

RESEARCH INTO THE USE OF ICT AND E-LEARNING FOR WORK-BASED LEARNING IN THE SKILLS SECTOR

**Appendix B
Case studies**

January 2005

Acknowledgements

This report was commissioned by the British Educational Communications and Technology Agency (Becta) and funded by the Learning and Skills Council (LSC)

The literature review was undertaken from August 2004 - November 2004 by

The Mackinnon Partnership

Research House, Fraser Road, Perivale, Middlesex UB6 7AQ
Tel: 020 8537 3240 Fax: 020 8537 3201
Email: chris@themackinnonpartnership.co.uk
www.themackinnonpartnership.co.uk

Published by

British Educational Communications and Technology Agency (Becta)
Millburn Hill Road
Science Park
Coventry CV4 7JJ
Tel: 024 7641 6994
Fax: 024 7641 1418
Email: becta@becta.org.uk
www.becta.org.uk

Copyright © Becta 2005

CONTENTS

1 Canary Wharf Construction Workers' Learning Centre	4
2 British Gas Real World Environment for Service Engineers	8
3 e-skills into business (ESiB)	10
4 Certificate in Online Learning (COL)	13
5 e-NVQs	15

1 Canary Wharf Construction Workers' Learning Centre

Lead organisations	UCATT (Union of Construction and Allied Technical Trades) and Lewisham College Trade Union Study Centre
Partner organisations	Canary Wharf plc, learndirect, DfES, approximately 20 construction companies
Target sector/occupation	Construction sector
Start date	September 2002
End date	Ongoing

At whom is the learning targeted and what is the rationale for its development?

- 1.1 The learning is targeted at construction workers in the Canary Wharf area of London and beyond. The aim is to widen participation to a group of workers traditionally excluded from learning, especially for health and safety training in the industry, for which there is no structured training.

How is the learning delivered and what does it involve?

- 1.2 The learning is delivered (a) in a portable building on a construction site at the foot of Canary Wharf Tower, and (b) on laptops in construction workers' canteens during their lunchtime. Given the success of the latter scheme, the partners would like to expand delivery to a learning centre bus to travel around employees' workplaces.

- (a) *Portable building Learning Centre* There are a range of courses on offer:
- health and safety awareness one-day stand-alone courses
 - European Computer Driving Licence (ECDL)
 - Word and Excel training
 - 'Introduction to Computing' courses
 - basic skills in literacy
 - English for speakers of other languages (ESOL) entry levels 1 to 3
 - TUC union learning representative courses
 - TUC health and safety representative courses Stages 1–3, including the one-year course leading to IOSH (Institute of Safety and Health) Tech SP.

Much of the learning also takes place on a less-structured basis than these courses. People update their knowledge of health and safety legislation by doing internet-based research, and look for jobs online. The length of time that learning takes varies from a one-day course to a part-time 36-week course.

- (b) *Laptop 'taster sessions'* These provide short introductions to basic skills and ICT, and demonstrations of some of the other e-learning materials used in courses, such as the Body Mapping exercise (where learners match labels describing injuries and risks to a map of the body). These tend to stimulate interest in further learning. These informal learning sessions last about half an hour – the duration of the workers' lunch time.

- 1.3 The learning is blended, with every course on offer having a computer-based element to it (except ESOL). The type of e-learning varies from 100 per cent online testing for the Construction Skills Certificate Scheme health and safety test to electronic diagrams for the Body Mapping exercise, internet research and word processing support as part of completing assignments for the health and safety representative courses. Paper-based manuals with a trade union emphasis support many of the courses. The blended nature of the learning has been important in initiating and sustaining learners' confidence (see details in 1.12).

- 1.4 Almost all learning takes place at the centre itself (excluding the laptop scheme), and the focus of the centre as a physical place to come to has been key in the delivery and success of the project (see details in 1.12).
- 1.5 The Union Learning Fund pays for the project worker and the course materials; the employers provide the Portakabin and associated maintenance and security.

Numbers and types of people participating

- 1.6 Workers from over 20 construction companies participate in the learning. UCATT tries very hard to engage SMEs because it is these companies that tend to have the fewest structures in place for learning (including for health and safety).
- 1.7 Many of the learners have never used a computer before and have basic skills needs. A large proportion have not undertaken any learning since leaving school.
- Since November 2002, the learning centre has helped 256 learners with introductory computer sessions, many of which were used by learners to help them complete coursework or do research for other courses offered by the centre.
 - The online health and safety test has been completed successfully by 170 learners since June 2004.
 - 700 learners have participated in the laptop taster sessions in canteens and depots.

Evidence of success and impact

- 1.8 The centre has won several awards, including:
- an HSC (Health and Safety Commission) Award for Innovative Learning: for the Body Mapping and laptop work
 - the 2003 Beacon Award for Widening Participation, with judges rating the centre's teaching and learning features as outstanding.

It has also secured Matrix accreditation for the quality of information, advice and guidance it offers learners.

- 1.9 Our focus group provided us with a number of examples of success, where workers had progressed from being scaffolders, decorators and joiners to become UCATT site conveners and union officers and/or had taken on further responsibilities in their own union or companies. This has helped construction companies to 'home grow' supervisors and more senior staff, as opposed to recruiting them from elsewhere. This career progression has happened over a number of years.
- 1.10 The learners also gave examples where their health and safety knowledge had changed their practice in the workplaces. One learner helped a team of scaffolders to persuade their manager that a method statement (a key piece of health and safety documentation) needed to be produced before the team could resume work, and then helped the team to write one, something he would not have had the confidence or knowledge to do before.
- 1.11 Previously there was no structured learning for basic health and safety (despite a legal requirement), and most employers took workers through a 15-minute verbal introduction on their first day. Now the centre can get over 250 learners through the course in a week. Therefore, having a physical place for the learning and the focus provided by running an official electronic test have both had a huge impact on addressing health and safety skills shortages in the sector.

Main challenges faced/addressed

1.12 The main barriers are:

- The nature of the workforce: It is transient, composed of a fairly high number of non-British workers; it has no traditional learning culture; and most workers are not office-based but instead are spread over many sites and employers.

Response The existence of a *physical* learning centre provides a focus for learning activity, and has directed the attention of both employers and employees towards learning issues in the sector. The Portakabin is also a UCATT office and provides a base for the project worker. Being in the learning centre sparks initial and continued interest in e-learning as workers are more aware of what's on offer and spend more time in a learning-focused environment. The e-learning also acts as a hook for foreign workers, especially where visual computer aids can help overcome language barriers (e.g. with the Body Mapping exercise).

- Employer support: It has been difficult in some cases to secure paid time off for learners, and some learners have had to use holidays to undertake learning. Also, some employers have not been supportive in marketing and persuading employees to participate in learning. Where they have, it has led to useful training that greatly benefits the wider workforce in raising health and safety standards.

Response The three-way partnership between UCATT, Lewisham College Trade Union Studies Centre and the employers has overcome this in many cases, with paid time off being given by some companies. UCATT now approaches employees directly, and this close contact (also achieved through the laptop initiative) is central in stimulating and assessing demand for learning. The courses are provided free of charge to the learner and the employer (except for any time lost through employee release).

- Fear/embarrassment of learners in relation to learning itself and/or use of computers: Many learners have never used computers before and so are intimidated by the idea of using one.

Response There are many ways in which the centre addresses this barrier. First, the system of tutor support is essential in assisting the learners, and especially within the very delicate first half-hour stage of using a computer. Many of the tutors have been construction workers themselves, and this helps to erode the stigma of struggling. Second, the introduction to learning and e-learning is done very gradually, by slowly increasing familiarity with the learning/e-learning environment – for example, by having the UCATT and project worker office in the same room as the learning centre, running taster sessions in the canteens, running ESOL classes next to the computers, and through the blended nature of the learning. Third, the Portakabin learning centre environment is very informal and different from a traditional classroom. Having the health and safety examination room in the same building as the classroom has helped to reduce the psychological barriers of entering the 'exam room'. Finally, e-learning has been a hook for reducing the fear barrier of learning because, as one learner commented, it 'feels like playing' rather than learning when you use a computer.

The future and sustainability

- 1.13 Building work in Canary Wharf is set to continue for 10–15 years, so there will be continuing demand during this time. There is a plan to expand the number of courses on offer (e.g. to offer an ESOL version of the Health and Safety course as well as having an e-learning option). Other construction companies regularly visit the centre to see how it works, with a view to open more learning centres on other sites in the future.

- 1.14 Funding is always an issue for the project's sustainability, but they are going to make bids from the European Social Fund (ESF) and further Union Learning Fund bids.

2 British Gas Real World Environment for Service Engineers

Lead organisation	British Gas
Partner organisations	Logicom
Target sector/occupation	British Gas engineers
Start date	2002
End date	Initial project to roll out the training finished in 2004 and the training continues to be used

At whom is the learning targeted and what is the rationale for its development?

- 2.1 Targeting British Gas service engineers and modern apprentices, this project aims to upgrade and enhance their skills relating to fault diagnosis. The development of this training has not been driven by a desire to reduce costs. In fact, it is an initially expensive way of delivering training, as the main costs are in the software development and the setting up of the hardware.
- 2.2 British Gas had previous experience with computer-based training, which was implemented in an attempt to reduce training costs. However, there were some problems with this, particularly in terms of quality. The goal with the Real World Environment (RWE) training is to provide better, not cheaper, training.
- 2.3 The previous computer-based training was very linear and not very interactive. The RWE is intended to be very different. One of the main advantages of this approach to training is that it replicates what the engineers do every day, and so hopefully creates a virtuous circle: the training is more successful because it relates directly to the job and the job itself helps to reinforce the lessons of the training.

How is the learning delivered and what does it involve?

- 2.4 The multimedia software is used to create a 3D simulation of a typical customer's home and to develop a scenario where the engineer must interact with a customer and repair a fault with the boiler. There are eight scenarios available, four involving one kind of boiler and four involving a different one. Each scenario includes different random events with artificially intelligent actions plus consequences from the engineer's own actions. The program runs on the laptops issued to the engineers, which they use as an integral part of their work and in national training centres for the modern apprenticeships.
- 2.5 In the case of the engineers, a group of four to six meet with a technical trainer in a conveniently located venue – often a training centre or a facility that British Gas uses for team meetings. The group is taken through the initial tutorial together, although the level of interaction between learners is small as they are all working separately and wearing earphones. The trainer is on hand to address any technical problems with the software and to assist, where necessary, with the tutorials.
- 2.6 Once the tutorial is completed, each individual engineer can choose one of the scenarios to complete next. From this point, the training experience can be very different for each person involved. The aim is to complete any four, or more, of the eight scenarios on the day. The engineers are free to complete additional scenarios in their own time as the software will remain available on their laptops.
- 2.7 British Gas also uses mobile training centres, and some trainers have used one or two scenarios from the RWE software specifically to reinforce other training being delivered to engineers.

- 2.8 In the case of people doing modern apprenticeships, the RWE training has been integrated into the complex appliance training element of their general training. It is delivered through British Gas's network of training centres.
- 2.9 The way the trainee works through each scenario is recorded in a log file, and both the trainee and the trainer check this afterwards. This record is used to determine best practice and to illustrate to trainees how and where they diverged from the model answer.

Numbers and types of people undertaking and completing learning

- 2.10 There are 8,000 British Gas service engineers. The target for 2005 is to provide training using this system for each engineer for four hours. The software has been installed on every engineer's laptop. Additionally, approximately 200–300 modern apprentices have used the RWE training.

Evidence of success and impact

- 2.11 The training is intended to result in measurable changes in a series of performance indicators. In fact, there have been clear improvements in all of them, including:
- first-time fix
 - job recall rate
 - education in part usage/cost
 - reduction in customer complaints
 - reduction in the volume of calls to the National Technical Helpdesk
 - education in appliances manufacturers joint visits
- 2.12 The training has so far been very well received by the engineers and the trainers involved in delivering it. It has been described by one trainer as a 'great concept', with some expressing a desire to see it maintained and further developed. The feedback from engineers was that they found the RWE to be practical, real and enjoyable.

Main challenges faced/addressed

- 2.13 The project was originally delayed when British Gas changed the laptops they use. This meant that the software designers had additional work to make the program compatible with the new systems. This issue of technological compatibility could potentially slow or hamper efforts to roll out this kind of technology to other areas.

The future and sustainability

- 2.14 The training has been well received and will be used with all the service engineers over the course of 2004–05. In the opinion of one trainer, there is potential for much more detail (especially in relation to the technical aspects of the boilers) to be added to the program, which would increase the realism of the training. This extra detail would add different choices and options to the scenarios and make the interaction – with both the customer and the equipment that the engineer has to 'fix' – more realistic.
- 2.15 A further suite of similar projects are planned for development in 2005 and beyond.

Key barriers to success

- 2.16 The main barrier for this kind of project is the initial cost involved in developing the software and getting the hardware into place. This expense may be prohibitive for organisations that do not have the same training budget as British Gas.

3 e-skills into business (ESiB)

Lead organisation	e-Skills UK Sector Skills Council
Partner organisations	SEEDA, Business Links, University of Surrey, NETg, Xebec McGraw-Hill and others
Target sector/occupation	SMEs, originally in the South East region
Start date	December 2001
End date	Ongoing

At whom is the learning targeted and what is the rationale for its development?

- 3.1 The learning is targeted at SMEs (with 1 to 250 employees). It aims to improve the competitiveness and 'bottom line' performances of these businesses by engaging them in e-learning and helping them to see the benefits of ICT use in their enterprises. It has also been designed as a way to increase the capacity of Business Link to help local SMEs.

How is the learning delivered and what does it involve?

- 3.2 The learning involves three online tools:
- **BAT (Business Analysis Toolkit)**. This is a set of diagnostic tools that enables firms to work out where they stand in relation to ICT and business development, and where they want to be. It includes an individualised company action plan detailing how to engage in ICT to benefit their business.
 - **SAT (Skills Assessment Toolkit)**. This helps firms to identify their existing skills and to identify the skills they need, providing a recommended e-learning training programme to deliver these needs.
 - **LMS (Learning Management System)**. This is a bank of over 200 online courses (in IT, e-business and management) from which companies can choose those that meet the needs identified in the SAT.
- 3.3 Each tool is available for purchase independently, but the three are designed to follow on logically from each other.
- 3.4 They are marketed to SME managers/owners, but are also available to individuals. The SAT and the LMS are intended to be used by all employees, whereas the BAT is aimed at managers/owners.
- 3.5 The learning is generally accessed in the workplace, but there is a system of telephone tutor support from ESiB available during office hours. Interestingly, the tutor support system is mainly used for technical and navigational queries. Course content support was piloted, but there was little demand for it.
- 3.6 The choice of courses is supplier-driven, and only courses that have been proven successful in the marketplace already are used.

Numbers and types of people undertaking and completing learning

- 3.7 ESiB aimed to reach 20,000 SMEs for the BAT and 10,000 individual users for the e-learning by the end of 2004. By September 2002, they had reached 2,000 users.
- 3.8 The process is aimed at all types and sizes of SMEs, from a one-person decorator to a medium-sized scuba-diving company. The 2001 pilot study found that ESiB had successfully engaged SMEs that had not previously undertaken any form of IT training – a ‘hard-to-reach’ group. This accounted for 48 per cent of users against an expected 30 per cent.
- 3.9 Research has shown the biggest users of ESiB are mainly project managers who need a toolkit to help deliver business improvement services to their target SMEs. ESiB enables project managers to give a better service to SMEs in a shorter timescale.

Evidence of success and impact

- 3.10 Research in October 2002 for the SEEDA region evaluated the impact of ESiB on businesses and found the following:
- 78 per cent of businesses thought the ESiB process would add value to the way they worked.
 - 65 per cent of the SAT users said their organisation would adopt the training outcomes identified.
 - 58 per cent of the BAT users said the toolkit had had *no* impact on their business to date, and only 19 per cent said that it had already had an impact. However, many of the businesses believed that the impact of the ESiB process would take another year to be fully experienced.
- 3.11 A number of perceived long-term business benefits of using the ESiB process were identified by users:
- cost savings
 - greater awareness of potential business opportunities
 - greater awareness of what’s actually happening in the business
 - greater customer focus
 - clear strategic direction
 - production of a skilled workforce that is adaptable
 - enhanced performance using IT
 - increased staff motivation.
- 3.12 Interestingly, perceived value is positively related to the cost to the user: those who paid for ESiB perceived it to be more useful than those who had received it free of charge.
- 3.13 Course completion rates are not measured, as the project managers do not believe that it is a useful way of measuring impact for this kind of e-learning. People tend to access the parts of courses they find relevant to them, and take from them what they need, so success cannot be equated with course completion. Also, some courses only last a couple of hours and people tend to finish them once they have gone to the effort of starting them, so again, measuring completion rates is not thought to be a very useful output indicator.

Main challenges faced/addressed

3.14 There were two main challenges to the setting up of ESiB:

- There were over 30 public and private organisations, forming a large and disparate partnership. The creation of a steering group – which all organisations were invited to join, no matter how much they would input, and which met monthly – has successfully overcome this barrier to the smooth running of the project.
- There tend to be a lot of (software) supplier mergers, which means that sometimes the courses they run are not maintained.

3.15 The challenges faced by the SME users are:

- Navigation and design of the site: problems in this area were addressed during the thorough pilot stage evaluation of the process.
- Lack of time to undertake the assessment and training has been identified as an important barrier by the SMEs. Money has not been flagged as a particularly important issue – if businesses understand the benefits and have the desire to purchase the ESiB programme, it is not money that poses a significant barrier to uptake. Many SMEs said that they would actually be prepared to pay more if the content was further improved.
- Evaluations have shown that businesses unfamiliar with e-learning and the internet need 'hand-holding' by the ESiB team until they are fully conversant with the online product, to prevent drop-out. *There is a need to support SMEs to 'learn to e-learn'.*
- Support is also needed for the practical implementation of the process after the BAT and SAT results are known. This is especially true where the culture of the businesses creates a barrier to implementing e-learning and ICT solutions; they need support in restructuring to make their businesses work. Business Link can play an important role here.
- Lack of broadband internet access (because of cost and access) for SMEs has posed challenges in rolling out ESiB.

The future and sustainability

3.16 ESiB is now a self-sustaining business, having been initially set up with £1.25 million from SEEDA and Business Link, in addition to support from other organisations. Public finance ended in March 2002.

3.17 The courses are not currently linked to a qualifications framework as this is not always what SMEs want. However, ESiB is looking at the possibility of doing this in the future.

4 Certificate in Online Learning (COL)

Lead organisation	Chartered Institute of Personnel and Development (CIPD)
Partner organisations	Sheffield College
Target sector/occupation	Work-based online learners
Start date	June 2001
End date	Ongoing

At whom is the learning targeted and what is the rationale for its development?

- 4.1 The learning targets training staff with modest computer skills and little experience of online learning. It is being created because of the contribution it can make to organisational development, particularly those interested in setting up online learning within the workplace.

How is the learning delivered and what does it involve?

- 4.2 The certificate programme is delivered entirely online through a structured course that can be accessed from home or work (depending on security protocols). It aims to give individuals insights into the pedagogy of online learning to facilitate the design and delivery of online courses. The programme comprises four units, requiring six to seven hours' study per week for a 20- to 23-week period. A key feature of the course is the learners' continuing access to personalised online tutor support. Specific outcomes of the programme are: the ability to manage online learning programmes, train others and act as an online tutor, coach or mentor, design online materials and maximise use of the internet for training and learning. The course is accredited by the Open College Network to Level 4 NVQ equivalent qualification, based on portfolio submission, evidence of collaboration and course completion.

Numbers and types of people undertaking and completing learning

- 4.3 Since 2001, three cohorts of learners have been run every year, each typically consisting of about 20 learners who are then further divided up into small groups or 'learning sets' of five or six learners. Support from peers as well as tutors is embedded into the course design.

Evidence of success and impact

- 4.4 Learners are regularly asked for feedback, which is uniformly positive, and the low COL dropout rates (consistently between 5 and 20 per cent) confirm its popularity over time. Reasons for dropout are almost entirely due to pressure of other commitments rather than difficulties with the course itself. The close relationship of learners with their tutors ensures that any problems are identified and resolved early, before they could lead to withdrawal from the course. Demand from learners for progression has led to the development of an accredited Advanced Certificate of Online Learning. Additional quality assurance mechanisms for monitoring purposes are provided by an advisory board of experts in online learning.

Main challenges faced/addressed

- 4.5 Technical challenges have occasionally presented in course access through organisational firewalls, which are generally solvable with additional input from technical staff.

The future and sustainability

- 4.6 The course has continued well, although numbers of enrolments have fallen. Course fees (upwards of £1,200 for non-CIPD members) provide an ongoing income stream that is self sustaining.

5 e-NVQs

Lead organisation	JHP Training Leeds
Partner organisations	QC Supplies, UKI Partnership, e-NVQ Ltd
Target sector/occupation	Call centres
Start date	2004
End date	Ongoing

At whom is the learning targeted and what is the rationale for its development?

- 5.1 The learning is targeted at call centre operatives in both large companies and SMEs. The rationale is the same as for paper-based NVQs: to increase the competence and confidence of staff.

How is the learning delivered and what does it involve?

- 5.2 Candidates submit electronic copies of 'evidence' towards their NVQ portfolios (sometimes scanning in paper-based evidence), which are then held online. This is done using the software supplied by e-NVQ Ltd. The NVQs being undertaken are in administration, management, team leading, customer service, call handling and ITQ.
- 5.3 e-NVQs are delivered at the office desk. The e-learning is generally done between taking calls, on lunch breaks and as part of the learners' working day. The learners at one company are also given an hour a week off work during which they can work towards their e-NVQ.
- 5.4 The learning also consists of assessor support, as with paper-based NVQs. This involves both face-to-face support (assessors tend to see candidates every three or four weeks) and e-support through email exchanges.
- 5.5 Access to candidates' portfolios is also available to JHP training managers, assessors and the learners' managers.

Numbers and types of people undertaking and completing learning

- 5.6 JHP Leeds now have over 200 staff taking part in the e-learning. This is a very successful uptake in comparison to other areas of the country, where it has been rather slow.

Evidence of success and impact

- 5.7 The e-NVQs have been successful on the following fronts:
- Improvements in the learning process for the employees:
 - The quality of learning has improved: candidates actually get more frequent and better-quality contact with assessors because of the email facility and the ability of assessors to check the progress of candidates online at any time. This also helps to motivate learners.
 - The quantity of learning has increased: e-NVQs achieve higher completion rates than their paper-based predecessors. e-NVQ Ltd claim that paper-based completion rates of 30 per cent are increased to 60 per cent with e-NVQs. The electronic nature of the qualification has made it more attractive and interesting to learners.
 - Candidates are able to track their learning progress easily and tend to be motivated by this.
 - Improvements in the learning process for other stakeholders:

- Several trainers commented that managers ‘love’ e-NVQs as they can keep track of their employees’ progress.
- One training manager commented that she had seen improvement in assessors’ delivery because the e-NVQ system helps assessors to have a more holistic approach to the whole process. Assessors are able to take on a bigger caseload as they can replace face-to-face with electronic support.
- According to e-NVQ Ltd, the cost of delivering e-NVQs is between £300 and £600 cheaper than traditional methods.
- Improvements in and impacts on the workplace:
 - Because the process of monitoring learners electronically is more efficient, managers have saved time. They can access action plans and learners’ progress via their own computers, rather than chasing individuals to see paper-based documents.
 - The e-NVQ learning has improved learners’ IT skills in general (e.g. in attaching files and in their IT confidence). This has had wider benefits for the way learners perform in the workplace.

Main challenges faced/addressed

5.8 Interestingly, since the NVQ delivery structure was already in place, the barriers faced in implementing e-NVQs have tended to be directly related to the electronic nature of the learning (in comparison to other e-learning, where barriers have been similar to those for learning itself):

- The type of organisation is a very important factor in determining the success of e-NVQs. They have only really taken off in office-based environments where learners have constant access to computers. Therefore, they have been less successful in retailing and warehousing (except for managers and supervisors who have constant computer access), and have been very successful in call centres.
- Familiarity and confidence with ICT, for both learners and assessors has also been vital for the e-NVQs’ success. Again this explains why workers in call centres have rather seamlessly taken up e-learning through them. They have also been more popular with younger learners than with older ones, as the former tend to have more confidence in their IT skills.
- IT security was an initial concern with one call centre company; they had to ensure that the e-NVQ system would not interfere with this before agreeing to implement it.
- Some managers have found that learners are spending too much time during their working day accessing the e-NVQ system, since it is so convenient and the point of access is at their desk. This can be monitored by the managers, so is easily addressed.

The future and sustainability

5.9 JHP are continuing to increase the rollout of e-NVQs, but will tend to focus on office-based environments.