

**Improving teaching and learning in
Construction and the built environment**

**Sustainability within Construction
and the built environment**



“I enjoyed today, I thought it was a better way of learning.”

Learner, Devon and Cornwall Electrical Training

“It tells me whether my teaching has been effective and whether I need to go over anything again – it changes my teaching style.”

Gary Johnson, Guildford College

“I learned how to talk about my opinions with other people and listen to their opinions and then have a final agreement on it.”

Learner, Darlington College

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Foreword

I am delighted to introduce you to these new resources developed by the Quality Improvement Agency (QIA) as part of the Teaching and Learning Programme.

The Teaching and Learning Programme aims to support providers to improve the quality of teaching and learning by linking **organisational strategies** for quality improvement, **continuing professional development** (CPD) and the **Subject Learning Coach** model.

The focus of the Teaching and Learning Programme is on supporting **whole organisational approaches** to quality improvement with an emphasis on **helping the sector help itself**, knowledge transfer and building on what is already there.

Teachers, tutors and trainers in the further education (FE) system work with a very wide range of learners – in colleges, in work-based learning organisations, in adult learning, in prisons, in voluntary and community organisations and in the workplace. These resources have been developed in consultation with them and their learners as well as other subject and national experts.

These resources are designed to be used by those wishing to:

- explore more effective or different ways of teaching or planning learning in their subjects
- tackle 'hard to teach' or 'hard to learn' topics in their curriculum in new ways
- improve or extend their own professional practice
- construct dynamic action plans to meet the regulatory requirements for 30 hours (or pro rata) CPD.

In addition, I hope these resources will be used by:

- teacher educators working with teachers to gain initial teacher training qualifications
- Subject Learning Coaches working with their peers to improve teaching and learning
- curriculum, quality and Information and Learning Technology (ILT) managers working with their teams to improve practice.

I hope you will find these resources of real benefit to you and your organisation.

Markos Tiris

Programme Director, Teaching and Learning Programme, QIA

Introduction

This booklet introduces you to new teaching and learning* resources for Construction and the built environment (CBE). They offer a rich mix of creative, practical ideas and activities to help you create learning experiences so that:

- your learners develop the skills, attitudes and behaviours that lead to success in their field
- you can construct dynamic action plans for your own professional development.

The resources have been created with teachers and their learners, working collaboratively in national trials and pilots. This collaboration has resulted in the identification of new ways of planning and managing learning, taking account of learners' experiences, interests and the wide range of environments in which learning can take place. Learners were encouraged to 'take the driving seat', to think about how they learn most effectively and to take more control of their learning plans. A wide range of employers in the CBE sector have also been involved in the development of the resources to ensure that they foster the skills and attitudes people need to succeed in employment.

* We use 'teaching and learning' and 'teacher' as generic terms to include:

- teaching, training and learning
- teachers, tutors, trainers, lecturers and instructors in the further education (FE) system.

Our challenges

Teachers and learners working with us in national trials and pilots embraced three key challenges:

- They explored the idea that learning can take place any time, anywhere. So, for example, they discussed opportunities they have to learn in multiple environments – everyday situations, at work, as well as formal teaching situations.

- They adopted specific approaches or pedagogies to engage learners' interest and motivation as they get to grips with learning and move towards independence.
- Teachers and learners worked together to plan learning so that learners became effective partners in planning learning.

At the same time the resources have been informed by, and support the implementation of, significant national initiatives in education and training and these are reflected in:

- a focus on work-relatedness and employability skills as advocated by the Leitch Review of Skills (2006)
- support for reforms to initial teacher training and the requirement for teachers to undertake continuing professional development (CPD)
- development of the characteristics of the expert learner as proposed in the FE White Paper (2006) and in *Personalising Further Education* (2006)
- the resources' alignment to the 14-19 Diplomas as well as providing activities that teachers and learners can use or adapt for all CBE programmes
- the exploitation of technology for the benefit of learning in line with the *Harnessing Technology Review* (2007).

Construction and the built environment

The CBE sector covers a diverse area of learning and skills that includes: commercial, residential and public facility complexes; transportation, ports, airports, railways and roads; utilities infrastructure, gas, water, electricity, communications and sewerage; industrial – all of which have to be planned, integrated, designed, created, used, maintained and valued.

A key strategic initiative for the CBE sector is sustainability, and the resources encourage learners and teachers to discuss and evaluate the importance of this theme.

There is a need for curriculum design to be firmly based in the real world of work, enabling learners to practise competently at all levels with comprehensive underpinning knowledge and understanding. These resources provide real work and life

contexts so that the wide range of providers who deliver teaching and learning in this field can bring relevance to learning.

We hope that you and your learners will find the activities challenging and enjoyable and that you find these approaches stimulate your own professional development. The following pages introduce you to the themes and topics the resources cover.

Overview of components

The resources consist of:

1. Web-based resources for CBE that can be found on QIA's Excellence Gateway

They include web-based activities, video sequences, images, downloadable resources and tools. As well as resources that are specifically designed for teaching CBE, there are generic resources that you can use to:

- plan your CPD
- help your learners plan their own learning and develop as expert learners
- introduce and teach cross-curricular themes
- teach Mathematics in subject and vocational contexts
- plan the curriculum with your colleagues
- plan learning and projects with your learners
- improve management of teaching, training and learning.

Explore your resources: <http://excellence.qia.org.uk/>

2. Resource box that contains:

- Multimedia CD-ROM that emulates the web-based resources.

Roles and responsibilities of the design and development team

- Wheel of design and development cards.
- Roles and responsibilities role play cards.

Materials and processes for sustainable living

- Materials and processes for sustainable living guidance notes.
- Materials and processes card sort.
- Carbon footprint activity board and dice x 1.
- A4 carbon footprint score cards x 6.
- Carbon footprint question cards.

Planning for sustainable development

- Which of these is the most important? cards.

Additionally:

- A4 leaflet summarising key Teaching and Learning Programme themes.
- A5 slip case with three cross-curricular booklets and CD-ROMs.
- Planning for success: card activity and concertina leaflet.

3. Separate package that contains:

- CPD activity: Talking teaching, training and learning cards.
- CPD booklet.

Sustainability within Construction and the built environment

What are our priority teaching topics?

Research has identified key areas of importance to the construction industry for workforce development and individual career development. These include:

- planning for sustainable development
- job awareness and career progression
- materials and processes used in construction

- developing literacy, language and numeracy (LLN) skills
- employability skills.

The theme of sustainability runs throughout the resources. Teachers and learners will find opportunities to explore and develop their understanding of sustainability, with guidance on how to embed the topic within all learning opportunities – in the classroom, in the workshop and in work placements and employment.

Which pedagogy approaches are ‘headlined’?

- Co-operative learning: this approach helps develop learners’ skills in working with others, particularly in ways most successful in the construction industry.
- Peer review: you can use this approach to help learners improve their work products, build skills in giving feedback and develop an understanding of quality standards and assessment criteria.
- Planning for success: this provides you with ideas and activities to help your learners develop planning and reflection skills in the context of project work and planning for learning in multiple environments.
- Embedding LLN skills underpins the activities as research highlights the important contribution this makes to learners’ success and future career prospects.

What can these resources do for you and your learners?

The resources will help you to:

- foster the skills, knowledge, attitudes and behaviours that learners need to follow a successful career in the construction industry
- engage and motivate learners with active learning strategies
- support learners as they take greater control of their learning and develop independent learning skills.

The resources can also provide practical ideas for CPD, to help you identify and adopt practice that has real impact on professional development as well as learner outcomes.

The resources bring the curriculum alive and promote a broad, integrated and more holistic approach to curriculum delivery. The pedagogy approaches energise learners and get them to identify with ‘real’ people in ‘real’ situations.

They foster the development of the expert learner and can promote learning in partnership as teachers and learners work together to develop the curriculum plan. They are aligned to the 14-19 Diploma in Construction and the Built Environment while providing contexts and activities that work well for all learners in this field.

Getting started

The resources can be used in a number of different ways. We suggest that you explore the introduction to sustainability in the planning resource and discuss with colleagues before selecting an activity to try out. You will find it useful to book some time out to explore the web resources and begin by looking at the Unlocking the resources page.

Learners said:

“What we’re doing here [the active learning approach] is new to us. It’s more interesting working things out like this.”
Learner, Cambridge Regional College

“Different from everyday learning. It gives you a chance to think for yourself.”
Learner, Darlington College

Teachers said:

“The activities were very useful in peer-to-peer learning, generally they don’t present to each other but as the day went on and they were presenting more and more to the class and they became more confident until at the end it was almost second nature.”
Bernard Collins, Devon and Cornwall Electrical Training

“Learners who don’t normally play an active role in the session, were up and involved in the session.”

John Lofthouse, Darlington College

As well as subject specific resources there are further resources that:

- specifically focus on your professional practice and help you identify and address your professional development priorities
- help you to address some key challenges in teaching CBE.

Professional practice

1. Continuing professional development (CPD): taking action

The CBE resources include ideas for your CPD and all the learner activities can provide a stimulus for you and your colleagues to collaborate in undertaking your own professional development. Additionally, there are CPD resources that can help you and your organisation to adopt practice that has real impact on professional development as well as learner outcomes. There are three components:

- **Small steps – big difference:** a CPD activity to stimulate reflective practice.
- **Putting CPD into action:** a reflective tool that provides a framework for thinking about what you need to do and how you will do it. It offers prompts, questions and signposts to the Institute for Learning’s CPD process. Use this to develop and carry out your professional development plan.
- **CPD builder:** this provides templates for, and illustrations of, potential CPD routes through these resources and making links to other rich and wide-ranging resources and initiatives.

2. Exploring effective pedagogy: what works and why?

These resources build on the principles of ‘active learning’ that were introduced in the programme’s earlier resources. The term

‘active learning’ has been refined to embrace 10 key pedagogy approaches that we know can make a positive impact on the learners’ experience. The aim is to help learners move from surface learning to deep and profound understanding.

The 10 approaches are underpinned by evidence from research and from teachers’ and learners’ experiences. They are:

Assessment for learning	Co-operative learning
Differentiation	Embedding literacy, language and numeracy
Experiential learning	Learning conversations
Modelling	Multi-sensory learning
Relating theory and practice	Using e-learning and technology

Quick start guides provide more in-depth information about the 10 pedagogy approaches and ideas sheets offer easy to use teaching and learning methods to get you started. You can explore some of the approaches in depth in four **pedagogy toolkits**:

Co-operative learning toolkit	Effective questioning toolkit
Peer review toolkit	Using case studies toolkit

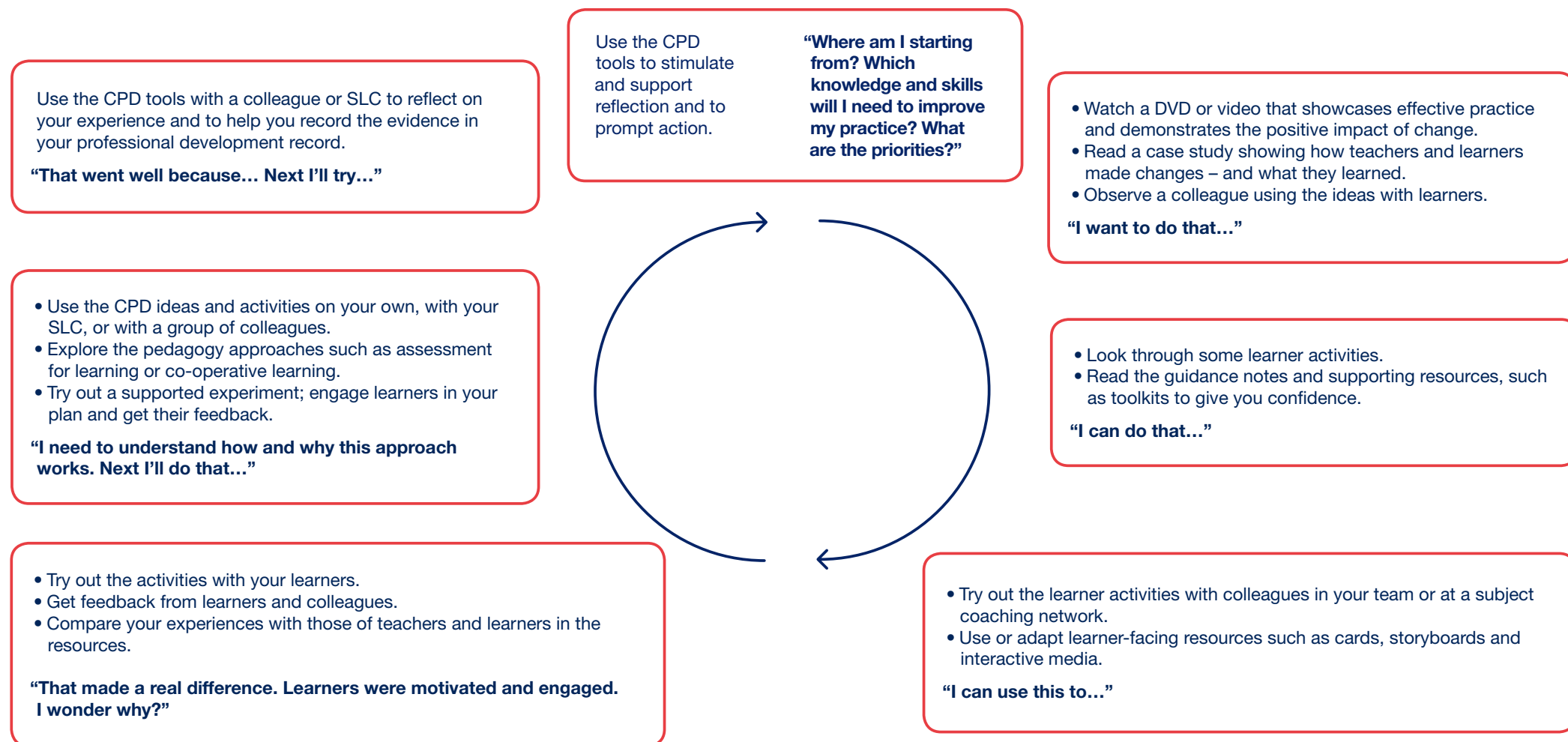
An additional resource, **Talking teaching, training and learning**, is designed to stimulate discussion about effective approaches to teaching and learning. Teachers in the pilots have really enjoyed using this activity. They recognised that they already use some of the approaches and were keen to try out different ones. They found that they extended their pedagogic vocabulary and could build CPD programmes around the ideas they shared.

How can these resources bring about change?

The Teaching and Learning Programme model

The effectiveness of these resources as agents for change is based on the belief that only teachers themselves can bring about changes in their practice. While coaching and peer-to-peer support is important and helpful, each individual must make this journey themselves.

Teachers will be at different stages in their 'change' journey. The aim of the resources is to provide inspiration, support and ideas for you as you reflect on your current practice and plan your own professional development programme. The resources, using a peer-to-peer model, present the vision and the real possibility of what 'change' might mean for you and your learners.



Key challenges in teaching CBE

1. Planning for learning in multiple environments

Teachers and learners in the pilots explored this theme and recognised that:

- learning takes place in many environments as well as the classroom and workshop
- learners are comfortable with, and expect to make use of, a range of technology and virtual environments
- learners need support to design and manage extended projects
- learning programmes are frequently planned in partnership with other providers and across several locations.

These factors mean that we need to plan learning programmes that exploit a wide range of learning opportunities. We need to encourage learners to take the ‘driving seat’ and become partners in planning learning. They uniquely ‘hold the ring’ on the whole learning journey and with careful planning we can avoid fragmentation and missed opportunities. The process of planning partnership also fosters the characteristics of the ‘expert’ learner.

The resources include a **Planning toolkit** to support you and your learners as you plan effective, personalised learning. The toolkit features, the **SuccessPlanner**, a web-based tool that offers:

- interactive planning, reflection and review features
- adaptable templates
- examples modelling ways of using the SuccessPlanner with learners and colleagues
- links to multimedia assets demonstrating how the principles illustrated in the SuccessPlanner are put into practice.

To help you and your learners think about planning effective learning, the resources in your box include a card activity based on the ideas that teachers and learners found important as they explored how they could plan learning in multiple environments.

“We wanted to slightly change the teaching methods and put the onus onto the learners so that they took responsibility for the way that they were taught...”

Mary Wright, Barnfield College

2. Embedding cross-curricular themes: Customer care, Enterprise, Health, safety and well-being

To be successful, construction operatives and professionals of the future need to develop the attitudes and behaviours that enhance their employability. Aspects of Customer care, Enterprise and Health, safety and well-being are part of the CBE curriculum. The resources, which are included in your box and also on the web, include activities to develop these themes.

3. Learning Mathematics in context

- Are there areas of mathematical understanding that hold back your learners?
- Are there areas of Mathematics that you find daunting to teach?
- Which mathematical skills would you like your learners to acquire?

This web-based resource shares teaching and learning approaches that will help your learners develop the mathematical skills they need to be successful in their learning programmes and in the workplace. You will find examples that are specific to CBE.

4. Developing the expert learner

The concept of the expert learner lies at the heart of these resources. When learners develop their ability to learn, they also develop skills that they can use every day for the rest of their lives. They learn how to find and interrogate new information, how to solve problems, how to co-operate with others and much more besides. Learning to learn means that they can learn more quickly, so you as a teacher will benefit too.

To explore what the concept might mean for you and your learners in more depth, look at the Developing the expert learner web resources <http://excellence.qia.org.uk/>. You will find:

- teaching strategies that you can use immediately to engage your learners
- inspiration in the form of real life examples of what learning providers are doing already
- CPD activities to get you and your colleagues going
- links to relevant resources to interrogate further.

“I became very much the facilitator...they [the learners] were saying ‘Look at this information that we have found...’ and they actually educated me on a lot of different things as well... it was just totally them empowered with the learning.”

Helen Owen, Newcastle College



Conclusion

Adopting a whole organisational approach: Messages for managers

The Teaching and Learning Programme has had a real impact on teaching and learning improvements. Managers say that to get the most out of the programme they had to develop a strategy to support their Subject Learning Coaches to work with their peers and get the most out of the resources and subject coaching networks.

The resources in this area support the Manager support programme and include:

- key messages from organisations who have begun to develop a strategy for embedding the approaches promoted by the programme
- case studies that illustrate the different approaches they have taken
- examples of ways in which they have experienced and measured the impact of the programme.

There is also a managers' activity that can support you in developing a whole organisation strategy by:

- locating the programme within your overall improvement strategy
- prioritising the key issues on which you want to focus
- formulating the questions you need to ask in order to explore these issues further
- identifying and prioritising actions you can take.

“Combined teaching and learning grades 1 and 2 have shown an improvement of 17% from March 2006 to February 2007. With continued support this trend is expected to continue.”
Cambridge Regional College, Academy of Construction

References

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HMYOI Portland	Hull College
Leicester College	The NETA Training Group
North East Surrey College of Technology (NESCOT)	Oxford and Cherwell Valley College

Ridgemoor Training

Salisbury College

Shrewsbury College of
Arts and Technology

Somerset College of
Arts and Technology

West Suffolk College

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This resource can be downloaded from the Excellence Gateway at <http://excellence.qia.org.uk>

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