from JISC’s Transforming Curriculum Delivery Through Technology programme, the department was able to make substantial changes to processes that enhanced curriculum delivery, such as VLE management and assignment handling.

“Life can get in the way of learning at times. People move countries, get married, divorced, change or lose jobs. That’s why we build in as much flexibility as we can.”

Dr Kristian J. Sund, Principal Lecturer in Strategic Management, Middlesex University Business School

24 www.jisc.ac.uk/curriculumdelivery
Case study exploring flexible curriculum delivery

Using e-portfolios in work-based learning

University of Wolverhampton

Context

As part of its institutional strategy, the University of Wolverhampton identified workforce development as an area for growth. Since the university had been using e-portfolios in personal development planning and learning and teaching for many years, the JISC-funded e-Portfolio based Pedagogy for SMEs (ePPSME) project provided an opportunity for management to take forward an initiative closely aligned to the strategic priorities of the university.

Establishing effective practice

The university conducted market research with a large number of local companies to identify business and performance needs and to establish common learning needs. The findings concurred with previous research which indicated that shorter courses better suit the business needs of employers. As a result, the university has created a number of bespoke units for delivery via its e-portfolio system, PebblePad, each worth five credits, and covering four curriculum areas: Construction and Communications, Business Organisation, Employment Law, and Environmental Waste Management.

A range of structured online activities involving extensive use of PebblePad’s blogging facility, were designed to assist learners in meeting each unit’s learning outcomes.

Blogging provided students with the means to articulate and document their achievements, experiences and learning, and to reflect on their progress. Blogging also enabled students to explore the relationship between theory and real-life work practices and to share their reflections with work-based mentors, peers and academic tutors. As each post was added to an individual’s blog, it formed evidence of that student’s learning, including the development of important employability skills such as the ability to communicate clearly and appropriately (considering other people’s needs), synthesise information and respond to feedback.
“Work-based learners are likely to want smaller and shorter learning experiences; institutional processes need to adapt to respond to these new learners’ needs.”

Dr Alison Felce, Head of Work-based Learning, University of Wolverhampton

The project team found that university admissions and support processes did not support the short units of learning that employers were requesting. For example only students registered for full-length programmes were able to gain access to university systems and services (other students did not match the standard student profile), and the minimum lead-in time for courses to be developed and approved was a minimum of 12 months. Units designed to last only ten weeks did not fit this mould. The relevant departments were invited to review their processes and develop either new routes through existing mainstream functions or parallel procedures to run alongside them.

As a result of consultation, both issues have now been addressed. Work-based learners studying on short units receive a student profile that gives short-term access to some university facilities. Students who progress on to longer higher education courses or who register for an entire module can be upgraded to full student status with complete access. In addition, new courses considered as low-risk or involving fewer than 60 credits can now be submitted to a validation process that allows units to be designed and validated within a six- to eight-week period.

Mechanisms were put in place to ensure both staff and students were sufficiently supported during the programme. A mentoring scheme was introduced, placing experienced e-portfolio practitioners within each school to support less-experienced colleagues. For students, online learning resources were developed to help them gain academic skills and the digital proficiencies required for finding information online.

Moving on

The e-portfolio-based pedagogy has now been adopted by the School of Law, Social Sciences and Communications and forms the basis of a new distance learning course for those preparing to gain a qualifying law degree.25 The university has since also started to develop a prototype online application process within its e-portfolio system to enable work-based learners to seek accreditation of prior experiential (APEL) or certificated learning (APCL).

Key points

- Providing short units of online learning that can be combined into different awards offers learners and employers choice and flexibility
- Establishing new procedures or additional routes through existing institutional processes assists this type of technology-based innovation

Final word

The e-portfolio-based pedagogical model adopted by the University of Wolverhampton has proved successful in delivering courses online to learners located in small and medium sized employers (SMEs) and is available to higher and further education institutions who are seeking ways to deliver learning to SMEs.

For detailed case studies and associated resources, visit www.jisc.ac.uk/digilifelong

For video case studies on e-portfolio implementation including the University of Wolverhampton, visit www.jisc.ac.uk/eportimplement

Case study exploring flexible curriculum delivery

Adopting a learner perspective

University of Oxford

Context
The Department for Continuing Education at the University of Oxford offers a wide range of provision to its adult learners – including short open access courses, CPD, and programmes that lead to credits or qualifications – almost all of which are blended or totally online.

Establishing effective practice
The department is outward facing and self-financing, and in an ever-more challenging financial climate had to find ways of maintaining its reputation for high-quality courses while achieving efficiency gains. The JISC-funded Cascade project26 offered senior management the opportunity to review the department’s curriculum design and delivery strategy.

Delivery of the curriculum was reviewed in its broadest sense: all aspects from course enquiry to completion were examined from a learner perspective, with the emphasis on a coherent, seamless experience. The department prioritised for development those key components that would most enhance the learner experience; processes associated with the VLE, such as assignment handling, were identified as key areas for development. Other priorities included processes which precede delivery: provision of course information, enrolment and payment.

The department’s VLE, Moodle, was predominantly being used to support delivery of short open access courses and CPD, but its use within longer award-bearing programmes was not so firmly established. The department realised that if more staff were to be encouraged to use the VLE, certain barriers needed to be addressed. For example, course teams that wanted to use Moodle to support face-to-face delivery had to create a site from scratch: they had to populate an empty virtual space, with no documentation or processes to assist them.

Consequently, the project team dedicated time to ensure that Moodle courses were easy for course teams to develop, could be adapted to suit the subject, had information and activities designed to meet learners’ needs, and exploited as many freely available existing resources as possible.

The project team developed additional VLE processes and products, which included: easily customised Moodle templates; a core set of generic content, combining resources collated from across the university and elsewhere, and from which staff could pick content for their courses; and extensive documentation in using the VLE, including open access resources.

In addition, Moodle’s assignment-handling function was customised by the in-house developers. Moodle can now receive assignments, make them available to tutors to mark, return grades with comments, and deal with learners’ requests for extensions in a way that meets the department’s needs. Everyone involved in the process, including learners and course and registry administrators, can access the new system at any time to check the status of an assignment.

By integrating the new assignment-handling system into Moodle and bringing the VLE within the University of Oxford’s single sign-on process, both course delivery and assignment handling are accessible from one location using a single password. Learners, some of whom are in other countries, can now engage with their studies and deal with assessments at any time, from anywhere in the world.

26 www.jisc.ac.uk/whatwedo/programmes/elearning/curriculumdelivery/cascade
“I would like to thank all of you at the Continuing Education Department of Oxford University for reaching out to people like me by providing such online opportunities.”
Continuing Education Student, University of Oxford

Moving on
Following the changes in process, the range of subjects and types of course with online support have substantially increased to complement the now approximately 70 fully online distance learning courses, consisting mainly of short open access and CPD provision. The course accreditation and curriculum design process now addresses online provision, therefore it is more likely that the department’s online activities are sustainable.

Key points
- Influencing and involving the right people at the right time is critical in the success of any change initiative
- Simplifying and streamlining VLE-related processes is a key factor in engaging staff in online activities
- Reviewing processes from a student perspective is more likely to result in students perceiving a coherent, seamless experience

Final word
The delivery of the curriculum in its broadest sense was reviewed by the department and those key components that would most enhance the learner experience and achieve efficiencies were prioritised for development.

For detailed case studies and associated resources, visit www.jisc.ac.uk/digilifelong

For a video on the work of the Cascade project, visit www.jisc.ac.uk/digilifelongresources
The integration of technology into assessment and feedback practices can enable programme and course teams to better support the needs of lifelong learners. Benefits include:

- Increasing the range of assessment methodologies
- Providing timely and efficient feedback
- Accrediting prior experiential or certificated learning

Increasing the range of assessment methodologies

There is growing recognition that technology can add value to assessment and feedback practice by supporting a wider variety of approaches to assessment. Some technology-assisted assessment and feedback practices yield particular benefits for lifelong learners, such as flexibility, personalisation and authenticity.

For example, an open source simulation engine, SIMPLE, was developed at the University of Strathclyde Law School. This technology has been used to create a simulated professional environment that enables trainee lawyers to rehearse the skills of real-world professional practice in the safety of a virtual community. A simulated town, Ardcalloch, developed initially by the Glasgow Graduate School of Law, has the added advantage, especially for those with other commitments, of removing barriers of time and place.

Simulation technology extends the dimensions of assessment by enabling learners to rapidly evaluate and amend their own performance, while providing an alternative approach to the summative assessment of professional skills. Since simulated environments are designed to recreate, as closely as possible, real-world challenges and situations, these learning and assessment methodologies are relevant to all three classifications of learning in the workplace (see the learning in the workplace model page 7).

e-Portfolios also offer significant benefits for assessment. Learners can embed video and audio files in e-portfolios, which provide more detailed evidence of the nature and extent of their work-related investigations and achievements. E-Portfolios can also give a richer picture of learning than is possible via conventional assessment. The ability to support reflective, self-directed learning alongside evidence gathered for accreditation makes e-portfolios increasingly the tool of choice for those involved in learning and assessment of learning in the workplace.

27 www.northumbria.ac.uk/static/5007/lawpdf/simpleprojectpm
As an example, Thanet College has pioneered the use of the PebblePad e-portfolio system to deliver an accredited staff development course in accessible IT practice, validated by City and Guilds [see case study 7]. Both the internal and external verifiers involved in the award worked within the online portfolio system.

Providing timely and efficient feedback

The role of formative feedback in helping learners set their own learning goals and assess their own progress has been widely recognised, indicating a need for course teams to design more frequent opportunities for formative feedback. Since retention rates on distance learning courses tend to be lower than on campus-based courses, the frequency and timeliness of feedback is even more important for learners studying remotely.

A range of technologies can be applied to enhance or replace the time-consuming processes of providing written or face-to-face feedback. Whether used in blended or online distance learning, blogs, audio and video recordings and synchronous conferencing tools add value in some contexts. Blogging, in particular, with its emphasis on sharing ideas and views lends itself well to the development of learning networks and peer feedback, as demonstrated by Middlesex University [see learners’ blogs at http://bit.ly/IXj5L].

Other projects indicate that audio-recorded feedback can be efficient for tutors and effective for learners. As part of the JISC-funded DUCKLING project [Delivering University Curricula: Knowledge, Learning and Innovation Gains], the University of Leicester used podcasts of feedback and feed-forward guidance to assist learners studying remotely on the Master’s Degree in Occupational Psychology. The project found that audio-recorded feedback helped to scaffold learning and reduce the isolation of learning remotely.

In contrast, Cardiff Metropolitan University is using Adobe® Connect™ Pro [a synchronous web-based conferencing tool] to embed timely formative video and audio feedback within virtual sessions. The interactive and pedagogically effective sessions engage, motivate and improve the performance of remote work-based learners.

Accrediting prior experiential or certificated learning

Of high importance to lifelong learners are the accreditation of prior experiential learning (APEL) and accreditation of prior certificated learning (APCL). Together, APEL and APCL refer to the granting of academic credit for learning based on prior experience or certificated learning. APEL is an especially important form of assessment for mature learners, who may have broad experience but few standard entry qualifications.

The University of Plymouth and its partners have developed an online tool that assists institutions in managing the APEL process [see case study 9]. Some institutions, such as the University of Derby, have been exploring not only how individuals can gain accreditation at higher education level, but also how accreditation can be given to the learning gained on courses designed and developed by employers, such as employers’ in-house training packages.

The following case studies illustrate in more detail some ways in which technology supports assessment and feedback and enables institutions to better manage the APEL process.

“We see a definite correlation between levels of achievement and levels of engagement. Students who regularly blog and comment on each other’s blogs appear to perform better.”

Alan Durrant, Head of Work Based Learning (Arts and Education), Middlesex University

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32 http://jiscdesignstudio.pbworks.com/w/page/24186879/Duckling%20Project
33 www.derby.ac.uk/corporate/accredited-training
Acquiring an award via an e-portfolio

Thanet College

Context

Thanet College extended the role of reflection in CPD. The college made the Information Technology Qualification (ITQ) in Accessible IT Practice available via the PebblePad e-portfolio system. In so doing, the college pioneered the use of e-portfolios for capturing personal reflections and simultaneously recording the evidence required for accreditation.

Developing effective practice

Designed by JISC TechDis and validated by City and Guilds, the ITQ aims to develop a better understanding about how technology can maximise inclusion.

Staff at Thanet College completed six units of the ITQ, each focusing on 15–20 specific competencies. Each practitioner had access to a personal online learning space within an e-portfolio system. Learners selected evidence to present in the e-portfolio to show they met the assessment criteria.

A primary aim of the course was for learners to engage in critical reflection and articulate the understanding gained from this. Within the e-portfolio system, learners could easily link reflections and the associated evidence together. These elements were less likely to be lost and were accessible to tutors, assessors and peers. Learners could select real-life experiences to illustrate their learning; in turn, this evidence formed part of the assessment.

Iterative feedback, provided online by the course tutor and by colleagues working towards the same award, was integrated into the process of learning. Once learners believed they had sufficient evidence to meet all the learning outcomes, they shared their portfolios with the external verifier for final accreditation. Since learners were responsible for self-assessment, the external verifier could sample elements from the e-portfolio to verify the accuracy of the self-assessment, rather than having to check the entire portfolio.

The Thanet College pilot successfully showed that e-portfolio-based reflective practice enabled learners to demonstrate learning, assemble evidence in different formats, give and respond to feedback, reflect on lessons learnt and submit work for accreditation. In essence, although all learners met the same set of common learning outcomes, each e-portfolio presented an individual learner journey.

For detailed case studies and associated resources, visit www.jisc.ac.uk/digilifelong

For JISC e-portfolio-related video case studies, including a contribution from Thanet College, visit www.jisc.ac.uk/eportimplement

Key points

- Using e-portfolios can enable learners to capture the individual stories of their learning whilst meeting a common set of learning outcomes
- Deploying e-portfolio systems provides a seamless online environment for the assessment and verification of CPD

“We wanted the learning to be a story of discovery, using the evidence as scaffolding behind the story and against which the formal qualification could be awarded.”

Geoff Rebbeck, former e-Learning Coordinator, Thanet College

34 www.jisctechdis.ac.uk/techdis/investinyourself/havetooffer/ITQ/ITQ_features
Providing feedback via web conferencing
Cardiff Metropolitan University

Context
Cardiff Metropolitan University redesigned the delivery of its part-time Foundation Degree in Dental Technology to enable learners to integrate learning opportunities in the workplace with the theoretical aspects of their course. This reduced the cost and time for students to travel to the campus.

Previously, students had been required to attend university regularly for theory sessions and for practical work in a laboratory. However, since many students had access via their employers to the equipment and materials required to execute practical procedures, the university redesigned its programme for blended delivery.

Establishing effective practice
The newly designed programme requires students to attend one day’s session on campus at the beginning and end of each practical module. Nominated work-based mentors provide support in the workplace. The university delivers the remaining contact time via Adobe Connect Pro web-based conferencing, directly to students in the workplace.

The synchronous technology enables formative feedback in the form of just-in-time clarification and information. Other facilities such as poll and quiz tools provide opportunities for formative assessment. In addition, anecdotal evidence from tutors shows that informal peer feedback and mentoring often occurs naturally during sessions, without intervention from the tutor.

The programme also harnesses the system’s synchronous audio and video functionality: using headsets and webcams, students can present close-up views of the products they have manufactured in the laboratory to tutors and peers. Immediate feedback encourages students to refine the products until they can be signed off by the work-based mentor and submitted for final assessment.

The webcam provides a suitable image quality for most of the practical work undertaken, so long as there is a good broadband connection. For smaller, more intricate items, however, tutors ask students to produce a photographic log containing high-quality images on which to offer feedback. Students report that they highly value the formative feedback.

The Adobe Connect Pro web-conferencing system has now become the principal delivery medium for part-time students in dental technology at Cardiff Metropolitan University.

For detailed case studies and associated resources, visit www.jisc.ac.uk/digilifelong

Key points
- Exploiting the affordances of web conferencing allows tutors to design online activities that encourage peer feedback and mentoring.
- Participating in online learning activities supported by timely feedback enables students to improve practical as well as academic skills.
Case study exploring assessment, feedback and accreditation

Exploring the accreditation of prior experiential learning
University of Plymouth Colleges and partners

Context

The PINEAPPLE (Partnership Investigations into Accredited Prior/Previous Learning) project, led by the University of Plymouth Colleges (UPC) in collaboration with South Devon College, City College Plymouth, Petroc College and Exeter College, was funded by the JISC Lifelong Learning and Workforce Development programme. The project’s chief aims were to clarify the process of accreditation of prior experiential learning (APEL) and explore how technology might more effectively support APEL in practice.

A review of existing literature, the university’s own APEL activity and that of several of its partner institutions found that APEL was not as widespread as expected. Often little or no publicly available APEL information was apparent. Other institutions excluded the option completely or offered courses which did not easily lend themselves to APEL. Low levels of APEL limit the entry options for non-mainstream students who might otherwise benefit from an APEL application, thereby reducing the number of such students recruited.

The PINEAPPLE team noted that applications for APEL were subject to the same quality assurance procedures and standards as other forms of application and were thus time-consuming to process. The team explored whether a technology-enhanced approach might provide a more cost-effective process for APEL that still met rigorous internal quality measures.

Developing effective practice

The project team developed a web-based diagnostic and tracking tool that brings clarity to the APEL process. The PINEAPPLE tool supports assessors through all stages of the management of an APEL claim, whilst also making the process transparent to those involved.

The tool tracks progress from an initial expression of interest, such as when a student makes an enquiry about APEL or a member of staff recognises that a potential applicant has relevant experience, through to the final decision on whether or not credit can be awarded.

PINEAPPLE has been specifically designed to manage the accreditation of experiential learning, which is more challenging in many respects than the accreditation of certificated learning. The online documentation and supporting guidance help focus assessors’ attention on awarding credit for the learning derived from the experience rather than for the experience itself. Given that the assessment involved in APEL must be of equal rigour to other assessment methods, a key feature of the tool is that it allows assessors to share a claim online with others as part of a double-marking process.

In recognition that any tool developed for APEL in the higher education sector and the higher education in further education sector must allow for a diversity of approaches, institutions can either choose to adopt the PINEAPPLE process or use the tool to design a process that is better suited to their context. For example, Staffordshire University has adopted PINEAPPLE to manage and streamline its own APEL processes and, with the help of the PINEAPPLE team, has piloted the online tool with a number of faculties in order to fine-tune its functionality.
“Although there’s a considerable amount of advocacy for APEL, it will not become widespread unless it’s embraced at institutional level.”

Dr Neil Witt, Head of Technology Enhanced Learning, University of Plymouth

Two key messages arise from the work of the PINEAPPLE team. The first is that APEL is just another form of assessment, and that by improving institutional processes it can be managed in a more cost-effective manner. Secondly, for it to become more widely used and promoted, APEL has to be supported by a central team and marketed as part of a package of options to incentivise learners and employers.

Moving on
The University of Plymouth Colleges now use PINEAPPLE to manage all APEL applications. This is giving a consistent and managed approach for the benefit of students and academic support staff.

Key points
- Attracting and recruiting non-mainstream students is encouraged by the use of APEL
- Using the web-based PINEAPPLE tool makes the institutional management of APEL more efficient

Final word
The institutional processes associated with the accreditation of prior experiential learning can be made more transparent and efficient by the use of an online tool such as PINEAPPLE.

For detailed case studies and associated resources, visit www.jisc.ac.uk/digilifelong
Learner journey: Learning in the workplace

An example of the needs of a mature learner in the workplace with illustrations of possible institutional responses.

I have been working for my current employer for about four years and they have suggested I am ready for line management. They are offering me the opportunity to get a qualification to help me to do the job. Because I already have an HNC I can go straight into the second year leading to an Honours Degree.

The only thing that concerned me was whether I would have to take time off work to do this – I really can’t afford not to be employed – but I have found I can do it mainly online from work, which is great.

A year later I went back to my studies and completed my degree course. I enjoyed it so much I would like to continue studying. I am currently looking at a range of courses and will need to discuss my plans with my employer.

I have now started the course, and what I like about it is that the activities and assignments all revolve around my job role and organisation. Also it’s useful to have both a work-based assessor and a university tutor to help me.

I managed to finish the second year, but due to personal circumstance I had to drop out. I still got an award though, which means that when I’m ready to think about studying again, I can go straight back into the third year.

Issue: Work with partners to build flexibility into curriculum design (Responsive curriculum design)

Institution: Our market research showed that employers are unwilling to allow employees off premises for long periods of study. So we worked with a number of employers to design a programme that leads to an Honours Degree which can be delivered via technology such as a VLE supported by online conferencing in the workplace to dispersed learners.

Issue: Gather accurate market intelligence (Responsive curriculum design)

Institution: We are very conscious of the importance of working collaboratively with relevant stakeholders to determine the demand for new programmes. We realise that engaging partners in curriculum development is particularly relevant when designing bespoke programmes for learners in the workplace.

Issue: Offer multiple entry and exit points for programmes (Stakeholders and partners)

Institution: Where appropriate, we work with partners to design curricula which enable learners to acquire awards at different stages during a programme. We use personal learning spaces such as e-portfolios to assist our students to evidence their achievements, as they allow the capture of rich media such as video and audio.

Issue: Align learning experiences with organisational goals and the employee’s existing knowledge and experience (Assessment)

Institution: We ensure that the learning activities and assessment methodologies are designed to resemble as closely as possible real-world challenges and situations, for example by the use of simulation technology to replicate professional environments.

Issue: Offer progression routes (Stakeholders and partners)

Institution: We have mechanisms in place to keep in touch with our learners after they complete their courses. We recognise the importance of offering both blended and wholly online short units of learning as part of their CPD.
Stakeholder engagement and sustainable partnerships

It is likely that institutions seeking to become more responsive to the needs of lifelong learners or aiming to explore new markets such as work-based learning will need to establish a more collaborative, inclusive and partnership-based approach.

Stakeholder engagement

In order to deliver an enhanced learning experience for all learners, higher education institutions recognise the need to actively engage stakeholders such as employers, learners, professional bodies and government agencies in a variety of academic activities. In the process, new models and services may be developed that benefit all the parties involved.

For example, stakeholder engagement has played a key role in shaping Birmingham City University’s approach to reviewing curriculum design and approval processes, resulting in the development of a stakeholder engagement model (see case study 3). Similarly, the University of Nottingham has involved a broad range of stakeholders in exploring the delivery of a streamlined and shared labour market information service (see case study 10).

Developing sustainable partnerships

Higher education institutions already have working relationships with a range of partners such as business, government agencies, the public sector, other educational institutions, and professional and statutory bodies. Digital technology can play a key role in nurturing and sustaining these relationships.

Although technology-enhanced practice in partnership working is still at a developmental stage, new pathways in the use of technology are being explored to support business and community engagement and relationship management. Institutions can harness technologies such as chat, real-time conferencing systems, online discussion groups and social media to support collaborative partnership working.

An example is the Yorkshire and Humber’s Green Vision initiative, involving the Centre for the Built Environment at Leeds Metropolitan University. The use of a web platform is combined with social media such as Twitter and LinkedIn to bring together professional and academic experts from across the built environment sector. Experts can

The stakeholder engagement model – Birmingham City University

Birmingham City University developed a stakeholder engagement model adapted from a model created by Futurelab. The model offers a roadmap for determining the most appropriate strategies to adopt at different stages in the engagement process. Key stages outlined by the model range from “notify”, which demands little active response, through to “empower”, which invites stakeholders to own activities and set the agenda for change.
"By working in partnership, we have made best use of our resources and produced a very cost-effective course, grounded in practice."

Sue Bruce, Chief Executive, City of Edinburgh Council

communicate, share best practice and collaborate to resolve issues in the area of sustainable construction.

The amount of effort required to build an effective partnership should not be underestimated. Valuable lessons on forming partnerships have emerged from the JISC Culture Campus Liverpool Portal project. The aim of the project was to develop a portal to display in one place the courses, events and training opportunities of ten partners, including cultural sector organisations. The project showed that all parties need to negotiate from the outset business processes that will assist the partnership in arriving at a common goal. Likely activities include scoping the different roles that partners will adopt, achieving an efficient flow of information, and making the internal changes necessary to facilitate effective contributions by individual partners.

Managing work-based provision

Curriculum design in work-based provision is often viewed in further and higher education as an opportunity to work collaboratively with external partners.

As an example, the BA (Hons) in Youth Work, part funded by the Edinburgh, Lothians, Fife and Borders Regional Articulation Hub (ELRAH), provides an insight into the range of partners who may need to combine to provide workplace learners with routes to accreditation. Several partners such as the City of Edinburgh Council, the Scottish Credit and Qualifications Frameworks Partnership, and Skills for Scotland were involved in the programme’s development, and an external evaluator was commissioned to review both partnership working and curriculum design processes (see case study 11).

An important issue for both learners and employers involved in work-based higher education is having a secure single point of access to institutional services. Technologies such as bespoke portals, e-portfolios and VLEs can provide an online space for collaborative activity: portals enable employers to gain access to targeted and relevant information collected from across an institution; VLEs and e-portfolios act as a focal point for the involvement of key partners such as learners, employers, work-based mentors and assessors, and institutional academics in the learning process.

However, making institutional systems accessible to external users can raise issues of confidentiality, in particular when data and learner information are exchanged between institutions and external parties. As a consequence, some employers prefer to use their own technologies. This highlights the importance of negotiating, in the initial planning of work-based provision, a shared understanding between employer, learner and institution of appropriate online routes to public and private information.

25 http://jiscdesignstudio.pbworks.com/w/page/27044505/TSPARC
27 JISC infoNet, Using Collaborative Online Tools. www.jiscinfonet.ac.uk/infokits/collaborative-tools
28 JISC Business & Community Engagement programme, www.jisc.ac.uk/whatwedo/programmes/bce
29 JISC, Relationship Management. www.jisc.ac.uk/whatwedo/programmes/bce/relationshipmanagement
30 www.green-vision.org.uk
31 www.jisc.ac.uk/whatwedo/programmes/institutionalinnovation/workforcedev/cclp
32 www.jiscinfonet.ac.uk/infokits/e-portfolios
33 Samson project. www.jisc.ac.uk/whatwedo/programmes/institutionalinnovation/workforcedev/samson
Improving labour market information

University of Nottingham and partners

Context

Accessible and clear information, advice and guidance are essential to help learners make the most appropriate choices at each stage in their learning journeys. This is particularly critical for adults, who are likely to have specific requirements about the location and mode of study.

The JISC-funded SALAMI (Shared Aggregation of LAbour Market Information) project has been working with a broad range of stakeholders to investigate how the quality and accessibility of what is termed “labour market information” might be improved. The University of Nottingham’s Centre for International ePortfolio Development led the project in partnership with Aimhigher in the East Midlands, Derby College, New College Nottingham and Winona eSolutions Ltd.

Developing effective practice

The stakeholders have had an important influence on the direction taken by the project team. Those consulted have included business people, careers professionals, academic practitioners, and representatives from county and city councils, the Employment and Skills Board, the Skills Funding Agency, the Alliance of Sector Skills Councils, and the Department for Business, Innovation and Skills. The partners expressed three main reasons for their interest and involvement in the project, namely the ability to offer up-to-date and meaningful information to guide the choices of current or potential students, improve institutions’ responsiveness to employers, and increase the institutions’ competitiveness.

Labour market information consists of a broad range of data about, for example:

- Learning opportunities – which pathways of further study are available, and where such study may lead
- Overall trends – whether an occupational sector is growing or contracting
- Labour demand – how easy it is to get a job in a particular industry
- Recruitment and selection – how to enter an occupation or industry
- Progression routes and career structure – the prospects within an occupation
- Up-to-date job vacancy information – what jobs are available that meet learners’ requirements
- Availability – whether an occupation is available within a given geographical area

Data is often located in different databases and owned and managed by a range of organisations.

The SALAMI project team saw the potential to present an accurate, at-a-glance combination of labour market information, institutional course information and other types of data such as job profiles, career-videos and business and location information for careers professionals and learners. Learners would be able to determine rapidly where courses are offered, how they can travel to their chosen location and what kind of progression opportunities exist beyond the course. Institutions might also use this type of information to inform the development of demand-led programmes of learning, an aspiration expressed at the start by one of the project partners, New College Nottingham.

44 www.jisc.ac.uk/whatwedo/programmes/flexibleservicedelivery/salami.aspx
“As a stakeholder, anything that can make labour market information and trends more useful to guidance professionals on a national, regional and local level would be valuable.”

Helen Janota, Labour Market Information Coordinator, Nottingham and Nottinghamshire Futures

The SALAMI project team sought to demonstrate proof of concept by developing an online tool\(^45\) that pulls together job profile information, course information, business information and job vacancy statistics. Two barriers made collation of data from different sources difficult: a lack of standardised terminology across information providers, and the need to determine who owns data, who has access to it and at what cost. The implementation of common data standards across different information providers, especially open standards such as the JISC-funded development of XCRI-CAP (eXchanging Course Related Information Course Advertising Profile),\(^46\) became a necessary part of resolving these issues.

Moving on

New working relationships within partner institutions were an important additional outcome from the project. For example, Derby College’s Careers Service staff have begun discussions with the college’s Management Information Systems department to explore how they might embed the labour market information identified by the SALAMI project into students’ individual learning plans (these are used in further education to assist learners in recording their learning options and setting personal and academic targets).

Key points

- Using data standards such as XCRI-CAP to combine different data sets can provide more meaningfully connected information services
- Labour market information can provide evidence to inform the business case for a new course or programme

Final word

The need to work collaboratively with stakeholders to combine data from disparate sources has been accentuated following the mandatory requirement on institutions to publish a Key Information Set for each undergraduate course they offer.

For detailed case studies and associated resources, visit www.jisc.ac.uk/digilifelong

\(^45\) http://salami.samson-portal.org
\(^46\) www.xcri.co.uk
Building partnerships in work-based programmes

The Edinburgh, Lothians, Fife and Borders Regional Articulation Hub (ELRAH) and partners

Context
The Edinburgh, Lothians, Fife and Borders Regional Articulation Hub (ELRAH), funded by the Scottish Funding Council and located at Edinburgh Napier University, consists of a consortium of 14 colleges and universities in the South East of Scotland. The aim of the hub is to develop alternative, including work-based, routes to degree-level study for learners in colleges or employment.

Developing effective practice
When Edinburgh City Council’s Community Learning and Development (CLD) service expressed an interest in co-designing a work-based BA (Hons) in Youth Work, ELRAH agreed to part-fund the development.

The degree programme was designed to improve access to quality training for youth workers who might not be able to study full time. Edinburgh Napier University, Edinburgh’s Telford College and the City of Edinburgh Council CLD service, with support from ELRAH, the Scottish Credit and Qualifications Frameworks Partnership (SCQFP) and Skills for Scotland, collaborated to develop the programme.

An employee from Edinburgh City Council was seconded to help design the programme; professional bodies and youth workers were also consulted widely throughout the development phase. All aspects of the collaborative curriculum design process were agreed in partnership. The process was guided by a model for collaborative work-based learning, consisting of a set of research-informed principles. (These principles were later refined and developed into the JISC online Work-based Learning (WBL) Maturity Toolkit.47)

The toolkit enables institutions to self-assess their readiness to engage effectively with work-based provision across a broad spectrum of indicators: partnership working, information and communications technology, business approaches, the learner experience, pedagogic models and staff training and support.

The process of working in partnership was externally evaluated using the WBL Maturity Toolkit. From the start, the ELRAH partners realised that traditional learning and assessment models would not fit the needs and working patterns of employers and employees. A largely distributed body of learners requires a programme designed for cost-effective, flexible delivery and assessment. As a result, the partners considered how technology-enhanced learning might help address different learning activities, ensure support for dispersed students, and reduce the cost of curriculum design and delivery.

The evaluator highlighted three elements of particular relevance to the curriculum design process: ensuring that the digital literacies of students, tutors, work-based mentors and assessors were of a level that enabled participation; providing appropriate training, support and guidance to all those involved; and ascertaining that individuals studying at their employers’ premises could access required technologies.

The result of this partnership approach to developing a work-based degree is a programme based on a constructivist and blended learning delivery model. A broad mix of technologies were applied to deliver personalised support: a VLE (WebCT) and its e-portfolio facility, online discussion groups, social media, web chat, Skype, Facebook, the web-conferencing platform Blackboard Collaborate, and Camtasia Studio, a tool for recording and editing onscreen presentations.

47 www.tinyurl.com/wbl-toolkit
“Secondment of an experienced youth worker to the qualification design team has ensured that the content reflects the needs of the field.”
Christine Mackay, Edinburgh City Council Community Learning and Development (CLD) Manager

Moving on
The Youth Work BA (Hons) work-based degree accepted its first cohort of students in 2011. A key facet of the programme is that, depending on their prior experience and qualifications, students can gain advanced entry to the second or third year of the degree and study for the full Honours Degree. Students can leave at the end of year one, two or three and still receive certification.

A future development is the design of an accredited programme to prepare work-based assessors for their role in work-based degrees.

Key points
- Working effectively and sustainably in partnership is necessary for demand-led programmes
- Offering flexible entry and exit points on degree programmes benefits both learners and employers

Final word
Collaborating in partnership with employers, potential learners and professional bodies better ensures that the appropriate range of technologies are used in curriculum delivery.

For detailed case studies and associated resources, visit www.jisc.ac.uk/digilifelong

For a video on the work of ELRAH and their partners, visit www.jisc.ac.uk/digilifelongresources
At a time of significant change in higher education, students have increased expectations of their university experience. I want a system where students have real choice and universities respond to what students need.”

David Willetts, Universities and Science Minister, Department for Business, Innovation and Skills, February 2011
The aim of this guide is to focus on aspects of higher education practice where technology might profitably be deployed to foster and nurture lifelong learning. The publication covers key areas of educational activity where there must continue to be innovation and change if lifelong learning is to flourish: curriculum design and delivery, assessment, and support for learners. This guide also acknowledges the importance of collaboration between stakeholders and external partners in extending opportunities to a more diverse spectrum of learners.

Innovations in learning, teaching, assessment and academic support services, however, have repercussions for strategy, policy and practice across the institution. Current business models in higher education do not always allow for the kinds of flexibility required to attract and retain non-traditional learners, often studying remotely and in the workplace, for example programmes that offer learners modes of study other than face-to-face attendance on campus, or choices in the pace of progression through a programme and in the timing and location of assessments.

The role of technology in addressing some of these challenges and in meeting the individual needs and circumstances of lifelong learners is evident in this publication’s case studies and supported by the considerable amount of knowledge and expertise gained through JISC-funded programmes.

Sustaining this momentum is important if higher education is to continue developing an environment that better meets learners’ expectations, prepares learners to cope with the demands of a complex and changing future, and nurtures strong and lasting relationships with stakeholders, especially employers, in effect, an environment in which lifelong learning is more likely to thrive.

Institutional interventions that can meet the needs of lifelong learners

- Online pre-entry information and induction activities that are more tailored to non-mainstream learners, for example information about attendance requirements, modes of study and childcare facilities, and better preparation for the academic or social aspects of higher education
- Improved support for learners in acquiring the personal strategies to cope with the numerous transition points they will encounter both during and after higher education
- Cost models that enable comparison between different modes of learning with technology and which can facilitate the design and delivery of agile and cost-effective programmes
- The ability to amend or combine short units of learning to form new programmes
- Institutional processes and structures, both technical and non-technical, that can be easily adapted to manage variety in learners’ modes of participation
- A wider variety of technology-enhanced approaches to assessment and feedback, and to accrediting prior experiential and certificated learning
- Greater stakeholder and partner involvement in learning, teaching and research activities to co-create a higher education system that can adjust quickly and easily to emerging markets

The diagram encapsulates the main themes of this publication: support for lifelong learners, responsive curriculum design, flexible curriculum delivery and assessment, feedback and accreditation. It demonstrates that when providers of higher education work collaboratively with partners and stakeholders to adapt their processes and practice, there are benefits for both lifelong learners and institutions.

“...we want to ensure that universities, colleges and other higher education providers have the freedom and incentives they need to deliver a high-quality student experience and that they become more accountable to students, employers and to the public.”

A New Fit-For-Purpose Regulatory Framework for the Higher Education Sector, Department for Business, Innovation and Skills, 2011
Glossary

Adobe Connect Pro: A web-conferencing system that can deliver online sessions across widely dispersed audiences.

APEL/APCL: The accreditation of prior experiential learning/the accreditation of prior certificated learning.

Asynchronous technologies: Technologies in which communication and interaction is not conducted in real time, such as email, discussion forums, wikis and blogs.

Blended learning: The combination of traditional face-to-face classroom methods with computer-mediated activities to form an integrated approach to learning.

Blog (web log): An online reflective journal in which other internet users can post comments. Blogging tools such as Blogger are available via the internet or offered as a function within virtual learning environments to allow access to be restricted to members of a closed group (for example, a course, module or tutorial group).

Broadband: High-speed multiple-data transmission over a single communications medium.

Camtasia Studio: Screen-capture and screen-recording software which allows users to capture an area of the screen or window, audio from a microphone or speakers, and video from a webcam.

Chat: A multi-person online communication tool, usually instant messaging via a web browser.

Constructivist: A model for learning that presents the learner with opportunities to construct new knowledge and understanding from authentic experience.

e-Portfolio: A body of digital evidence assembled and managed by a learner to demonstrate abilities and achievements and/or to reflect on experiences and plan for the future.

eXchanging Course Related Information Course Advertising Profile (XCRI-CAP): A UK national standard for describing course marketing information.

Facebook: A social media tool which allows users to interact and share data with other users via the web.

Feedback: Qualitative information about learners’ performance, given to them after an assessment.

Feed-forward: Advice on forthcoming work, based on feedback previously given.

Flip camera: A tapeless camcorder for recording high-definition digital video. (The Flip video range ceased manufacture in April 2011.)

Formative assessment: Assessment that provides developmental feedback to a learner on current understanding or skills.

Higher Education Achievement Report (HEAR): A record that is intended to provide a single comprehensive record of a learner’s achievements whilst in higher education and which can be verified by the institution.

Immersive technology: A form of technology in which an individual feels immersed in an artificial or virtual environment which may or may not replicate a real-life context.

Key Information Sets (KIS): Comparable sets of standardised information about undergraduate courses, made available by providers of higher education programmes.

Mahara: Open source e-portfolio and social networking software.

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49 www.hefce.ac.uk/whatwedo/ltpublicinfo/kis
**Moodle**: An open source virtual learning environment.

**PebblePad**: A personal online learning space in which, over time, users can create, store, review and aggregate multiple items of digital evidence to provide rich stories of learning for many purposes.

**Peer assessment**: Assessment of a learner by fellow learners typically following the same programme of study.

**Personal development planning**: A structured and supported process to assist learners in reflecting upon their learning and achievement and arranging their educational and career progression.

**Podcast**: A recording, for example of the content of a lecture, made available for download from a website or virtual learning environment.

**Portal**: A single website that combines a range of tools and sources of information to provide more efficient access to essential content and services.

**SharePoint**: Microsoft collaboration software that helps simplify content management, searching and sharing for intranet and internet sites.

**Simulation**: The imitation of the operation of a real-world process or system over time.

**Skype**: A computer program that can be used to make voice calls over the internet to other individuals who are using Skype and have an internet connection.

**SMEs**: Small and medium-sized enterprises.

**Social software or social media**: A range of software tools which allow users to interact and share data with other users via the web, e.g. blogging, Twitter.

**Summative assessment**: A means to assess learning and measure attainment against a particular specification or standard.

**Synchronous technology**: Technology that allows communication and interaction in “real time”, such as live chat, web conferencing, shared whiteboards, and application sharing.

**Technology-enhanced learning/technology-enhanced assessment**: The use of technology to extend or add value to the learning process.

**Virtual learning environment (VLE)**: An online system, such as Moodle, WebCT or Blackboard, comprising a range of tools to support learning and the management of learning. For example, VLEs provide online access to learning resources and support peer-to-peer and learner-to-tutor communication.

**Voxur unit**: A portable video-recording system that enables interview questions to be pre-prepared, allowing individuals to record answers to the questions at their own pace and in their own time.

**Webfolio**: A tool within PebblePad that enables the creation of pages, similar to web pages, which can be used to present information.

**Wiki**: A series of web pages which, via any internet browser, users can add to or edit. Wikis used for collaborative activities can be password protected.

**Xtranormal**: Software that enables users to make computer-generated animations online by selecting an animated character, typing in text, and having the character say the text out loud.
Further information

Introduction
JISC e-Learning programme
www.jisc.ac.uk/elearningprogramme

Exploring lifelong learning within higher education

Policies and strategies
The Leitch Review
http://bit.ly/HKd04A
Consultation on the development of a Higher Education Strategy for Northern Ireland (2011)
For Our Future – The 21st Century Higher Education Strategy and Plan for Wales
Higher Education: Students at the Heart of the System
Putting Learners at the Centre – Delivering our Ambitions for Post-16 Education
http://bit.ly/mPEqBh

Other references
Higher Education Academy flexible learning resources
www.heacademy.ac.uk/flexible-learning
The Inquiry into the Future for Lifelong Learning, National Institute for Adult Continuing Education
www.niace.org.uk/lifelonglearninginquiry

Support for lifelong learners
Case study resources: University of Bradford
Develop me! initiative
http://bit.ly/IxB3nA
The University of Bradford’s social networking site
http://developme.ning.com
Case study resources: Leicester College
Higher Education Lifelong Learning Opportunities project
http://hello.lec.ac.uk

Show and Tell activity: example

Other references
Student Engagement, Higher Education Academy
www.heacademy.ac.uk/student-engagement
Successful Student Recruitment, JISC on Air radio broadcast
www.jisc.ac.uk/blog/jisc-on-air

Responsive curriculum design
Case study resources: Birmingham City University
Student Academic Partners, Birmingham City Students’ Union
www.bcusu.com/saps
T-SPARC project
Case study resources: University of Gloucestershire
Gloucestershire Framework for Personal and Professional Development
http://insight.glos.ac.uk/tli/resources/glosframe/Pages/default.aspx
Nexus
www.glosnexus.ac.uk

Other references
Institutional approaches to curriculum design, JISC
www.jisc.ac.uk/curriculumdesign
Managing Curriculum Change, JISC
www.jisc.ac.uk/media/documents/publications/managingcurriculumchange.pdf

Flexible curriculum delivery
Case study resources: University of Wolverhampton
An e-Portfolio based Pedagogy for SMEs (ePPSME), University of Wolverhampton
www.wlv.ac.uk/eppsme
e-Portfolios, JISC infoNet
www.jiscinfonet.ac.uk/e-portfolios
Case study resources: University of Oxford
Cascade project (stakeholder-focused case studies and other project deliverables)
http://cascade.conted.ox.ac.uk/project-outputs
University of Oxford’s course design Moodle, now available as an Open Educational Resource
http://openmoodle.conted.ox.ac.uk/course/view.php?id=22

Other references
Efficiencies, enhancements and transformation: how technology can deliver, JISC on Air radio broadcast
Transforming curriculum delivery through technology, JISC
www.jisc.ac.uk/curriculumdelivery
Assessment, feedback and accreditation

Case study resources: Thanet College
Accessible IT Practice Support Programme
www.jisctechdis.ac.uk/techdis/investinyourself/havetooffer/ITQ
Studies of e-portfolio implementation (videos and toolkit), including Thanet College
www.jisc.ac.uk/eportimplement

Case study resources: Cardiff Metropolitan University
Cardiff Metropolitan University report featuring web conferencing
Mentoring & Coaching repository at Cardiff Metropolitan University
www3.uwic.ac.uk/English/LTDU/Pages/jisc_mentoring_coaching.aspx

Case study resources: University of Plymouth
PINEAPPLE project, JISC

University of Plymouth PINEAPPLE project
www.pineappleproject.org.uk

Other references
Studies of e-portfolio implementation
www.jisc.ac.uk/eportimplement
Transforming Assessment and Feedback, JISC Design Studio

Stakeholder engagement and sustainable partnerships

Case study resources: University of Nottingham
SALAMI project
www.nottingham.ac.uk/eportfolio/salami/index.shtml
SALAMI tool (demonstrator)

Case study resources: The Edinburgh, Lothians, Fife and Borders Regional Articulation Hub (ELRAH)
ELRAH
www.elrah.ac.uk
Work-based Learning Maturity Toolkit
www.tinyurl.com/wbl-toolkit

Other references
Course Data: making the most of course information, JISC
www.jisc.ac.uk/whatwedo/programmes/elearning/coursedata
Stakeholder engagement, JISC Design Studio
http://bit.ly/mVDa41

Sustaining the momentum
JISC Observatory
http://blog.observatory.jisc.ac.uk/category/techwatch-report
Sustaining and Embedding Innovations Good Practice Guide, JISC
https://sustainembed.pbworks.com
Supplementary online resources

The supplementary online resources which accompany Learning in a Digital Age open up additional opportunities to learn more about the themes covered in this guide. Included in these resources are more detailed versions of the case studies, video case studies and podcast material.

To meet the different requirements of users, some resources are provided in alternative formats. The formats available for all resources are shown in the following table. Downloadable transcripts are available alongside the videos. A limited number of hard copies of the guide can be ordered free of charge.

All the supplementary resources provide flexible and timely access to information and can be combined with locally available resources.

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<table>
<thead>
<tr>
<th>The following are available from <a href="http://www.jisc.ac.uk/digliifelong">www.jisc.ac.uk/digliifelong</a></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Guide</strong></td>
</tr>
<tr>
<td><strong>Detailed case studies</strong></td>
</tr>
<tr>
<td><strong>Tables and illustrations from the publication</strong></td>
</tr>
<tr>
<td><strong>Extended further information</strong></td>
</tr>
</tbody>
</table>

**Videos**

<table>
<thead>
<tr>
<th>MP4 file formats</th>
<th>Support for lifelong learners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supporting higher education learners, Leicester College of Further and Higher Education</td>
</tr>
<tr>
<td></td>
<td>Responsive curriculum design</td>
</tr>
<tr>
<td></td>
<td>Developing demand-led provision, The University of Gloucestershire and partners</td>
</tr>
<tr>
<td></td>
<td>Flexible curriculum delivery</td>
</tr>
<tr>
<td></td>
<td>Adopting a learner perspective, The University of Oxford</td>
</tr>
<tr>
<td></td>
<td>Assessment, feedback and accreditation</td>
</tr>
<tr>
<td></td>
<td>Assessing and accrediting learning in the workplace, The University of Derby</td>
</tr>
<tr>
<td></td>
<td>Stakeholder engagement and sustainable partnerships</td>
</tr>
<tr>
<td></td>
<td>Building partnerships in work-based programmes, The Edinburgh, Lothians, Fife and Borders Regional Articulation Hub (ELRAH)</td>
</tr>
</tbody>
</table>

**Podcasts**

| MP3 file format | More detailed viewpoints from some of the institutions featured in the video case studies. |
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Participating institutions – case studies and video clips
Birmingham City University
Cardiff Metropolitan University
ELRAH and partners Edinburgh Napier University and Edinburgh’s Telford College
Leicester College
Thanet College
University of Bradford
University of Derby
University of Gloucestershire and Gloucestershire College
University of Nottingham
University of Oxford
University of Plymouth Colleges
University of Wolverhampton

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