Measuring e-maturity in the FE sector

Final report

A research report prepared by:
The Learning and Skills Network

Acknowledgment

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Executive summary

This publication reports on research into progress towards e-maturity in further education (FE). Research comprised surveys with FE providers and staff and follow up telephone interviews. It was carried out by the Learning and Skills Network (LSN) on behalf of Becta between August and December 2007. Becta has a remit to improve learning through technology, and leads on delivery of the e-strategy.

Key findings

Findings point to progress towards e-maturity in FE. There is some evidence that technology is being increasingly integrated into delivery of teaching and learning. However, there is still a way to go. In particular, there is variation in access and use and available technology is not always 'harnessed' to its full potential. In some parts of the sector, use of technology needs to be more clearly linked to quality improvement and delivery of the curriculum.

Some summary findings:

- Analysis of survey data against an **e-maturity model** found 25 per cent of responding providers to be e-enabled, 48 per cent enthusiastic, seven per cent ambivalent and 19 per cent late adopters.[1]

- Providers generally have information and communication technology (ICT) and e-learning **strategies**, but there is variation in their depth and scope. Although some are embedded in wider teaching and learning approaches, others are primarily focused on purchasing ICT infrastructure. There is limited consultation with learners and other stakeholders in developing ICT and e-learning strategies (only 23 per cent of providers responding said they consulted learners).

- There has been significant investment in ICT and e-learning in FE and many providers now have adequate **infrastructure** for current requirements. However, greater capacity, and in particular more wireless networking, will be needed to cope with any increase in demand. If this is not addressed, it could constrain growth of remote and personalised learning.

[1] The e-maturity model was developed by Becta. Five separate dimensions of e-maturity were identified and survey data analysed to create a score for each provider against each dimension. These were then combined to create an overall 'e-maturity' score. More detail is provided in Chapter three.

- **Access to ICT and e-learning resources** for learners has improved in the last five years. The median average number of full time equivalent (FTE) students to networked computers across providers surveyed is 3.8, which is under the national target of five.[2] However,
  - there may be a question over the continued relevance of this ratio as ubiquitous computing becomes a reality.
  - out of hours access to computers is very limited, potentially restricting the availability of 'flexible' learning. This could be partially addressed by extending and improving remote access to college systems for learners who have their own computers, laptops and/or mobile devices.
  - older college buildings are less likely to be well equipped than new build, creating potential disparity of access.

- There is evidence of effective **use of technology** to manage and deliver learning in some providers:
  - Interactive whiteboards are quite widely used and considered successful
  - Staff are commonly using technology to plan and prepare for learning activities.

- Some aspects of technology, however, are not being used to their full potential:
  - There is **limited use of virtual learning environments (VLEs)** specifically, but also technology more generally, to interact with learners or tailor the learning experience. Providers are not routinely linking VLEs to management information systems (MIS) to create managed learning environments (MLEs).
  - **E-portfolios are not widely used** for student assessment. This is partly due to concerns over whether awarding bodies will accept electronic evidence and the perception that portfolios can not be transferred across courses or organisations.

- Use of technology is **not consistent** either within or between providers
  - Many providers do not have formal targets or a strategic framework for use of technology across the organisation (61 per cent thought use of electronic materials was left to the discretion of individual teachers)

[2] These ratios are best estimates calculated using data related to number of computers (collected through the survey) and number of FTE students (taken from the LSC website) for providers responding to the survey where both pieces of data are available.

  - Variation in use of technology between curriculum areas is influenced by confidence and cultural factors as well as by curriculum content
  - Providers often develop electronic resources internally rather than downloading them from publicly funded repositories. More work is required to establish why this is the case and whether there is full awareness of what is available.

- There is ongoing variation in **staff skills and confidence** in relation to using ICT and e-learning
  - Time is the main explanation given for not attending training that is offered, although some providers could do more to prioritise ICT training within continuing professional development (CPD). Additionally, training courses are not always seen to be the most effective approach.
  - Staff are more likely to ask other staff in their department for help with ICT issues than to seek external help. The quality or extent of advice people receive is therefore sometimes difficult to assess.

- **Part time staff** are more likely than full time colleagues to rate their ICT and e-learning skills as low. They are also less likely to use ICT and e-learning and less likely to access training.

- Providers and staff believe there are **benefits to use of ICT and e-learning**, although evidence suggests these are not being fully realised in many cases.

Conclusions

Key areas of success

- Desktop computers and interactive whiteboards are widely used. There is potential to build on this by integrating use of portable and handheld ICT with that of whiteboards in classrooms.
- The proportion of staff with access to their own computer has increased in recent years and staff commonly use technology for preparing and managing learning.
- Providers and practitioners across the sector appear enthusiastic about the potential of technology to facilitate remote and flexible learning.

Areas requiring further work or issues currently constraining e-maturity

- In FE as a whole, available ICT and e-learning is not being used to its full potential to deliver education and improve educational outcomes. This is partly because there continues to be a focus on acquiring and operating

technology rather than fully realising its potential benefits for learners and learning.

- There is disparity of access to technology and inconsistent use of the resources that are available. This situation will contribute to a 'digital divide' in FE if it is not addressed.

Recommendations

Based on the findings discussed throughout the report, and summarised above, the following recommendations can be made:

Recommendations for Becta, other policy makers and funding bodies

- Clear guidelines should be set out for providers to produce new strategic plans showing how ICT and e-learning will be used to deliver quality improvement and personalisation.

- There should be learner accessibility guidelines, which could include minimum requirements for ICT infrastructure and e-learning provision.

- Frameworks for peer coaching and mentoring in relation to staff ICT development, such as the elective for e-learning introduced for Subject Learning Coaches, should be promoted.

- Availability, relevance and accessibility of electronic resources should be reviewed.

    - There should be a 'mapping' of existing resources in order to understand what is currently available and how it is being used.
    - Repositories such as the Quality Improvement Agency's Excellence Gateway need to be effectively marketed to the sector.
    - Potential requirement for more tailored resources to meet new qualification requirements should be identified and addressed.

- Becta and other strategic bodies should continue their work in raising awareness of ICT and e-learning and its benefits. This could include supporting providers in sharing good practice, and promoting the use of e-maturity frameworks and models.

- There should be guidelines from the Qualifications and Curriculum Authority relating to the need for awarding bodies to accept the submission of electronic evidence via e-portfolios.

Recommendations for providers

- Current levels of ICT and infrastructure, including wired and wireless network capabilities, should be reviewed.
  - Requirements for additional capacity need to incorporate any plans that could increase demand, such as increased remote learning, personalisation and use of e-portfolios.
  - Particular attention should be paid to identifying and resolving issues around accessibility in older college buildings.

- Senior managers should encourage greater consistency in use of ICT and e-learning. This could include setting targets for use of e-learning and developing innovative approaches to staff ICT development, such as mentoring and coaching.

- Senior managers should encourage debate to inform development of college ICT strategy, calling on support from external agencies as required. Strategies should achieve an appropriate balance between system security on the one hand and flexible access on the other.

- Providers should carry out regular staff skills audits in relation to ICT and e-learning skills, and then develop tailored CPD to meet identified gaps. There should also be increased awareness and availability of 'learner-focused' staff training that is specifically informed by an understanding of the learners' perspective.

1 Introduction

This report sets out the findings from research into progress towards e-maturity in further education (FE). Research combined a survey of providers and staff with follow up telephone interviews carried out by the Learning and Skills Network (LSN) on behalf of Becta between August and December 2007.

1.1 Context

In 2005, the Department for Education Skills published the government's e-strategy, Harnessing Technology: Transforming learning and children's services, (DfES, 2005a). This document set out plans for a 'system wide approach to the application of information and communication technology (ICT) and e-learning in education and skills and children's services.' Becta has a remit to improve learning through technology, and leads on delivery of the e-strategy.

E-maturity relates to how providers are progressing against the objectives of the e-strategy. It is therefore about more than just acquiring the latest technology. It is about 'harnessing' and embedding technology to enhance processes and improve outcomes across the organisation. In this context, staff ICT skills and effective utilisation of technology to improve learner outcomes are crucial components.

1.2 Purpose and objectives of the research

This research aims to provide a picture of current progress towards e-maturity in FE. It follows on from work undertaken by Becta in previous years looking at use and capacity of e-learning in providers and identifies areas of success and those in need of improvement. Findings will help Becta identify strategic priorities and areas in need of support or investment.

Overall research objectives were to establish:

- current progress towards e-maturity, in terms of the four Harnessing Technology scorecard outcomes, at institutional and workforce levels across FE
- the main barriers and key success factors for e-maturity
- the role of technology in developing personalised learning
- the impact of recent government reforms on e-maturity.

1.3 Overview of approach

Research combined a number of inter-related strands:

- **A synthesis of relevant research and work** relating to e-maturity in FE. This provided context for and informed subsequent research.

- **Surveys of providers and practitioners**. These were intended to gather broad information on the use of, and attitudes to, ICT and e-learning in FE. Questionnaires were distributed electronically, and in hard copy where requested, to all mainstream FE and specialist colleges.
- **Telephone interviews with providers and practitioners**. These provided an opportunity to explore themes emerging from the quantitative research in more depth and identify examples of good practice. A range of interviewees were selected in relation to provider type, extent of ICT and e-learning usage and job roles.

A full methodological statement is provided in the accompanying 'Technical report'.

1.4 Structure of report

Chapter two provides an overview of current thinking and evidence in relation to progress towards e-maturity in FE.

Chapter three reports on the main findings from both the survey and the interviews.

Chapter four sets out summary conclusions and recommendations for the sector.

2 Literature review

This chapter looks at existing evidence relating to the role of ICT and e-learning in delivering FE. It considers the role of technology within the wider strategic landscape and reviews evidence relating to use of ICT and e-learning. It provides a context for measuring current progress towards e-maturity set out in the following chapters.

2.1 The strategic context

The government's e-strategy 'Harnessing Technology: transforming learning and children's service' (DfES 2005a) has four over arching objectives, to:

- transform teaching and learning to improve educational outcomes for children and young people
- use new technologies and teaching methods to engage hard to reach groups in learning
- improve information and online services so that systems become more accessible for individuals and organisations, encouraging greater partnership working and promoting personalised learning and choice
- use new systems to increase efficiency and effectiveness of delivery.

Becta leads on delivery of Harnessing Technology and in 2006 published a delivery plan that grouped the strategy's outcomes into four themes (Becta 2006a):

- Fit for purpose technology, systems and resources
- Capability and capacity of the workforce
- Efficiency, effectiveness and value for money across the system
- Improving learner and system performance.

Harnessing Technology is therefore about using technology to enhance delivery of learning. It is intended to sit alongside other strategies, helping to address wider sector priorities and targets.

2.1.1 Skills agenda

A succession of White Papers and central government reviews have outlined the need to create 'demand-led' provision that will help meet UK skills needs and promote economic growth.[3] Historically employers have made limited use of FE for their training needs and efforts are being made to address this.[4] The vision is an FE system that equips individuals with skills for employment as well as delivering skills

[3] (DfES 2003a), (DfES 2005b). (DfES 2006a) (Foster 2005) (Leitch 2006)

[4] The 2004 national Employer Skills Survey (LSC 2005) suggested that only 15 per cent of employers made use of FE provision for training needs.

required by businesses to promote economic growth. In setting out plans to achieve this, a strong emphasis has been placed on:

- vocational skills and learning in the workplace in order to bridge the skills gap, for example Specialised Diplomas
- employer engagement activities, such as brokerage programme Train2Gain and a New Standard for Employer Responsiveness
- development of a Quality Improvement Strategy, led by the Quality Improvement Agency (QIA) to 'support colleges and other providers to offer learning a more personalised experience' (DfES 2006a)
- effective staff training and a consistent approach to continuing professional development (CPD). (DfES 2004)

Technology has the potential to allow flexible and tailored learning, which can help deliver a 'responsive' and 'demand-led' system. For instance, electronic portfolios allow learners to log and store achievements, ensuring they receive proper accreditation. Portfolios also help facilitate continuity of learning across different environments, for instance the transfer of work between college and workplace in vocational qualifications. In addition, electronic communication and access to information enhances the potential for responsive and targeted learning provision and brokerage services. This may be particularly valuable for small businesses, who have limited capacity for learning and staff development.

2.1.2 Widening participation

Widening participation in learning, through engaging 'hard to reach groups' and up-skilling the lowest skilled individuals, is integral to the skills agenda. However, it is also a priority in its own right, aiming to prevent the persistent 'exclusion' of people and groups from employment and education.

- Skills for Life (DfES 2001) set out the Government's strategy for improving adult literacy and numeracy skills, identifying a number of 'priority groups' setting out community based or other innovative to engage them.
- 14–19 White Paper (DfES 2005c) set out reforms to make provision for young people more flexible and tailored approach.
- The government also has strategic objectives to reduce the number of 16- to 18-year-olds not in employment and training (NEET) as part of its 'Every Child Matters' agenda (DfES 2003b)[5].

[5] Every Child Matters' (DfES 2003) set out reforms for services to children and young people, arguing for services to strengthen and join up preventative services for children.

ICT and e-learning can help engage hard to reach learners. Some low skilled individuals have had negative experiences of traditional teaching and subsequently become 'disengaged' from mainstream education. Interactive technologies can offer an alternative and have been successful in attracting and retaining hard to reach groups in some cases.

Remote and flexible learning – facilitated through technology and electronic communication – can also help widen participation more generally by breaking down barriers related to time and geographical location. For instance, the NHS' Widening Participation in Learning Strategy Unit identifies e-learning as central for increasing access to learning and upskiling the NHS workforce.

> "The benefits and potential of e-learning are central to the drivers, target groups, and curriculum focus for the NHS widening participation strategy……. E-learning can offer benefits to staff with low qualifications or those for whom there are barriers and blockages to learning, as well as to professional staff for pre-registration, post-registration and professional education and development." (Wright 2006)

2.1.3 Individual needs and personalisation

Personalisation is about identifying the individual needs and tailoring services and support accordingly. In the context of learning, therefore, personalisation is about putting the learner at the centre. Learners must be actively engaged, shaping the service they receive (Leadbeater 2004).

> "Personalised learning means high quality teaching that is responsive to the different ways students achieve their best." (Gilbert 2006)

Tailoring curriculums to meet individual needs is not new. But personalisation also means effectively 'joining up' different aspects of education provision including: IAG; assessment' strategies; and support (DfES 2006b). Technology can help deliver this since it has huge potential to gather information that can then be shared and utilised in order to shape services. Personalising Learning: the opportunities offered by technology, (Becta 2007a) identified seven key characteristics of personalisation that technology can help enhance. These are:

- the learning and teaching dynamic
- assessment
- flexible curriculum
- learning environment
- support networks
- personalised content
- responsive infrastructure.

Learning platforms that support online learning personal learning spaces are one way that technology can be harnessed to support personalisation. (DfES 2005d) Such a space can allow learners to store work and e-learning resources, communicate with other learners and staff and to track progress. They will therefore also help support strategic objectives for flexible and inclusive learning discussed above.

2.2 E-maturity

E-maturity is related to how effectively providers are using technology to deliver Harnessing Technology and meet other strategic priorities. It can be seen as:

> "The capacity of a college or learning institution to make strategic and effective use of technology to improve educational outcomes." (Becta 2008)

An e-mature organisation, therefore, not only has appropriate infrastructure, it will also 'harness' and embed the technology it has to in order to enhance processes and improve outcomes. E-maturity has multiple dimensions, and although precise definitions may vary, most encompass issues related to ICT and e-learning infrastructure, staff skills, and use of ICT and e-learning with learners.

Becta has developed an e-maturity framework to help support FE providers in working towards e-maturity. This framework sets out five key areas maturity and details indicators for five stages of maturity within each. The five areas are:

- leadership and vision
- contexts
- resources
- learning support
- teaching and learning.

This framework is intended primarily as a self diagnostic tool, allowing providers to rank their levels of maturity within the five areas and identify areas for improvement. However, it also provides a useful reference for analysing and understanding e-maturity across the sector, and has informed the primary research reported here.

2.3 Evidence of ICT and e-learning in FE

Current evidence and research shows that technology is being widely used in FE colleges, often helping to improve efficiencies and deliver outcomes. The Harnessing Technology Review (2007) states that:

> "A growing body of evidence demonstrates links between e-maturity and educational improvement." (Becta 2007b)

There have been a number of initiatives and projects providing a framework for this progress, raising awareness and providing funding to encourage use of ICT and e-learning across the sector. A key one was the National Learning Network (NLN). This was a national partnership programme that ran from 1999 to 2004 and aimed to promote ICT and e-learning use across the learning and skills sector[6] (NLN 2008). Under the NLN:

- FE providers obtained access to the Joint academic network (JANET), the UK's education and research network for high speed connectivity managed by the Joint Information Services Committee (JISC), at between 4mbps to 10mbps[7]
- a programme of learning materials development was set up to encourage the FE and adult and community learning (ACL) sector to make best use of ICT and connection to JANET
- JISC Regional Support Centres (RSCs) were initially set up to provide support in upgrading networks to JANET
- providers were required to submit ICT and e-learning strategies (initially to cover 1999 to 2002). Becta provided guidance setting out requirements and priorities for the strategies, which were then approved by Further Education Funding Council (FEFC).

The NLN partnership is no longer in operation, but some of its initiatives have continued. For instance, the JISC RSCs have become a widely used ICT and e-learning support service for FE providers and the NLN electronic resources are still available.

2.3.1 Infrastructure and equipment

There has been considerable investment in ICT infrastructure and e-learning resources in recent years. Ratios of computers to full time equivalent (FTE) students have increased, and there have been improvements in connectivity and access to the internet for staff and learners (Becta 2007b). In addition, VLEs have become more widespread (Becta 2006b). VLEs offer considerable advancement on most previous learning platforms, such as networks and intranets, for personalised and flexible learning. By combining electronic storage, communication and management functions they facilitate remote access to learning and promote increased data sharing (Ferl 2008a).

[6] NLN was set up a partnership between the Further Education Funding Council (FEFC), the Higher Education Funding Council (HEFCE) and other agencies including Becta.

[7] JISC was initially funded by HEFCE but following birth of the NLN, it became jointly funded by FEFC and HEFCE.

> "Learning platforms are central to providing a range of benefits and functions not easily attained without the use of technology. These include enabling learners, parents and carers to access educational information and resources on demand, supporting practitioners in sharing lessons and learning resources, and streamlining a range of educational management processes." (Becta 2007b)

2.3.2 Use of ICT and e-learning in delivering teaching and learning.

An e-mature organisation, however, will not only have the technology but use it effectively to enhance delivery of teaching and learning. Guidance set out on the former Ferl website stresses the importance of 'embedding' ICT and e-learning plans within the wider teaching and learning strategy.[8] There is not a 'one size fits all' approach and providers must ensure that any e-learning adopted meets the specific needs of the organisation and its learners. The guidance identifies a number of different opportunities that e-learning can offer or enhance (Ferl 2008b):

- **Supported learning** – activity to support main programmes of learning, for instance researching on the web or revision exercises.
- **Traditional teaching tools** – use of technology to support traditional teaching, for instance using PowerPoint rather than overhead projectors.
- **Blended learning** - combining traditional resources and technology based opportunities. This can help support flexible and tailored learning so that learners learn at their own pace and along their own pathway.
- **Anytime learning** – allowing learners to access learning out of college hours.
- **Remote learning** – use of technology to allow learners to access learning from any location.

Remote learning has become fairly commonplace through learndirect.com and other initiatives. In addition, providers are increasingly using ICT and e-learning as an aide 'to support learning' and as 'a traditional classroom tool' (Becta 2006b). However, other kinds of activity have been more limited and evidence suggests that the full potential of technology to facilitate differentiation and personalisation is not being realised (Becta 2007b).

In particular, while VLEs appear quite widely available, their use is sometimes restricted to storing and downloading documents. Research suggests that linkage of VLEs to MIS is not routine, restricting the potential of this technology to enhance

[8] Ferl was a web-based information service that aims to support individuals and organisations within the post-compulsory education sector make effective use of ICT and e-learning. The resources and content on the Ferl website are now part of the QIA Excellence Gateway.

data access and transfer. In addition, the use of VLEs' functions to encourage tailored learning - such as through e-portfolios – can be more limited.

Use of other mobile technologies such as mobile phones is fairly limited, although there are some examples. For instance, the 'Mobile Learning Network' (MoLeNET), a current LSC funded programme, aims to:

- explore the effectiveness and impact of mobile learning on teaching and learning and the issues and challenges to be addressed
- identify and share good practice in mobile learning
- explore strategies for developing sustainable mobile learning provision which is not dependent upon project funding.

Within the 32 projects that have been selected, a wide range of mobile and handheld devices are to be used: from mobile phones through PDAs, iPods, handheld games machines, such as Playstation Portables (PSPs) and Nintendo DS, to Ultra-Mobile PCs (UMPCs). These are to be employed in a range of learning environments and contexts to support learning in many different curriculum areas (Molenet 2008).

2.3.3 Electronic resources

There are a range of different electronic resources publicly available. As mentioned above, NLN materials are still available, although no longer managed by Becta or available on Ferl's website. [9]

The QIA's Excellence Gateway, however, provides an online 'gateway' to a number of relevant sources for providers and practitioners delivering FE (QIA 2008a). Launched in 2007, this facility is a 'one stop shop' that allows users to search across different databases including the former Ferl, Ofsted's good practice database and the key QIA programmes. For instance, materials and resources produced as part of the National Teaching and Learning Change Programme can be located and downloaded via the Excellence Gateway. Under the National Teaching and Learning Change Programme, Subject Learning Coaches are nominated by managers to receive additional training that allows them to promote quality across their subject through 'coaching' and mentoring peers.

Other publicly available electronic resources include:

- a guide on the National Curriculum for Wales for developers of digital resources, produced by Becta (Becta 2005)
- online versions of the Skills for Life Materials for Embedded Learning, available on the Embedded Learning Portal home page. (QIA 2008b)

[9] The NLN site is now managed and updated by Xtensis

2.3.4 Staff skills

The ability of staff to operate and 'harness' available technology is a key factor influencing e-maturity. Evidence suggests that some staff may lack skills or confidence in using technology with learners, constraining the potential of technology to 'improve outcomes' (Becta 2007b). However, there may be an opportunity to address these skills needs within wider plans to strengthen workforce development.[10] As of September 2007, FE tutors are required to log 30 hours of continuing professional development (CPD) with the Institute for Learning (IfL). Moreover, IfL has launched a customised site for logging the CPD. It is possible that over time, using this may help staff feel more familiar with e-portfolios and help encourage their use more generally.

LSN has developed a professional development framework for e-learning. The framework focuses on developing competence in e-learning and its associated technologies, identifying need where appropriate.

> "The framework aims to develop the ability of staff to select and use appropriate e-tools and techniques to support and enhance delivery of the curriculum. This includes a broad range of aims that are applicable across several roles in the education and training sector including management and leadership." (LSN 2007)

Mentoring and coaching may also be useful staff development tools with respect to e-learning technology. In February 2008, an e-learning elective was introduced for graduate Subject Learning Coaches as part of the National Teaching and Learning Change Programme.

2.3.5 E-enablement

ICT and e-learning in Further Education: management, learning and improvement (Becta 2006b) developed a 'model of e-learning implementation' and analysed survey results to categorise providers as 'e-enabled', 'enthusiastic', 'ambivalent', or 'late adopters'. It concluded that 75 per cent of respondent providers fell in to the first two categories, signalling sector-wide progress towards e-enablement when compared with previous years (Becta 2006b). However, there are considerable issues constraining maturity. Becta's Harnessing Technology Review states that:

> "Building e-maturity continues to be a challenge, both to schools and the FE and skills sector, and there is wide variation in its development." (Becta 2007b)

[10] The need for a greater emphasis on CPD in FE was identified in the White Paper 'Improving Skills' (DfES 2006a)

2.4 Conclusion

The government's e-strategy, Harnessing Technology, sets out plans for the use of technology to enhance educational outcomes.

Harnessing Technology is intended to complement other strategies, integrating use of ICT and e-learning in to learning delivery in order to help achieve other sector objectives.

E-maturity is the extent to which providers are effectively using technology in all areas of management and delivery in order to progress against the Harnessing Technology outcomes.

A number of initiatives and programmes are in place to encourage effective use of ICT and e-learning in FE.

Evidence points to increasing use of ICT and e-learning in the sector, although there are some particular areas where it is currently fairly under-developed.

3 Findings

3.1 Characteristics of respondents

A total of 104 provider and 775 practitioner survey forms were completed, incorporating a spread across provider type and region. Unless otherwise stated, percentages quoted are based on the number of respondents to the particular question. Labels indicate whether tables and graphs relate to provider or practitioner surveys.

Tables showing full results to all questions are provided in the accompanying 'Technical Report'.

3.1.1 Provider survey respondents

As with previous years, there was slight over-representation of providers from some regions and provider types, and corresponding under-representation from others (see Tables 3.1 and 3.2). Although numbers are too small to allow robust comparisons, it is worth considering the potential influence of this profile on overall results. In particular, the relatively high proportion of specialist colleges – which often have fairly limited or specific ICT resources – may make the sector appear less 'e-mature'. [11]

Table 3.1: Respondents by region of provider

College type	Respondents		Sector
	Number	Percentage	Percentage
South West	20	19	9
South East	17	16	17
Greater London	12	12	14
Eastern region	9	9	8
East Midlands	6	7	7
West Midlands	7	6	13
North West	8	8	16
Yorkshire and Humber	12	12	10
North East	13	13	6
TOTAL	104	100	100

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[11] Caution should be exercise in making direct comparison with data from Becta's 2006 survey, which in contrast had slight under-representation of specialist colleges.

Table 3.2: Respondents by provider type

College type	Respondents		Sector (LSC 2006)
	Number	Percentage	Percentage
General FE	73	70	65
Sixth Form College	15	14	26
'Other' colleges, including specialist colleges	16	15	10
TOTAL	104	100	100

3.1.2 Practitioner survey respondents

Practitioner level survey responses were received from staff across a range of curriculum areas and teaching programmes. Table 3.3 points to under-representation of part-time staff, with other data sources suggesting they account for almost two thirds of the workforce. This probably reflects difficulties in engaging with this group.

Table 3.3: Practitioner level respondents by whether they are full time

	Number	Percentage
Full time	612	79
Part time	163	21
TOTAL	775	100

3.1.3 Qualitative interview participants

A total of 38 interviews with providers and 18 with practitioners were conducted. 'Provider' interviewees were typically college members of staff responsible for leading ICT and e-learning strategies. Practitioner interviews were carried out with individuals from across a range of curriculum areas and differing levels of ICT skills.

3.2 Strategy

Some providers interviewed asserted that the requirement to submit an ICT and e-learning strategy under NLN had been useful, saying it provided the impetus to develop and adopt a more structured approach to ICT usage. The Harnessing Technology e-strategy, with its explicit agenda of encouraging technology use, and other aspects of the current skills agenda were also thought to provide focus.

> "Harnessing Technology's four areas have provided a college focus, as have 14-19 and diplomas, for which we are a pilot." (Head of ICT and e-learning in the North West)

3.2.1 Scope of strategies

Although most providers have ICT and e-learning strategies, there is variation in their scope and the extent to which they are actively implemented.

- Respondents' strategies are more likely to cover use of ICT and e-learning to deliver learning in general terms (72 per cent) than specific applications such as 'use of ICT in self assessment reviews' (30 per cent) and 'use in administering and managing records' (44 per cent)
- Thirty-five per cent of providers have formal targets in 'all programmes' and a further 34 per cent in 'some programmes'. The presence of targets can suggest strategies are being translated in to action.
- Eighty per cent of provider respondents thought less than half of staff at their colleges were aware of the ICT and e-learning strategy. This suggests that more work is needed at some providers to raise awareness of relevant strategies and their implications.
- Some providers interviewed said that ICT and e-learning strategies were primarily concerned with purchasing hardware and encouraging use of electronic resources. More innovative ones, however, were trying to 'embed' ICT and e-learning in to wider college strategies.

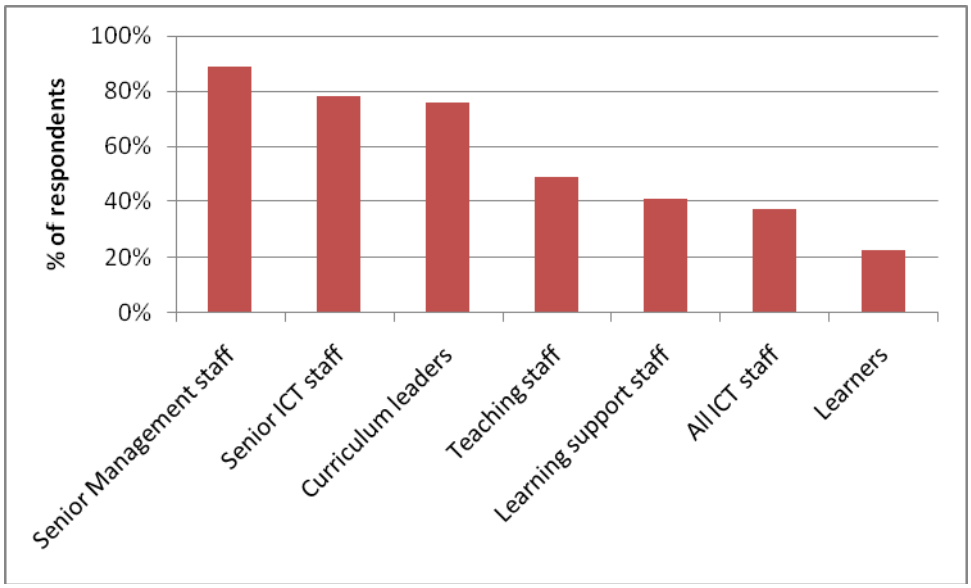
There was also a view across interviewees that successful strategies generally needed commitment from senior management, and adequate funding to realise implementation.

> "[Our] new principal identified key areas for change including ILT so made money available resulting in smart boards in every room and much improved staff / student / computer ratios." (Staff Development Manager from a provider in the South East)

3.2.2 Updating strategies

Across providers surveyed, senior staff and curriculum leaders generally contribute to the development of dedicated ICT and e-learning strategies (see Figure 3.1). Consultation with staff more widely, however, was less common and with learners even less so. This is a concern given the importance of 'learner voice' within the personalisation agenda.

Figure 3.1: Provider survey: If you have a dedicated ICT and e-learning strategy, who contributes to its development?



Base figure: 100 respondents

Mechanisms for consulting identified by interviewees at more innovative providers included:

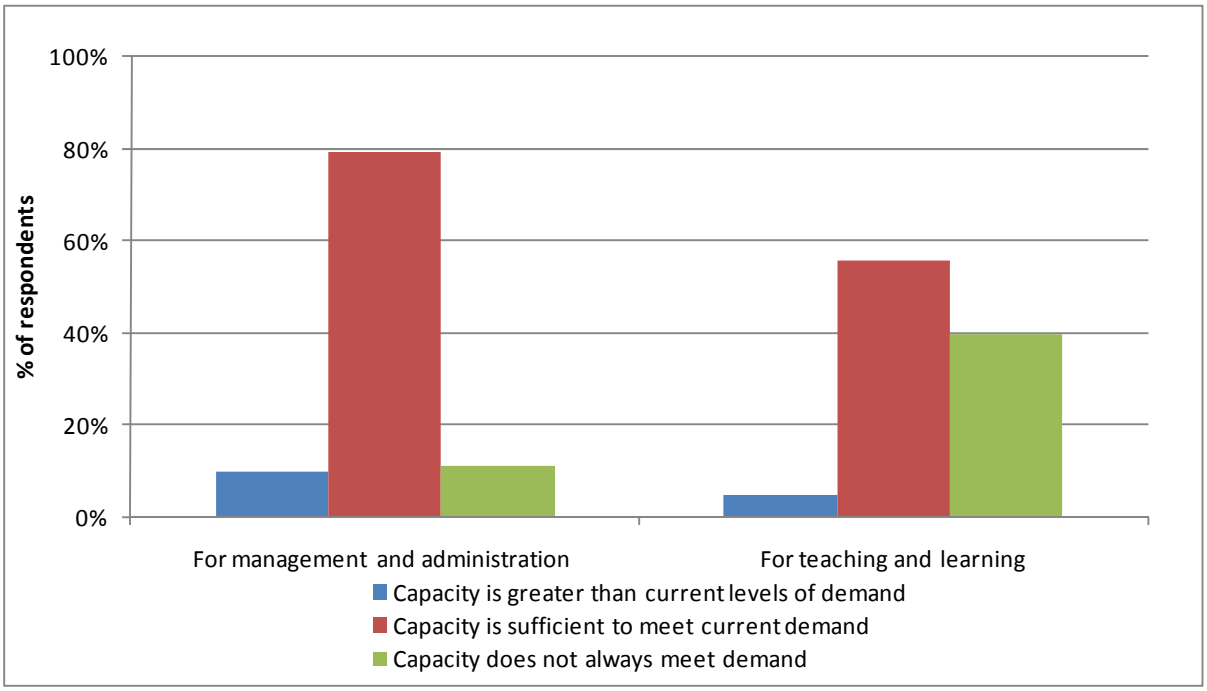
- 'ICT and e-learning working groups' that had been set up to ensure different interests were captured
- using ICT and e-learning champions to feed information through
- electronic questionnaires and surveys or focus groups to gather student opinion.

3.3 Access to resources

There has been significant capital investment in ICT infrastructure and electronic resources in FE colleges in recent years. Many providers appear to have prioritised funding in ICT and now have sufficient infrastructure to meet current needs. However, there are some exceptions, particularly in relation to resources to use with learners (see Figure 3.2). Some specific issues in relation to adequacy of, or access to, particular resources are set out in the relevant sub-sections below.

Moreover, Figure 3.2 shows that only a small proportion of providers think that they currently have greater capacity than demand. This means more investment is likely to be needed if demand increases in line with plans at sector level for increased personalisation, online portfolios and remote learning.

Figure 3.2: Provider survey: Overall, would you say that the available ICT stock and resources at your college, effectively meets requirements?



An alternative view presented in interviews was that resources are adequate but they are not being utilised to full effect. One particular concern was lack of adequate technical support to maintain and operate specialised technology.

3.3.1 Network

All major sites in providers surveyed were connected to the college network, although a few minor sites weren't (see Table 3.4). There is a concern that any staff and learners primarily based on unconnected minor sites may be disadvantaged in terms of access, as providers increasingly rely on networks for communicating and sharing resources.

Table 3.4: Provider survey: number of minor sites providers have against number of minor sites connected to the college network

No of minor sites providers have	None connected	1 connected	2 connected	3 connected	4 connected	5+ connected	Total
1	3	16	0	0	0	0	19
2	2	2	9	0	0	0	13
3	0	2	1	6	0	0	9
4	1	1	1	1	6	0	10
5+	0	0	0	1	1	12	14
Total	6	21	11	8	7	12	65

Although data does not suggest widespread problems with network operations, resources can be stretched at certain times or in certain situations.

- Forty-six per cent of respondents to the provider survey said that 'learners and staff frequently work with large files and rarely experience problems with the network'. However, 39 per cent said 'the network can handle large files but we do not encourage learners to use them' and 14.4 per cent thought 'the network would have problems coping with large files'. This suggests that systems in some providers cannot cope with very 'media-rich' files, for instance including video or sound.

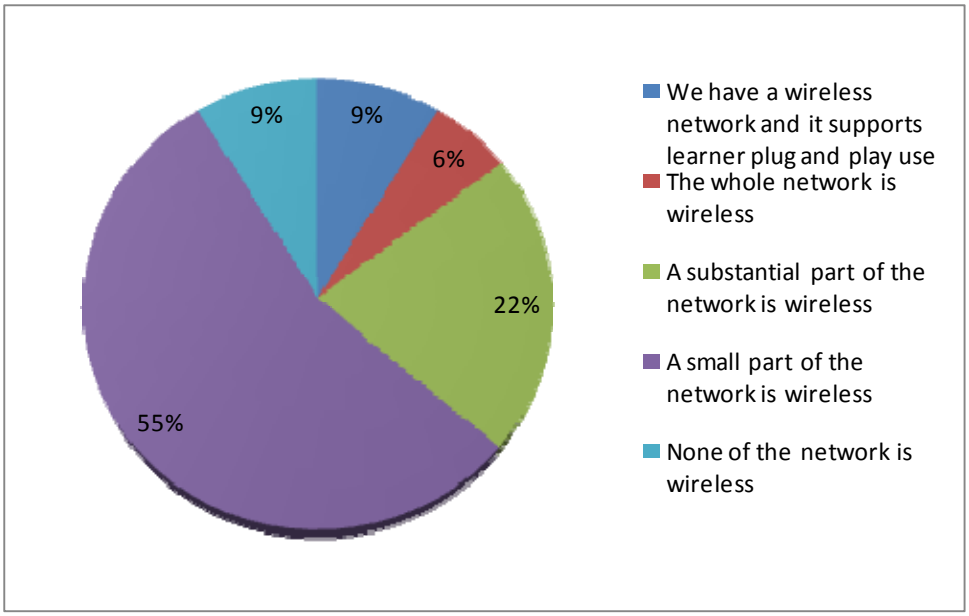
- Sixty-four per cent of provider-level respondents said that their 'network is fast and reliable and allows users to access relevant off site resources including NLN and web 2.0 tools. This compares with 32 per cent who said that 'the network generally works well, but slows down at very busy times' and 4 per cent who thought 'the slowness / unreliability of the network is a frequent problem.'

- Forty-five per cent of practitioner respondents said that they experienced technical problems with the college's network 'about once or twice a term'. This compares with 19.4 per cent who experience problems 'once or twice a month', 26.4 per cent who said 'never' and 9.6 per cent 'at least once a week'.

- According to survey results, practitioners were slightly more likely to report technical problems with the internet connection than with computers, with 13 per cent saying 'never', 50 per cent saying 'once or twice a term', 25 per cent saying 'once or twice a month' and 11 per cent 'at least once a week'.

At least part of the network is wireless in the majority of providers surveyed (see Figure 3.1). However, data suggests most providers are not operating on a fully wireless basis. It is likely that additional wireless technology and bandwidth capacity will be needed to accommodate any increase in numbers of learners, flexible access or personalised learning. In interviews, a small number of providers said that activity is currently restricted by inadequate bandwidth and there is an urgent need for more capacity.

Fig 3.1: Provider survey: Does your college use wireless network technology?



3.3.2 Learner access to computers

The mean number of FTE students per networked computer at responding providers is 4.5 and the median, which is not distorted by extremes, is 3.8.[12] Both averages compare favourably with the government target of one computer for every five students. However, survey data suggests some ongoing issues with learner access to computers and the internet.

- Fifty-six per cent of providers and 57.4 per cent of staff said that learners' demand for computers was not met.

- Fifty-three per cent of providers and 47.1 per cent of staff said internet capacity could not always meet demand from learners.

Moreover, the ratio for FTE students per computer available outside teaching hours is much higher than the overall figure, with a mean of 28.7. This is an area that should be addressed if providers wish to encourage individuals to work and communicate independently using electronic mediums.

[12] These ratios are best estimates calculated using data relating to number of computers (collected through the survey) and number of FTE students (taken from the LSC website) for providers responding to the survey where available.

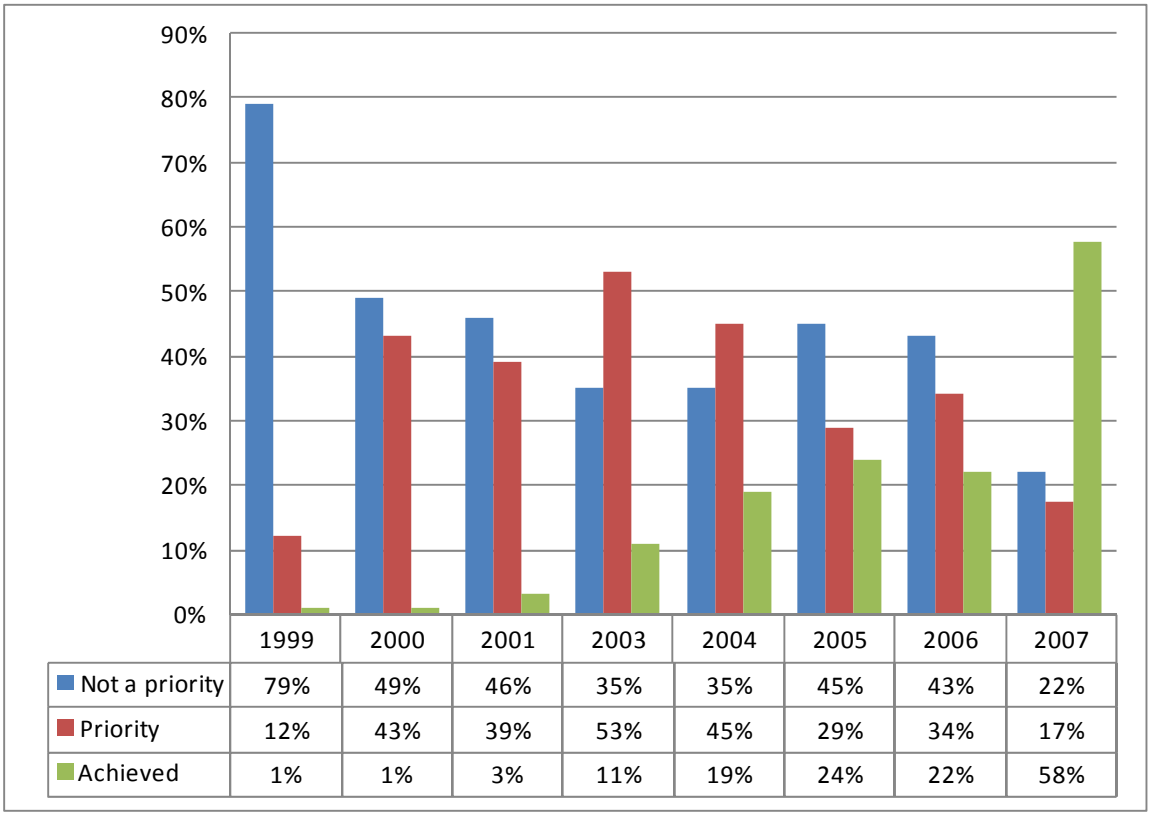
Interviewees commonly said that recent buildings have some of the best access. While it is good that technology is being integrated in to new buildings, if older buildings are not updated to a comparable standard of infrastructure then disparity of access across the sector is likely to increase.

> "[There is] very good access to all resources in brand new college buildings. I am not aware of any access problems, apart from the case of the students that do not have computer access at home [practitioner]".

3.3.3 Staff access to computers

There has been considerable increase in the proportion of staff with access to their own computer in recent years (see Figure 3.2). Interviews suggested that staff are taking advantage of this to prepare for and manage learning.

Figure 3.2: Provider survey: Whether staff have their own computer at work[13]



	1999	2000	2001	2003	2004	2005	2006	2007
Not a priority	79%	49%	46%	35%	35%	45%	43%	22%
Priority	12%	43%	39%	53%	45%	29%	34%	17%
Achieved	1%	1%	3%	11%	19%	24%	22%	58%

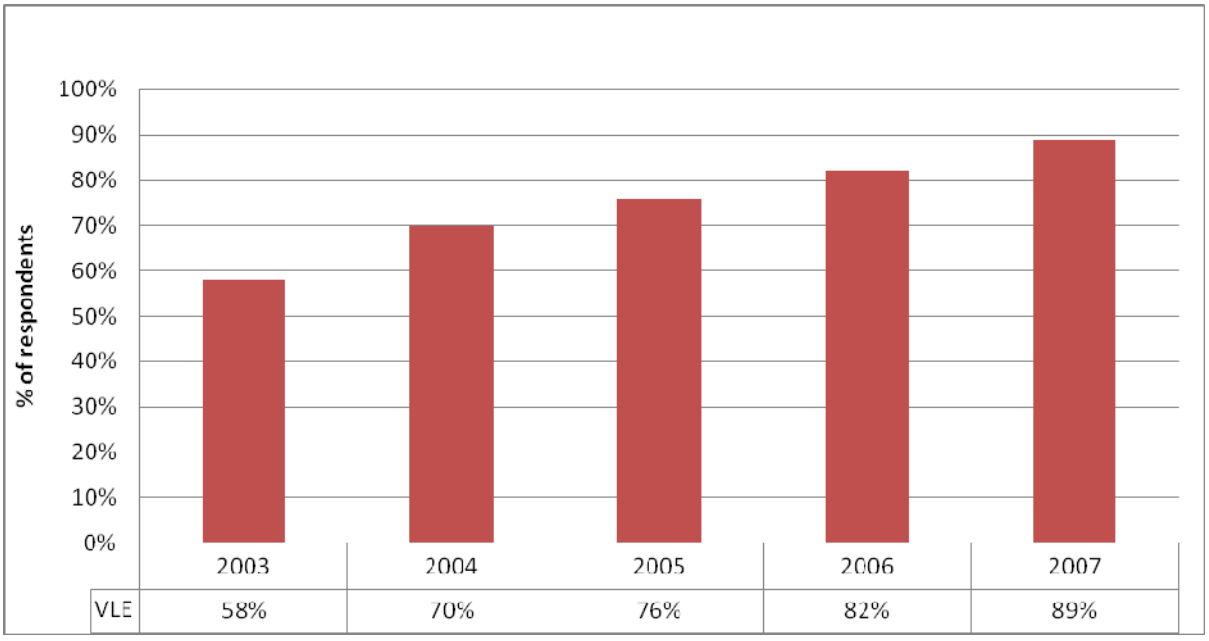
[13] Percentages for the 2007 survey data were calculated from a base figure of 104 in order to ensure comparability with data from previous years, when all percentages were calculated from the total number of survey respondents.

3.3.4 Learning platforms

Networks, intranets and VLEs are widely available in FE colleges. Survey data shows a clear increase in the number of colleges using VLEs in recent years (see Figure 3.3).

- Interviewees commonly citied the installation and use of VLEs as one of the main changes in the way technology is used.
- The introduction of Moodle on a no fee basis appeared to provide the impetus for some providers.
- Moodle, followed by Blackboard, was the brand most commonly identified in both survey and interviews.

Figure 3.3 Provider survey: Presence of a learning platform[14]



Some of the potential benefits of VLEs over other systems – such as intranet based systems – cited, include:

- equitable and easy access to course materials and other information including out of hours and remote access. This was thought important for helping to deliver 'flexible' learning, particularly for adult learners or those in employment.

[14] Percentages for the 2007 survey data were calculated from a base figure of 104 in order to ensure compatibility with data from previous years, when all percentages were calculated from the total number of survey respondents.

- potential to 'personalise' learning through personalising the interface and facilitating communication between users (including between learners and between learners and staff)
- potential to link with Management Information Systems (MIS), which helps collection and use of robust information to deliver tailored learning and services.

The uses of VLEs and their potential benefits are discussed in more detail in Section 3.4 below.

3.3.5 Investment in other resources

In addition to VLEs, interviewees commonly reported recent investment in the following areas or resources:

- Interactive whiteboards. Providers had often prioritised investment in these, saying they were relatively easy to learn how to use and that learners benefitted from their interactive nature.
- Digital cameras
- Upgrading and expanding existing stocks of computers.

Some providers said they would like to expand use of e-portfolios but were reluctant to commit investment in the absence of a generic package that could be used in all courses and transferred between organisations. A sense emerged that greater commitment to developing and using e-portfolios is required at a sector level.

> "(We'd) be keen to expand the use of e-portfolios but there are difficulties associated with this in that portfolios are course specific – it is not possible to purchase one portfolio that a learner could use for all courses. Procuring different portfolios for all courses would be both very expensive and possibly confusing for users. There are also issues surrounding the viability of electronic portfolios as the main mechanism for storing and tracking work as long as awarding bodies still require work to be submitted in paper format." (Manager from a provider in the North East)

3.4 Use of resources

Overall, research shows considerable use of technology in FE. The greater availability and range of resources in recent years has led to greater awareness of technology and its potential, in turn encouraging greater use. However, there is variation. More innovative providers are using technology to deliver improved services and widen the learning offer, engaging hard to reach learners and encouraging flexible learning.

In many cases, however, available ICT and e-learning resources are probably not being used to their full potential. In particular, use of technology with learners is fairly limited compared with use to 'manage workload' or 'prepare for lessons'. This may reflect lack of skills or confidence amongst staff, which is discussed in Section 3.5 below.

Often, it appears that providers who are successfully 'embedding' ICT and e-learning have been high users of technology historically. This is often tied to commitment and strong support from senior staff:

- Only 15 per cent of provider survey respondents thought that 'lack of commitment of SMT' currently prevents effective use of ICT and e-learning
- One interviewee felt that the track record for ICT and e-learning usage at their provider has created a general enthusiasm for and comfort with technology across all levels of staff
- Others thought that SMT could probably do more to encourage greater usage and fully realise the potential of resources.

3.4.1 Use of ICT and e-learning for management and administration

MIS systems are being widely used to collect and store data electronically (see Table 3.5). Interview data also revealed increasing use of e-registers and the good practice box below highlights some of their potential benefits.

Table 3.5: Provider survey data: Extent to which MIS – and data collected through it – are used for the following tasks…

	To a large extent		**To some extent**		**Rarely or never**		**Total**
	N°	**%**	**N°**	**%**	**N°**	**%**	
To register learners	91	88	8	8	4	4	**103**
To assess learners' needs	40	39	37	36	25	25	**102**
To track learners and support learner progression	48	47	40	39	15	15	**103**
To develop the college's quality improvement strategy	52	52	38	38	11	11	**101**

Good practice example: Use of electronic registration systems

One interviewee from a sixth form college described how electronic registration systems had led to more effective management of learner data, ultimately helping to deliver an improved service to learners. The system at this provider allowed considerable textual information to be inputted:

- If a teacher registers a student for fieldwork for a specified day or days, this will automatically be recorded on the registers for the classes they will miss
- Personal tutors, who all have a large number of tutees, each have their own electronic registration system to record meetings and keep detailed information on tutees, providing a 'formal structure for escalating problems where necessary'
- The system incorporates a 'teacher nagging' function, which sends a reminder e-mail to teachers if they fail to submit registration. According to the interviewee, teachers now carry out registration religiously and he believes that this has helped improve attendance on a Friday afternoon.

"Anecdotal evidence of impact is that student attendance on a Friday afternoon has jumped from 65 per cent to 85 per cent in the two years since this system was introduced."

Linking MIS with a learning platform has significant potential to increase transfer of and access to data across providers. This is not just about increasing efficiencies in data collection. It is also about delivering improved services though effective transfer and utilisation of information. However, under half of providers participating in the survey (46 per cent) indicated that that MISs were linked to VLEs.

To promote collaboration

Data suggests that ICT and e-learning is being used to promote collaboration and sharing of resources between practitioners, particular within colleges, but less so between providers:

- Ninety per cent of providers and 91 per cent of practitioners taking part in the survey thought ICT and e-learning was used to promote collaboration between practitioners in their college ('to a large extent' or 'to some extent')
- Only 58 per cent of providers and 55 per cent of practitioners thought their provider used ICT and e-learning to help promote collaboration with other providers
- In interviews, some providers appeared to sense a tension between co-operation and competition, but there were some innovative examples of collaboration cited. The motivation for collaboration at provider level was generally to raise the profile of the provider and also to share good practice across the sector.
- Practitioners were likely to share information and practices directly since they may gain practical advantages that enhance the job they do. The JISC RSC networks support collaboration quite effectively in practitioner-

based areas and the Moodle user groups were another area where they could share.

"The college is very keen on collaborative working. We have five CoVE's, (centres of vocational excellence) four of which are run in conjunction with other colleges; there are also a number of Train to Gain partnerships, in which the use of technology is significant in delivering to learners. SMT always encourage sharing good practice" (Director of ILT from a provider in the East).

3.4.2 Use of ICT and e-learning in delivering learning

Table 3.6 suggests that ICT and e-learning is more commonly used in a fairly general way such as 'to support learning' or 'as an element in blended learning' than for more specific tasks such as 'to create individualised learning plans'.

Table 3.6: Provider survey data: Use of ICT and e-learning across mainstream college programmes

	All / most program		Some / a few program		None		Total
	No	%	No	%	No	%	
As a traditional classroom teaching tool	61	60	36	35	5	5	102
To support learning	57	56	41	40	4	4	102
As an element in blended learning	52	51	44	43	6	6	102
To enable remote access to learning	41	41	50	50	9	9	100
To enable learners to access learning any time	40	40	52	52	9	9	101
To store individualised learning plan	23	23	55	54	24	24	102
To enable learner to learn at their own pace	20	20	72	72	8	8	100
To create individualised learning programmes	14	14	70	69	17	17	101
To support collaborative learning	9	9	79	77	14	14	102

In addition, Table 3.7 indicates that ICT and e-learning is more widely used by staff for tasks associated with researching or preparing work than those involving direct interaction with learners:

- Practitioners were most likely to say they either 'never' used ICT and e-learning' or 'did not know how to' use ICT and e-learning in relation to 'managing individual target setting'.
- Part time staff were less likely to say they used ICT and e-learning 'all the time' in relation to the following tasks: make course materials available;

display information electronically in lessons; track learners outside of the classroom; assess learners' work; and manage individual target setting.[15]

Table 3.7: Practitioner survey data: Use of ICT and e-learning to carry out particular tasks

	All time / frequently		Occasionally		Never		Do not know how to		Total
Research and access teaching materials	604	83	75	10	49	7	3	0	731
Create teaching materials	598	82	75	10	53	7	6	1	732
Prepare lesson / work plans	563	77	84	12	78	11	8	1	733
Display information electronically in lessons	506	70	122	17	80	11	15	2	723
Make course materials available to learners electronically	429	59	167	23	117	16	19	3	732
Track learners' progress	393	55	138	19	156	22	31	4	718
Communicate with learners outside of the classroom	298	41	233	32	181	25	11	2	723
Manage individual target setting for learners	279	39	160	22	241	33	44	6	724
Assess learners' work	237	33	217	30	238	33	29	4	721
Research and access teaching materials	604	83	75	10	49	7	3	0	731

Use of electronic materials

More than half of provider respondents thought that 'use of electronic materials' is 'at the discretion of individual teachers' (61 per cent). This compares with 14 per cent saying it is directed by a plan 'at course level', 9 per cent 'at departmental level' and 14 per cent 'at college level'. A concern with use being left to individual teachers is the potential for inconsistent use of ICT and electronic materials across providers, depending on skills and confidence of individual staff. However, a few indicated that practitioners were encouraged and supported to use electronic materials.

Practitioner survey data does in fact point to fairly widespread use of some electronic resources in preparing or planning for lessons.

- A total of 66 per cent of practitioner respondents said they use 'digital (eg web based content, software packages)' when planning lessons 'all of the

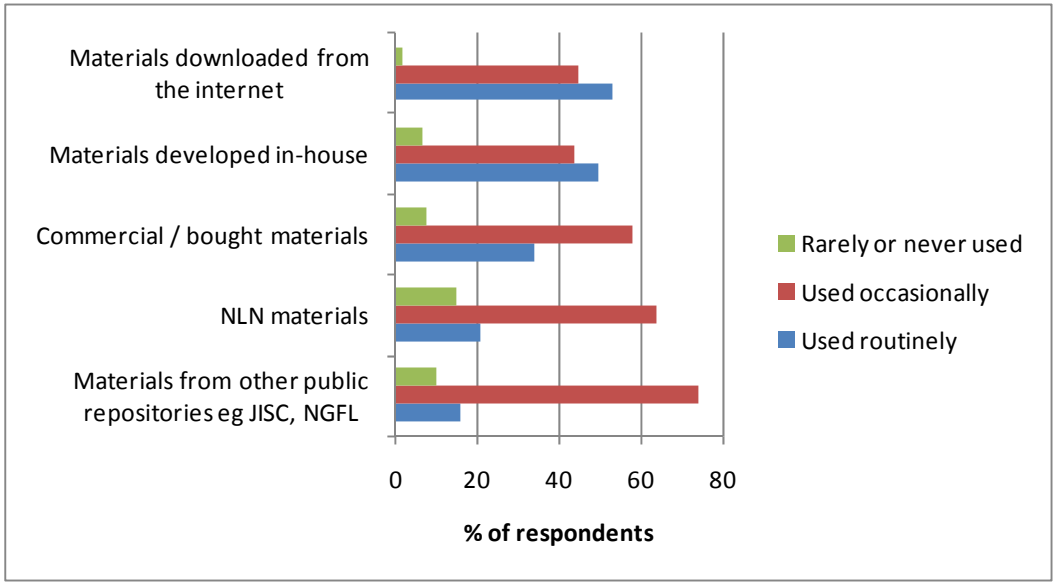
[15] Correlation is significant at least the 0.05 level for all categories

time' or 'frequently', which compares with 71.6 per cent for 'paper-based (eg textbook resources).

- In addition, 62 per cent of respondents said they do sometimes create e-learning resources themselves.

Data suggests that providers surveyed most often used electronic resources developed in house, although a large proportion of respondents use those available on publicly funded repositories, such as NLN, Becta or JISC, 'occasionally'. More work is required to establish why providers are not using materials developed through publicly funded programmes – are they not being properly publicised, or are they not sufficiently relevant?

Figure 3.3: Provider survey data: use of electronic materials in mainstream college programmes



Use of interactive technologies

Interactive whiteboards appear fairly widely used, and some interviewees described their use as successful.

> "The use of interactive whiteboards and digital video has been strikingly successful – for example in demonstrating particular techniques in hairstyling. With the facility to stop, rewind, involve groups in discussion, annotate images, etc – this has revolutionised the learning experience. Voting buttons have been well received by both staff and students…" (Director of learning resources from a provider in the East)

In contrast, use of mobile technology to support teaching and learning is currently very limited. However, a number of providers think it is an area of potential growth, especially as wireless networks develop and wireless availability improves in general.

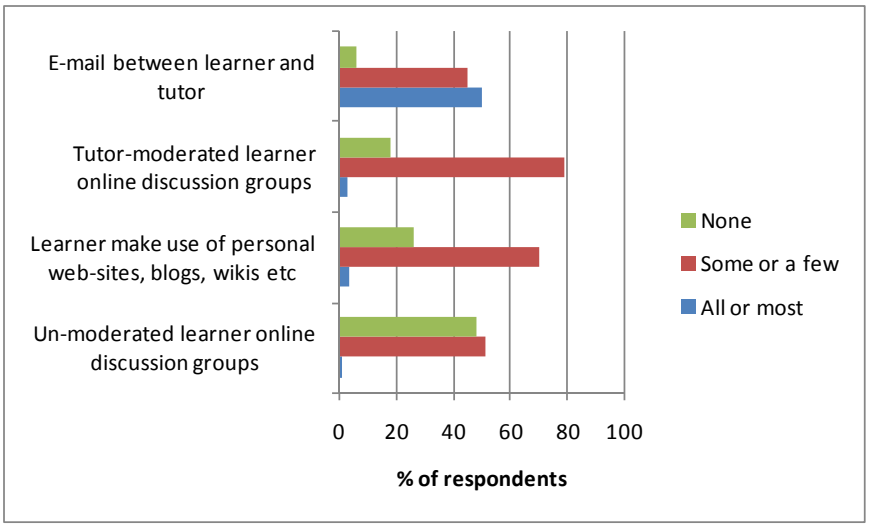
> "Mobile phones and MP3s are universal but practitioners haven't begun to think about their use and it's a constant battle to restrict personal classroom use" (Teacher from a provider in Y&H).

Electronic communication

Using e-mail to communicate with learners is widespread across providers responding to the survey. However, there appears to be under-utilisation of technology's potential for effective communication beyond this.

- Fifty per cent of respondents said e-mail was used to communicate between learner and tutor in 'all programmes' and a further 45 per cent in 'some or a few programmes'. This compares with 25 per cent and 74 per cent respectively in 2006, suggesting that electronic communication is increasingly becoming the norm.
- Tutor moderated on-line discussion groups and learners' making use of personal web sites, blogs and wikis also appears to be fairly common in 'some programmes'.

Figure 3.4: Provider survey data: Use of electronic communication across mainstream college programmes



Use of VLE

Tables 3.8 and 3.9 show that VLEs are used quite widely for storing and uploading digital learning resources, but less so for more interactive tasks such as 'customising the user interface' or 'facilitating online discussion'. This suggests more work is required to fully realise the potential of VLE and capabilities of technology generally.

Table 3.8: Provider survey data: Use of VLE for specific tasks across mainstream college programmes

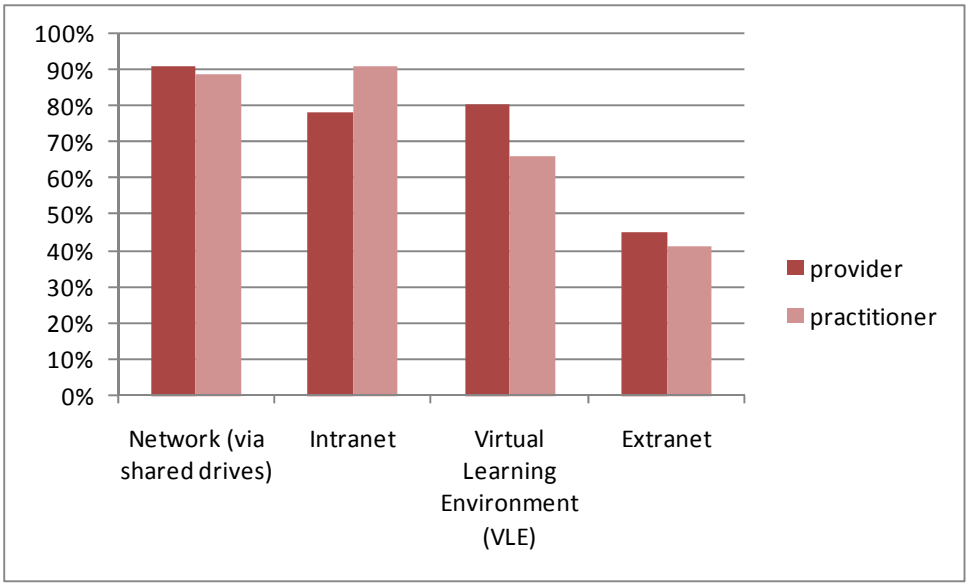
	All / most prog's		**Some prog's**		**A few prog's**		**None**		**Total**
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**	
Upload and store digital learning resources	41	41	38	38	11	11	9	9	**99**
Search for and download digital learning resources	25	26	42	43	16	16	15	15	**98**
Create digital learning resources	21	21	37	37	26	26	16	16	**100**
Conduct online learning assessment	19	19	29	29	39	39	12	12	**99**
Create and manage lesson plans	18	18	22	22	29	29	30	30	**99**
Facilitate online discussion forums	11	11	46	47	28	29	13	13	**98**
Customise (or personalise) the user interface	9	9	22	22	32	33	35	36	**98**

Table 3.9: Practitioner survey data: Use of VLE for specific tasks

	Yes, the VLE has this and I use it regularly / occasionally		**Yes, the VLE has this feature but I do not use it**		**No, the VLE does not have this feature**		**I don't know whether the VLE has this feature**		**Total**
	No	%	No	%	No	%	No	%	
Upload and store digital learning resources	399	61	137	21	7	1	117	18	**660**
Create digital learning resources	329	50	166	26	11	2	146	22	**652**
Search for and locate digital learning resources	315	48	115	18	33	5	193	29	**656**
Conduct online assessment	281	43	225	34	16	2	136	21	**658**
Facilitate online discussion forums	197	30	273	41	14	2	177	27	**661**
Create and manage lesson plans	195	30	183	28	55	8	226	34	**659**
Customise (or personalise) the user interface	183	28	172	26	44	7	254	39	**653**

In addition, while VLE was more often identified as 'the main platform' (46 per cent) than intranet (27 per cent) at provider level, the opposite was true in the staff survey (see Figure 3.4). This disparity could suggest that VLEs are not as widely or extensively used by staff as leaders think they are or think they should be.

Figure 3.4: Provider and practitioner surveys: Respondents selecting 'this is the main platform we use' or 'we have this platform and use it frequently' when asked 'Does your college have the following learning platforms?'



This notwithstanding, some providers interviewed thought VLEs have allowed significant changes in the way that learning can be delivered and accessed. One particular benefit is the potential for out-of-hours and remote access, which encourages flexible learning and equitable access. This can be particularly helpful for adult learners or those in employment.

Interviewees stressed that the greater availability and improved performance of VLEs in recent years has been crucial for their increased use. One provider asserted that technology that doesn't work is counterproductive.

Good practice example: Installation and use of VLE

One interviewee described the increased use and benefits of the VLE at their provider in recent years. This provider viewed themselves as high and innovative users of technology, 'leaders in the field'. They had developed their own VLE in the 1990s, but purchased a commercial one a few years ago. This is mainly because it is more efficient and less expensive to run a commercial system that is supported externally. Although the previous VLE was used fairly widely, this new one is more so. This is mainly because technology has developed more and it is easier to use.

Originally, the VLE was mainly used to deposit information, but now it is increasingly becoming a tool for communication, allowing staff and students to share information and access a wider pool of resources. As the administrator, he can view all activity and knows that message boards are being used more and more.

The VLE is now routinely used in the classroom, as well as outside it. Previously staff used to go to lessons with reams of paper handouts. But now every class is equipped with a screen and projector, and teachers can bring presentations and other materials that they have prepared beforehand up on screens from the VLE. The students can then access these resources electronically after the lesson.

The VLE can also be accessed via interactive whiteboards, thus allowing students to interact with the resources.

Teachers have been asked to put schemes of work for the course on the VLE, which can then be accessed by other staff. This means that if permanent staff are ever absent, temporary staff can easily drop in and pick up the scheme. The interviewee has recently conducted a survey and found that 83 per cent of courses had schemes of work uploaded on the VLE.

Variation in use of technology across the curriculum

Provider respondents were asked which curriculum areas they thought were the highest users of ICT and e-learning and why.

Areas most commonly identified as high users were:

- ICT / computing (52 respondents)
- business studies (25)
- hairdressing / beauty (16)
- media (nine); science(s) (nine)
- sports / sports sciences (nine).

Low users were considered to be:

- art / art & design (eight respondents)
- performing arts / drama (nine);
- health and care (seven)
- hairdressing / beauty (six).

Explanations for these variations centred on:

- relevance of ICT to the curriculum
- staff skills and / or enthusiasm for ICT

- proactive individuals driving change forward, and
- willingness of staff to embrace change more widely.

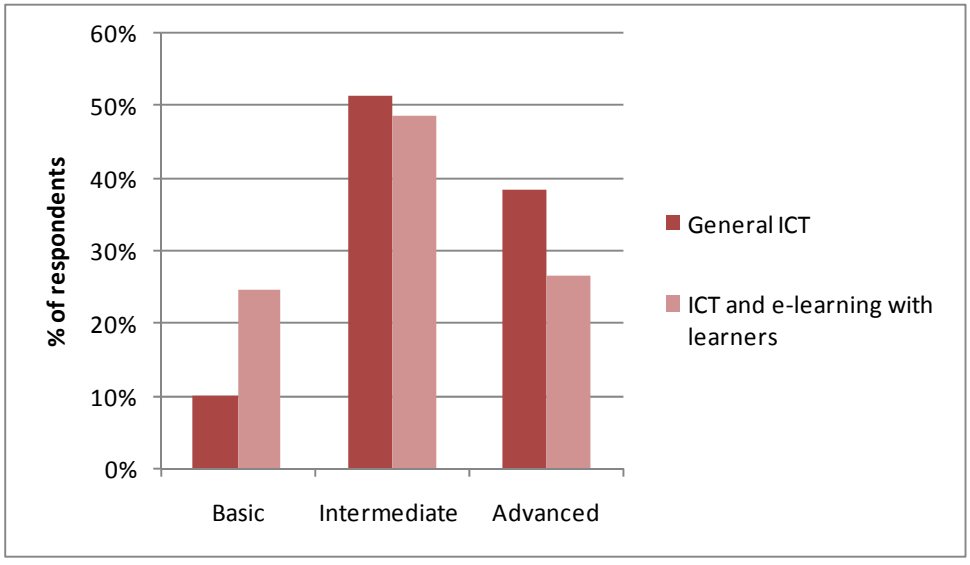
Broadly, respondents appeared to believe the extent of ICT and e-learning usage depended as much on staff skills and cultural factors as on curriculum content.

3.5 Workforce development

Differences in use across respondents and across curriculum areas are likely to be in part explained by ongoing variation in staff skills and confidence in relation to use of ICT and e-learning. Survey data points to clear ICT skills needs at some providers that should be addressed within continuing professional development frameworks:

- Practitioner survey data suggests staff skills are lower in relation to using ICT with learners than general ICT skills (see Figure 3.5)
- Analysis shows that part time staff are significantly more likely to rate their skills as 'basic' in relation to both 'general ICT' and 'using ICT and e-learning with learners'.

Figure 3.5: Practitioner data: how practitioners rate their own ICT and e-learning skills



Interviews suggested that it is fairly common – although certainly not universal – for providers to assess or audit staff skills on a regular basis, which can provide a sound platform to understand and address needs as necessary. More innovative providers set standards for ICT skills as well as assessing needs as part of the recruitment process.

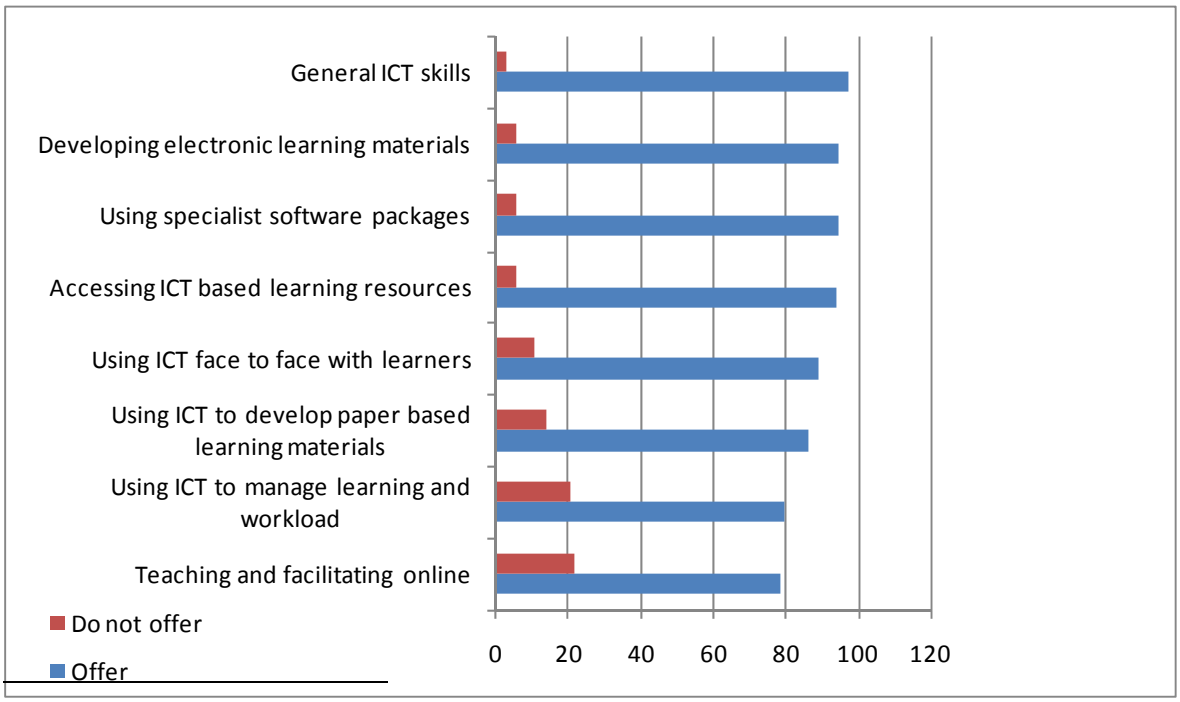
> "The issue of staff skills has been significant. It is improving, but there is still some way to go. An ILT [Information and learning technology] skills staff survey is conducted every year. Most recent results show the complete range of responses from highly skilled to 'afraid to turn it on'. A comprehensive staff development programme will continue to be in place for at least two years. No element of compulsion in staff development in technology – this is seen as important – but ITQ is now included as part of the staff development programme, and could be set as an appraisal target". (E-learning manager from a provider in East Midlands)

3.5.1 Training offered and taken up

There is considerable ICT and e-learning related training offered for FE staff. Almost all providers surveyed said they offered 'general ICT skills' training (97 per cent). Other types of training shown in Figure 3.6 were less common, but still offered by the majority of providers.

No information was collected on availability of training with a greater 'learner-focus', for instance showing learners how to make best use of electronic materials or take advantage of mechanisms for personalisation. These may be the kind of areas that will make a big difference in terms of impact of e-learning.

Figure 3.6: Provider survey data: Training offered by providers[16]



[16] Survey categories 'offered to teaching staff', 'offered to learning support staff' and 'offered to either teaching or learning support staff' have been combined.

However, available training is not always accessed, even when staff are aware of it. Table 3.10 shows that staff surveyed were most likely to select 'they offer it but I have not used it' in relation to 'teaching and facilitating online' (31 per cent), followed by 'developing electronic learning materials' (30 per cent). These are the kinds of training that may help raise skill levels in relation to 'using ICT and e-learning' and it is therefore important to try and encourage staff to attend.

Table 3.10: Practitioner survey data: Training offered and taken up

	Yes, they offer it and I have used it		Yes, they offer it but I have not used it		No, they do not offer it but I would like it		No, they don't offer it but I wouldn't use it		I don't know whether they offer it		**Total**
	No	%	No	%	No	%	No	%	No	%	
General ICT skills	480	63	221	29	22	3	**11**	1	33	4	**767**
Using specialist software packages	437	58	190	25	60	8	9	1	63	8	**759**
Developing electronic learning materials	361	48	222	30	59	8	11	2	95	13	**748**
Using ICT to develop paper based learning materials	336	46	197	27	63	9	21	3	122	17	**739**
Using ICT face to face with learners	325	44	190	25	68	9	19	3	145	19	**747**
Using ICT to manage learning and workload	285	38	196	26	96	13	29	4	140	19	**746**
Teaching and facilitating online	248	33	234	31	91	12	25	3	153	20	**751**

Lack of time is the most common reason offered for not taking up training:

- Ninety-five per cent of providers surveyed indicated that 'insufficient time to take up training currently prevents effective use of ICT and e-learning. This compares with 42 per cent who thought 'lack of awareness of existing training opportunities' and 27 per cent who thought 'insufficient training was offered' were issues.
- Time constraints are probably a greater issue for part-time staff than full time. In the staff survey, part-time respondents were significantly more likely to select 'I don't know whether they offer it' in all categories of training. Interviews further highlighted this, indicating that part-time staff commonly feel over-stretched and distanced from support to develop ICT and e-learning skills.

"Although part time and struggling to do the job in the hours permitted, I'm still expected to use technology although all preparation is outside of hours

> worked. I have to find out where and how to do things myself." (Tutor from a provider in the South East)

However, an opinion also emerged that this perceived lack of time may be more to do with lack of confidence or unwillingness to prioritise ICT and e-learning training in some cases. Reasons offered for this included a 'fear of embarrassment' amongst staff, especially managers, of attending group training if they have very underdeveloped ICT and e-learning skills. Others interviewees considered that the benefits of ICT training and increased use of e-learning may not be immediately obvious.

> "I have never heard anything else (other than no time) mentioned. Staff have had an increase in course hours over the last year and a vocal minority of staff would say that with all the extra work to do they can't develop new skills. I tried to explain that picking up the new skills would enable them to manage this work more efficiently in the long run." (Learning resources manager from a provider in the East)

Findings suggest, therefore, that more work may be required at some providers to encourage staff to tailor training to staff needs and raise awareness of the potential impact. Offering bespoke one-to-one sessions were identified as a successful – albeit resource intensive – strategy by one provider. Another suggestion was clearly demonstrating the benefits of specific ICT and e-learning usage.

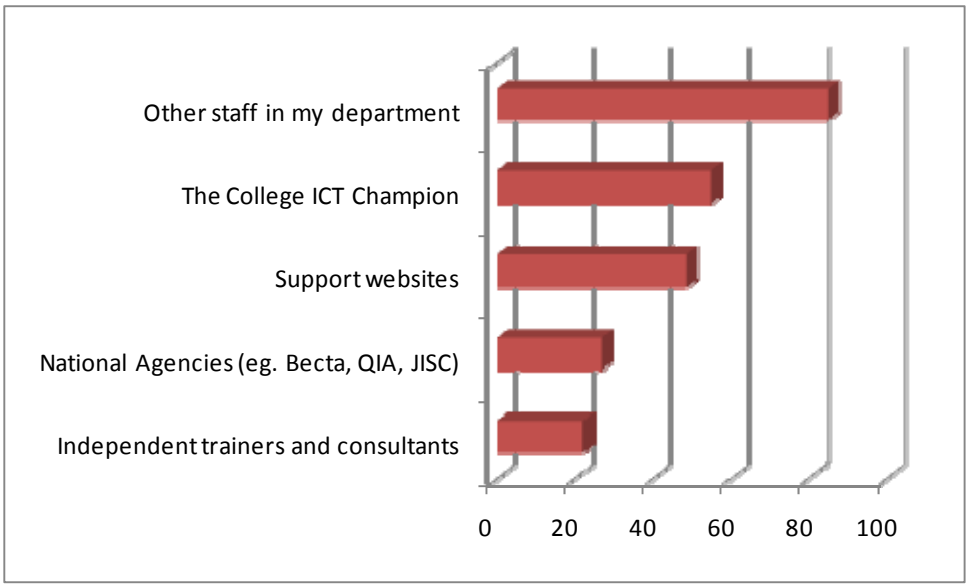
> "Starting with something simple and not putting pressure on people to use technology just for the sake of it." (Director of ILT from a provider in the East)

Vocal commitment from senior management may be an important component in raising the profile of ICT and e-learning use and training. Evidence from interviews suggested that providers where training was considered useful and take up good are commonly those in which ICT and e-learning skills have been prioritised within the overall continuing professional development framework.

3.5.2 Use of support agencies

Staff surveyed most commonly go to 'other staff in their department' for help with ICT and e-learning (see Figure 3.7). However, it is difficult to ascertain the level of impact of such support unless it is part of a formalised peer coaching or mentoring programme.

Figure 3.7: Practitioner survey data: Sources of help / advice in relation to ICT and e-learning[17]



As part of the same question, 23 per cent of respondents selected 'I am not sure what they would be able to help with' in relation to 'National Agencies (eg Becta, Quality Improvement Agency, JISC) and a further 27 per cent selected 'No I would not use this source of help'.

Interviews provided some illustration in relation to the perceived support of external bodies. Becta was generally viewed in a strategic context. It was seen as useful in raising awareness and keeping technology on the agenda, both at a sector and provider level.

> "The Principal attended a Becta transformational conference and this stimulated a trip to Worcester College and has had an impact in increasing access and awareness." (ILT manager from a provider in Yorkshire and Humberside)

However, Becta was considered as less relevant for practitioners, with a few staff believing it is geared towards the schools sector. JISC and particularly, the JISC RSC support networks were most commonly identified source of staff support.

[17] Survey categories 'yes, I do frequently' and 'yes, I do occasionally' have been combined.

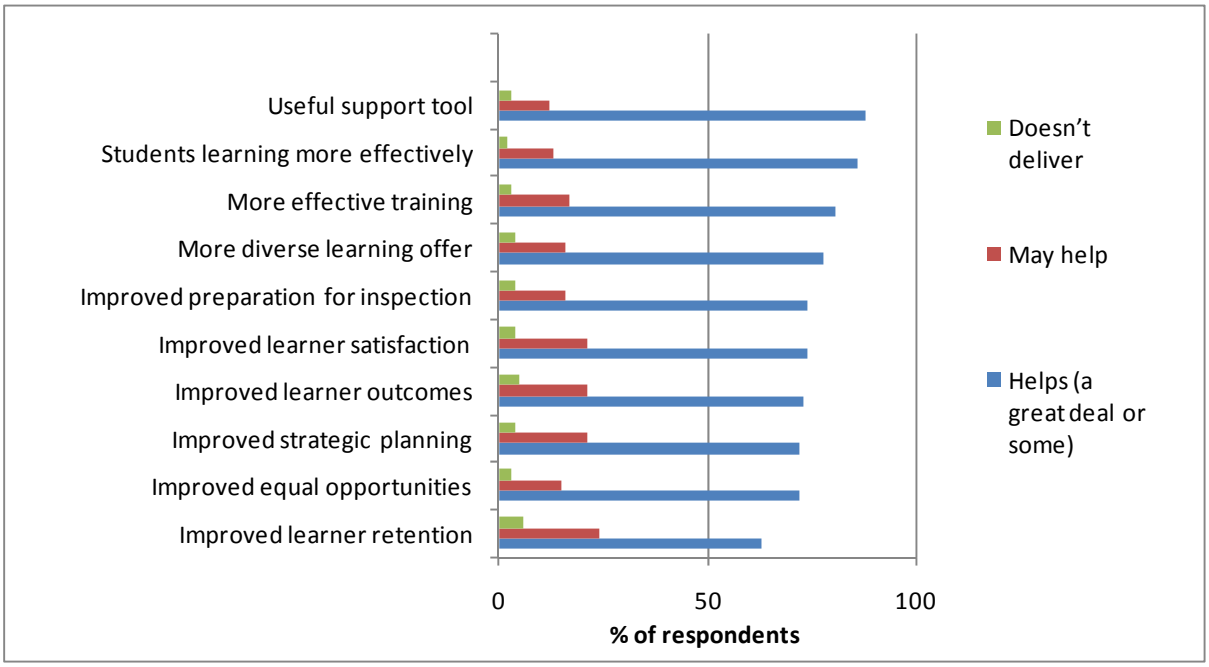
> "They're [the JISC RSC] great!, excellent e-learning advisors, I feel confident that I could call and either ask questions or find out the way to get further information or invite them in to do advisory consultations and they do an annual audit of where we are." (E-learning manager from a provider in the South West)

The Ferl practitioner programmes and e-learning advisors were also considered useful.

3.6 Impact

Overall, providers perceive positive benefits to the use of ICT and e-learning (see Figure 3.8). However, findings presented throughout this chapter suggest that much technology is not being used to its full potential and potential benefits are therefore not fully realised. More work is required to investigate the gap between perception and reality of ICT and e-learning use and impact.

Figure 3.8: Provider survey data: Whether ICT and e-learning has led to any of the following[18]



Although recognising that it is difficult to isolate impact of any one factor, interviewees commonly thought ICT and e-learning helps meets the needs of learners more effectively. Specifically, technology can assist with early and effective

[18] Survey categories 'it helps a great deal' and 'it helps some' have been combined.

identification and assessment of need, and consequent tailoring of support. In addition, some interviewees felt that e-learning techniques can sometimes increase learner enthusiasm and engage 'hard to reach learners'. Some also provided anecdotal evidence of positive impacts on achievement and retention as a result.

> "Our learners have a huge enthusiasm for using ICT – it's empowering and opens up opportunities to our learners. Especially the internet, with it being so visual (and, increasingly, more auditory) is very stimulating and accessible." (Tutor from a provider in the East Midlands)

> "(technology) definitely improves achievement from our learners and attracts more people to learn courses because they can do better work." (Tutor from a provider in the East Midlands)

> "Impossible to separate out the contribution of technology but the college has seen a steep rise in success rates over the last few years. Learner support systems and processes have benefited greatly from technology which helps keep learners at college. Diversity has been supported by technology but greater impact has been seen in better supporting the (already) diverse learner population." (Deputy principal from a provider in the East)

3.6.1 Personalisation

Interviews showed that there is no one clear understanding of personalisation. However, an idea of flexible learning and targeted service delivery underpinned most interpretations and a general impression emerged that technology can help achieve this. For instance, as noted earlier, technology allows remote learning and out of hours communication.

> "[Personalisation is a] fundamental and underpinning element of the strategic approach." (Director from a provider in the North West)

For the practitioner it means that:

> "Pace and location of learning are the key characteristics that ICT can allow to be flexible." (Tutor from a provider in London)

However, the extent to which technology is really being used to its full potential to customise learning is less clear.

Data set out in Section 3.4.2 showed that survey respondents did not routinely use VLEs to 'customise or personalise the learning interface' or 'deliver individualised learning'. It is likely that staff skills and confidence may be currently constraining full utilisation of capabilities of the technology in relation to personalisation.

> "The VLE has got to support differentiation and personalisation for learners but is dependent upon considerable extension of staff skills and levels of use to achieve its impact." (Learning resources manager from a provider in the South East)

3.6.2 Time saved

Survey respondents generally thought using ICT could help save time in teaching and learning (see Tables 3.11 and 3.12).

In terms of tasks, however, this feeling was strongest in relation to tasks that focus primarily on planning and managing work, rather than interacting with learners. Practitioner respondents did not seem to feel as strongly as providers that e-learning resources could help save time.

More than a third of practitioner respondents said they did not use either interactive whiteboards or VLEs. However, even if these 'do not use' respondents are taken out and percentages recalculated from a base of those who do use each resource, 'online resources' were still most commonly thought to save time (64 per cent, compared with 41 per cent for VLE, 40 per cent for MIS and 35 per cent for interactive whiteboards).

Table 3.11: Provider survey data: Time saved using electronic resources / using ICT for particular tasks[19]

	Yes, bit or a lot		**No impact**		**Time is lost**		**Don't know**		**Total**
	No	%	No	%	No	%	No	%	
Resources									
Management information systems	93	90	7	7	2	2	1	1	103
Online resources	91	89	7	7	2	2	2	2	102
VLE	78	77	9	9	3	3	11	11	101
Intranet	78	77	13	13	4	4	6	6	101
Interactive whiteboards	56	55	33	32	7	7	6	6	102
Tasks									
Record keeping	100	97	1	1	2	19	1	1	104
Lesson delivery	89	85	12	12	2	19	1	1	104
Lesson planning and preparation	88	84	13	13	2	19	1	1	104
Assessment	82	79	12	12	2	19	8	8	104

[19] Survey categories'

Table 3.12: Practitioner survey data: Time saved using electronic resources / using ICT for particular tasks[20]

	Saves time		No difference		Loses time		Do not use		Total
	No	%	No	%	No	%	No	%	
Resources									
Online resources	412	58	180	26	56	8	59	8	707
MIS	222	31	196	28	135	19	154	22	707
VLE	205	30	217	31	72	10	199	29	693
Interactive whiteboards	165	23	249	35	56	8	235	33	705
Tasks									
Lesson planning and preparation	370	53	166	24	89	13	74	11	699
Record keeping	357	50	185	26	83	12	83	12	708
Lesson delivery	323	46	252	36	34	5	87	13	696
Assessment	206	30	277	40	43	6	171	25	697

3.7 E-safety

Providers' policies on and practitioners' understanding of e-safety were explored in interviews.

Providers generally have policies in place for both staff and learners which govern their use of technology, in particular use of the internet and email. Reading and accepting policy terms is commonly built in to online enrolment, and to basic training on acceptable usage, provided as part of inductions.

> "We are strict on access and aren't afraid to discipline misuse." (ILT co-ordinator from a provider in the South East)

No cases of serious abuse were identified in the interview process.

Restriction on website access is commonplace and some practitioners thought these restrictions could be too tight.

> "Security is very tight, can be limiting and occasionally causes annoyance." (Tutor from a provider in the South East)

Interestingly one provider does not block access to websites but tracks individual usage through a student and course tracking database that draws data from MIS.

[20] Survey categories'

3.8 E-maturity measure

In order to build an overall picture, a model was developed that identified five distinct dimensions of e-maturity as follows:[21]

- Access
- Resources
- Workforce
- E-learning
- Management.

Survey data was analysed according to this model, with each respondent provider allocated a score for each dimension depending on responses to relevant questions. All dimensions were given equal weighting, and each provider awarded an overall score for e-maturity.

Of the 88 respondent providers[22] 25 per cent are e-enabled, 48 per cent enthusiastic, seven per cent ambivalent and 19 per cent late adopters according to this analysis. Figures from comparable analysis carried out with 2006 survey data were 25, 50, 12 and 12 respectively. This suggests that the proportion of e-enabled providers has remained relatively constant but there has been a slight increase in 'late adopters', as compared to ambivalent. However, this may be a result of the different profile of respondents in 2007.[23]

Looking across the five dimensions, it is access to technology that is most reduced when compared with 2006 data. It is difficult to ascertain exactly why this is the case based on the limited data available. However, one possibility is that some providers have not replaced equipment or bought more to cope with increasing demand, and so access has become more difficult in 'real' terms.

[21] This model builds on work carried out by Becta and reported in Becta (2006) ICT and e-learning in further education: management, learning and improvement.

[22] Specialist colleges were omitted for this analysis since they generally have very specific ICT and e-learning profiles and requirement that typically differ from general FE providers.

[23] In addition, sample sizes mean there could be an error margin of roughly nine per cent.

4 Conclusions and recommendations

Technology has a significant role to play in delivering FE. Chapter two identified its potential for meeting sector objectives and chapter three shows that progress is being made towards e-maturity. Overall, there is some evidence that technology is being increasingly integrated in to delivery of teaching and learning. Typically, providers that have 'embedded' ICT and e-learning are those that have historically been 'high users' and / or have strong commitment from senior management to use of technology.

However, there is still some way to go. In particular, access and use are not consistent across FE and available technology is not always 'harnessed' to its full potential. Some aspects of e-learning – such as e-portfolios and personalised learning – are currently under-developed. And in some parts of the sector, use of technology needs to be more clearly linked to quality improvement and delivery of the curriculum.

4.1 Conclusions

Key areas of success:

- Desktop computers and interactive whiteboards are widely used. There is potential to build on this by integrating use of portable and handheld ICT with that of whiteboards in classrooms.
- The proportion of staff with access to their own computer has increased in recent years and staff commonly use technology for preparing and managing learning
- Providers and practitioners across the sector appear enthusiastic about the potential of technology to facilitate remote and flexible learning.

Areas requiring further work or issues currently constraining e-maturity:

- In FE as a whole, available ICT and e-learning is not being used to its full potential to deliver education and improve educational outcomes:
  - Linking of VLEs to MIS is proving very effective where it occurs. However, data suggests that more than half of providers do not do this.
  - There is limited evidence of development of use of e-portfolios or use of technology to deliver personalised and tailored learning. In addition, current capacity – in particular access to wireless networks - may be inadequate to support their future development.
  - There is variation in staff skills and confidence in use of ICT and e-learning. Staff training is mainly concerned with operating technology rather than being 'learner focused'. And training that is available is often not accessed.

- At some providers there continues to be a focus on acquiring and operating technology rather than fully realising its potential benefits for learners and learning:
  - Some ICT and e-learning strategies are primarily concerned with purchasing and maintaining hardware rather than embedding use of technology in to teaching and learning
  - Across FE as a whole there is under-utlisation of technology to deliver individualised learning plans, create individual learning programmes or enable learners to learn at their own pace and time. Some staff use technology primarily to prepare for and manage learning.
  - No evidence emerged of training to empower learners through use of technology, such as 'learning to learn', or 'personalising your learning'.

- There is disparity of access to technology and inconsistent use of the resources that are available. This situation will contribute to a 'digital divide' in FE if it is not addressed:
  - Some minor sites at some providers are not connected to the main college network, and old buildings are typically not as well resourced as recent new builds
  - Staff are more likely to ask other staff in their department for help with ICT issues than to seek external help. This can be very effective but it is difficult to assess the quality of advice received. Part-time staff are less likely to use technology available and less likely to access training on offer.
  - Many providers do not have any targets for use of ICT and e-learning in delivering programmes. In addition, staff more commonly use resources developed in house than material downloaded from publicly funded repositories. This encourages ownership of resources, but does contribute to issues relating to consistency of coverage and quality.

4.2 Recommendations

Based on the findings discussed throughout the report, and summarised above, the following recommendations can be made:

Recommendations for Becta, other policy makers and funding bodies:

- Clear guidelines should be set out for providers to produce new strategic plans showing how ICT and e-learning will be used to deliver quality improvement and personalisation.
- There should be learner accessibility guidelines, which could include minimum requirements for ICT infrastructure and e-learning provision.

- Frameworks for peer coaching and mentoring in relation to staff ICT development, such as the elective for e-learning introduced for Subject Learning Coaches, should be promoted.
- Availability, relevance and accessibility of electronic resources should be reviewed.
  - There should be a 'mapping' of existing resources in order to understand what is currently available and how it is being used.
  - Repositories such as QIA's Excellence Gateway need to be effectively marketed to the sector.
  - Potential requirement for more tailored resources to meet new qualification requirements should be identified and addressed.
- Becta and other strategic bodies should continue their work in raising awareness of ICT and e-learning and its benefits. This could include supporting providers in sharing good practice, and promoting the use of e-maturity frameworks and models.
- There should be guidelines from QCA relating to the need for awarding bodies to accept the submission of electronic evidence via e-portfolios.

<u>Recommendations for providers</u>

- Current levels of ICT and infrastructure, including wired and wireless network capabilities, should be reviewed:
  - Requirements for additional capacity need to incorporate any plans that could increase demand, such as increased remote learning, personalisation and use of e-portfolios.
  - Particular attention should be paid to identifying and resolving issues around accessibility in older college buildings.
- Senior managers should encourage greater consistency in use of ICT and e-learning. This could include setting targets for use of e-learning and developing innovative approaches to staff ICT development, such as mentoring and coaching.
- Senior managers should encourage debate to inform development of college ICT strategy calling on support from external agencies as required. Strategies should achieve an appropriate balance between system security on the one hand and flexible access on the other.
- Providers should carry out regular staff skills audits in relation to ICT and e-learning skills, and then develop tailored CPD to meet identified gaps. There should also be increased awareness and availability of 'learner-focused' staff training that is specifically informed by an understanding of the learners' perspective.

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