

Educational effectiveness research and further education and skills

A review of further education and skills research, with particular emphasis on the new education inspection framework.

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361

Contents

Introduction	3
Work-based learning and general vocational education and training	3
Specific industries and professions	4
Specific provision types	5
Conclusion	6
FES research reference group	6

Introduction

Last year, we published an [overview of the research](#) that underpins the education inspection framework (EIF). Most of the research – for example about [cognitive load theory](#) – is relevant to the further education and skills (FES) sector as well. However, the FES community justifiably pointed out that we had not reviewed the FES-specific evidence base. Therefore, we have been reviewing some of the themes and debates in research in the FES sector. These include, for example:

- work-based learning (WBL) and general vocational education and training (VET)
- specific industries and professions, such as engineering and healthcare
- specific provision types, such as adult learning and apprenticeships.

Our review followed the same principles as the earlier review, drawing on empirical studies of what works effectively in FES education.

Work-based learning and general vocational education and training

Bringing learning into the workplace often adds an extra layer of complexity. Research into WBL and VET shows that, in effective provision, strong links between training providers and the workplace ensure that the [curriculum](#) has a ‘clear line of sight’ to employment and/or further study. Teachers and trainers who have up-to-date industry knowledge create these strong links.

There is general agreement among providers that the curriculum needs to be at the heart of FES provision. Underneath this consensus, however, are lively debates about the content of the FES curriculum. For example:

- employer vs learner needs:
 - Should education and training focus primarily on a particular employer’s needs?
 - Or should it prepare a learner or apprentice for a career in the field in general?
 - Should it also provide learners and apprentices with skills for wider life and citizenship?

Professors Lorna Unwin and Alan Felstead provide a useful [summary](#) of this debate.

- knowledge vs skills:
 - Is ‘propositional’ knowledge (‘know-that’) more important than ‘tacit’ knowledge (‘know-how’)?
 - How does ‘knowledge’ relate to ‘skills’?

- Do all of these things require different pedagogical approaches?
- What is the relationship of effective vocational education to 'disciplinary' knowledge?

Professors Bill Lucas, Guy Claxton and colleagues at the Centre for Real-World Learning emphasise the [importance of workplace learning](#) that may be non-linear, informal and tacit. They favour simulating real-world environments so that learners can practise the problem-solving techniques needed at work.

Lucas and Claxton argue that learners are best served by an approach that focuses on situated learning and skills. However, there are others that refer to the work of [Michael Young](#) and argue that the most effective education takes place when the primary focus is on 'powerful' or specialist knowledge and skills. Learners will then be able to go beyond the limits of their particular situation and move towards a deeper understanding of their field (and more) in general.

For example, Professor [Leesa Wheelahan](#) argues that learners are disempowered without access to theoretical knowledge. She believes that a knowledge-based curriculum is the best in helping learners to transform their lives. This is because they can remember knowledge over time, apply knowledge in different contexts over the course of a career and develop the kind of knowledge that facilitates further learning.

Other scholars, such as Professors [Jim Hordern](#) and [Chris Winch](#), have written extensively on the relationship between disciplinary knowledge and practice-based knowledge. Hordern discusses the importance of knowledge in different vocational and professional fields. Winch sets out the distinction between propositional knowledge (knowledge of facts) and tacit knowledge (implicit knowledge that cannot be fully codified) – he emphasises that both are powerful forms of knowledge. [Fernand Gobet](#)'s work has studied expertise and intuition drawing on evidence from psychology, neuroscience, sociology, philosophy, education, law and artificial intelligence.

Specific industries and professions

We are also reviewing a selection of research that applies to particular occupations, industries and professions. This review is especially in relation to pedagogical content knowledge (how to teach a particular subject, topic or skill) and how we can apply knowledge to different fields. David James and Lorna Unwin emphasise the significance of 'dual professionalism' in FES. Dual professionals combine expertise in their occupational areas (such as engineering) with expertise in pedagogy. Their study of dual professionals suggests that:

- some aspects of effective pedagogy are general across all teaching
- some aspects are effective in relation to FES in particular
- some are effective in relation to particular occupations or subjects.

Professors Kevin Orr and Ron Thompson at the University of Huddersfield are leading a major review of [subject specialist pedagogy](#) with a focus on science, technology, engineering and mathematics (STEM) subjects.

There has long been an interest within professions themselves in devising and maintaining effective training. A lot of this is relevant to FES. Fields that have highly regulated content and standards, such as health and engineering, have very long-standing traditions of educational research. These also inform more general literature. The literature relating to healthcare and education is extensive and includes several major projects. One example is the research at the LLAKES Centre for Research on Learning and Life Chances on professional learning and innovation in healthcare. Other healthcare training research focuses on evidence-based practice and on [simulations and augmented reality](#).

Specific provision types

We are also interested in research that relates mainly to the provision types outlined in our FES inspection handbook.

Research in adult education, for example, reflects the diversity of that provision type. It includes:

- research in language education for migrants, refugees and asylum seekers
- employability training (including mathematics and English skills)
- community and family learning
- access to HE courses.

The aims of adult curriculums and suitable pedagogic approaches are similarly varied.

In relation to apprenticeship provision, we have been reviewing research from a number of organisations, including:

- the SKOPE project at the University of Oxford, led by Professor Ewart Keep. This project focuses on links between workers' acquisition of skills and knowledge, and market performance of their companies and employers, including [recent work](#) on developing vocational excellence through skills competitions. It also looks at the importance of [high-quality learning environments](#) in the development of vocational excellence.
- the Gatsby Foundation, which has ongoing [research](#) projects reviewing the relationship between end-point assessment in standards-based apprenticeships and professional registration. It is also researching the strengths and weaknesses of apprenticeships in other countries.
- the Nuffield Foundation, which carried out [research](#) into adult apprenticeships.

Conclusion

Research into the effectiveness of education in FES is varied and is important to governments and employers. Themes in the evidence about educational effectiveness include the importance of:

- considering, and sequencing logically, 'work-based learning' and 'classroom-based learning'
- planning appropriate methods of assessment, including for WBL
- considering learners' prior experiences, knowledge and skills, in the planning of the curriculum (for example, realising that many refugees are highly skilled and highly educated professionals, and adapting the teaching of English accordingly)
- maintaining a 'line of sight' to employment
- involving employers in curriculum design, delivery and assessment
- recontextualising 'disciplinary knowledge' to fit vocational areas
- understanding that learners, in many contexts, need to learn about their employer, the occupational area in general, and the kinds of relationships and values that are important in their sector
- understanding that different approaches might be effective in different occupational sectors
- teachers' role as dual professionals, and the need for teachers to maintain their industrial knowledge as well as their pedagogical skills
- simulated and authentic practice of workplace skills
- industry-standard resources and learning environments for vocational courses
- a curriculum that prepares learners for further study and careers, not just for their immediate jobs.

FES research reference group

We have been working with a group of academics from the UK and beyond to engage with research in the FES sector. The group includes:

Professor Liz Atkins (University of Derby)
 Professor James Avis (University of Huddersfield)
 Professor Ann-Marie Bathmaker (University of Birmingham)
 Professor Margaret Gregson (University of Sunderland)
 Professor Jim Hordern (Bath Spa University)
 Professor Bill Lucas (University of Winchester)
 Dr Lawrence Nixon (University of Sunderland)
 Professor Kevin Orr (University of Huddersfield)
 Dr Patricia Spedding (University of Sunderland)

Dr Jonathan Tummons (Durham University)
Professor Leesa Wheelahan (University of Toronto)
Professor Chris Winch (King's College, London)

Our review of research is ongoing and far from complete – we have only been able to give a brief and partial overview here. We plan to publish blogs on the subject together with a systematic literature review in due course.



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Piccadilly Gate
Store Street
Manchester
M1 2WD

T: 0300 123 1231
Textphone: 0161 618 8524
E: enquiries@ofsted.gov.uk
W: www.gov.uk/ofsted

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