Using Technology to Support the 14 – 19 Agenda

Acknowledgements

With thanks to those who have contributed:
Christine Vincent, Stuart Gardner, participants of the focus groups and case study contributors.
Summary of Post-14 Strategy

14–19

Working Group for 14–19 Reform
The Skills Strategy will signal early thinking of the group as it relates to skills in June 2003. The group has been set up to examine how developments in vocational education, assessment, and the qualifications framework can contribute to the successful and lasting transformation of 14–19 learning.

14–19 reforms
The 14–19 Green Paper and response paper, Opportunity and Excellence, set out a new coherent phase of education with an increased focus on vocational education. The Skills Strategy will draw on plans to strengthen Modern Apprenticeships and address the tendency for early specialisation in academic subjects.

Secondary reform and subject specialism
The reform of secondary education set out in the Schools Achieving Success White Paper will expand opportunities for high-quality vocational learning and the strategy document A New Specialist Strategy sets out plans to create more specialist schools. The National Languages Strategy and the planned National Centre for Excellence in Mathematics also highlight the focus on subject-specific skills.

Skills Strategy
In June 2003 the Government will publish a national Skills Strategy and Delivery Plan. The Strategy will set a wide-ranging agenda for raising National Centre for Excellence in Mathematics also highlight the focus on subject-specific skills.

Context
The national Skills Strategy and Delivery Plan Progress Report, published in March 2003, is accompanied by an evidence paper which explains the underlying rationale and evidence behind the developing strategy. For example, OECD evidence used in the report shows that there are gaps in the supply of skills. Chart 7 (information taken from OECD report Education at a Glance 2002) shows the proportion of the population who have attained an intermediate level (level 2) qualification is lower in the UK than the OECD average and is significantly lower than France and Germany for the 25–44 age group.

The Report of the LSC’s Distributed and Electronic Learning Group
Proposals made in the report outline how the LSC might lend effective support to e-learning in the post-16 sector and secure the highest possible quality provision of e-learning. The report aims to guide the LSC in assuming informed leadership, choosing the underpinning rationale and evidence behind the developing strategy. For example, OECD evidence used in the report shows that there are gaps in the supply of skills. Chart 7 (information taken from OECD report Education at a Glance 2002) shows the proportion of the population who have attained an intermediate level (level 2) qualification is lower in the UK than the OECD average and is significantly lower than France and Germany for the 25–44 age group.

The White Paper on the Future of Higher Education includes plans to reform further education and training, backed by substantial new investment. The Skills Strategy will draw on the key elements of the strategy, including developing provision to meet local needs, increasing staff development and creating new planning, funding and accountability systems.

Post-16

Skills for Life
The Skills for Life strategy sets out plans to tackle the large number of adults without basic literacy and numeracy skills; opportunities will be provided to develop skills needed to progress further in learning and in work. The focus on adult basic skills will be a key focus of the Skills Strategy.

Future of Higher Education
The White Paper on the Future of Higher Education includes plans to expand foundation degrees in vocational areas and increase contact between HE institutions and employers. These plans will play a key part in the development of the Skills Strategy.

Success for All
The strategy document Success for All sets out the Government’s plans to reform further education and training, backed by substantial new investment. The Skills Strategy will draw on the key elements of the strategy, including developing provision to meet local needs, increasing staff development and creating new planning, funding and accountability systems.

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Introduction
The NLN (National Learning Network) programme has been charged with supporting the development of ILT in post-16 education. The National Grid for Learning (NGL) funding stream (now ICT in Schools) has been responsible for pushing forward similar aims in schools, largely within the pre Key Stage 3 (under 14) age group.

But 14–19 education is changing. The publication of a Green Paper, Extending Opportunities, Raising Standards, in February 2002 and a response document, Opportunity and Excellence, in January 2003 has mapped out a way forward for a new coherent and inclusive phase of 14–19 education. The proposed timetable is challenging. Some 25 Pathfinder projects working through the major aims of the 14–19 agenda were announced in January 2003 and further pilot studies will follow, with a national rollout of some of the key proposals (including changes to the core curriculum) by 2004–5.

A working group, convened for 18 months and chaired by Mike Tomlinson, will look at:
• strengthening the structure and content of vocational programmes and offering greater coherence of learning programmes
• assessment arrangements appropriate to different types of courses and styles of teaching and learning
• a unified framework of qualifications which recognises different levels of achievement, including discussion on the development of a Baccalaureate-style award.

Key objectives are that it should no longer be considered acceptable for a young person to leave education or training at the age of 16, and a young person's learning programme should no longer be decided by what an individual school or college can offer. Instead it will be the responsibility of schools and colleges to put together programmes which meet the needs and aspirations of learners. In many cases, individual schools or colleges will still be able to meet these needs. However, for some, a tailored programme will only be achieved through partnership between schools, colleges and employers.

This presents a huge challenge to all partners looking to cope with the new flexibility expected in this distinct 14–19 phase. Much that is good practice is already happening, and this has been recognised by the Government in its policy agenda. The key point is that ICT has the potential to support and drive forward this challenging rethink of post-14 education. It will not be a back-seat role: development of ICT opportunities in schools and in colleges, whether NLN or ICT in Schools inspired, will have to move forward in partnership.

Note: ICT is the term used to describe the use of technology to support learning and teaching in schools. ILT is the term used by the college sector. Throughout this document, we will refer to ICT.

The 14–19 proposals in brief

General issues
• 14–19 education will be split into three clear phases: a progress review at 14 identifying long-term goals and informing students of available options; a core phase concerned with learning leading to qualifications and personal development; and an end phase potentially culminating in an overarching award at 18–19 to recognise a variety of achievements. An effective careers development programme throughout Key
Vocational education

- The range of Advanced Extension Awards will be increased, with a greater emphasis on vocational subjects.
- Within 16–19 education, Modern Apprenticeships will be available to students for exams when they are ready.
- The opportunity to study literacy, numeracy and ICT until they reach at least Level 2, pointing to flexibility of pace.
- All 16–19-year-olds would be entitled to continue to study literacy, numeracy and ICT until they reach at least Level 2, pointing to flexibility of pace.
- Within 16–19 education, Modern Apprenticeships will continue to be encouraged, with an entitlement by September 2004 to a place for 28 per cent of young people who are deemed to have acquired the necessary basic skills.
- Schools and colleges will be encouraged to enter students for exams when they are ready.
- The range of Advanced Extension Awards will be extended.

16–19 curriculum

- Key Stage 4 learning (nominally from 14 to 16) would reduce the number of core subjects to English, Maths, Science and ICT (with ICT gradually becoming an integral part of other subjects). Non-assessed essential subjects would include citizenship, religious education, sex education, physical education, careers education and work-related learning.
- Subjects to which students would have an entitlement include MFL, Design and Technology, Humanities and the Arts. This entitlement could be met through students taking these courses at the local specialist school or college. Greater flexibility would be allowed for students to follow other options, including vocational courses in flexible locations and at a flexible pace.

14–19 curriculum

- All students will learn about work and enterprise.
- The range of Advanced Extension Awards will become a broader and balanced curriculum for all. She welcomes the proposal to create vocational pathways for those more suited to learning via the practical application of their skills.
- She will be keen to see Applied Science introduced as a GCSE subject when the school has committed itself to introducing more vocational subjects. This is expected to happen in 2003/04. She feels that the GCSE is a useful marker and gives students a goal to aim towards.

A science teacher believes that the core curriculum is appropriate if it achieves flexibility without losing the accessibility of a broad and balanced curriculum for all. She welcomes the proposal to create vocational pathways for those more suited to learning via the practical application of their skills. She will be keen to see Applied Science introduced as a GCSE subject when the school has committed itself to introducing more vocational subjects. This is expected to happen in 2003/04. She feels that the GCSE is a useful marker and gives students a goal to aim towards.

14–19 timeline

- Feb 2002: Green Paper published
- March 2002: Consultation period ends
- April 2002: Government response to consultation
- January 2003: Opportunity and Excellence and public announcement of Pathfinders
- September 2003: Hybrid GCSEs in science and geography trialled
- Jan 2004: Tomlinson task force interim report on qualifications and vocational learning
- April 2004: Connexions service to be available nationally
- By 2004: Modern Apprenticeships available to 28% of young people (from 16)
- June 2004: Tomlinson final proposals published
- September 2004: Education Maintenance Allowances extended nationally
- Expansion of vocational GCSEs
- 2004 onwards: Entitlement to study literacy, numeracy and ICT to Level 2 until age 19

The place of ICT in the government’s 14–19 agenda

Although ICT is not singled out as a separate theme within the Green Paper or its response, it has a major part to play. The complexity of offering the level of choice and flexibility of course and pace to individuals suggested by the Paper would not be possible without it. The need to provide flexible delivery of courses and remote access to course materials involves coherent infrastructure, online resources and ideally some form of online tracking and assessment. Teaching and learning will be shared across physical school and college boundaries. ICT is integral to the successful implementation of the reforms.

The response paper refers explicitly to the use of e-learning to bring together the best of teaching from schools, FE and work-based provision. It also sees a place for ICT in supporting and managing personalised learning in a variety of institutions and in enhancing learning for all.

This document will go on to look in more detail at the areas in which ICT can be of practical benefit.

National Issues

Content

The demand for flexibility in learning inferred by the 14–19 agenda will increase the need for appropriate digital learning content, to be accessed at any time and in any place. Curriculum Online is leading the national market for schools-focused digital learning content and a similar service for post-16 content currently known as ‘College Online’ is being discussed. Through Curriculum Online, schools now have access to a database of content, and e-learning credits with which to purchase them. The Regional Broadband Consortia, who help to secure broadband connectivity for schools, serve as a regional focus for the development of additional broadband content for schools and subject associations offer a national curriculum-based focus. City Learning Centres and similar bodies can also undertake a content development role for their school and college audiences. More informally, web-based resources such as the National Grid for Learning, Fer, the Teachers’ Resource Exchange and Virtual Teacher Centre provide access to a vast body of resources, both online and traditional in nature.

800 hours of curriculum materials are hosted on the Hull City Learning Centre’s Virtual Learning Environment. The Centre is working with schools that are creating curriculum materials and making these, and assessment tools, available to all users of the VLE.

Assessment

The 14–19 agenda flags up the issue of multi-location study and assessment, which must be dealt with...
The Cumbria Pathfinder will work with five locally based projects to test developments against a range of area-based needs and priorities and identify transferability issues. Activity will include the development of a rural academy and virtual learning centres.

The 14–19 Pathfinders and ICT

A southern City Learning Centre has introduced digital video for assessment in PE for a local school. GCSE groups of all abilities were provided with digital video for assessment in PE for a local school.

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Part II – A place for ICT

Introduction

The government’s vision of 14–19 education relies on every education provider committing to membership of educational partnerships which can provide an individual programme for each learner. This local and regional pooling of skills and strengths provides the required broad-based curriculum, but is dependent on the learner travelling to access the learning, or the learning travelling to the learner. In addition, data about the learner’s attendance and performance must move with the learner to all of the host institutions, and potentially to the providers of formal accreditation. Without the effective exploitation of ICT, this will not happen with the necessary speed and ease to support learners, practitioners and managers.

The Shropshire 14–19 Pathfinder is looking at this region-wide VLE and the London Grid for Learning solutions with typical ages.

Partnership and collaboration

There are a number of key issues which need to be addressed in order to enable effective local partnerships. Most of these will be solved by application of technology:

Transfer of student data. Currently, much student data is duplicated and given separately to schools, colleges, Connexions services etc. Discussions between the LSC and the DfES are under way on the creation of a unique student identifier which would be carried between providers; however, progress is slow, and the dataset under discussion is small. Some regional pilots are looking to share this baseline information.

Student assessment and tracking. This can be a function of a good learning platform. ICT provides an excellent means of formative assessment. However, sharing learning platforms between providers, or ensuring compatibility of data between different learning platforms needs joint protection issues come to the fore when data is shared outside a single institution. This is an area in which colleges have much expertise to share with schools that are less familiar with the use of learning platforms.

Student support. This could be identified through appropriate tracking before serious problems occur. The Connexions service particularly needs to have timely access to data. Advice needs to be given to teachers and lecturers supporting online learning, particularly if this is happening at a distance. Online mentoring and web communities are two approaches currently being piloted.

Duty of care issues. These are more likely to occur in a college situation, and most likely in areas of vocational training. Appropriate guidelines need to be made available to all staff in all institutions dealing with the 14–16 age group. For those vocational training areas which may cause problems, the use of digital cameras and webcasting are excellent solutions. An agricultural college is already using this technology to bring activity in the lambing pen to younger students. Transport of 14-year-olds is an issue which regularly arises – a member of school staff needs to travel with them and, where greater distances are involved, then whole- or half-day chunks need to be timetabled into the school and college day unless the learning travels to the learner.

Learner timeline with potential ‘drop out’ points

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<td>Year 9 students should receive careers education and guidance to support a range of curriculum choices in general and specialist courses.</td>
<td>Age 14 – start GCSEs or GNVQs at foundation or intermediate level</td>
<td>Year 11 should receive appropriate work experience, citizenship and PSHE as part of their education programme.</td>
<td>Year 12 students complete AS levels, advanced GNVQs and MAAs</td>
<td>Year 13 students complete A2 and Advanced GNVQs and receive further appropriate careers advice.</td>
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<tr>
<td>Potential drop out point for Year 10 students who do not feel motivated by their choices or did not receive enough guidance to make appropriate choices.</td>
<td>Year 11 students take GCSEs as a progress check, potential for disaffected or unsuccessful students to ‘drop out’ of education.</td>
<td>Potential drop out point for year 12/13 students who are not motivated to continue the A2 part of the courses they started in year 12.</td>
<td>Potential drop out point for year 13 students who are not motivated to continue into higher education.</td>
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<tr>
<td>Solutions</td>
<td>Solution: continued Connexions advice for alternative pathways.</td>
<td>Solution: increased employer engagement and further Connexions guidance about alternative pathways.</td>
<td>Solution: tie in with widening participation initiatives.</td>
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Increasing numbers of local councils are using webcasting technology to broadcast their meetings to a wider public. Picture quality is poor, but good enough for the more creative councils to extend their services to weddings and similar events, and to broadcast local events such as Newcastle’s annual New Year’s Eve celebrations. Slow connection speeds are keeping take-up low, but the potential for education, over higher bandwidth, would be far greater.
The sharing of content and access to learning resources. This is another learning platform issue. The use of video conferencing and webcasting technologies can help with remote learning, but they are technologies which require a great deal of support. Similarly, partnerships with local employers flag up issues of network suitability, internet connectivity and data security, alongside a potential role for the Regional Development Agencies.

Parity of staff and student experience. On a national level, courses are going to be taught in different locations by different people from different organisational cultures. For example, a vocational GCSE could be taught in a school or college, or conceivably both. Ongoing, formative, online assessment will enable appropriate tracking for learner and practitioner, regardless of location.

Management of collaboration. There is a real need for a central co-ordinator, and ‘ownership’ of the individual student experience. This student ‘management’ role is likely to require access to comprehensive data management systems.

Key areas in which ICT can support 14–19 education

<table>
<thead>
<tr>
<th>Management and leadership</th>
<th>Examples of current/potential institutional systems</th>
<th>Example of current/potential regional systems and requirements</th>
<th>Example of cross-sector systems required</th>
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<tr>
<td>The development of institutional ICT strategy</td>
<td>Disseminating information about national strategies and their influence at institutional level</td>
<td>The development of joint ICT strategies</td>
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<tr>
<th>Administration</th>
<th>Student registration system</th>
<th>Monitoring attendance and providing access to appropriate services</th>
<th>Making electronic data about student registration accessible across institutions</th>
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<th>Teaching and learning</th>
<th>Access to digital learning content for use and repurposing</th>
<th>The development and purchase of content to be available via regional mechanisms</th>
<th>Enabling cross-institution access to digital learning content and repurposed content via a learning platform</th>
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<th>Student tracking</th>
<th>Using a learning platform or spreadsheet to record and track progress across the institution</th>
<th>Setting and auditing regional targets – tracking progress against national targets</th>
<th>Enabling cross-institution access to student progress reports via a learning platform</th>
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<th>Student support</th>
<th>Using recorded assessment and tracking data to identify students in need and provide access to additional materials/support</th>
<th>Providing access to online information about regional work experience and Modern Apprenticeship placements</th>
<th>Using joint access to a learning platform and email/practitioner discussion forums to liaise on the provision of additional materials and support</th>
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<th>Staff support</th>
<th>Provision of time and support to develop practitioner skills in the use of ICT</th>
<th>Providing and monitoring staff development</th>
<th>Provision of online forum for the sharing of good practice and training needs</th>
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With the knowledge of the key issues which underpin successful partnerships, we are able to look at the structures and systems within the individual institution and forces at the regional level which influence these issues. These institutional and regional structures will provide the context in which appropriate cross-sector systems need to develop and operate in order to offer a broad based and flexible curriculum. The following section will look at how such systems can help to support this, with reference to the key themes identified in the table opposite.

**ICT in the internal institution**

Internal systems in educational institutions predate the 14–19 agenda, set constraints and provide only partial solutions to new problems.

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<th>Existing internal systems include:</th>
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Collaboration at the institutional level is critically dependent on collaboration and support at the regional level. Strategy, funding, infrastructure and monitoring are all regional roles which impact heavily in the individual institution.

A Cambridge school is successfully building partnerships with local primary and secondary schools as well as working closely with parents and students working from home and in hospitals. The Head of ICT has put in place a VLE, which local primary schools use to access a collection of suitable websites.
ICT in the regional management of education

Existing regional systems are managed by key partners including the Local Education Authorities, local Learning and Skills Councils, Regional Broadband Consortia and JISC-managed Regional Support Centres. These organisations manage ICT infrastructure and content development and have a technical support role, but also evaluate roles and outcomes.

Local Learning and Skills Councils have responsibility for the funding of post-16 education in schools, sixth-form colleges, FE colleges and work-based education and training, while LEAs have responsibility for the funding and appropriate provision of pre-16 education in schools. They are key players in the procurement of Internet services, broadband infrastructure and content for LEAs and schools in their regions.

The JISC Regional Support Centres (RSCs) promote and support the use of network learning technologies and resources in the UK further education sector. Existing regional systems are managed by key partners including the Local Education Authorities, local Learning and Skills Councils, Regional Broadband Consortia and JISC-managed Regional Support Centres. These organisations manage ICT infrastructure and content development and have a technical support role, but also evaluate roles and outcomes.

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14–19 reforms imply that cross-sector systems will need to be developed and in practice will involve partnership working at all levels. These partnerships will not function without technology and may not work well with existing structures. There is additional pressure on the schools sector for closer working or common governance across schools.

Currently, the existing cross-sector systems comprise:

- joint strategy working through Increased Flexibility, Excellence challenge and similar programmes
- cross-school management programmes, provided by NCCL
- some content available across schools (through RBCs and LEAs, the Teacher Resource Exchange and Virtual Teacher Centre) OR across colleges (through national repositories such as Ferl)
- partnerships between specialist and Beacon schools and other local schools, rarely supported by technology
- staff support training across colleges (through IET Champions/Regional Support Centre work and the new UK-wide Ferl Practitioners Programme) and schools (NOF training)
- slow data transfer between schools and colleges; for students transferring to college at age 16, this can take up to 6 months.

Colchester Institute (an FE college) has developed a web community for student tracking in response to the introduction of programmes of vocational study for 14–16-year-olds in catering, construction and hairdressing. The community links learners, college lecturers, teachers from the nine local feeder schools and parents. This is a new direction for the college which received its first intake of 14-year-olds in September 2002. The web community has been fully operational since October 2002 and has been enthusiastically used by parents and teachers.

Over 1000 teachers had accessed training through the Hull City Learning Centre in its first 6 months of operation (through NOF and ICT teacher training). In addition to offering on-site training, learning and teaching resources, the CLC is also looking to extend access to its resources through distance learning. Teachers were initially reluctant to use the centre, but persuasion is starting to have an effect. The teacher training sessions were fully booked until the end of 2002.
The Videoconferencing Initiative, one of several Learning Technologies initiatives set up by the Department of Education and Training in Victoria, Australia, is an excellent example of partnership working to deliver the school curriculum to rural areas of Australia. The partnership assists schools in remote areas of Victoria to deliver a broader curriculum for all students regardless of their geographical location using desktop videoconferencing, telematics and shared mobile technology resources and has won national and international awards for innovative use of technology in educational settings.

At a regional level the following cross-sector systems needed could include:

- joint timetabling software and an awareness of all available courses
- a means of transferring and updating individual learning plans within involved schools/colleges/work based providers
- access for all teachers to support and training in the use of new technologies
- access to teaching of specialist subjects (through specialist schools or Centres of Vocational Excellence). This will be especially important in rural areas, where travel to a local specialist school and access and entitlement subject not taught by the student’s own school is impracticable.

- regional database of work placement and Modern Apprenticeship opportunities
- the development of regional timetabling software, which could provide a solution to logistical problems, although this would require robust and truly collaborative partnerships.

It is in these cross-sector partnerships that the goal of interoperability becomes truly essential. Interoperability of learning platforms, or elements of learning platforms, content and content repositories (for example Curriculum and College Online), registration and tracking systems, assessment systems and information management systems is assumed by the 14–19 agenda. It is not yet a reality.

**A note on the use of new technologies**

The move towards ‘anytime, anywhere’ learning has implications for the ways in which technology is used. Remote access to learning materials (from home or the workplace) is already happening in some colleges through the use of learning platforms.

The need for full partnership between schools, colleges and employers will extend the accessibility of content. Webcasting, video conferencing and the increasing use of mobile devices to access and assess learning materials will increase in importance as the teacher or lecturer (particularly of specialist or entitlement subjects) teaches students spread over a wide geographical area.

As use of these technologies grows, so the importance of making learning content and devices accessible to all students increases. Developing accessible content will be an essential, practice.

**International comparisons**

Comparison with international education systems highlights the focus of other developed countries on the need for dedicated vocational education, particularly for the post-16 sector, and significant attempts to provide online learning opportunities in this field.

In Australia and New Zealand, unit-based assessment systems incorporate both general and vocational education and build towards national certificates of achievement; however, the 14–19 curriculum is decided on at a local level in the separate states or territories. Certain states or territories in Australia and New Zealand are also offering online distance-learning opportunities to the post-16 sector. For example, the state of Victoria in New Zealand provides online learning opportunities through the Technical and Further Education (TAFE) Virtual Campus. There are over 1000 modules offered by 90 registered training providers in Victoria.

France and Germany both offer targeted vocational qualifications in dedicated vocational education institutions for 16-19-year-olds. In Germany the complex system of vocational education also includes apprenticeships, where the vocational institutions provide one- or two-day release programmes for work-based training. In Denmark 40 per cent of young people take the apprenticeship route, starting with a year in college in a relatively broad occupational grouping, and the opportunity to sample a range of occupations before finally determining which one of 200 trades to specialise in. Employers are not identified until after the apprenticeships start their programme, so in 10 per cent of cases the college provides simulated practical work.

**For further information**

Becta provides advice and guidance on the use of technology within 14-19 education through its existing work and will be developing support for those new uses of ICT required by the 14-19 agenda.

We are always interested in how schools and colleges are addressing their local 14-19 issues. For further information, or to contact the 14-19 team, email: 14-19@becta.org.uk.

For Becta information on 14-19 strategies: http://www.ferl.becta.org.uk/14-19

For further information on the 14-19 Pathfinders: http://www.dfes.gov.uk/14-19pathfinders

For information on the use of learning platforms: http://ferl.becta.org.uk/display.cfm?page=76

http://www.becta.org.uk/research/reports/vle.cfm