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# How well equipped are national surveys to capture new approaches to training?

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## ABSTRACT

Recent employer and employee surveys in the UK highlight a decline in training participation, a reduction in training expenditure per employee and an increase in online training/e-learning. The Covid-19 pandemic adds impetus to considering training trends given the importance of skills for economic recovery. Many workers are adapting to work and learning increasingly moving online. The Covid-19 crisis accentuates the need for employees to upskill and reskill and participate in new ways of learning. But how well equipped are surveys to capture these new trends? This paper reviews the focus of employer and employee training surveys in the UK alongside findings from selected in-depth employer interviews on training trends. It identifies greater focus on formal than informal training in current surveys, and a narrow interpretation of informal training. It identifies a gap in understanding the different types, duration and value of some informal workplace learning, while recent workplace changes mean the distinction between on- and off-the-job training is becoming less useful than previously. To capture new approaches to learning, surveys need to focus more on who is responsible for workplace training, communities of practice and perceived benefits of training.

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Training; informal learning; e-learning; surveys

## Introduction

Employer and employee surveys reveal changes in employees' participation in, and employers' approaches to, training. They help to identify current and future vacancies, skills needs and skills gaps (ETF 2017).

Skills and their deployment are key to innovation, productivity and economic growth. Investment in skills is likely to have a positive effect on productivity levels and economic performance (Abreu 2018) and the literature demonstrates the positive impact of returns to education (Card 2001; Krueger and Lindahl 2001; Sianesi and Van Reenen 2003). Understanding training trends is important given the need to adapt to challenges of technological change and digitalisation, and the ageing workforce. Digitalisation is projected to create considerable change in work organisation and work processes (Spöttl and Windelband 2020). As technology develops, individuals' attributes and skills are increasingly important in how employability is conceived (Green 2016a).

Economic growth in the UK has been constrained by the country's weak skills base relative to comparator countries and is projected to fall further in international league tables by 2030 (Evans and Egglestone 2019). Research has emphasised the severity of potential shortages in basic digital, core management and STEM skills in the UK. By 2030, 5 million workers in the UK may become acutely under-skilled in basic digital skills, whilst up to two-thirds of the workforce could be partially under-skilled (McKinsey 2019). With gradually increasing life expectancy and the rise in the State

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Pension Age, careers are becoming longer. Advances in technology, including automation and big data, are changing the labour market, with around 7.4% of jobs in England at high risk of some of their duties and tasks being automated in future (ONS 2019). Lifelong learning and training are becoming more important to support the UK workforce to retrain and reskill in the context of efforts to enable individuals to remain in the workforce for longer and increase productivity (Foresight 2016). Detailed understanding of training undertaken is also important given concerns apprenticeship starts have fallen '*significantly*' since the Apprenticeship Levy was introduced in 2017 (Battiston et al. 2020), despite increased emphasis on apprenticeships in skills development debates in recent years in the UK (Ryan and Lörinc 2018).

Whilst the UK is among European countries with higher skills levels, it performs comparatively less well in the percentage of employees being trained by their employers through continuing vocational education and training (Green et al. 2016a). The UK is the fourth highest among European countries for the proportion of employers who recruit rather than train (Eurostat 2019), emphasising the importance of developing and monitoring effective training systems in the UK context. National surveys provide insight into training trends and how training systems operate in practice.

The Covid-19 pandemic and the transition to a 'new normal' adds impetus to considering training trends since it has brought skills for economic recovery to the fore. Because of the pandemic, many workers are having to rapidly adapt to work and learning increasingly moving online. The crisis is highlighting the need for employees to develop different types of skills and participate in lifelong learning to retain employment. Policymakers have embraced new ways of learning. The UK Department for Education launched a Toolkit, offering free online digital and numeracy courses (Department for Education 2020). In September 2020, as part of a major expansion of post-18 education, the UK Prime Minister, announced support would be expanded to include 62 additional courses. Financial pressures created by the pandemic are likely to increase pressure on employers to identify new ways to reduce costs associated with training through developing new and cheaper forms of learning. Analysis of the impact of the 2008–2009 recession on training activity in the UK revealed the recession prompted large numbers of employers to find innovative ways of maintaining training coverage whilst simultaneously reducing costs (Felstead, Green, and Jewson 2012). However, if people are going to be learning in new ways to a greater extent, this raises the issue of how well-equipped surveys are to capture the new trends. Are surveys missing out on new forms of learning taking place?

This paper aims to examine how approaches to training are changing and the implications for measuring training through a review of the focus of training in employer and employee surveys and selected in-depth interviews conducted with employers. The paper has an explicit UK focus, but the issues discussed are of international relevance. The research questions are:

- (1) How are UK training surveys capturing changes in approaches to training?
- (2) Do forms of learning exist which are not well captured in the surveys?
- (3) How could training surveys be developed to capture new forms of training?

The novel contribution of the paper is reviewing survey trends in combination with analysis of in-depth qualitative interviews in order to identify how existing surveys could be advanced to provide insight into new forms of training. Existing discussion tends to focus on national training trends through examining findings from large-scale surveys (e.g. Green 2016b; Green et al. 2016b). Where qualitative research has been conducted in relation to training trends, it has tended to provide additional insights to trends identified in quantitative surveys (such as greater understanding of motivations for and barriers to learning) (Green and Taylor 2020; Pennachia, Jones, and Aldridge 2018) rather than suggesting ways in which surveys could be adapted to capture additional trends identified in qualitative research. Discussion of existing survey design has rarely used findings from exploratory qualitative analysis to identify underexplored aspects of survey design. Through adopting a mixed-methods approach comparing the definition of training in national surveys and in-depth

interviews, this paper adds to the sum of knowledge by identifying gaps in survey design with regard to understanding informal workplace learning taking place. Qualitative research may be particularly important for identifying emerging forms of training due to its focus on the micro level and its typical association with generating rather than testing theories (Bryman 2015). The paper suggests thematic areas which could be developed in future surveys to provide greater insight into new approaches to learning.

The paper is structured as follows. It begins with an overview of training trends in the UK and existing analysis of definitions of training used in national surveys. The materials and methods section summarises the data drawn on in this paper. The third section presents the results of the study, examining how 'training' is framed in employer and employee surveys and contrasting this with the sorts of skills which employers are looking for, as revealed in trends identified in the interviews conducted with employers. A discussion section follows, considering the extent to which existing statistics on training are fit for purpose and the implications of the changing training trends for survey questions.

## Context

National surveys indicate changing trends and expectations regarding employees' participation in training and skills development and employers' approaches to training. Different measures provide insight into training trends including: the proportion of employers funding/arranging training, the number of employees trained, the proportion of employees trained and the volume of training (measured by number of days). The most notable recent trends recorded by the Employer Skills Survey are declines in the incidence of training and workforce development (61% of employers funded or arranged training for employees in the previous 12 months in 2019 compared with 65–66% between 2011 and 2017), in the proportion of the workforce trained (62% in 2017 and 60% in 2019), and in the number of training days undertaken and an increase in the use of online training and e-learning (Winterbotham et al. 2020a). Developing soft skills is increasingly important. Survey evidence from the CBI. (2018) points to employers placing high value on broader skills such as listening and problem solving.

The average volume of training in the UK has declined over recent decades according to multiple sources. Analysis of multiple data series by Green et al. (2016b) revealed average volume fell by approximately half between 1997 and 2012. Green and Henseke (2019) show this decline has continued since but the estimated fall varies by survey due to differences in the time period and types of training covered by each. The average time spent on job-related training over a four-week period declined by 10% over 2011–2018 according to the Quarterly Labour Force Survey (QLFS). Between 2011 and 2017 the annual volume of formal training<sup>1</sup> fell by 19% according to the UK Household Longitudinal Study and the average number of days of employer-funded training fell 5% according to the ESS. This trend appears to be continuing with the total number of training days undertaken in 2019 being 6% lower than in 2017 (Winterbotham et al. 2018, 2020a). The Skills and Employment Survey reported an 18% decline in the number of days in which on-the-job training occurred between 2012 and 2017. The QLFS reveals very short-term training is now more common. Whereas only 34% of training lasted less than a week in 1996, this represented 56% of training in 2018 (Green and Henseke 2019). The percentage of firms that train for 11 days per participant or more has declined (Winterbotham et al. 2018, 2020b).

Online training and e-learning are increasing. The proportion of employers funding or arranging online training or e-learning in the previous 12 months rose from 45% in 2015 to 56% in 2019. Online training is particularly common among large employers (Winterbotham et al. 2018, 2020b). Even before the pandemic, online learning had been found to have a positive impact on the UK economy with 20 million people feeling it has supported them to do their job more efficiently. Growth in online learning had been steady and largely driven by individuals, but accelerated during the lockdown introduced in March 2020 (Aldridge, Jones, and Southgate 2020; Glover et al. 2020).

Existing literature offers possible explanations as to why the volume of training is declining. First, the decline is linked to slowdown in the growth of skills demand. This may be particularly relevant where employers become trapped in a low-skills equilibrium, from which neither they nor employees are motivated or able to break out. Second, barriers to training (including lack of knowledge about the benefits among employers, or unavailability of training) provide a possible explanation. Third, training may be becoming more efficient but issues with survey design limit understanding of this. Evidence relating to the quality of training is poor but the most likely trend is a minimal decrease in training quality (Green and Henseke 2019). However, a minimal decrease in training quality is likely to mean training is not becoming more efficient. The proportion of training to nationally recognised standards continued to decline between 2017 and 2019 (Winterbotham et al. 2020b). Fourth, training may be being increasingly replaced by on-the-job learning. The number of days of instruction on-the-job increased per worker and per trainee between the 2006, 2012 and 2017 Employer Skills Surveys (Green and Henseke 2019). On-the-job training is becoming more important. The balance between off<sup>2</sup>- and on-the-job<sup>3</sup> training shifted slightly between 2017 and 2019 from 55% of overall spend on off-the-job training in 2017 to each accounting for half of overall spend in 2019. Nonetheless, expenditure on off-the-job training fell in real terms by approximately £2.3bn whilst expenditure on on-the-job training increased by approximately £2.1bn (Winterbotham et al. 2020b). Again, current survey design may hinder insight into this trend. Some informal training<sup>4</sup> conducted may not be being recorded by employers in formal surveys, particularly where employers do not perceive costs in relation to lost productivity (Green and Henseke 2019).

Existing studies also indicate understanding of how skills are acquired through training in the UK is poor. This is suggested to be related to how a large proportion of workforce training takes place within firms as opposed to through colleges or other training providers (Green 2016b). This underscores the need to expand employer and employee surveys to provide insight into on-the-job and not just off-the-job training and formal as well as informal learning is needed to enable fuller analysis of training trends.

Despite the evidence that the labour market and approaches to training (by employers and individuals) are changing, existing analysis of definitions of training used in national surveys is limited. Few studies have examined the suitability of metrics relating to training in employer and employee surveys. There is nonetheless evidence that the meaning of the term 'training participation' is disputed. Green (2016b) argues that '*training participation can mean lots of things*' from occasional short-term to long-term skills upgrading. A gap exists in relation to studies investigating what constitutes 'training' today in the UK given changes in technological capacity to run training remotely/digitally as well as increasing pressures on firms to be more efficient. Relationships with the definitions of training used in national surveys are also underexplored. Where existing literature considers the suitability of existing surveys for understanding training trends, it identifies areas statistical authorities in Britain could focus on to deepen understanding of training direction rather than training type. Suggestions include the need for better, more regular data on training duration and the importance of developing more detailed monitoring of training quality (Green 2016b). Lido, Reid, and Osborne (2019) triangulate findings from a household survey on learning attitudes, behaviours, and literacies; GPS data; and social media analysis to explore informal learning in Glasgow. Their call for the development of novel methods to explore learning participation, particularly in relation to informal and inequalities in learning, indicates limitations with current survey design.

## Materials and methods

This paper uses a two-step methodology. First, how training is defined in longitudinal, national employer and individual surveys is examined. Questions relating to employee training participation and employer-provided training provision are the focus. Other aspects of training examined in surveys, (e.g. barriers to training, help received by employers with developing training provision and training provided in apprenticeships) are not considered.

Surveys reviewed are:

- The 2016 Employer Perspectives Survey (EPS): 18,000 employers.
- The 2017 and 2019 Employer Skills Surveys (ESS): 87,000 employers with at least two people on the payroll. Both surveys were reviewed to examine how the concept of training is evolving in the survey. The 2019 survey included a separate follow-up survey (the Investment in Training Survey (IITS)) examining employer investment in training during the previous 12-month period.
- The 2017 and 2020 Adult Participation in Learning Surveys (APLS)<sup>5</sup>: over 5,000 adults aged 17 and over.
- The 2017 Skills and Employment Survey (SES): over 3,000 individuals in paid employment.
- The 2020 Labour Force Survey: households living at private addresses in the UK.<sup>6</sup>

These surveys were chosen as they are considered to be high quality, comprehensive, nationally representative surveys offering neutrality and rigour for examining skills and training trends in the UK (Green and Henseke 2019; Green and Taylor, 2020).

Second, the definition of training in these surveys is compared with training trends in detailed qualitative in-depth interviews focused on training, skills needs and the skills system with 14 employers across the UK. The study received approval from the Industrial Strategy Council (application number: 050819). Consent was received from all participants. Interviewees were purposefully selected and represented a mix of SMEs/large firms, firms in rural/urban areas and multi-site firms, and firms in different sectors. Whilst not necessarily representative of all UK firms, the interviews were designed to provide insights into some of the higher-level findings in the larger, but less detailed, existing surveys. Companies were recruited through the Confederation of British Industry and the Federation of Small Businesses. Interviews were conducted by phone between July and September 2019 and analysed thematically.

## Results

### *How is training framed in employer and employee surveys?*

This section considers how employer and employee surveys differ in the:

- range of training types they cover,
- extent to which they consider what constitutes training,
- extent to which they focus on formal and informal learning,
- extent to which they provide insight into the purpose and benefits of formal, informal and online terminology used to discuss online learning.

The framing of training questions differs in the surveys reviewed. As indicated in [Table 1](#), the surveys examine different types of training. The individual-focused APLS covers various training types, reporting trends relating to formal training courses undertaken at work and external training courses arranged through employers, courses undertaken independently, and training conducted online. Reflecting its larger sample size, questions in the employer-focused ESS cover the broadest range of training types. It examines participation in formal and informal training, online training, induction, health and safety, job specific, supervisory and management training. Notably, given the increasing importance of digital learning and delivery, questions were added from the 2015 survey onwards relating to whether in the previous 12 months employers had arranged or funded online training, e-learning and other self-learning where the employee does the learning at a time of their choosing. The question was added to provide greater insight into the nature of training provided by employers and to investigate whether the recent fall in training



spend was the result of increased use of online training and other self-learning (Winterbotham et al. 2016). The EPS examined participation in formal and on-the-job training. The SES (which focuses on individuals in paid employment) and the Labour Force Survey (which focuses on households) cover particular aspects of formal and informal training.

Despite the range of training types covered in the surveys, there is a general lack of discussion of what constitutes training, and a greater focus on formal over informal learning. The individual-focused APLS is the most explicit, providing respondents with the following broad view of learning and training: *'Learning can mean practising, studying, or reading about something. It can also mean being taught, instructed or coached. This is so you can develop skills, knowledge, abilities or understanding of something. Learning can also be called education or training. You can do it regularly (each day or month) or you can do it for a short period of time. It can be full-time or part-time, done at home, at work, or in another place like college. Learning does not have to lead to a qualification. I am interested in any learning you have done, whether or not it was finished'*. This definition incorporates formal, non-formal and informal learning. The 2017 survey questions provide detailed examples of where learning can occur ('on-the-job', 'on a training course at work', 'on an external course arranged by my employer', 'through an FE college', 'independently on my own' and 'independently with others').

The other surveys reviewed rarely discuss what constitutes training, particularly when first referring to training. The first question in the SES (which focuses on individuals in paid employment) relating to training simply asks *'Since completing full-time education, have you ever had, or are you currently undertaking, training for the type of work that you currently do?'* Subsequent questions ask if this training is still continuing, how long the training lasted/will last, what type of school interviewees attended, how old they were when they finished continuous education, and whether in their workplace management hold meetings in which you can express your views about training plans. Only later questions, relating to specific types of training, indicate training can vary, differentiating between *'instruction or training (received) from someone which took you away from your normal job', 'instruction (received) whilst performing your normal job, 'taught yourself from a book/manual/video/computer/DVD/Internet', 'followed a correspondence or Internet course (such as Open University)', 'taken an evening class' and 'done some other work-related training'*.

The first question in the Education & Training section of the LFS focuses on formal qualifications. The next section on recent training does not define training: *'In the 3 months since [date] have you taken part in any education or any training connected with your job or a job that you might be able to do in the future (including courses that you have told me about already)?'* Subsequent questions distinguish between 'on-the-job' training and training 'away' from the job. Later questions provide greater insight through focusing on the site of training.

Questions in the employer-focused ESS examine the number and occupation of people who participate in different types of training, barriers to arranging training, the number of training days undertaken by employees, sources of external training, barriers to using external or vocational training, rather than what represents training. Where training is broken down, the survey refers to predefined types of training such as health & safety, management and training in new technology. One question includes the option for employers to list other types of training arranged. The only place where the questionnaire acknowledges that the concept of training is becoming more amorphous and what staff will recognise as training will differ according to experiences is the question: *'Have you arranged or funded any on-the-job or informal training and development over the last 12 months – by this I mean activities that would be recognised as training by the staff, and not the sort of learning by experience which could take place all the time'*.

The employer-focused IITS provides more detailed insight into employer-provided training and its costs. Like the ESS, it distinguishes between off-the-job and on-the-job training. Questions focus on how many employees receive on-the-job and informal training and development during a typical month, the number of hours employees spend receiving this training, the salary of staff receiving this



training, the number of employees who give on-the-job and informal training and development during a typical month, the hours they spend on this, and associated costs including the amount spent on purchasing or developing online training or e-learning for staff in the past 12 months.

Understanding why employers invest in training is essential for evaluating training demand and employers' views regarding training provision (Green and Hogarth 2016). The employer surveys reviewed include more questions designed to identify the purpose and benefits of formal training than informal training/online learning. Demos has defined online learning as being 'reliant on the internet, (either in a transactional (e.g. downloading a PDF) or participatory fashion (e.g. an interactive class))' and 'improv[ing] skills for wellbeing, personal, educational or economic purposes' (Glover et al. 2020). The surveys reviewed focus on the first part of this definition through gaining numerical data on online training participation rather than exploring the benefits of the training (related to the second part of the definition). The employer-focused EPS investigates external sources of training (FE Colleges, HE institutions, customers, suppliers, non-profit organisations) employers have used in the previous 12 months, why they chose them and why they did not use other training sources. The employer-focused ESS considers formal and informal training but there are much deeper questions about the types, amount and value that employers place on formal training. In 2019, several questions were added to the survey, enabling greater understanding of the value employers place on formal training in relation to business needs. One question investigates the extent to which employers agree or disagree that employees achieving vocational qualifications leads to better business performance and improved staff retention. Another examines the extent to which employers agree or disagree that vocational qualifications can be adapted to business needs, cover all skills needed by the company and offer good value for money. Notably, the employer-focused IITS includes questions investigating how much employers spend on off-the-job and on-the-job training, distinguishing between costs associated with seminars, workshops or open and distance learning; online training or e-learning and equipment and material costs over the previous 12 months. These questions are important for understanding how investment in different types of training is changing.

Question design in the individual and employee surveys reviewed enables insight into the benefits and purpose of a broader range of training than the employer-focused surveys. When asking about changes or benefits as a result of learning, the individual-focused APLS does not define the type of learning that the question relates to, referring simply to 'thinking about your main learning'. Questions in the SES (which targets individuals in paid employment) regarding the benefits of training refer to 'the training you received over the last year'. These follow a previous question which referred to a variety of different forms of training. The LFS only attempts to gain insight into the reason for formal training courses with the question '*What was the main purpose of taking courses or tuition? Was it mostly related to a job that you have or may have in the future or, mostly for personal or social reasons?*'.

Most surveys include questions on online training, but, apart from the individual-focused APLS and the employer-focused ESS, they focus on formal online training (e.g. via Open University) or refer to internet courses, or teaching via computer/internet rather than using terminology which users might better understand (e.g. apps, websites, forums, YouTube). The extent of technical language and examples of training types used vary according to surveys' target respondents. More technical language is used in the employer-focused surveys. The APLS – the main individual-focused survey – is noteworthy for giving examples of different types of online training websites, forums, YouTube and referring to training conducted through apps.

Informal training is often referred to as self-taught training rather than also investigating informal training with others. The household-focused LFS asks '*During the last 3 months have you taken part in any other learning activities that did not involve taught classes, such as self-learning?*' The employer-focused ESS asks if employers have arranged or funded any 'on-the-job or informal training and development'. Whilst the question does not specify if such training took place individually or with others, a separate question focuses on employer arranged or funded 'self-learning where the

employee does the learning at a time of their own choosing'. The APLS explicitly asks about participation in learning 'independently with others'. The SES investigates self-taught training but not informal training with others. Overall, these types of training that appear to be becoming more important receive no/ partial coverage in some of the surveys.

## **Findings from qualitative interviews**

This section presents findings from the in-depth interviews conducted with selected firms to provide insight into the key skills employers are seeking currently and in future, and how firms are looking to develop these skills. The analysis reveals aspects of training that are currently not well captured by existing training surveys.

### ***Skills needs: current and future***

The in-depth interviews stress the value employers place on recruiting employees who possess one or more of: digital, technical, management and leadership, social and behavioural skills, and who have a mix of skills. Large companies especially reported looking to invest in management and leadership skills in the context of long-term company growth strategies. The interviews identified how developing social and behavioural skills is especially prioritised by firms for 'large transformational projects' and mid-career development. The ESS results highlight the existence of key skills gaps in the UK with 1.25 million employees in the 2019 survey lacking full proficiency in their current roles. The survey indicates skills gaps exist particularly in relation to operational, complex analytical, basic and digital skills (Winterbotham et al. 2020a).

Chiming with trends including automation, AI and digitalisation, the interviews indicate companies of all sizes across sectors desire strong digital skills among their employees. The interviews suggest employers continue to place a high value on technical skills, highlighting their importance for meeting mandatory and regulatory requirements and to respond to rapid technological changes. For example, a Large Civil Engineering Firm highly valued civil engineering, surveying and construction craft skills and had a detailed set of 'role profiles', each including technical competencies. Nonetheless, the interviews indicate the type of technical skills desired is changing because of digitalisation. For a Large Digital Technologies Company, whilst traditional technical skills will always be important in their field, in future creativity skills (e.g. creating a vision) will be more important as technology will develop the solution. Consequently, other skills are sought in conjunction with technical ones. Employers are responding to uncertainty over precise future skills needs by focusing on recruiting 'people with the hunger/attitude' since they suggest this indicates greater motivation to learn. Other companies interviewed aim to meet their requirements for technical skills through 'buying in' experienced workers. In other cases, outsourcing technical roles can impact on the skills required in the UK.

The in-depth interviews conducted enable insight into the sorts of training pertinent to these skills needs and the implications of this for metrics used in employer and employee surveys. They suggest companies are altering what they mean by training and that the term is becoming more amorphous. Employers are looking for traditional formal (and often accredited) training to cover mandatory requirements, meet core business needs and develop the long-term workforce. Employers are also looking for less formal training that is highly responsive to technological trends and cost effective. Firms of all sizes reported using in-house training. In large firms, this generally existed alongside more formal off-the-job training (such as training via local Colleges). By contrast, micro companies explained that in-house training is generally their principal form of training. A Large Food Manufacturer ran a two-day management and leadership course to support employees with the transition to a new system and to make managers more confident in speaking to employees regarding learning and development, particularly developing softer skills.

The in-depth interviews suggest changes in the meaning of training are resulting in three trends. First, they are associated with continued use of traditional skills providers (such as Colleges and apprenticeships) and the rise of degree apprenticeships. A Large Food Manufacturer arranged mandatory health and safety training via their local college as they felt they were well set up to deliver this form of training. Many of the large employers interviewed offer apprenticeships delivered via local colleges or universities. A Large Advanced Engineering Company had developed a degree apprenticeship course with a local university, but had reduced the length of the course (from six to four years) because of the pace of change in technology. Large and smaller employers used private sector training providers especially in relation to specialist training needs and when they do not have the capacity to meet training demand in-house. Such training often focused on softer skills development. An Engineering Design Company SME chose to use freelance training for soft skills (project management skills, customer relations, sales, time management).

Secondly, focus on more cost effective and responsive training is resulting in greater emphasis among firms of all sizes on encouraging employees to informally share learning. Communities of practice emerge as an important mode for sharing learning informally. A Large Advanced Engineering Company reported that they encourage employees to share learning and skills via 'communities of practice'. For instance, when facing a challenge and finding a solution to it, employees were encouraged to post a video on the intranet for their colleagues (whether at their own site or at another location) to outline what they did. In this way learning was shared across the company and efficiencies could be gained through colleagues looking at previous solutions as a starting point for their own work. This strategy was seen as beneficial in inculcating a learning culture across the company, and being cost-effective.

Thirdly, in the context of labour market changes and growth of the platform economy, greater use of online training and uptake of bitesize training was evident among the firms interviewed. How online training is used appears to differ by firm size. Larger companies had established online training portals directed at all employees focusing on areas such as finance, commercial compliance, the legislative environment and problem solving. SMEs interviewed use online training materials created by third parties. An Engineering Design SME largely encourages its employees to self-train using online materials as they find it difficult to access formal training that responds quickly to technological change.

## Discussion

This section discusses the following questions:

- (1) How are UK training surveys capturing changes in approaches to training?
- (2) Do forms of learning exist which are not well captured in the surveys?
- (3) How could training surveys be developed to capture new forms of training?
- (4) How could surveys be adapted to provide greater insight into these new forms of learning?
- (5) Where could further qualitative research add value in terms of better understanding existing training trends?

Overall, the analysis of the employer and employee training surveys and the in-depth employer interviews presented in this paper provide evidence to support Green and Henseke's (2019) contention that formal training is being increasingly substituted by on-the-job learning, as informal and online learning are increasingly introduced in the workplace.

This paper has shown training surveys are being adapted to respond to changing labour market and skills trends. For example, questions pertaining to whether employers have arranged or funded online training, e-learning and other self-learning have recently been added to the ESS. The establishment of the IITS is important in how it enables comparison between employer investment in different types of training including online and e-learning. However, this analysis suggests understanding is hindered by the fairly narrow definition of training adopted in existing surveys and their lack of focus on what training means today. Survey questions continue to focus on broad trends in the amount of

different types of training conducted and the types of employees who receive such training. Where questions do explore the benefits of different types of training adopted, they overwhelmingly focus on benefits of formal training. As such, existing surveys provide limited insight into the value employers and employees place on online and informal training compared with traditional types of formal learning and the respective advantages and disadvantages of these learning forms.

The lack of focus in many surveys on defining training for the respondent means it is questionable whether the surveys are capturing some of the informal learning that the qualitative in-depth interviews indicate is occurring within workplaces. Whilst some surveys capture an increase in e-training, they appear to be missing out on exploring the value of different types of e-learning (including online training through materials created by third parties, and bespoke in-house training portals) as well as the use and benefits of more informal types of training (such as communities of practice). The factors driving growth in informal learning are especially underexplored. Adopting a broader definition of training and explicitly questioning employers/ employees about types and volume of formal and informal training and learning they conduct individually and within groups, would enable greater insight into how training and learning is changing and provide evidence to enable policy support to be more tailored to employer and employee needs.

Better understanding the extent to which employers facilitate employees to engage in internal and external informal learning is important. Solely training in-house has the potential for businesses to 'lose out' as innovative ideas can emerge from attending external training (Small Business Services Provider). In turn, this could hinder efforts to increase productivity at a local scale.

It is important to consider the characteristics of respondents and the use of proxy responses when examining how national training surveys capture changes in training trends. The quality of data captured by household surveys is declining as the proportion of households answering surveys has declined and measurement errors have increased due to households providing inaccurate responses (Meyer et al. 2015). Detailed information on the use of proxy responses is not publicly available for all of the surveys reviewed here. However, the available data indicates this is an important area meriting further investigation. Participation levels in the household-focused LFS have fallen to approximately 60% from 70% in 2000. Approximately one third of LFS responses are collected by proxy when a respondent is unavailable (HSE, undated). For many key variables agreement between proxy informants and information given by the subjects themselves is high (over 80%). However, agreement is suggested to be lower for variables requiring responses including very detailed numerical information (e.g. hours worked) (Dawe and Knight, 1997). This raises the question of the extent to which proxy respondents would have detailed insight into the types and timing of training and learning activities, particularly self-learning completed by other household members.

The conclusions in this paper relating to how training is becoming more amorphous and informal are based on a small qualitative study. Further qualitative and quantitative research is needed to capture new approaches to learning. The conclusions suggest survey designers may wish to place greater focus on:

- (1) How employees and employers conceptualise training and learning,
- (2) The extent to which there is increased individual responsibility for training in the workplace,
- (3) How learning is shared in the workplace and the extent to which companies introduce formal and informal structures to facilitate the sharing of learning. How communities of practice are established and used by firms of different sizes and whether they are generally employer-led or the result of individual initiatives.

Whilst survey length is clearly an important consideration, the format of existing questions suggests large-scale survey questions could be modified to offer such insight. A similar question format to that adopted in the EPS could investigate which types of internal and informal training employers use and why, and explore factors behind trends in investment in e-resources. The ESS includes examples of how a likert scale can be incorporated to enable insight into the benefits employers perceive from a particular type of training. The question asks employers to select the extent to which they would agree or disagree that

vocational qualifications: lead to better business performance and improved staff retention, can be adapted to business needs, cover all skills needed by the company and offer good value for money. Modifying the question to focus on informal or online learning could enable greater understanding of how these types of training impact on individual and firm performance.

Detailed further research could seek to provide insight into the extent to which proxy responses in national training surveys are potentially limiting the identification of emerging training trends as well as how challenges with the quality of survey responses could be addressed. Research could especially seek to examine the feasibility and potential benefits of linking training survey data with administrative microdata (Meyer et al. 2015).

Further qualitative work could investigate how skills overlooked in conventional skills policy can be fundamental for accessing employment in some areas. For example, the qualitative interviews conducted as part of this research indicate the importance of being able to drive to secure employment in some geographically remote areas. A Small Cleaning Company interviewed who operate in a rural area highlighted the importance of the skills system equipping people to drive to access work. Demonstrating geographical contrasts in experience, in rural areas being able to drive is a key skill to enable access to and progression in job opportunities, alongside proficiency in basic skills. It could also seek to explore the value of training provided by trade unions since the surveys reviewed generally provide little insight into the types of training provided by unions and their perceived impact. Previous analysis of the LFS and the Workplace Employment Relations Survey emphasised how between 2001 and 2013 unionised employees were a third more likely to have received training than non-unionised employees (Stuart, Valizade, and Bessa 2015).

Detailed understanding of training trends is important given future projected changes in the labour market. Potential severe shortages in basic digital, core management and STEM skills have been projected across the UK by 2030 (McKinsey 2019). Employees will increasingly need to upskill to remain in the labour market. Adapting surveys to explicitly consider a broader definition of training and provide greater insight into the types of training valued by employers and employees could help to better inform skills and training policy. The need for strong economic recovery from the Covid-19 crisis adds further urgency given the importance of lifelong learning in helping individuals to find and maintain employment in the volatile labour market. Covid-19 offers opportunities to develop digital skills, e-tech solutions and ways of sharing learning (Green 2021; CIPD. 2021). There is already evidence the pandemic has rapidly accelerated pre-existing shifts to digital and online learning.

## Notes

- 1 Learning which occurs in "education and training institutions leading to diplomas and other qualifications recognised by relevant national authorities" (Singh, 2015, p.20).
- 2 Training conducted away from an individual's normal job role, including include off-site training, computer-based training, sandwich courses and use of outside trainers (BBC Bitesize, undated).
- 3 Training conducted in the workplace including demonstrations, coaching, mentoring, job shadowing and job rotation (BBC Bitesize, undated).
- 4 Learning which occurs in "daily life, in the family, in the workplace, in communities and through the interests and activities of individuals" (Singh, 2015, p.20).
- 5 This article focuses on the 2017 survey as at the time of writing, the comprehensive list of survey questions for the 2019 and 2020 surveys had not been published. The 2020 questionnaire is not directly comparable with previous years of the survey due to Covid-related methodology and sampling changes.
- 6 The survey results have not been published. Analysis is based on the publicly available survey questionnaire.

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## References

- Abreu, M., 2018. *Skills and Productivity*. Productivity Insights Network. [https://productivityinsightsnetwork.co.uk/app/uploads/2018/07/Evidence-Review\\_Skills-and-Productivity.pdf](https://productivityinsightsnetwork.co.uk/app/uploads/2018/07/Evidence-Review_Skills-and-Productivity.pdf). Accessed March 16 2021.
- Aldridge, F., E. Jones, and D. Southgate. 2020. *Learning through Lockdown: Findings from the 2020 Adult Participation in Learning Survey*. <https://learningandwork.org.uk/resources/research-and-reports/learning-through-lockdown/>. Accessed November 2 2020.
- Battiston, A., P. Patrignani, G. Conlon, A. Dickerson, and S. McIntosh. 2020. *Exploring Trends in Apprenticeship Training around the Introduction of the Apprenticeship Levy: Emerging Evidence Using a Matched Apprentice-employer Dataset*. CVER. <https://cver.lse.ac.uk/textonly/cver/pubs/cverbrf011.pdf>. Accessed February 2 2021.
- BBC Bitesize. Undated. *Training*. <https://www.bbc.co.uk/bitesize/guides/zrm3382/revision/3>. Accessed March 16 2021.
- Bryman, A. 2015. *Social Research Methods*. Oxford: Oxford University Press.
- Card, D. 2001. "Estimating the Return to Schooling: Progress on Some Persistent Econometric Problems." *Econometrica* 69 (5): 1127–1160. doi:10.1111/1468-0262.00237.
- CBI. 2018. *Educating for the Modern World* <https://www.cbi.org.uk/media/1171/cbi-educating-for-the-modern-world.pdf>. Accessed June 6 2019.
- CIPD. 2021. *Digital Learning In A Post-Covid-19 Economy*. [https://www.cipd.co.uk/Images/digital-learning-literature-review-report-2\\_tcm18-89290.pdf](https://www.cipd.co.uk/Images/digital-learning-literature-review-report-2_tcm18-89290.pdf). Accessed February 14 2021.
- Dawe, F. and Knight, I. 1997. "A study of proxy response on the Labour Force Survey". *Survey Methodology Bulletin* 40: 30–36. Available at: <https://webarchive.nationalarchives.gov.uk/ukgwa/20160108193900/http://www.ons.gov.uk/ons/guide-method/method-quality/survey-methodology-bulletin/smb-40/index.html>. Accessed March 16 2021.
- Department for Education. 2020. *New Free Online Learning Platform to Boost Workplace Skills* <https://www.gov.uk/government/news/new-free-online-learning-platform-to-boost-workplace-skills>. Accessed May 5 2020.
- ETF. 2017. *Employer Surveys. Producing the Right Skills for the Right Employers and Enterprises*. [https://www.etf.europa.eu/sites/default/files/m/C4F32CCE637F754AC12580E6004A6574\\_Employer%20surveys.pdf](https://www.etf.europa.eu/sites/default/files/m/C4F32CCE637F754AC12580E6004A6574_Employer%20surveys.pdf). Accessed June 12 2019.
- Eurostat. 2019. *Enterprises Not Providing CVT, 2015 (%)*. [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Enterprises\\_not\\_providing\\_CVT,\\_2015\\_\(%25\)\\_ET19.png](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Enterprises_not_providing_CVT,_2015_(%25)_ET19.png). Accessed February 18 2020.
- Evans, S., and C. Egglestone. 2019. *TIME FOR ACTION: Skills FOR Economic Growth and Social Justice*. Learning and Work Institute. [https://www.learningandwork.org.uk/wp-content/uploads/2019/03/LW\\_timeforaction\\_skills-for-economic-growth-social-justice\\_WEB.pdf](https://www.learningandwork.org.uk/wp-content/uploads/2019/03/LW_timeforaction_skills-for-economic-growth-social-justice_WEB.pdf). Accessed April 16 2020.
- Felstead, A., F. Green, and N. Jewson. 2012. "An Analysis Of The Impact Of The 2008-09 Recession On The Provision Of Training In The UK." *Work, Employment and Society* 26 (6): 968–986. doi:10.1177/0950017012458016.
- Foresight. 2016. *Future of an Ageing Population*. Government Office for Science. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/816458/future-of-an-ageing-population.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/816458/future-of-an-ageing-population.pdf). Accessed December 2 2019.
- Glover, B., R. Lasko-Skinner, K. Ussher, H. Carr, A. Atay, and E. Jones. 2020. *The Learning Curve. How the UK Is Harnessing the Potential of Online Learning*. DEMOS. <https://demos.co.uk/project/the-learning-curve/>. Accessed March 4 2021.
- Green, A. 2016a. "Implications of Technological Change and Austerity for Employability in Urban Labour Markets." *Urban Studies* 54 (7): 1638–1654. doi:10.1177/0042098016631906.
- Green, A. 2021. "The Covid-19 Crisis and Implications for Skills System Development and the Skills System." In *Productivity and the Pandemic: Challenges and Insights from Covid-19*, edited by P. McCann and T. Vorley, 104–118. Cheltenham: Edward Elgar.
- Green, A., and A. Taylor. 2020. *Workplace Perspectives on Skills*. University of Birmingham. <https://www.birmingham.ac.uk/documents/college-social-sciences/business/research/city-redi/projects-docs/workplace-perspectives-report-final-version.pdf>. Accessed June 30 2020.



- Green, A., Hogarth, T., Barnes, S.-A., Gambin, L., Owen, D. and Sofroniou, N. 2016a. The UK's Skill System: Training, Employability and Gaps in Provision. Future of Skills & Lifelong Learning Evidence Review. Foresight, Government Office for Science. [https://dera.ioe.ac.uk/29188/1/ER7\\_The\\_UK\\_s\\_Skill\\_System\\_Training\\_\\_Employability\\_and\\_Gaps\\_in\\_Provision\\_Redacted.pdf](https://dera.ioe.ac.uk/29188/1/ER7_The_UK_s_Skill_System_Training__Employability_and_Gaps_in_Provision_Redacted.pdf)
- Green, A., and T. Hogarth. 2016. *The UK Skills System: How Aligned are Public Policy and Employer Views of Training Provision?* London: Foresight. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/571695/ER8\\_The\\_UK\\_skills\\_system\\_how\\_aligned\\_are\\_public\\_policy\\_and\\_employer\\_views\\_of\\_training\\_provision.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/571695/ER8_The_UK_skills_system_how_aligned_are_public_policy_and_employer_views_of_training_provision.pdf). Accessed November 28 2019.
- Green, F. 2016b. *Skills Demand, Training and Skills Mismatch: A Review of Key Concepts, Theory and Evidence*. Future of Skills and Lifelong Learning Evidence Review. Foresight, Government Office for Science. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/571667/ER4\\_Skills\\_Demand\\_\\_Training\\_and\\_Skills\\_Mismatch\\_A\\_Review\\_of\\_Key\\_Concepts\\_Theory\\_and\\_Evidence.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/571667/ER4_Skills_Demand__Training_and_Skills_Mismatch_A_Review_of_Key_Concepts_Theory_and_Evidence.pdf). Accessed December 2 2019.
- Green, F., A. Felstead, D. Gallie, H. Inanc, and N. Jewson. 2016b. "The Declining Volume of Workers' Training in Britain." *British Journal of Industrial Relations* 54 (2): 422–448. doi:10.1111/bjir.12130.
- Green, F., and G. Henseke. 2019. *Training Trends in Britain*. Research paper 22. unionlearn TUC. <https://unionlearn.org.uk/sites/default/files/publication/Training%20trends%20in%20Britain.pdf>. Accessed July 19 2019.
- HSE. Undated. *About the Labour Force Survey (LFS)*. <https://www.hse.gov.uk/statistics/lfs/about.htm>. Accessed March 16 2021.
- Krueger, A.B., and M. Lindahl. 2001. "Education for Growth: Why and for Whom?" *Journal of Economic Literature* 39 (4): 1101–1136. doi:10.1257/jel.39.4.1101.
- Lido, C., K. Reid, and M. Osborne. 2019. "Lifewide Learning in the City: Novel Big Data Approaches to Exploring Learning with Large-scale Surveys, GPS, and Social Media." *Oxford Review of Education* 45 (20): 279–295. doi:10.1080/03054985.2018.1554531.
- McKinsey. 2019. *UK Skills Mismatch in 2030*. Industrial Strategy Council. <https://industrialstrategyCouncil.org/sites/default/files/UK%20Skills%20Mismatch%202030%20-%20Research%20Paper.pdf>. Accessed September 24 2019.
- Meyer, B. D., K. Wallace, C. Mok, and J. X. Sullivan. 2015. "Household Surveys in Crisis." *Journal of Economic Perspectives* 29 (4): 199–226. doi:10.1257/jep.29.4.199.
- ONS. 2019. *Which Occupations are at Highest Risk of Being Automated?* <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/whichoccupationsareathighestriskofbeingautomated/2019-03-25>. Accessed December 11 2020.
- Pennachia, J., E. Jones, and F. Aldridge. 2018. *Barriers to Learning for Disadvantaged Groups Report of Qualitative Findings*. Department for Education. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/735453/Barriers\\_to\\_learning\\_-\\_Qualitative\\_report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/735453/Barriers_to_learning_-_Qualitative_report.pdf). Accessed March 16 2021.
- Ryan, L., and M. Lörinc. 2018. "Perceptions, Prejudices and Possibilities: Young People Narrating Apprenticeship Experiences." *British Journal of Sociology of Education* 39 (6): 762–777. doi:10.1080/01425692.2017.1417821.
- Sianesi, B., and J. Van Reenen. 2003. "The Returns to Education: Macroeconomics." *Journal of Economic Surveys* 17 (2): 157–200. doi:10.1111/1467-6419.00192.
- Singh, M. 2015. *Global Perspectives on Recognising Non-formal and Informal Learning*. Heidelberg: Springer.
- Spöttl, G., and L. Windelband. 2020. "The 4th Industrial Revolution – Its Impact on Vocational Skills." *Journal of Education and Work* 34 (1): 29–52. doi:10.1080/13639080.2020.1858230.
- Stuart, M., D. Valizade, and I. Bessa. 2015. *Skills and Training: The Union Advantage*. Training, Union Recognition and Collective Bargaining. unionlearn with the TUC. [https://www.tuc.org.uk/sites/default/files/Skils\\_and\\_training.pdf](https://www.tuc.org.uk/sites/default/files/Skils_and_training.pdf). Accessed March 4 2021.
- Winterbotham, M., D. Vivian, G. Kik, Huntley Hewitt, J., M. Tweddle, C. Downing, D. Thomson, N. Morrice, and S Stroud. 2018. *Employer Skills Survey 2017*. Department for Education. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/746493/ESS\\_2017\\_UK\\_Report\\_Controlled\\_v06.00.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/746493/ESS_2017_UK_Report_Controlled_v06.00.pdf). Accessed February 18 2021.
- Winterbotham, M., G. Kik, S Selner, R. Menys, S. Stroud, and S. Whittaker. 2020a. *Employer Skills Survey 2019: Research Report*. Department for Education. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/929579/Employer\\_skills\\_survey\\_2019.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/929579/Employer_skills_survey_2019.pdf). Accessed November 12 2020.
- Winterbotham, M., G. Kik, S Selner, R. Menys, S. Stroud, and S. Whittaker. 2020b. *Employer Skills Survey 2019: Training and Workforce Development*. Department for Education. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/936487/ESS\\_2019\\_Training\\_and\\_Workforce\\_Development\\_Report\\_Nov20.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936487/ESS_2019_Training_and_Workforce_Development_Report_Nov20.pdf). Accessed January 6 2021.
- Winterbotham, M., J. Shury, D. Vivian, A. Skone Jones, J. Huntley Hewitt, M. Tweddle, and C. Downing. 2016. *The UK Commission's Employer Skills Survey 2015 Technical Report*. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/525450/UKESS\\_2015\\_Technical\\_Report\\_\\_May\\_.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/525450/UKESS_2015_Technical_Report__May_.pdf). Accessed January 6 2021.





**Appendix**

Table 1. Focus of questions in surveys reviewed

	Formal training	Informal training	Online training	Off-the-job training	On-the-job training	Basic induction training for new staff	More extensive induction training for new staff	Health & Safety/ First Aid training	Job specific training	Supervisory training	Management training	Other training types
<b>Adult Participation in Learning Survey (2017)</b>	✓ (training courses at work, employer-arranged external training courses)	Implicitly (independently on my own, independently with others, online)	✓ (online including through an app e.g. websites, forums, YouTube)	Implicitly through other training options	✓							✓ apprenticeships, considers different physical locations for training, independently on my own / with others. Asks about subject of training (working with another employer to develop skills or expertise in workforce)
<b>Employer Perspectives Survey (2016)</b>	✓ (internal, external, apprenticeships)	✓ Training at workstation			✓							✓
<b>Employer Skills Survey (2017)</b>	✓	✓ 'Other self learning where the employee does the learning at a time of their own choosing'	✓ (online and e-learning)	✓	✓	✓	✓	✓	✓	✓	✓	✓ learning through watching others, asking staff to perform tasks beyond their strict job role and providing feedback
<b>Employer Skills Survey (2019)</b>	✓	✓ 'Other self learning' defined as 'besides online or e-learning'/	✓ (online and e-learning)	✓	✓	✓	✓	✓	✓	✓	✓	✓ learning through watching others, asking staff to perform tasks beyond their strict job role and providing feedback

(Continued)

Table 1. (Continued).

	Formal training	Informal training	Online training	Off-the-job training	On-the-job training	Basic induction training for new staff	More extensive induction training for new staff	Health & Safety/ First Aid training	Job specific training	Supervisory training	Management training	Other training types
<b>Employer Skills Survey Investment in Training Survey (2019)</b>			✓ (online and e-learning)	✓	✓							✓ Apprenticeships, education or training courses, seminars, workshops, open or distance learning, informal training (but this is not defined)
<b>Labour Force Survey (2020)</b>	✓	Asks about self-taught training/learning, training completed at home. Focus on correspondent courses	✓ Focus on formal online training (e.g. via UK On-line Centre, Open University/Open Tech)	✓	✓							Apprenticeships
<b>Skills and Employment Survey (2017)</b>	✓	Asks about self-taught training but not informal training with others	✓ Mentions Internet courses, self-teaching via computer/internet	Implicitly in asking about self-taught training via a book, manual, video, DVD/internet, even-ing class	✓							Training duration and impact, who paid for training