

'They get a qualification at the end of it, I think': Workplace learning and technical education in England.

Abstract

Workplace learning is increasingly central to the international lifelong learning agenda but has made limited contributions to full-time vocational education in England during the last thirty years. A more central role is envisaged within the technical education proposed by the 2016 Sainsbury Review and Post-16 Skills Plan, with access to work placements dominating discussion of policy implementation. A multicase study of workplace learning among post-16 students in England on current 'study programmes' was mapped to four of the technical routes designated by the Sainsbury Review and Skills Plan, using documentary, observation and interview data. The study drew on theorisation of the workplace as the site of situated or incidental learning, whilst noting that its opportunities are differentially allocated according to organisational or personal differences, in ways that have particular implications for young people on placements. Whilst access to more advanced learning opportunities was secured through planned, collaborative approaches, reliance on incidental learning offered more routinised experiences to students less prepared for autonomous learning. The study indicates that questions of access, knowledge and pedagogy remain to be addressed if plans for 'technical education' in England are to provide meaningful learning opportunities and support transitions to fulfilling work.

Keywords: workplace learning; incidental learning; situated learning; technical education; Sainsbury Review; Post-16 Skills Plan

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Introduction

Learning opportunities in the workplace have been identified by policymakers internationally as a means of both extending learning beyond the school phase and of preparing young people for employment. Apprenticeships and other combinations of general and workplace education are linked to economic competitiveness as well as opportunities for disengaged young people (European Commission 2015a, 2015b; ESDE 2015). This relocation of learning to the workplace has reversed a century-long process, through which learning for work became increasingly institution-based and integrated with general education across industrialised countries.

Nevertheless, these processes vary, proceeding on different lines across national contexts. Established dual training or 'alternance' schemes combine early work experience with continuing education, primarily in Germany and Austria but increasingly elsewhere (European Commission 2013). In England, workplace learning has until **recently** played a lesser role but was introduced into full-time programmes following the Wolf Report (2011) and is central to proposals for a new model of post-16 'technical education' set out in the Sainsbury Review (DfE 2016a) and Post-16 Skills Plan (DfE 2016b). 'Technical education' is planned to contribute significantly by 2022 to the post-16 curriculum organised by vocational further education colleges (FECs) and schools. Work placements of up to three months in duration are central to this policy, although important questions remain about how these are to be arranged and facilitated, as well as the scope and content of this workplace learning.

The study presented here explored the possibilities and challenges of placement learning envisaged by the 2016 proposals, through a study of existing work-based learning currently organised for post-16 students under the arrangements arising from the

2011 Wolf Report. Whilst the latter represent a considerably more limited enterprise than the Sainsbury proposals, they provide a useful preview of the problems and possibilities of the issues likely to arise on longer placements. For the purposes of this study, four related case studies of the work-based learning were undertaken, each mapped against one of 15 technical routes proposed in the Sainsbury Review. Documentary analysis, qualitative interviews and non-participant observations were carried out across access negotiation and placement learning in college and workplace settings.

The notion that learning can occur in consequence of, or simultaneously with, work activities has received support from theories of incidental or situated learning (Marsick and Watkins 1990; Lave and Wenger 1991). These theories legitimate the workplace as a locus for learning but are not always clear about its nature or content, particularly in relation to young people entering employment. More critical accounts note that learning is mediated by differences among workplace environments (Fuller and Unwin 2003, 2004) and that greater opportunities are available to individuals more favourably located in the workforce or with higher levels of prior education (Billett 2001; Illeris 2011a). This raises further questions about the learning available to students preparing for entry to the labour market.

The background to the study is set out in the following section, which outlines the immediate background to the emergence of the latest reforms in England and reviews workplace learning theories seen as influential in these proposals. The methodology section then discusses the research design, data collection methods, sample selection and the methods used to analyse the data, as well as ethical issues. Each case study is then reported. The conclusions evaluate the studies in terms of a framework informed by the

theoretical analysis and discuss the possibilities to provide more meaningful opportunities in post-16 workplace learning.

‘Technical education’ and workplace learning: policy and theory

In the UK, **up to the 1970s** VET institutions comprising the present ‘further education’ sector primarily provided part-time courses for full-time young employees. Following educational and labour market changes, FECs came to offer a wider range of full-time courses, separating this expanded system of ‘vocational’ education from the practical experience of employment (Hodgson and Spours 2014). Whilst ‘vocational’ alternatives to the traditional ‘academic’ A-level route into higher education contributed to the development of ‘mass’ higher education, other young people in colleges and schools were encouraged to study lower-level qualifications which served to ‘warehouse’ students but led to limited progression into or within employment (Keep 2012). The Wolf Report (2011) sought to replace this multiplicity of low-value qualifications with a requirement for all learners on courses for 16-19-year-olds to undertake a single ‘study programme’ including a main vocational qualification alongside English and mathematics.

Additionally, every 16-19-year-old student was required to undertake an element of work experience. The ‘realistic work environments’ (RWE) or commercial facilities that had long provided ‘work experience’ within colleges were judged to be of too basic a level to advance learners’ knowledge to industry standards (Ofsted 2014). However, in an important contrast with arrangements in other jurisdictions, colleges and schools were to source and organise appropriate placements, rather than government placing obligations on either employer or student:

Providers have the responsibility to ensure that work experience offers challenge and purpose, is set on pre-determined outcomes, and the duration and level of

provider/employer support is tailored to the individual needs of the student (DfE 2016c, p. 9).

These relatively short, foundational ‘work experiences’ in a relatively unchanged curriculum were thus located 'outside' the labour market albeit a little closer to the workplace. Nevertheless, they provided an important test for how effectively such experiences could be organised, as current proposals envisage, independently of legislative or institutional pressures for employer participation.

The Sainsbury Review and Skills Plan (DfE 2016a, 2016b) have been presented as a substantial reorientation of the sector, with longer ‘work placements’ presented as a more substantial bridge between education and employment than the work-based learning requirements introduced after the Wolf Report. Policymakers have pledged a substantial commitment of resources to the sector, with the first instalments allocated to enhancing placement organisation (HM Treasury 2017; ESFA 2017). Yet tensions about how these aims are to be reached have been evident from an early stage. The Sainsbury Review calls for greater resourcing of the educational sector, noting that, ‘Good technical education requires expert teachers and lecturers and access to industry standard facilities’ (2016a, p.66); the Danish model of trade committees developing qualifications and the state administering certification and quality is quoted approvingly (40). The Skills Plan (DfE 2016b) reasserts policymakers desire to position employers in the ‘driving seat’ (2016b, p. 42) and is sceptical of current arrangements in post-16 education. Awarding bodies are described as ‘a confusing mixture... which have not provided an effective voice for business’ (11) whilst colleges and independent training providers (ITPs) comprise a ‘financially unsustainable’ system (ibid.). The Skills Plan describes as 'enabling factors' the data, information and careers guidance facilitating learners’ study choices (36-37) within a 'market' structured by the primary purposes of business organisations. The

establishment of market information is thus presented as critical to the organisation of learning: colleges may retain a role planning and regulating institution-based courses but learners make individual consumer choices, aided by market information and administrative support. For employers, this remains a more voluntarist process than the institutionalised workplace learning of Germanic countries and Denmark, where employer associations seek to enforce participation in training, a difference that substantial funding allocations from central government may or may not be able to resolve. The content of awards is left to the future decisions of 'industry experts' and the example provided in both documents for a hypothetical construction student provides scant detail of what is learnt in the workplace and how:

The student is able to complete a number of practical activities as part of a work placement and is assessed by a professional assessor, receiving feedback from the assessor and the college. ... The student will also have a log book, completed throughout the activities (DfE 2016b, p.25¹).

This description of assessment and reflection leaves unanswered the question of how the student becomes 'able to complete' the learning tasks. Whilst it might be difficult to specify curricula or pedagogy at this over-arching level, something of these intentions can be gleaned from the reference to workplace assessors, implying the absence of classroom teachers from placement learning. Infrastructure for work placements developed by colleges and ITPs currently largely takes the form of cross-institutional Work Placement and Progression Officers, echoing the construction of apprenticeship business models by colleges and ITPs (AELP 2016). Overall, the Skills Plan appears to move post-16 education further in the direction of voluntarism.

¹ The same example, with slight differences in wording, is provided in the Sainsbury Review, p. 48.

These differences in emphasis reflect the range of approaches to the workplace as a site for learning. Eraut (1994, 2004) argued that informal learning could take place independently of the planned curricula and pedagogy familiar in educational institutions and this approach has been influential in policy emphasis on learning opportunities at work. Lave and Wenger's influential concepts of 'situated learning', with apprentices entering 'communities of practice' through 'legitimate peripheral participation' have also provided an important focus on these social dimensions of learning (Lave and Wenger 1991; Wenger 1998) and have sustained the longevity of apprenticeship as a model of learning (Fuller and Unwin 2009). Particularly important for this study, if a little less well-known in the UK, is the work of Marsick and Watkins (1990), which posited a distinction between informal learning, intended but not facilitated through formal pedagogies, and incidental learning, which takes place as:

... a by-product of some other activity, such as task accomplishment, interpersonal interaction, sensing the organizational culture, trial-and-error experimentation, or even formal learning. Informal learning can be deliberately encouraged by an organization or it can take place despite an environment not highly conducive to learning. Incidental learning, on the other hand, almost always takes place although people are not always conscious of it (1990, p. 12).

This approach implies that learning can take place without major disruption to the production of goods and services, in a way that aligns more easily with socialisation into work processes, norms and behaviours than with the studied acquisition of technical skills, which it seems unlikely that learners will absorb without being 'conscious of it'. The concept of incidental learning provides less guidance about the contribution that unconscious processes can make to the learning by young people of knowledge unavailable in colleges but its assumptions appear to be shared by the Skills Plan and, it will be argued, by much work-based learning practice in contemporary post-16 education.

Such social aspects as internalising the authority structures of the workplace are more likely to proceed through informal or incidental learning: much of the US research tradition in this field reflects concerns to enhance managerial control (Marsick, Watkins and O'Connor 2011). By contrast, the acquisition of advanced technical skills which are only accessible in the workplace, is less easily associated with the absence of any formal pedagogy.

A particular difficulty for placement learning is that work environments are primarily sites of production (Rainbird et al. 2004). Workplace learning thus tends to focus on the solution of immediate problems rather than promoting either reflection or theorisation (Illeris 2011a). Fuller and Unwin (2003, 2004) ascribed variations in the opportunities for learning to the organisational context, with expansive environments providing broader opportunities to learn and restrictive environments focusing more closely on the needs of production; Ellström, Ekholm and Ellström (2008) differentiated between enabling and constraining environments that respectively promoted or discouraged a balance between reproductive and development learning (2008, p. 86). Whilst young people's workplace learning is less likely to lead to substantial innovation, these concepts illustrate a tension between learning opportunities linked to everyday workplace routine and those with greater potential for young people's long-term development. Moreover, prior individual learning enables individuals who already possess greater academic or social capital to profit more from learning in the workplace (Billett 2001; Illeris 2011b). As a consequence, disadvantaged full-time learners in a work environment may be further marginalised in the workplace and ill-equipped to take advantage of its opportunities. As Billett (2011) has observed, vocational education is already the sphere least mediated by the activities and choices of teachers and the inclusive possibilities within educational settings are more likely to be muted when

learning takes place within structures developed to facilitate production. Social positioning may determine the extent to which students can take advantage of workplace opportunities, to an even greater extent than in educational settings.

These observations in relation to workplace learning mirror theorisation of transitions into work, which has explored the way that young people's structured dispositions encounter the hierarchical inequalities that already exist within the workplace (Hodkinson and Sparkes, 1997). These can **include structural aspects** such as gender, ethnicity and class, as well as such aspects as the positioning of young people in relation to learning, for example as trainees (Hodkinson 2008). Individual histories, personal interactions (for example with college tutors) and serendipity may all influence the way in which these positional aspects play out in transitions to employment (Atkins 2017). Similar complex combinations of factors are likely to influence the outcomes of individual experiences in workplace learning, particularly where placements are secured and facilitated through a wide variety of different mechanisms and actors.

Thus, these theoretical debates have important implications for the organisation of work placements. Theories of situated and, in particular, incidental learning can vindicate assumptions that, once students are in the workplace, learning will automatically follow. By contrast, more critical theories of workplace learning note its potential to disadvantage students who already lack the opportunities, confidence and educational preparation to benefit from their experiences. They have advanced the argument that learning environments can be adapted in ways that enhance learning, contributing for example to the 'two-way street' envisaged by the CAVTL report (2013).

These policy developments and tensions within workplace learning provide the background to the study described here. The methodology for the study is set out in the following section.

Methodology

The primary aim of the study was to examine the nature of current opportunities for work-based learning, with a view to identifying possible models for more substantial work placements. For these purposes a quantitative approach identifying the extent of work-based learning would be inadequate, since all providers are obliged to provide this in order to qualify for courses to be funded by government. However, the varying nature of these experiences led to a more qualitative design intended to examine specific cases in greater depth. Four related qualitative case studies of work-based learning were carried out in vocational areas that corresponded to a sample of 'technical routes' identified by the Sainsbury Review. These were designed around a pattern of data collection at one college and one corresponding workplace, with additional data collection where clarification was felt to be necessary. The case study approach presents the particular case for its own sake rather than as a 'representative' or 'average' sample (Small 2009); as Lincoln and Guba (2000) observed, only the lack of generalisability can be generalised. The study incorporated features of Stake's (2006) 'multicase' approach, examining the way that individual cases illustrate the substantive question (which Stake describes as a 'quintain'), although the external environments have their own characteristics and traditions. Partly because of these differences, and because of the different methods of organisation found in each case, each of the case studies served to illustrate a particular aspect of the possibilities and problems of workplace learning but also entailed slightly different patterns of data collection.

The sample was designed to combine well-established areas of vocational education, where colleges frequently have strong links with employers (specifically, professional construction, which will be part of the Construction route, and engineering, which will be central to an Engineering and Manufacturing route); childcare courses, which will dominate the Childcare and Education route and already require substantial work placements; and media courses representing the future Creative and Design route, preparing young people for opportunities which, like much of the 'new economy', include few large-scale workplaces and rely largely on client networks (Lahiff and Guile 2016). Data collection for the Construction route at Midland College provided opportunities to observe the facilitation of placements in professional construction through a co-ordinating body, as well as documentary review interviews with employers (n=3) and students (n=4), thus using three of Yin's (1994) core methods were used to gather and compare data: documentary analysis, qualitative interview and non-participant observation. Key sources cited below were interviews with the college course leader (anonymised below as Roy), workplace learning co-ordinator (Sarah) and an employer with longstanding involvement in college links (Colette). Each was interviewed individually and a group interview of these key informants was later used to confirm initial analyses. However, as the placements were organised for the summer between the two years of the course, direct observation of placements was not possible. By contrast, Early Years courses which will be central to the Childhood and Education route, with their well-established placements, provided a range of student (n=28) and staff (n=7) who took part in four student and one staff group interviews at North-West College. Direct observation of workplace learning and interview of the manager (anonymised below as Lynne) were carried out at a

placement nursery. Data and documentary study took place at both locations. The findings were triangulated at Capital College during interviews with teaching staff. Media courses which will be central to the Creative and Design route provided greater challenges for direct observation of placements, since work-based learning widely took the form of employer projects with students responding to tasks set by employers: observation of workplace settings was therefore excluded, although student interviews were completed. Initial interview of the course leader (Kieran) at Capital College was supplemented with data collection at a second college (Northwards College), where interviews were possible with course leader (Howard) and students (Justin and Jamie cited below), and at the private training provider Independent Training with the course leader (Gene). Finally, data for engineering (the planned Engineering and Manufacturing route) began with documentary study, observation of a co-ordinating body at Midland College and staff interviews. Access to one of the businesses supporting the co-ordinating body provided opportunities for workplace observation and interviews of key informants, the plant manager and a member of staff involved in workplace training (anonymised as Robert and Tracey below).

Analysis of the data began with rigorous use of Seale's (1999) 'low-inference' methods, which seek to present data scrupulously according to participants' accounts. Observation data was captured through contemporaneous notes, then expanded into a full record immediately following meetings; interviews were taped and transcribed in full. The data, along with minutes of meetings and other documents collected at the case study locations, were coded initially against pre-identified themes which had emerged from study of the literature. These tended to reflect the concerns of policymakers and funders about the organisation of

placements and recorded the varying degree of structure evident in both the mechanisms used to organise workplace learning and the extent to which placements were organised around specific learning opportunities which were perceived to be unavailable in college settings as part of vocational courses in these fields. Additional codes were identified as the data produced themes seen to extend beyond those identified in the policy literature. These areas are exemplified by the facilitation of learning, a theme less emphasised in studies of workplace learning that valorise its 'naturally-occurring' nature. In the data, descriptions of practice in both college and workplace settings were seen to reflect either passive approaches, apparently reliant on incidental learning, or proactive engagement with wider learning processes. The sharp contrast between these approaches, corresponding to similar themes in the organisation of placements, had elements of a dominant or 'axial' code (Glaser and Strauss 1967). Drawing together these codes, a framework was constructed to analyse each of the four case studies against key dimensions of workplace learning practice, reported in the conclusions below.

The methodology was approved by a university ethical review. The names of colleges which were sites of the research and of the individuals cited here have been anonymised **throughout the paper**. Care has been taken to avoid the inclusion of any identifiers or material that might compromise the individuals who took part in the study, particularly in relation to employment relationships.

In the following section, each of the studies is summarised, using illustrative quotations from key informants. More generalised conclusions from these findings comprise the final section of the paper.

Case Studies

Professional Construction (Construction Route)

This case provided evidence of the most highly developed mechanisms to facilitate access. The researcher was able to attend a co-ordinating body that brought together college and employer representatives and organised specialist placements for every student in the summer between the two years of their course. The meetings observed, and minutes studied, discussed placements, site visits and guest speakers, industry developments and related course issues, notably the introduction of the digital project technology, Building Information Modelling (BIM) to the programme. Following one of the meetings, students were introduced to potential mentors, with whom they would meet up to six times in advance of the placement, helping students to clarify career choices.

Colette, a construction employer representative involved with this body since its inception, described what students would do in her own organisation, as ‘a Scope of Works for the work experience student’ which could provide a template for future placements:

Let’s map out what they do when they’re with us, because once we’ve done it once and it works and we’ve thought it out, even if it’s a fictional based project that we get them to do, once we’ve got the resources there the next student can come in and we know what we’re doing (Colette, construction employer).

This notion of building a sustainable model for workplace learning compares favourably to less developed approaches, which are illustrated in some cases below. However, these approaches were confined to 'professional' construction programmes preparing young students for such careers as quantity surveying and benefited from low student numbers. Whilst the college sought to develop the same

model in other vocational areas, students working in manual construction trades were not able to access the same level of work experience. Sarah, who co-ordinated workplace learning across the college, described employer visits to groups of students preparing these trades, which set out such expectations of employment as 'the need to turn up to work on time, no matter what' (Sarah, workplace learning co-ordinator). How far these differences reflect the considerably greater numbers (and ratio of employers to students), the stage of development, or the reproductive differences in approach between preparations for manual and professional roles can be gauged by the evolution of the professional placement model.

Colette described the origin of the co-ordinating body in a major construction project renovating the main college campus:

We set it up as a 'Careers Academy' on the US model... the idea was that we'd get the brightest students, giving them an edge. They were led to believe it was selective... initially we paid them a pound an hour above the minimum wage for six weeks (Colette, construction employer).

The notion of a selective process contrasted with the inclusive approach described by the college co-ordinator, Sarah, who was no less concerned with the 'recruitment pipeline... mak[ing] sure the learners have the right skills, attitudes and attributes' but argued for a process:

... really focused on the whole cohort in whatever curriculum area, so, any opportunities that come along, it's not inclusive to a selective few (Sarah, workplace learning co-ordinator).

However, the scarcity of good placements and the resources required to organise these meant that few students enjoyed the opportunities available in professional construction. Sarah described looking for other opportunities including mentoring:

The numbers are huge... how much can we ask from employers? (Sarah, workplace learning co-ordinator).

Possibly as a result of these pressures, the organisation of placements was the responsibility not of curriculum staff but of the college apparatus for organising work-based learning (including apprenticeships). Colette expressed concerns about the 'corporate college' rolling out a standard model that employers could not sustain, arguing that:

Once you lose the focus on the kids and put it into business development, you lose something ... we have a serious buy-in but can't afford to be releasing people all the time.

Roy, the course leader, described the way that learning through placement provided the vehicle for students to complete several units of their main qualification. This was the most successful of mechanisms for facilitating placements studied, although it supported students of whom the majority progress to university before coming back into the industry full-time, rather than providing a direct route into employment. The 'positioning' of these students in relation to students in other vocational areas of construction allowed them to interact on relatively favourable terms with the opportunities offered within the industry. Students in other fields faced different challenges.

Early Years Education (Childhood and Education Route)

Early Years Education has grown significantly during recent years and students already undertake substantial placement hours as part of their course requirements (Belfield, Crawford and Sibieta 2017; NCFE 2017). This enabled collection of data through focus groups that included both students planning to move immediately into employment and those progressing to higher levels of study. At the focus groups students were asked to

describe what they learnt that they could not in classroom study: most listed the development of behavioural characteristics:

Patience, what to do in certain situations, how do you deal with children, what to do.

I think you learn how to be confident as well because you just get on with it.

You get the gist of reality, when you're working in class you're doing your work but when you're actually working it's completely different, like it's really challenging (Student focus group 1).

I think you're more professional, aren't you? I mean I'm quite a childish person... when you go into work placement, you forget about that and you act more mature (Student focus group 2).

These positive responses generally reflected behavioural rather than technical aspects of work and were more frequent among students progressing to higher levels. For other students, learning was less intense than expected. They responded negatively to incidental work such as cleaning and gluing children's work into books, even when they recognised their inability to become involved in core activities:

They'll ask me to do sticking of a few things, but if there's nothing we can actually help with - you know like teaching phonics, I know nothing about that so I can't help with that - so she'll be like, right, just sit in the corner and just do the sticking in for me, and that'd be it (Student focus group 2).

I think they take advantage of us because we're young and because we've not got the right qualifications yet and training. I think they think, 'Oh well, she'll get her work placement hours in for cleaning up' so it saves them doing it (Student focus group 3).

The expectations of students mainly related to attributes and behaviours expected for routine childcare activities. These were also the concerns of the nursery manager, who listed her concerns as:

... getting them to put a uniform on, respect the uniform, no trainers, just the respectful side of things, and the wanting to be together and not be split up. The

language as well. The terminology, 'Oh, the kids,' ... you know, just a bit more professional language (Lynne, nursery manager).

The nursery manager described a 'busy environment', without structured learning opportunities. Although placements on Early Years programmes have developed a strong tradition, their facilitation appeared less structured than on other routes. An assessor visited from the college; mentoring took place in the nursery, which the employer described as:

... a student buddy system, so a [member of] staff in each room is the buddy for the students, and just sort of guides them (Lynne, nursery manager).

However, the roles and expectations of these mentors were, the nursery manager said, an area for development and it was '...up to the students to tell us what they need to cover and what they need to do.'

Ironically, given the insistence of policymakers on the value of workplace learning above college-based 'work' environments, the nursery manager approved these as a means to practise skills in safety:

a room set up in the [college] library for the children, by the childcare students, and they do little projects in there with them. ... they have hands on experience there (Lynne, nursery manager).

For some of the Early Years students, the lack of active facilitation was seen in fairly positive terms. They spoke of 'just getting on with the job', 'taking it on the chin' and becoming independent. One argument was that they had 'more of a voice' than at college and that it was harder for employees to say that they were 'doing it wrong' as teachers did (Focus group 2). These too are characteristics both of 'incidental learning' more appropriate to socialisation than the acquisition of technical skills.

This approach to facilitation was matched by the organisation of placements. The college had longstanding arrangements with local employers but students were expected

to find their own work-based learning, sometimes with a tutor's assistance. The arrangement of each placement was recorded by an administrator, using a form provided by a partner charity. Personal details, parental consent, a small box for the student to record their 'visions/aspirations for work experience' was captured on one side; the other provided space for summary details of the employer, job role and responsibilities, along with notes on requirements for clothing and lunch. Subject to the advice of tutors and the charity's safeguarding checks, learners were generally left to determine the appropriateness of the opportunities that they negotiated. The experience of negotiating access and the content of placement no doubt promoted confidence among many learners (Staff focus group). But the resources allocated to this activity only allowed staff to record that work-based activity was taking place. In placement organisation, as in workplace learning, students with fewer personal resources, were left relatively disadvantaged by this substantially incidental approach.

Media (Creative and Design Route)

In direct contrast to Early Years courses, where the location of students in the workplace appeared more important than learning technical skills, students on media courses learnt 'work-based' skills without any time located in the workplace. At a succession of institutions where data on this route was collected, work-based learning took the form of employer projects, which teaching staff arranged, using personal connections, allocating students to agreed client briefs and teaching the relevant technical skills. Similar processes were described across media and performing arts courses at Capital College, Northwards College and the private provider, Creative Training.

Some of the projects involved students in high-profile activities, for example the employer commissions at the colleges and the involvement of Creative Training students in running a major festival. Students interviewed described the projects as relatively autonomous:

Not totally independent but they're trying to push independence so you're trying to work out your problems on your own (Jamie, media student, Northwards College).

The technical learning took place in a studio with tutor support; students emphasised social dimensions:

... the language of how to communicate with the clients... more formally than if we were just talking to our tutors (Justin, media student, Northwards College).

Whilst technical issues were taking place in the safer environments of colleges, behavioural learning revolved around the development of attributes appropriate to networks valued in the sector, rather than those specific to a single workplace. This could be taken to mean that these experiences provide the most important learning students need, and hence that the purpose of placements is more important than their length or location. However, whilst articulate students brought to work-based learning advantages discussed by Illeris (2011b) and others, it was unclear whether the same gains would have been made by less confident and well-prepared students.

Whilst a similar pattern of work-related projects rather than placements appeared common to creative courses, different rationales were put forward for this. At Capital College, the course leader, Kieran, argued that students would not be allowed to handle expensive television cameras, an argument that might be applied in other industries; and suggested that the awarding body whose courses Capital College taught might choose to locate these on an 'academic' rather than a 'technical' route envisaged by the Skills Plan (DfE 2016b). At Northwards, Howard argued that where work activities are structured

around individuals and networks of professionals, long placements were seen to be excluded by structure of the industries. He contrasted his daughter's work experience organised by a school with the college's approach:

She's got a week at Marks and Spencers: she's not interested in going to work in a shop but it's a placement and it gets her out of their hair for a week. [In creative industries] the ability to network gets people places, it gets people work... where you're working with a client brief for maybe 12-14 weeks they get much more out of it (Howard, media course leader).

Glenn at Creative Training reported that it was becoming more difficult to allow work-based projects to support achievement, as the (different) awarding body increasingly demands evidence of academic performance, echoing the possibility that these vocational areas (formerly located in 'art colleges' rather than 'technical colleges') may yet follow an academic route. These contradictions are illustrative of a possibility that, far from healing the 'academic-vocational divide' in England, 'technical education' may contribute to a new hierarchicalisation of post-16 education.

Engineering (Engineering and Manufacturing Route)

Like the professional construction case study, a study of engineering began at Midland College with the observation of a body designed to facilitate work placements. However, this was clearly less established than the professional construction route: work placements were at an early stage of organisation and the committee was notable for the absence of significant local employers. Instead, the employers participating in this body were smaller companies; but these included innovative firms with the potential to offer high-quality learning opportunities.

A business manufacturing carbon fibre components for car and aircraft companies provided the workplace component of the case study. This rapidly-growing business used

both advanced and unusual skills: processes ranged from machining using CNC programmes, through laminating to hand-finishing materials to high standards. Particularly because of the requirements of the aircraft industry, processing and storage were subject to strict recording procedures. Because of the firm's skills shortages, placements and trials extended from college students, apprentices and people not in education, employment or training (NEET) to local grammar school and international students (including those studying at nearby UK universities). Such opportunities were unavailable at the local college: Robert, the manager interviewed, said that, if the college had teaching staff with industry skills appropriate to run relevant courses, he would be seeking to recruit them to alleviate the firm's skills shortages.

Robert described a general approach to workplace learning, structured by plans for recruitment and the need to evaluate potential employees, but covering the kind of placement that might form part of 'technical education'. Like Colette, the professional construction employer, he placed considerable emphasis on systematically organising these opportunities:

On work experience or anything, we try to put a programme down of what they'll do, who they'll be with, what the job content might be. I'm not saying we'll stick to it, but as a broad measure that's what we try and achieve (Robert, engineering manager).

This kind of programme required learners to be trained by a range of employees. Robert described a positive approach to training among experienced staff, possibly motivated by the firm's rapid growth:

Probably because we've got a young workforce [w]here the average age might even be below 30... there is... a great willingness to teach people and I think they realise there is a value in people progressing, moving into the roles and supporting them in the long term (Robert, engineering manager).

The requirements of the aircraft industry were also described as a driver of careful skills planning. However, the notion of a positive approach to learning was supported by Tracey, a relatively new employee, who detailed a role in training that extended well beyond judging the aptitude of learners to develop hand skills:

We show them how to make templates and everything, getting them involved as much as possible, telling them how to make the templates, guiding them on how to do things or how it might be easier, or whatever. Showing them how to do cutting out the laminating and the different directions of the carbon itself, explaining all that and obviously explaining through the paperwork 'cause it'll have different stages and they have to sign or stamp what they've done. And then if it's a white box on the paperwork you have to get somebody to check it. ... And then eventually ... just make sure they're capable of doing the same job but again (Tracey, laminator).

This training extends beyond manual processes to the documentation required by the aircraft industry. In addition, this employee (and others) were included in selection processes whilst the plant manager 'twiddle[d] my thumbs' (Robert). Yet this informal training was generally disconnected from the formal process of gaining educational qualifications. Visiting assessors might ask production staff to oversee candidates' work and sign for it, as the trainer described it; but these activities were seen as quite separate from learning about work:

They do have a book of what they've got to go through, but that's not necessarily like learning what to do laminating, that's like just stuff like health and safety in the workplace and stuff like that. They get a qualification at the end of it, I think, and they have to go through this book and work through it (Tracey, laminator).

This separation of the learning programme from workplace practice echoes other case studies. Robert, the engineering manager, described an education facility that a cluster of local firms in the sector had supported to promote vocational education, although support for this development had not been sustained. Just as work

organisations prioritise production activities over education, educational institutions and practitioners may become less confident over time in engaging with current workplace practice.

Conclusions

The purpose of the study was not to provide a comprehensive overview of current workplace learning practice but to produce insights into how the implementation of technical routes might develop over the coming years. Conclusions were therefore intended to clarify existing features which have the potential to be magnified in the more extensive plans currently under development. An initial summary of the four case studies was therefore compiled which compared the extent to which each was either based on planned, facilitative interactions among workplace learning providers, institutions and students, or the extent to which they could be seen to rely on more passive approaches reliant on incidental learning.

Five key indicators were included: firstly, the negotiation of access; secondly, the level of learning opportunities and whether these enhanced the knowledge of learners beyond their learning in institutional settings and their socialisation into work routines; thirdly, the degree of structure provided for work-based learning; fourthly whether the length of placement or quality of learning opportunities appeared to be most valued by those organising and participating in the programmes; and finally the extent to which learning was integrated with the curriculum. Based on the case study analysis above, the four case studies were mapped against the extent that they were seen to conform to the characteristics of facilitative interaction (F = facilitative interaction; M = medium; I = reliance on

incidental learning). These judgements are of course based on the specific case studies described here rather than on any generalisation to learning in these vocational areas or on these routes.

Insert Tables 1 and 2

These differences partly reflect the varying nature of employment opportunities on these routes and the traditions of different vocational areas in colleges. Nevertheless, the relative success of organised routes leading to meaningful workplace learning suggests that structured and facilitated programmes, as well as opportunities for reflection, should be available to all learners if workplace learning is to take on the meaningful purposes that the Sainsbury Review suggested. A passive approach reliant on incidental learning is likely to lead to its location away from the curriculum, offering mainly routine experience: this may contribute to the confidence of learners and help them to meet behavioural expectations but this is not guaranteed. Less advantaged learners in particular are likely to benefit from programmes with greater structure and clearly designated learning opportunities.

However, a converse danger is also evident within the case studies. Technical education may indeed come to provide access to specialist learning opportunities in the workplace but these may be restricted to a relatively privileged group of students. The existence of well-organised opportunities for professional construction students and the potential for placements within the most innovative engineering companies may be welcome but difficult to imitate in other areas of employment. This may contribute to the most comprehensive 'technical education'

being restricted to a relatively small proportion of the cohort, with substantial numbers on a remedial 'transition year' (DfE 2016b, p. 52).

Whilst specific recommendations lie beyond the scope of this study, it may be valuable to reflect on how pro-active and facilitative interactions might be developed further, across a broader range of industries. Such measures might include the accreditation of workplaces recognised as suitable locations for workplace learning, providing regular placements and with developed access procedures. The facilitative roles of workplace-based practitioners could be recognised and provided with development opportunities that could lead to a wider understanding of the links between work and education, as well as to the certification of their skills and knowledge perhaps in more industrially relevant and meaningful ways than earlier programmes for work-based trainers. For college-based tutors, participation in the support of work placements can provide access to their own learning opportunities, which would advance their knowledge of contemporary workplace practice. The case studies indicate the significance of such measures in developing and integrating workplace learning; but they also reflect how far existing policies and practices lie from these possibilities.

The difficulties of extending the most advanced types of workplace opportunity to all learners are deeply ingrained within national institutions. That these were offered to learners working towards professional and advanced technical roles arguably reflects the world of work for which policy imperatives seek to prepare full-time college students. Neither individual colleges nor the state are able simply to impose more inclusive patterns of practice on this hierarchical, production-centred world. Yet not to seek such possibilities diminishes the potential for workplace learning to re-engage disengaged learners, and indeed for all students

to contribute in the long term to innovation and capability. The more workplace learning offers meaningful learning opportunities to all, is integrated with all phases and purposes of learning programmes, and draws on the contributions of all relevant learning practitioners, the greater its contribution to the development of young people, not only as producers but as men and women with substantial and wide-ranging capabilities.

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Indicator	Incidental	Facilitative
Negotiation of access to workplace learning	Personal negotiation	Facilitative mechanisms, e.g. college-employer joint bodies
Content of workplace learning	Routinised/ behavioural	Advanced knowledge
Structure of workplace learning	Primarily incidental	Structured programme
Key criterion	Length of placement	Appropriateness of learning
Facilitation	Independent learning	Integrated with college curriculum

Table 1: Key indicators: incidental and facilitative approaches

Incidental	Facilitative	Prof Constr- uction	Early Years	Creative & Design	Engineer- ing & Manufact- uring
Access by personal negotiation	Access through collaborative negotiation	F	I	M	M
Routinised/ behavioural learning	Advanced learning opportunities	F	I	F	F
Primarily incidental learning	Structured learning programme	F	I	M	F
Key criterion length of placement	Key criterion appropriateness of learning	F	I	F	F
Independent learning	Integration with college curriculum	M	M	F	I

Table 2: Case studies: occurrence of facilitative interactions and incidental learning

