



World-class apprenticeship standards: Report and recommendations

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World-Class Apprenticeship Standards

Report and Recommendations

Ruth Mieschbuehler
Tristram Hooley



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I believe there is much we can learn from apprenticeship systems around the world, even if there is never a perfect ‘off-the-shelf’ option that you can lift from one country and then apply in another.

At Pearson, we welcome this new analysis of different systems, just as we have welcomed the contribution of international experts to our qualification redevelopment in recent years.

ROD BRISTOW
PRESIDENT, PEARSON UK

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The International Centre for Guidance Studies (iCeGS) is an applied research and professional development centre at the University of Derby with expertise in career progression and employability, career work in schools and young adults in higher education, vocational training and workforce development.

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Executive Summary

The aim of this research was to identify world-class apprenticeship standards and to make suggestions as to how these could be applied to the English system. By 'world-class' we mean that the standards described here are acknowledged to be among the best in the world. Thirteen indicators for world-class apprenticeship standards were identified through the research and these have been divided into four sub-sections: (1) training, (2) skills and expertise, (3) recognition and (4) progression.

Each indicator is explained separately in this report but has to be understood as being in close relationship to the others. As well as identifying world-class apprenticeship standards, the indicators are also designed to compare these standards to apprenticeship standards that are of a good level but do not necessarily feature among the best in the world.

The term 'apprenticeship' has been defined as a contract of employment and training entered into by an apprentice and an employer and it involves a substantive training programme both on the job in the company and off the job by a training provider. The cost of apprenticeships is generally shared between employers and the government as well as apprentices, who are prepared to work on low salaries for the duration of the training.

Identifying and applying standards in apprenticeships is important because apprenticeship training, especially if delivered at a world-class standard, can raise the number of people in employment, increase individual and company productivity and enhance economic growth.

The findings from our research suggest that world-class apprenticeship standards require:

- extended apprenticeships of between three and four years;
- broad and in-depth scientific and industrial skills and knowledge;
- the presence of a 'master' in the company to train an apprentice;
- high-quality knowledge-based education and training;
- recognition through an occupational title on completion of the training;
- apprentices to acquire all the skills and knowledge necessary to work effectively in an occupation;
- apprentices to become skilled workers in an occupational area with a critical and creative approach; and
- progression routes into employment as well as into further education and training.

This report is based on interviews with seven experts on vocational education and training from Australia, Denmark, England, Germany, Ireland, the Netherlands and South Korea, and a review of the literature. Three of the main texts used for this report are Sennett (2008) *The Craftsman* (2008), Toner (2011) *Workforce Skills and Innovation: An Overview of Major Themes in the Literature* and the World Bank (WB) and International Labour Organization (ILO) Report (2013) *Towards a Model Apprenticeship Framework: A Comparative Analysis of National Apprenticeship Systems*.

Foreword

Rod Bristow, President of Pearson in the UK

We can reasonably expect to see significant growth in apprenticeships in the UK in the coming years. The Government's target of 3 million apprenticeships in this parliament is highly ambitious, but when coupled with an Apprenticeship Levy that is focusing employer minds on making the most from their new, required contribution to the levy, the potential for growth becomes ever more real.

The target of 3 million apprenticeships is a shot in the arm for those of us who are passionate about the power of work-based learning to improve people's lives. It also comes with a risk, however. If the focus is entirely on numbers, and not about the quality of learning or the outcome in terms of high-quality employment, then a well-intentioned target will not make the impact we all hope it can.



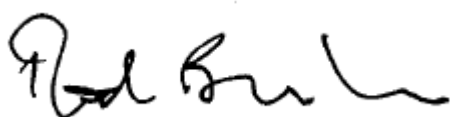
With that focus on quality in mind, I am delighted to introduce the results of this research into world-class apprenticeship standards, which has been carried out by the University of Derby on behalf of Pearson. I believe there is much we can learn from apprenticeship systems around the world, even if there is never a perfect 'off the shelf' option that you can lift from one country and then apply in another. At Pearson we welcome this new analysis of different systems, just as we have welcomed the contribution of international experts to our qualification redevelopment in recent years. The development of all of our new qualifications in the UK has been overseen by an international [expert panel](#) which advises us on what constitutes world-class qualifications across academic and vocational learning. The panel includes Professor Dr Ursula Renold, who has provided Pearson with specific insights into what helped to transform apprenticeships in Switzerland, now considered by many to be the 'gold-standard'.

This independent research from the team at the University of Derby helps us to build on this expertise and insight, and to investigate the conditions and indicators of what can be considered world-class outcomes for apprenticeships in other countries.

At Pearson we recognise the complexity of the 21st Century Skills agenda, the need to invest in the economic future of the UK and of ensuring that apprenticeship standards stand shoulder to shoulder with other vocational and academic study – and are seen to do so by everyone. Apprenticeships must speak to every learner's and every parent's aspiration as well as equipping the workforce with the skills and knowledge required for a successful economy. Meeting those aspirations and meeting the 3-million apprenticeships target should be two sides of the same coin – the Government's target (coupled with the levy) may help

with the supply of apprenticeships; parental and learner aspiration is the key to stimulating demand.

This welcome report sets out the characteristic indicators that represent world-class apprenticeship standards and the desirable local conditions required for their successful implementation. Pearson will use the indicators to create criteria against which all our apprenticeship provision will be benchmarked. We support employers and training providers in achieving world-class provision, helping people achieve the skills that will help them succeed in their careers and lives.



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Researchers

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Introduction

An apprenticeship is a contract of employment and training entered into by an apprentice and an employer. It involves both on- and off-the-job training and, ideally, progression into long-term employment on completion. In this report we identify world-class apprenticeship standards. The four areas looked at in relation to standards are: (1) training, (2) skills and expertise, (3) recognition and (4) progression. A distinction has also been drawn between ‘apprenticeship’ and ‘world-class apprenticeship’ standards. The term ‘apprenticeship’ is used to refer to what is generally understood to be a ‘good’ apprenticeship while the term ‘world-class’ is used to describe apprenticeships that feature among the best in the world.

To assess standards, thirteen indicators were identified in this report. These were developed following interviews with experts on vocational education and training from seven countries and supplemented with a literature review. They are summarised in Table 1 of this report and outlined and discussed in subsequent sections. The desirable conditions that support the implementation of these standards in countries that may choose to do so are briefly discussed.

Each indicator identified can be read in isolation but has to be understood in relation to the others. For example, indicator 1.2 ‘years of training’ and the suggestion that the length of time an apprentice spends on a programme is indicative of the amount of training an apprentice receives has to be understood in relation to indicator 1.3 ‘scope of training’. Because it is not only the length of time that is indicative of the amount of training an apprentice receives but also the breadth and depth of the scientific and industrial knowledge that determines the amount of training.

Methodology

To identify world-class apprenticeship standards interviews with experts on vocational education and training from seven countries were undertaken. The information they provided was supplemented with a literature review to identify what an apprenticeship is and the features that elevate an apprenticeship into a world-class apprenticeship. The characteristics of world-class apprenticeships that have been initially identified from the literature were passed on for scrutiny to experts in Australia, Denmark, England, Germany, Ireland, South Korea and the Netherlands and augmented with the experts’ knowledge about their countries’ apprenticeship standards.

The countries were selected on the basis of their suitability for the purpose of this project, which was to identify world-class apprenticeship standards and make suggestions as to how these could be applied to the English system. An initial review of countries was undertaken by the researchers and discussed with the apprenticeship team at the University of Derby. All were members of staff who have long-standing experience in developing and delivering apprenticeships programmes in higher education and other sectors. The countries in the initial review included: Austria, Canada, Denmark, Egypt, England, France, Germany, India, Ireland, South Africa, South Korea, Switzerland, the Netherlands, Turkey, and the USA.

Six countries were then selected and discussed with representatives from Pearson Education UK. Subsequently, five countries were chosen based on their relevance to this project. The sixth country, Ireland, was added after a second review of countries suitable for this research, making a total of seven including England.

The final countries chosen were Australia, Denmark, England, Germany, Ireland, South Korea and the Netherlands. Germany, Denmark and the Netherlands are often seen to represent the 'gold standards' in relation to apprenticeships (Wentzel, 2011: 83). Germany is particularly interesting because apprenticeships are well established and embedded in national culture (Deissinger, 2015). Denmark was chosen because it has developed an apprenticeship model that has a strong focus on flexibility and individuality (Aarkrog, 2012). The Netherlands was chosen because it has a strong and well-funded vocational and education training system and work-based learning forms a large part of it (Casey, 2013). Australia and Ireland were looked at because they grapple with similar challenges to England (Cushnahan, 2012; O'Hare, Herring and Walsh, 2013): high attrition rates, a large proportion of adult apprentices and low employer participation. Finally, South Korea was considered because of its dynamic economy, which transformed the country into a historically almost unparalleled economic growth area (Chae and Chung, 2009; Chung, 2010). To maintain this growth, South Korea has been developing its apprenticeship system. The country aims to turn apprenticeships into a major source of skilled labour.

The report does not draw very heavily on the South Korean apprenticeship standards. This is because apprenticeships are only being established in South Korea and it was thought that it was too early for the expert to provide substantive input at the time this research was undertaken.

Experts

Prof Phillip Toner, Honorary Senior Research Fellow, Department of Political Economy, University of Sydney, Australia (interviewed November 2015).

Prof Christian Helms Jørgensen, Department of Psychology and Educational Studies, Research Group in Working Life and Learning, Roskilde University, Denmark (interviewed November 2015).

Benita Notley, Head of Apprenticeship Reform and Standards, Skills Funding Agency (SFA), England (interviewed November 2015).

Dr Ludger Deitmer, Institut Technik und Bildung (ITB), University of Bremen, Germany (interviewed November 2015).

Barbara Kelly, Director of Qualifications at Quality and Qualifications Ireland (QQI) (interviewed November 2015).

Dr Youngmin Lee, Research Fellow in Korean Research Institute of Vocational Education and Training (KRIVET), South Korea (written feedback December 2015).

Dr Jeroen Onstenk, Inholland Polytechnic of Applied Sciences, the Netherlands (interviewed November 2015).

What is an apprenticeship?

An apprenticeship is a contract of employment and training entered into by an apprentice and an employer. It is a formalised contract that involves a set of reciprocal rights and duties between an employer and apprentices. Employers enter the contract to employ and train the apprentice and there are various obligations specified about time off for attending off-the-job training. One of the duties of the apprentice is to attend the skills development programme that accompanies the job.

Having a contract of employment with training is a main feature of apprenticeships in the seven countries considered in this report. In Denmark, for example, apprentices are employed with the company on an apprenticeship contract that is standardised and based on legal agreements (Rolls, 2012). In England the individual has also to be employed and paid at least the minimum apprenticeship wage (NAS, 2015). In the Netherlands apprentices also require a contract of employment but there are some exceptions such as the building industry, where some contracts are with regional centres rather than a company (Onstenk and Blokhuis, 2007). In this case the apprentices become employed by the company after completion of the apprenticeship. Similar exceptions in contractual employment arrangements exist in, for example, Australia where apprentices can be employed by Group Training Organisations and in the UK by Apprenticeship Employment Agencies instead of by employers (WB and ILO, 2013).

Apprenticeships involve a substantive training programme both on the job in the company and off the job by a training provider. Most of the training programme in an apprenticeship is based in the company. In Denmark on-the-job training in the company would normally take up two-thirds to three-quarters of the time. A similar amount of time is spent in on-the-job training in the other six countries. Off-the-job training may be implemented through a 'day release' model where apprentices attend one day a week or a 'block release' model where apprentices attend for a longer period of time (commonly a few weeks) before returning to the company. Practice varies between industrial sectors and countries and evolves over time but in either case apprentices are expected to return and apply what they have learned in the workplace. In Germany an apprentice is expected to be highly skilled and competent in an occupation on completion of the training and the training is certified through a final assessment of professional knowledge and skills (Deitmer, 2011a; Deitmer, 2011b).

In Denmark the term 'apprenticeship' is starting to disappear in official documents. The terms 'apprentice' and 'apprenticeship contract' are still used by companies but the official terms are now 'vocational students' and 'vocational training' (interview Helms Jørgensen, 2015). This change in terminology occurring in Denmark is an attempt to address the low esteem of vocational training programmes and to put vocational students on a par with higher education students (interview Helms Jørgensen, 2015). None of the other countries has implemented a similar change in terminology although the terms 'vocational students', 'vocational education' and 'vocational education and training' are also used in the literature to refer to apprentices and apprenticeships.

England faces a different issue when it comes to the term ‘apprenticeship’. Concerns in England are often linked to the misapplication of the term or to overly broad conceptions of what an apprenticeship can consist of. Consequently, there is a move towards legally protecting the term in an attempt to ensure that any vocational training which is referred to as an ‘apprenticeship’ meets national standards (Mirza-Davies, 2015; interview Notley, 2015).

The cost of apprenticeships is generally shared between employers and the government, as well as apprentices themselves, who are prepared to work on low salaries for the duration of the training. Financial arrangements vary significantly between countries but there is generally assumed to be a ‘pay back’ for employers which means the low wages at the beginning of an apprenticeship compensate the employer for the investment, training and low productivity that comes with employing an apprentice and that an apprentice’s wages rise along with their productivity. In well-functioning apprenticeship systems such as, for example, Germany, Denmark and Switzerland, employers can expect that their investment will be paid back by the end of the training period (Rauner, Heinemann, Piening and Bischoff, 2010; Muehlemann and Wolter, 2014).

Indicators

Indicators of standards in apprenticeships were developed to help future apprentices, employers, training providers and government representatives to identify standards that can be applied within and between industrial sectors. The four areas that were considered in this report and to which the thirteen indicators that were identified are allocated are: (1) training, (2) skills and expertise, (3) recognition and (4) progression. The thirteen indicators are listed in Table 1 of this report and discussed in subsequent sections.

Desirable conditions

The successful implementation of the standards identified in this report need to be underpinned by a range of conditions and contextual factors. In well-functioning apprenticeship systems there are a number of desirable conditions which support the delivery of world-class apprenticeships. These desirable conditions apply more broadly to the social, political and economic context of a country as well as their education and training system. It is also worth noting that the development of the desirable conditions occurs over time and requires a favourable social, political and economic environment.

The desirable conditions include:

- a. A culture that values and supports apprenticeships. In such a culture all stakeholders look favourably on apprenticeships and collaborate to ensure their success (Steedman, 2012; interview Toner, 2015; interview Helms Jørgensen, 2015).
- b. Apprentices have a good level of prior educational attainment defined by the

completion of compulsory schooling and a good level of attainment in their home language and mathematics (interview Toner, 2015). This has been highlighted by Richard (2012) in England and by Seeber and Lehmann (2013) who discussed the relationship between prior academic attainment and the successful completion of apprenticeships.

- c. Employers who are committed to increasing the shared pool of skills within their industrial sector besides meeting their immediate skills needs (interview Deitmer, 2015; interview Toner, 2015).
- d. Good off-the-job training provision that supplements scientific and industrial skills and knowledge with a broader education that enhances, for example, an apprentice's subject knowledge in information, technology and communication; mathematics; economics; politics; chemistry and their home language (Brockmann, Clarke and Winch, 2010; Clarke and Winch, 2004).
- e. Competitive salary structures during and after apprenticeships in occupational areas to incentivise engagement with apprenticeships (Karmel and Mlotkowski, 2011; interview Toner, 2015).
- f. Industrial agreements between employers, trade unions and government to balance competing demands on apprenticeships. Unions, for example, commonly support a broader type of training to enhance their members' employment opportunities in the labour market. Employers, on the other hand, tend to prefer more narrowly tailored training, while governments provide financial and logistical support, and establish institutions and organisations that bring partners together. There is a strong tradition of this kind of social partnership in many European countries, but a far weaker one in England (Green, 2013).
- g. The availability of appropriate information to support people to make decisions about participation in the apprenticeship system. Information could be provided through national apprenticeship services or through career education and guidance to support expansion and development of apprenticeships (Watts, 2009; Sweet, 2013).

Important as these desirable conditions are, employers and industrial sector bodies, policymakers and training providers must not be deterred from aiming to deliver world-class apprenticeship standards because apprenticeship training can be underpinned by scientific and industrial skills and knowledge and knowledge-based education even if these desirable conditions are not met at the outset.

This report seeks to define the features that are widely acknowledged to comprise world-class apprenticeship standards. The table of world-class apprenticeship standards is best read from the left to the right, starting with the indicators on the left and seeing how apprenticeships and then world-class apprenticeships are defined (see Table 1).

World-class apprenticeship standards

Table 1: Indicators for apprenticeship and world-class apprenticeship standards

Indicators	Apprenticeships	World-class apprenticeships
1. Training		
1.1 entry requirements	school leavers who have completed compulsory schooling	school leavers who have completed compulsory schooling with a good level of home language and mathematics education
1.2 years of training	1–2 years	3–4 years
1.3 scope of training	company/job-specific training supplemented with some broader skills	scientific and industrial skills and knowledge in breadth and depth
1.4 aim of training	increase the company/job training and overall competences	increase occupational training and enhance productivity
1.5 on-the-job training	by a workplace trainer in the company	by the 'master' in the company
1.6 off-the-job training	competence-based training	knowledge-based education
2. Skills and expertise		
2.1 skills and knowledge	to acquire the skills and knowledge necessary for a job	to acquire all the skills and knowledge necessary to work effectively in an occupation
2.2 developmental goal	to be a skilled worker	to be a skilled worker within an occupational area with a critical and creative approach
3. Recognition		
3.1 assessment	assessment of the company/job-specific and broader skills acquired	assessment of the scientific and industrial skills and knowledge acquired
3.2 qualification	industry and/or nationally recognised vocational qualification	nationally and/or internationally recognised occupational title
4. Progression		
4.1 employment	to be job ready	to secure a long-term position in an occupational area
4.2 education and training	opens up opportunities for further training	opens up opportunities for further training and/or higher education
4.3 productivity	increases individual productivity	increases company productivity

The difference between apprenticeship and world-class apprenticeship standards is identified and explained for each of the indicators in the next sections.

1. Training

Under the heading 'training' six indicators for apprenticeship standards were identified: (1.1) entry requirements; (1.2) years of training; (1.3) scope of training; (1.4) aim of training; (1.5) on-the-job training and (1.6) off-the-job training.

1.1 Entry requirements

The difference in the entry requirements between apprenticeships and world-class apprenticeships is the level of home language and mathematics education school leavers have on completion of compulsory schooling.

Indicator	Apprenticeships	World-class apprenticeships
1.1 entry requirements	school leavers who have completed compulsory schooling	school leavers who have completed compulsory schooling with a good level of home language and mathematics education

The entry requirement for apprenticeships is the completion of compulsory schooling. This applies to all seven countries although the number of years spent in compulsory schooling varies between countries. In England it is fourteen years (although the final two years can be spent undertaking an apprenticeship or other forms of training), in Germany and the Netherlands it is thirteen years, in Australia eleven, in Denmark, Ireland and South Korea it is ten years. The completion of compulsory schooling is an important entry requirement as it sets a standard of what apprenticeship starts are expected to know (interview Deitmer, 2015; interview Helms Jørgensen, 2015; interview Toner, 2015).

The quality of education cannot, however, be assessed purely in terms of the length of time spent in compulsory schooling; it has to be assessed by additional means. According to our experts, the level that students reach in home language and mathematics on completion of compulsory schooling can be indicative of the level of education in a country (interview Deitmer, 2015; interview Onstenk, 2015; interview Toner, 2015). It is a problem, Toner said, when 'kids cannot write and they cannot add up' (interview Toner, 2015). Toner sees it as a vicious circle because low initial educational attainment tends to prolong the time needed in an apprenticeship to acquire the knowledge apprentices should have had on entry and their capacity to engage in innovation (Toner, 2011). A recent report published in England by the Office for Standards in Education, Children's Services and Skills (Ofsted) supports this view.

In the report it was said that weaker apprenticeship provision ‘was characterised by a lack of collaboration between providers and employers to plan apprenticeships that gave apprentices the skills they needed’ and that ‘apprentices’ English and mathematics skills were often poorly developed’ as a result of low-quality provision during an apprenticeship (Ofsted, 2015: 5).

The quality of education in compulsory schooling is fundamental for developing higher-level workforce capabilities because achieving high academic standards within a country and for the largest proportion of school students ‘supports high participation in post-school education and training’ (interview Onstenk, 2015; Toner, 2011: 3; interview Toner, 2015). It also ‘creates a workforce with greater potential to engage productively with innovation’ (Toner, 2011: 3; interview Toner, 2015). In addition, a higher level of initial education stimulates employers to further develop employees ‘productive capacity through training’ and improves the ‘capacity of the workforce to deal with technical change’ (Toner, 2011: 33; interview Toner, 2015). In Germany, for example, the high average level of educational attainment in schools ensures that a high proportion of the workforce has the literacy and numeracy skills to complete higher-level technical training in apprenticeships (interview Deitmer, 2015; Toner, 2011; interview Toner, 2015).

Completing compulsory schooling with a good level of home language and mathematics education emerged as the fundamental factor for developing or maintaining world-class apprenticeship standards.

1.2 Years of training

The difference in the years of training between apprenticeships and world-class apprenticeships is two years.

Indicator	Apprenticeships	World-class apprenticeships
1.2 years of training	1–2 years	3–4 years

The length of time an apprentice spends on a programme is indicative of the amount of training an apprentice receives which makes ‘years of training’ a suitable indicator to assess standards in apprenticeships. The duration of apprenticeships varies considerably between countries. In Ireland apprenticeships are four years while in Germany, Denmark and Australia they are generally three to four years. In the Netherlands, in contrast, most apprenticeships take two years and in South Korea apprenticeships can be between six months and four years in duration (interview Onstenk, 2015; written feedback Lee, 2015). In England the minimum length of an apprenticeship is one year if it is to be included in a

recognised English apprenticeship framework (Mirza-Davies, 2015).

In practice, the duration of an apprenticeship can vary. In Germany the law states that for all sectors apprenticeships should not be shorter than two years and not longer than three years but exceptions are possible and most apprenticeships in Germany are three to four years in length (WB and ILO, 2013). In England apprenticeships may also be longer than the required minimum of a year but the length of an apprenticeship in England is predominately dependent on what the employer is willing to offer, rather than on the occupational requirements, as is the case in other countries (Mieschbuehler, Hooley and Neary, 2015). Longer apprenticeships are not as embedded in the English system as they are in, for example, Denmark, Germany and Ireland.

Two other factors that tend to determine the length of an apprenticeship are the industrial sector an apprenticeship is delivered in and the specific job role an apprentice is trained for. Apprenticeships in traditional industrial sectors (construction, engineering and manufacturing) tend to be longer in duration than apprenticeships in newer sectors (service industry, business management and retailing) (Casey, 2013; WB and ILO, 2013).

The length of an apprenticeship is one indicator of the amount of training an apprentice receives. Australia has recognised this and a distinction has been drawn by policymakers between traineeships which are one to two years in duration and apprenticeships which are three to four years long (WB and ILO, 2013). In England a similar distinction exists but traineeships are much shorter, between six weeks and six months in duration (BIS, 2015c).

1.3 Scope of training

The difference in the scope of training between apprenticeships and world-class apprenticeships rests in the scientific and industrial skills and knowledge of the occupational training.

Indicator	Apprenticeships	World-class apprenticeships
1.3 scope of training	company/job-specific training supplemented with some broader skills	scientific and industrial skills and knowledge in breadth and depth

The term 'scope of training' is used here to refer to the scientific and industrial skills, knowledge and training that are part of an apprenticeship. 'Scope of training' is indicative of the extent to which skills are transferable from the place of training to the wider labour market and the adaptability and breadth of skills and knowledge an apprentice has on completion (interview Deitmer, 2015; interview Helms Jørgensen, 2015; interview Toner, 2015). The breadth and depth of practical and theoretical skills and knowledge in apprenticeship training also encourages multi-skilling and adaptability, which are important

traits because they facilitate the introduction of new products and processes in companies (Toner, 2011).

To achieve breadth and depth in scientific and industrial skills and knowledge, the right balance between company- and job-specific training and the acquisition of wider scientific and industrial skills and knowledge has to be struck. To achieve this, agreements between, for example, employer associations, trade unions and the governments have to be reached (interview Deitmer, 2015; Helms Jørgensen, 2015; written feedback Lee, 2015). Joint agreements over the 'scope of training' help to balance what employers want, which often is company-specific short-duration training, with what employees are likely to want, which is, skills that are recognised, transferable and provide a decent wage in the wider labour market (Toner, 2011).

Practical examples of wider scientific and industrial skills and knowledge provisions in apprenticeships can be seen in Denmark and Germany where apprenticeships are occupation- rather than company-specific (interview Deitmer, 2015; Helms Jørgensen, 2015). In Denmark and Germany apprenticeships are closely linked to occupations and competence profiles and correspond directly to the particular occupation (interview Deitmer, 2015; interview Helms Jørgensen, 2015). Examples of such occupations include car mechanics, carpentry, butchery and hairdressing.

In England an apprenticeship is also expected to lead to a broad breadth of skills and knowledge and the application of these skills in the workplace so that the apprentice is competent on completion of the programme (interview Notley, 2015). One difference is that in England behaviour as well as skills and knowledge is emphasised in apprenticeships (BIS, 2015b; interview Notley, 2015). In Denmark and Germany, by contrast, apprenticeships are linked to occupations and occupational titles so that an apprentice on completion is certified, for example, as a car mechanic, a carpenter, a butcher or a hairdresser (interview Deitmer, 2015; interview Helms Jørgensen, 2015).

The scientific and industrial skills, knowledge and training that are part of an apprenticeship can be used to assess apprenticeship standards because they, in part, determine the transferability of the skills and knowledge when an apprentice enters the wider labour market.

1.4 Aim of training

The difference between the aim of training in apprenticeships and that in world-class apprenticeships is the added value of developing an employee's productivity alongside increasing the occupational training.

Indicator	Apprenticeships	World-class apprenticeships
1.4 aim of training	increase the company/job training and overall competences	increase occupational training and enhance productivity

The aim of the training is indicative of the long-term value that is intended to be added to the company and the wider industrial sector on completion of an apprenticeship. The aim of apprenticeship training can be to increase the company/job-specific training and overall competences of an employee. In England, Ofsted, in a recent report, stated that inspectors of apprenticeship provision in companies and training providers were looking for high-quality training provision that stretched apprentices and improved their capabilities (Ofsted, 2015). The National Apprenticeship Service in England points out, in the *Employer Guide to Apprenticeships*, that apprenticeships 'develop a motivated, skilled and qualified workforce' and says that according to the British Chambers of Commerce, 'most companies employ an apprentice to improve the skills base with their business' (NAS, 2015: 3). It also says that 'businesses that offer apprenticeships view them as beneficial to their long-term development' (NAS, 2015: 3).

Increasing company-specific training and the overall competences of an employee is, however, not sufficient to support long-term development in a company; for this, productivity needs to be enhanced through an apprenticeship. The experts who talked about productivity pointed out its importance (interview Helms Jørgensen, 2015; interview Toner, 2015). Toner, in particular, argued that employers are under an obligation 'to train as well as improve the productivity of a person' (interview Toner, 2015). The Organisation for Economic Co-operation and Development (OECD) supports the view that increasing productivity is important. The organisation stated, in a policy brief published in 2012, that 'by the end of their apprenticeship period, apprentices should have acquired relevant skills for durable and productive working careers' (OECD, 2012).

Therefore, if the aim of the training of apprentices is to increase occupational training and enhance productivity, it is indicative of world-class apprenticeship standards.

1.5 On-the-job training

The difference in the on-the-job training in the company between apprenticeships and world-class apprenticeships is the level of occupational expertise of the workplace trainer in the company.

Indicator	Apprenticeships	World-class apprenticeships
1.5 on-the-job training	by a workplace trainer in the company	by the 'master' in the company

The on-the-job training in a company can be judged by the level of occupational expertise of the workplace trainer in the company. In Germany the workplace trainer has to have completed an apprenticeship in the particular occupation before attending a 'master' training and qualifying as 'master' after taking a rigorous examination (Meisterprüfung) (WB and ILO, 2013; interview Deitmer, 2015). In addition to the 'master' the company may also have an 'Ausbildende Fachkraft' which is an experienced workplace trainer who may take on some of the training under the supervision of the 'master' (interview Deitmer, 2015). In England, in contrast, all the *Employer Guide to Apprenticeships* by the National Apprenticeship Service says under employer responsibilities with regard to on-the-job training is that the employer must give the apprentice an 'induction into their role and provide on-the-job training', which means 'working with a mentor to learn job-specific skills in the workplace' (NAS, 2015: 7–8).

In Ireland employers have to register and agree to conform to the requirements of the apprenticeship system (interview Kelly, 2015). The quality of the employer can, however, in part be assessed by the 'capacity to motivate the individual' to undertake the work (interview Kelly, 2015). This attributes a large part of the responsibility for apprenticeship standards to employers because off-the-job training providers in Ireland were largely considered to be delivering similar academic contents through similar instruction methods (interview Kelly, 2015). It was employers that were thought, in the Irish case, to make a difference, as some employers 'can be quite motivational' and 'encouraging' and ultimately 'more beneficial' for the apprentice (interview Kelly, 2015).

In the Netherlands employers are also seen to play an important role with regard to developing and maintaining apprenticeship standards. Helms Jørgensen suggests that in future 'standards for learning places' in companies may be developed just 'as we have standards for schools' to identify the quality of the learning environment (interview Helms Jørgensen, 2015). Until then, on-the-job training in companies delivered by qualified 'masters', as defined in the German model, is indicative of world-class apprenticeship standards.

1.6 Off-the-job training

The difference between off-the-job training in apprenticeships and world-class apprenticeships is the added value of a knowledge-based education alongside the practical occupational training.

Indicator	Apprenticeships	World-class apprenticeships
1.6 off-the-job training	competence-based training	knowledge-based education

Off-the-job training is best judged by the understanding of, and approach to, education and training of providers and educational systems. The distinction that emerged from this research is between a competence-based approach to training and knowledge-based education alongside practical occupational training. Knowledge-based education requires that main subjects such as the home language, mathematics, related sciences, history, politics and sport are taught alongside practical occupational training; a requirement that has also been stated by the World Bank and International Labour Organization (2013).

Competence-based training, in contrast, is about skills, attributes and behaviour that are specific to an occupation. It defines the English apprenticeship system. Apprenticeships in England are thought of as 'skills, knowledge and behaviours' needed to be competent in a role and are seen to require the 'testing of that knowledge of application in the workplace' (interview Notley, 2015). On completion of their training, apprentices are expected to have 'skills, knowledge and confidence to perform the role in any part of the sector' (Richards, 2012). In Denmark competences and practical knowledge are seen to be important alongside subject-based knowledge. Helms Jørgensen argued that 'a broad definition of what knowledge is; not only book knowledge but also practical knowledge and expertise' is important (interview Helms Jørgensen, 2015).

Criticism of competence-based training emerged from the interview with the Australian expert. Competence-based training was introduced in Australia in the late 1980s and it has been claimed that it led to poorly specified standards in apprenticeships because it shifted the point of reference to the individual workplace and 'strangled' the world-class system Australia had (interview Toner, 2015). Training packages that specify the 'knowledge and skills that are meant to be required' in apprenticeships exist, but they are 'specified in a very broad way' and 'subject to hugely different interpretations as to the actual requirements' (interview Toner, 2015). Too broadly defined training packages are a 'specific design feature of competence-based training' because they tried to be 'non-prescriptive' and to retain flexibility in training in order to 'meet the needs of the workplace' (Toner, 2011: 7; interview Toner, 2015).

High-quality off-the-job training which contributes to world-class apprenticeship standards provides the added value of a knowledge-based education alongside practical occupational training. Competence-based education in off-the-job training, by its very nature, fragments knowledge into discrete measurable outcomes and cannot provide the deep and broad knowledge that is required for an employee to handle unforeseen situations or to act in a creative way to develop new and productive insights. Knowledge-based education in off-the-job training, on the other hand, helps to provide a broad and deep occupational education and training and raises the level of transferability of the apprenticeship training within sectors.

2. Skills and expertise

Under the heading 'skills and expertise' two indicators for apprenticeship standards were identified: (2.1) skills and knowledge and (2.2) developmental goal.

2.1 Skills and knowledge

The difference in skills and knowledge between apprenticeships and world-class apprenticeships is the added value of acquiring all the skills and knowledge necessary to work effectively in an occupation.

Indicator	Apprenticeships	World-class apprenticeships
2.1 skills and knowledge	to acquire the skills and knowledge necessary for a job	to acquire all the skills and knowledge necessary to work effectively in an occupation

The skills and knowledge an apprentice is expected to acquire during an apprenticeship are indicative of the opportunity to secure a long-term position in an occupational area and the potential future productivity of an employee. It is the added value of acquiring all the skills and knowledge necessary to work effectively in an occupation that leads to an apprenticeship being of world-class standard.

Apprenticeships that require the acquisition of the skills and knowledge necessary for a job rather than all the skills and knowledge that are needed to work effectively in an occupation are simply expecting apprentices on completion of their training to be 'good at their job' which is, of course, an appropriate standard to have in apprenticeships (interview Kelly, 2015; interview Notley, 2015). Drawing a distinction between an employee who is good at their job and an employee who is an expert in an occupation is, Notley said, 'quite a hard measure' (interview Notley, 2015). It nonetheless is a good indicator to assess standards in apprenticeships.

An expert or world-class individual in the apprenticeship field is a person who ‘knows a great deal about something in particular’ and has ‘developed analytic powers’ that can ‘be applied to any field’ (Sennett, 2008: 247). ‘All craftsmanship is founded on skill development to a high degree’ and ‘as skill progresses, it becomes more problem attuned’, which distinguishes an expert from a formalist who is ‘working by the book, and rather rigidly applying general rules to particular cases’ (Sennett, 2008: 20, 247). In Sennett’s view ‘all craftsmanship is quality-driven work’ and it becomes ‘the standard of excellence’ to the extent that ‘the aspiration for quality will drive a craftsman to improve, to get better rather than get by’ (Sennett, 2008: 24).

Training an apprentice to become an expert requires the acquisition of all the skills and knowledge necessary to work effectively in an occupation. It is indicative of world-class apprenticeship standards because it enhances transferability within and between industrial sectors and opens up greater opportunities for long-term employment.

2.2 Developmental goal

The difference in developmental goals between apprenticeships and world-class apprenticeships is the critical and creative approach a skilled worker within an occupational area develops.

Indicator	Apprenticeships	World-class apprenticeships
2.2 developmental goal	to be a skilled worker	to be a skilled worker within an occupational area with a critical and creative approach

The developmental goal of an apprenticeship can either be to be a skilled worker or to be a skilled worker within an occupational area with a critical and creative approach. A ‘skill is a trained practice’; skills are built through practice and repetition but the content of the repetition changes as skills develop (Sennett, 2008: 37). A skilled worker is an employee who has sufficient skills, knowledge and training in a particular trade to do the work. This basic description of a skilled worker is different from an employee who is a skilled worker with a critical and creative approach and who not only focuses on the job as it is but also on developing that job (interview Onstenk, 2015).

The latter description, Onstenk said, is connected to ‘company innovation’ and the development of its apprentices as well as ‘the job itself’ (interview Onstenk, 2015). That is one reason for world-class apprenticeship standards to be defined as an ‘occupation’ rather than a ‘job’. A job is about being able to do a series of tasks while an occupation is a much wider concept that involves having an area of expertise and an occupational title that

recognises an employee, for example, as a nurse, medical doctor, accountant, plumber, electrician or electrical engineer.

World-class apprenticeship standards demand that training exceeds the immediate job role. High standards in apprenticeships aim to open up both ‘career opportunities’ for the apprentice and at the same time ‘developmental opportunities’ in relation to the job itself (interview Onstenk, 2015). That is why to be a skilled worker within an occupational area with a critical and creative approach is indicative of world-class standards.

3. Recognition

Under the heading ‘recognition’ two indicators for apprenticeship standards were identified: (3.1) assessment and (3.2) qualifications.

3.1 Assessment

The difference in assessment between apprenticeships and world-class apprenticeships is the scientific and industrial skills and knowledge that is assessed.

Indicator	Apprenticeships	World-class apprenticeships
3.1 assessment	assessment of the company/job-specific and broader skills acquired	assessment of the scientific and industrial skills and knowledge acquired

Assessment of an apprenticeship should be indicative of the expected breadth and depth of scientific and industrial skills and knowledge of the occupational training area and is closely linked to the ‘scope of training’ indicator. Assessment can also be discussed in terms of the ‘how’ (the method) and the ‘who’ (the assessor) but it is the ‘what’ (the content) in assessment that is indicative of standards in apprenticeships. The ‘how’ and the ‘who’ are important in that they influence how well the content is assessed but discussing these goes beyond the scope of this report.

In terms of content, apprenticeships across the seven countries have final or terminal assessments to mark completion, although various forms of assessment do take place throughout the apprenticeship. In England the Department for Business, Innovation and Skills (BIS) requires that apprenticeships contain an end-point assessment which is an ‘assessment of what has been learnt throughout the apprenticeship’ to make sure apprentices meet on completion the ‘standards set by employer’ and are ‘fully competent in the relevant occupation’ and ‘fully job ready’ (BIS, 2015b: 34).

In the Netherlands assessment involves national examinations of subjects as well as workplace assignments. There are 'attainment targets for the school subjects' that are examined as well as procedures to examine 'work performance' and a final examination which involves an assignment in the workplace for most programmes (interview Onstenk, 2015). Most apprenticeships in the Netherlands have 'standardised practice examinations and assignments' that have to meet regulatory requirements and set criteria (interview Onstenk, 2015). There is also a national examination for Dutch, the home language, and national standards are also about to be introduced for mathematics and vocational subjects such as bookkeeping, nursing theory or engineering (interview Onstenk, 2015). Other elements of the programme including career, citizenship and learning competencies related to the courses tend to be assessed through short reflective reports written by students or, more often, just by participating in activities (interview Onstenk, 2015).

To complete an apprenticeship in the Netherlands, all elements of the assessment have to be completed at a satisfactory level but the credit points allocated to different elements vary (interview Onstenk, 2015). In general, the practical examinations tend to be more rigorous than the assessment of off-the-job training and education. Onstenk attributes this to companies having a particular interest in the practical assessment because apprentices are their employees or will possibly be employed after completion (interview Onstenk, 2015).

The content of what is being assessed in apprenticeships is indicative of the scope of training and is therefore a suitable indicator to assess standards in apprenticeships.

3.2 Qualification

The difference in qualifications between apprenticeships and world-class apprenticeships is in the occupational recognition and title.

Indicator	Apprenticeships	World-class apprenticeships
3.2 qualification	industry and/or nationally recognised vocational qualification	nationally and/or internationally recognised occupational title

The qualification achieved at the end of an apprenticeship is indicative of level of recognition of the apprenticeship in the labour market (interview Deitmer, 2015; interview Helms Jørgensen, 2015). The main difference in qualifications between our seven countries is the occupational title an apprenticeship leads to on completion of training, at least in some countries. In Germany and Denmark apprentices on completion are awarded an occupational title which is important for recognition (interview Deitmer, 2015; interview Helms Jørgensen, 2015). That means rather than finishing with a vocational qualification as in England, apprentices qualify, for example, as architects, lawyers, bankers, surveyors,

butchers, sales assistant or administrators. Qualifying with an occupational title at the end of an apprenticeship raises the level of recognition in the labour market and enhances the transferability of qualifications between countries.

In Australia apprentices do, for example, a motor mechanics apprenticeship or a painting apprenticeship and on completion of the training they are motor mechanics or painters. Apprentices in Australia are also given two certificates of competence; one is issued by the employer and the other by the technical training college (interview Toner, 2015). Under this system it is possible to be awarded one certificate without the other but 'normally an employer looking for a tradesman in the labour market will want someone who has both certificates and for licensed trades such as motor mechanics, builders, plumbers and electricians they must have both' (interview, Toner 2015).

In Denmark training committees specify qualifications and they are kept at a 'highly standardised national level' (interview Helms Jørgensen, 2015). Training committees also take on a 'supervisory function' for the on-the-job training (interview Helms Jørgensen, 2015). Vocational colleges do have the option to locally test the apprentices but it is not very common because employers prefer nationally recognised occupational profiles; a process of certification that employers in Denmark are not involved in, unlike those in Australia (interview Helms Jørgensen, 2015).

It is important to have national standards because employers can then be certain they are taking on genuinely skilled workers (interview Helms Jørgensen, 2015). The Danish experience showed that the reform introduced in 2000 that 'radically individualised' the off-the-job training component by modularising the structure of the training, effectively created an 'individual supermarket' where a student 'shops and picks and chooses different qualifications at different levels' as opposed to 'taking a whole package of becoming a hairdresser or a carpenter', which disadvantaged all but in particular disadvantaged 'weaker learners' because apprentices were expected, under the modularised structure, to 'manage their own learning' (interview Helms Jørgensen, 2015).

The reform in Denmark that introduced this process of individualisation was rolled back from 2007 onwards and there was an attempt to return to 'more structured programmes' (interview Helms Jørgensen, 2015). But individualisation has not been abolished despite there being a new reform in 2015. Apprentices are still required to draw up an individual plan, but 'most students follow the standardised apprenticeship programmes' rather than taking advantage of drawing up their own modularised programme (interview Helms Jørgensen, 2015).

Having national standards also works for small companies (interview Helms Jørgensen, 2015). The Danish and Swiss systems have shown that highly standardised apprenticeship programmes mean skilled workers can easily move between identical occupations without companies having to spend large amounts of money on screening employees (interview Helms Jørgensen, 2015).

The occupational title an apprenticeship leads to is indicative of world-class apprenticeship standards, especially if the occupational title is internationally recognised. Work on establishing a European work occupational title in, for example, the car mechatronic occupation was successfully undertaken under the auspice of the European FORCE programme which aimed to develop continued vocational training within Europe (Rauner and Spöttli, 2002).

4. Progression

Under the heading 'progression' three indicators for apprenticeship standards were identified: (4.1) employment; (4.2) education and training and (4.3) productivity.

4.1 Employment

The difference in progression into employment between apprenticeships and world-class apprenticeships is to have secured a long-term position in an occupational area.

Indicator	Apprenticeships	World-class apprenticeships
4.1 employment	to be job ready	to secure a long-term position in an occupational area

Progression into employment on completion of an apprenticeship is indicative of the quality of an apprenticeship and of the satisfactory conclusion of an apprenticeship. It can be 'seen as being a bit of a waste in terms of both public and private investment if people shift to a radically different occupation' or are unable to find employment (interview Toner, 2015).

In Denmark about 'half of all the apprentices will continue in employment in the training company' on completion of the apprenticeship. After a year, about 25 per cent of these apprentices are still with the training company which is a substantial part (interview Helms Jørgensen, 2015). 'In world-class terms', Helms Jørgensen said, 'apprenticeships refer not only to the initial application but also to career opportunities that the completion of an apprenticeship would give access to' (interview Helms Jørgensen, 2015).

Employment and future career opportunities depend not only on the quality of the apprenticeship but also on the structure of the labour market and the esteem in which vocational education and skilled workers are held (interview Helms Jørgensen, 2015). In Germany, in particular, there are opportunities for skilled workers to 'advance in their companies' based on what they learned at work without having to 'go back and complete a

higher education programme' which means apprenticeship and vocational education is held in high esteem (interview Helms Jørgensen, 2015).

To be job ready is indicative of a good level of apprenticeship standards because, as Kelly pointed out, apprenticeships are often chosen by those who did not want to follow academic studies after completion of compulsory schooling (interview Kelly, 2015). This means completing an apprenticeship and having enhanced employability constitutes a good outcome (interview Kelly, 2015). This is a view that was supported by Notley, our English expert, who said that if apprenticeships give 'a certain number of transferable skills' so that an apprentice on completion can move to a different organisation or continue training at the next level, that is a good outcome but obtaining employment in another organisation also requires that apprenticeships are 'valued by employers' (interview Notley, 2015).

Having said that, it is the difference between being job ready and securing a long-term position in an occupational area that is indicative of world-class apprenticeship standards, even if securing employment in part depends on labour market conditions, because it is long-term employment that helps denote quality. Consequently world-class apprenticeship standards ensure that apprentices have broad skills which support their long-term employability.

4.2 Education and training

The difference in progression into education and training between apprenticeships and world-class apprenticeships is the opportunities that open up for higher education.

Indicator	Apprenticeships	World-class apprenticeships
4.2 education and training	opens up opportunities for further training	opens up opportunities for further training and/or higher education

Education and training opportunities that open up on completion of an apprenticeship are indicative of the pathways that exist into further training and/or higher education. This kind of progression is currently a feature of apprenticeships in England for a minority of apprentices (Joslin and Smith, 2014).

In Denmark apprenticeships are 'good for bringing young people into employment' but not so good in providing opportunities to enter higher education, which means apprenticeships are 'often considered as a dead end' in terms of providing possible progression routes into higher education (Helms Jørgensen, 2015). It is possible for the Danish apprenticeship system to be highly and widely recognised on an international level without it offering many

opportunities for progression into higher education because the lack of progression opportunities into higher education in Denmark is a consequence of academic and vocational education running largely parallel to one another rather than any shortcomings in apprenticeship standards (Helms Jørgensen, 2015).

Progression opportunities into further training and/or higher education were thought by most of our experts to be indicative of world-class apprenticeship standards (interview Deitmer, 2015; interview Helms Jørgensen, 2015; written feedback Lee, 2015; interview Toner, 2015). Progression opportunities raise the status of apprenticeships and this helps develop a culture that values and supports apprenticeships within a country.

4.3 Productivity

The difference in progression in terms of productivity between apprenticeships and world-class apprenticeships is the increase in company productivity.

Indicator	Apprenticeships	World-class apprenticeships
4.3 productivity	increases individual productivity	increases company productivity

The increase in productivity on completion of an apprenticeship is a third indicator of progression that can be used to assess world-class apprenticeship standard.

A general definition of productivity that is widely accepted describes it as ‘a ratio of a volume measure of output to a volume measure of input use’ (OECD, 2001: 11). In other words, productivity measures how much wealth in goods or services people are able to produce in a fixed time and it can fluctuate on an individual as well as on a company level. Individual productivity is generally expected to increase on completion of an apprenticeship and is indicative of a good level of standards in any given apprenticeship (interview Toner, 2015).

If, however, on completion of an apprenticeship company productivity increased alongside individual productivity, it is indicative of world-class standards. One reason for this is that company productivity tends to be linked to company innovation which in the building industry, for example, can be about trying out ‘new procedures’ and ‘new materials’ (interview Onstenk, 2015). So there is a connection between productivity, company innovation and apprenticeships, not least because apprenticeships, especially if they are of world-class standard, provide the highly skilled workforce that is required to enhance company productivity. This connection between apprenticeships and organisational productivity provides a rationale for employer investment in apprenticeships (Chancellor and Abbott, 2015; Gambin and Hogarth, 2015; Lerman, 2014).

The increase in company productivity above and beyond the individual productivity is therefore indicative of world-class apprenticeship standards even if company productivity also remains dependent on wider economic, social and political factors.

Conclusion

The importance of identifying and applying world-class apprenticeship standards to the English system is linked to concerns about growing technical and professional skills shortages, particularly in the science, technology, engineering and mathematics (STEM) occupations and in the digital sector (BIS, 2015d). From our research we conclude:

Apprenticeship training, especially if it delivered at a world-class standard, can enhance economic growth if it: increases individual and company productivity; raises the number of people in employment and raises the level of skills available in the economy (BIS, 2015d).

World-class apprenticeship standards require extended apprenticeships of between three and four years that deliver broad and in-depth scientific and industrial skills and knowledge, which are recognised with an occupational title on completion of the training.

The developmental goal within world-class apprenticeship standards must be to produce skilled workers in an occupational area with a critical and creative approach. To achieve this goal, apprentices have to acquire all the skills and knowledge necessary to work effectively in an occupation. The term 'occupation' is used to encompass the expectation of developing an area of expertise during apprenticeship training instead of just being able to do a set of tasks as is often the case at the end of job-specific training delivered in shorter apprenticeship training programmes of between one and two years.

The presence of a 'master' in the company to train an apprentice also supports the delivery of world-class apprenticeship standards.

High-quality on-the-job training combined with knowledge-based education and training in off-the-job training is a favourable condition for the delivery of world-class apprenticeship standards.

After identifying these world-class apprenticeship standards, the next step is to get widespread support for them among employers, policymakers, training providers and awarding organisations and to ask them to help deliver world-class apprenticeships in England. A number of recommendations to achieve this support are listed in the next section.

Recommendations

The following recommendations to awarding organisations in order to drive forward the delivery of world-class apprenticeship standards in England are based on the findings of this independent research undertaken by iCeGS on behalf of Pearson Education UK.

1. Awarding organisations should aim for a mutual understanding of the indicators among stakeholders and for agreement about the relevance of each indicator.
2. Awarding organisations should seek to gain national support from policymakers, employers, apprentices and off-the-job training organisations for the delivery of world-class apprenticeship standards.
3. Awarding organisations should look for support from employers at an international level for the delivery of world-class apprenticeship standards in England.
4. Awarding organisations should establish what support employers and off-the-job training providers need to deliver world-class apprenticeship standards.
5. Awarding organisations should create their vision of off-the-job knowledge-based education and training and encourage delivery in accordance with that vision.
6. Awarding organisations should discuss with relevant stakeholders how on-the-job training by a 'master' in the company may be encouraged in England.
7. Awarding organisations should seek support from employers and off-the-job training providers for the delivery of recognised occupational titles.
8. Awarding organisations should encourage the establishment of a regulatory organisation that assesses and evaluates world-class apprenticeship standards.
9. Awarding organisations should formally recognise the delivery of world-class apprenticeship standards and award a 'WCA' (World-Class Apprenticeship) badge to providers who meet these standards.

Country profiles

Table 2: Apprenticeship features in seven countries

Country	Apprenticeship features	
Australia	entry requirements: compulsory schooling years of training: 3–4 years on-the-job training: by workplace trainer	there are centralised standards for each apprenticeship but these are specified very broadly a workplace supervisor may assess an apprentice's competence at work low completion rates at around 50%
Denmark	entry requirements: compulsory schooling years of training: 3–4 years on-the-job training: by workplace trainer	training companies are approved by social partners colleges and companies work together to ensure training takes place in accordance with the law the individualisation component of the off-the-job training that was introduced in 2000 is losing relevance
England	entry requirements: compulsory schooling years of training: 1 year on-the-job training: by workplace trainer	70% of apprenticeship starts in 2012/13 were in the service sector 45% of all apprenticeship starts in 2012/13 were adult apprentices from the age of 25 years and upwards higher apprenticeships existed since 2009 and degree apprenticeships since 2015
Germany	entry requirements: compulsory schooling years of training: 3–4 years on-the-job training: by 'master'	the dual system combines practical training in companies with vocational education in colleges between 80–90% of apprentices complete the programme successfully in 2010, 61% of apprentices continued to work for the employer after the completion of the training
Ireland	entry requirements: compulsory schooling years of training: 4 years on-the-job training: by workplace trainer	to date most apprenticeships are in construction and industrial occupations employers pay an apprenticeship training levy which is used to subsidise companies that train apprentices progression routes into higher education and training are available to holders of the Advanced Craft Certificate
South Korea	entry requirements: compulsory schooling years of training: 6 months to 4 years on-the-job training: by workplace trainer	there is a mismatch between the skills delivered in vocational education and training and those required in the labour market except for numeracy and mathematical skills some vocational institutions are heavily focused on delivering the academic content of a university education
The Netherlands	entry requirements: compulsory schooling years of training: 2 years on-the-job training: by workplace trainer	a strength of the Dutch apprenticeship system is the employer involvement in the development of skills the use of the term 'competences' has been abandoned and there is now more emphasis on general and vocational knowledge strong working relationships between employers, employees, training providers and policy organisations

Australia

Australia has a large apprenticeship system as a proportion of its labour force. The range of jobs covered by apprenticeships include both traditional sectors (construction, engineering and manufacturing) and newer sectors (the service industry and the business sector). Apprenticeships are available to both young people and adults and in Australia as in England; conversions of existing employees into apprentices are quite common. In the 1980s, traineeships were introduced to provide the wider access to a broader range of occupations. Traineeships in Australia are apprenticeship-like arrangements but are only two years in duration and are taken up by about two-thirds of apprentices while the other third is doing apprenticeships.

Features of the Australian apprenticeship system

Years of training: 3–4 years

On-the-job training: by workplace trainer

Apprenticeship: The responsibility of finding an employer lies with the apprentice.

Training company: Employers have to guarantee supervision by appropriately qualified staff to be able to train apprentices. No other regulations are attached as to the nature of the employers who can accept apprentices. Smaller companies sometimes share apprentices to ensure requirements are met.

Right and duties: Apprentices are contracted and paid as employees but payments differ according to rates of pay in that particular occupational area.

Curriculum: To ensure the curriculum is relevant and current, a highly centralised and regulated system has been developed. That means there are centralised competency standards for each apprenticeships but these are specified very broadly to enable customisation of training to the needs of each company.

Assessment: A workplace supervisor may assess or assist in the assessment of an apprentice's competence at work against agreed competencies.

Qualifications: Some occupations, mostly traditional ones, for example that of an electrician, require the completion of an apprenticeship to be 'licensed' to practise the occupation.

Completion rates: Completion rates of apprenticeships are low at around 50 per cent.

Incentives: Companies receive financial incentives for employing an apprentice, some of which is paid up front and some on completion.

(WB and ILO, 2013; interview Toner, 2015)

Denmark

The Danish education and training system is divided into the mainstream academic education strand and the vocational and general adult education and continuing training strand. Most vocational education is completed in a practical training company. It begins, however, with a basic course that finishes with an examination, followed by a main course which alternates between on- and off-the-job training with most of the theoretical part of the training taking place in a vocational college. There is a total of 106 vocational education and training programmes that are being offered to students, for example, construction, logistics, transportation, media production, management, information technology and health care.

Features of the Danish apprenticeship system

Years of training: 3–4 years

On-the-job training: by workplace trainer

Training company: All training companies are to be approved in terms by the social partners. Employers have to meet requirements, for example, they have to provide a certain level of technology and have the ability to offer various tasks in an occupation. National and local trade committees also appraise the quality of apprenticeships within companies.

Right and duties: Students are entitled to an apprentice salary and/or student grant.

Training: Colleges and companies work closely together to make sure that training takes place in accordance with the law when compiling an individual education plan. These plans are compiled for every student to ensure student expectations and the actual training programme coincide. In the workplace a company trainer has to be a master craftsperson if they are to supervise apprentices. This involves having had work experience and completing a vocational education and training programme that leads to a 'journeyman's certificate' (master craftsperson).

Assessment methods: There are various forms of assessment through the course, including oral and written examinations and theoretical and practical project work. The exact form of assessment can differ but programmes will include both subject-specific examinations (for example in the home language and mathematics) and broader assessments to evaluate students' abilities to combine skills, competences and knowledge acquired from the programme as a whole. The final examination generally takes place during the final period of the off-the-job training. It includes a combination of college-based examination and a 'journeyman's' test conducted by local trade committees most commonly assessing both project-based practical assignments and a theoretical examination oral and/or written.

Social partners: National trade committees and national advisory councils on vocational education and training are responsible for updating vocational education and training programmes and for ensuring that programmes integrate the skills and competence needed in the labour market.

(Rolls, 2012; Danish Ministry of Education, 2014; interview Helms Jørgensen, 2015)

England

The apprenticeship system in England has, in recent years, undergone frequent reforms. Most recently Modern Apprenticeships were introduced and are still used in Scotland but were subsequently replaced in England by Apprenticeships in 2004. In 1990 there were only 53,000 apprentices in England which means the number of apprenticeship starts was relatively low but they rose to around half a million in 2015. A recent feature that has been introduced in the English apprenticeship system is 'Trailblazer Groups'. These are employer groups within industrial sectors that come together to take a lead in developing standards and assessments for the new apprenticeship standards that are being developed to replace the over 200 existing apprenticeship frameworks. Much of the work to be done by the Trailblazer Groups is currently in progress.

Features of the English apprenticeship system

Years of training: 1 year

On-the-job training: by workplace trainer

Length: The minimum requirement of one year is set out in the *Specification of Apprenticeships Standards for England (SASE) (2015)*; any length of an apprenticeship beyond one year is largely determined by employers.

Industrial sectors: Apprenticeships in England are provided in both traditional and newer industrial sectors but it is the service sector that attracts the highest apprenticeship numbers. Among the top ten most popular sectors in numbers of apprenticeship starts in 2012/13 are health and social care (80,900), business administration (49,500), management (48,000), customer service (45,400), hospitality and catering (35,600), children's care, learning and development (26,300), retail (25,100), hairdressing (15,600), industrial applications (13,800) and engineering (13,800).

Employment: In England the system depends on employers being willing to offer jobs with a minimum weekly employment of 30 hours and time off for off-the-job training. Third party employment whereby Apprenticeship Training Agencies recruit apprentices and assume the role of an employer is an option that has developed more recently.

Apprentices: In England adult apprenticeships from the age of 25 years upwards expanded rapidly after their first being proposed in 2003 and comprised 45 per cent of all apprenticeship starts in 2012/13. Alongside the introduction of adult apprenticeships, the conversion of existing employees into apprentices has become quite common.

Training: England has recently introduced minimum off-the-job hours of training.

Qualifications: Higher and degree apprenticeships are relatively new features. Higher Apprenticeships have existed in very small numbers since 2009 but expanded more recently as they started to attract government funding in 2011. Degree apprenticeships were introduced in 2015 and are currently being developed.

(WB and ILO, 2013; Fuller, Leonard, Unwin and Davey, 2015; interview Notley, 2015)

Germany

Germany has a dual apprenticeship system which is often referred to as the 'gold standard' (Wentzel 2011: 83). The dual system combines practical training in companies with vocational training in colleges that aims to deepen and supplement on-the-job training. The system is called 'dual' because it involves two learning venues, the company and the vocational training college. The uptake of apprenticeships is declining in Germany because of, for example, lower birth rates and an increase in the number of young people who go to university after completing compulsory schooling.

Features of the German apprenticeship system

Years of training: 3–4 years

On-the-job training: by 'master'

Training company: For companies to take part in the German apprenticeship system they must be certified by the chambers to be allowed to train. Normally, it is the 'master' (Meister) who is certified to take on apprentices. For a 'master' to be certified they have to complete a 'master' course and obtain a training qualification.

Right and duties: The employment status of German apprentices entitles apprentices to a fixed contract with legally defined and binding vocational education and training duties assigned to the employer. It upholds standards but also places a lot of responsibility on employers.

Curriculum: There are two curriculum frameworks, one for the college and one for the company but the two institutions are expected to work closely together. All apprentices of a particular vocational profile are taught the same but there are a number of modules companies can choose from for their apprentices, depending on the company's interest. The content of the training that is required is summarised in a document called 'Berufsbildungsposition'.

Training: The methods of training are quite traditional in all qualifications. They involve classroom lectures, discourses, work with textbooks, training in the workshop and learning in real workplaces (supervised by expert-workers).

Assessment: The system and measures of assessment and the awarding of the qualifications are regulated by the 'Berufsbildungsgesetz', the 'VET-law'.

Qualifications: Vocational colleges and companies are independent of one another. Successfully completing apprentices get two different diplomas; one from the college and one from the chamber, following a federal law which says that all examinations must allocate the same tasks and questions all over the country.

Completion rates: Most apprenticeships are completed successfully yet success rates slightly vary between 80 per cent for handicraft and 90 per cent for public services and industry apprenticeships.

Progression into employment: The proportion of apprentices who continue to work for the employer after they have done their apprenticeship was 61 per cent in 2010.

(Wentzel, 2011; WB and ILO, 2013; interview Deitmer, 2015)

Ireland

In Ireland a new standards-based apprenticeship system replaced traditional time-served apprenticeships in 1991. Traditional time-served apprenticeships had no pre-determined standards of competence and knowledge that had to be achieved. This changed and under the new standards-based apprenticeship system a newly qualified craft worker was required to achieve the National Craft Certificate. Since 1993, the number of standards-based training occupations increased from 14 to 26 in 2010 and remained at this level but work is underway to increase numbers. Numbers in apprenticeship starts expanded during the years of economic growth from 16,125 in 1998 to 29,801 in 2006 but have fallen sharply since the economic downturn that started in 2007 to 1,500 apprenticeship starts in 2009.

Apprenticeships are managed by the National Training.

Features of the Irish apprenticeship system

Years of training: 4 years

On-the-job training: by workplace trainer

Length: Apprenticeships last four years in Ireland and consist of seven phases. Three of the phases entail off-the-job training, the remaining four phases are spent in the workplace. Most apprenticeships are offered in small- and medium-sized companies.

Industrial sector: Most apprenticeships are in construction and industrial occupations and most apprentices are young men. In 2009 the top five apprenticeship occupations were construction (11,344), electrical (7,364), motor (2,765), engineering (1,569) and printing (67), accounting for 90 per cent of all apprentices.

Funding: Public funding for training is channeled through the National Training Fund. Funds are distributed centrally and cover the full cost of off-the-job training and the cost of allowance paid to apprentices in lieu of wages during off-the-job training. Travel and accommodation expenses are also paid where appropriate to apprentices during their off-the-job training.

Completion: Two-thirds of apprentices complete the four-year apprenticeships programme which includes substantial off-the-job training.

Training company: Employers pay an apprentice training levy which is used to subsidise companies that employ apprentices. Employers must be approved to offer apprenticeship places and they are given a list of activities to be developed on-the-job and then certified that these have been performed satisfactorily.

Qualification: Successful completion of all seven phases leads to a national award of an Advanced Certificate at Further Education and Training Awards Council.

Progression: Progression routes to Higher Education and Training Awards are available to holders of the Advanced Craft Certificate.

(Steedman, 2010; interview Kelly, 2015)

South Korea

In South Korea the emphasis on university education has led to imbalances in the labour market which the new drive towards apprenticeships is trying to address. One of the main issues with vocational education and training in South Korea is improving connections between schools and employers and ensuring clear pathways exist for vocational students. In 2008 an integrated curriculum reform was introduced in vocational schools to link vocational education with the core subjects of Korean, the home language, English, mathematics, social studies and science. The new curriculum which supported active participation above theoretical education was supported by support material for teachers.

Features of the South Korea apprenticeship system

Years of training: 6 months to 4 years

On-the-job training: by workplace trainer

Length: Apprenticeships are between six months and four years in duration.

Curriculum: Although there is a mismatch between the skills delivered in vocational education and training programmes and those required in the labour market, numeracy and mathematical skills are not a major problem. An advanced general education has to be provided including science subjects.

Vocational institutions: Some vocational institutions are heavily focused on academic content so that up to 75 per cent of the curriculum of academic and vocational students is identical.

Training: Industrial Sector Councils are responsible for developing standards, qualifications, assessment and completion requirements.

Qualifications: Qualifications for apprenticeships are under development.

(The Research Base, 2015; written feedback Lee, 2015)

The Netherlands

The apprenticeship systems in Germany and the Netherlands benefit from good employer participation rates, greater participation rates from young people and longer durations of training. There is a culture of employer involvement in the development of skills that are required for an apprenticeship which is exemplified by the over 100 sectoral training levies that exist in the Netherlands. Employer involvement through employer organisations in the development of skills and social partnerships are the strength of the Dutch apprenticeship system. Two of the main features of their apprenticeships are that they strive to assure good-quality workplace learning in terms of content, guidance and assessment, and good-quality connection between workplace and school-based learning.

Features of the Dutch apprenticeship system

Years of training: Most apprenticeships are level 2 and take 2 years.

On-the-job training: By workplace trainer

Social partnerships: A culture of consensus ensures strong working relationships between employers, employees, training providers and strategic policy organisations.

Employers: Every employer is quality assured before being allowed to offer and access publicly funded vocational training in their workplace. This assures employee and trainees that they will receive good-quality training from the employer.

Apprentices: The number of apprenticeship starts which have been on the rise since the 1950s, started to decline since 2002 as a result in part of structural changes in the economy and of educational policies that favoured school-based education. In 2004, 50 per cent of apprentices were over 27 years of age.

Vocational system: The vocational training system is highly flexible. It accommodates changing macroeconomic circumstances; if fewer employers are able to offer apprenticeships during economic recessions, students can switch from a work-based to a predominately school-based training approach and receive exactly the same qualifications. Flexibility is also apparent in delivery, as colleges can adapt a proportion of the national curriculum to meet local and regional employer needs. And the system is designed to allow for easy progression from intermediate to higher-skilled vocational training.

Learning pathways: There are two learning pathways, a school-based pathway which contains workplace learning for 20–60 per cent of the total curricular time and a work-based pathway which contains a workplace learning for at least 60 per cent of the time as well as one or two days' release for off-the-job training.

Qualifications: Since 1999 the qualifications structure has been undergoing an extensive remodeling towards competence-based learning as this is thought to meet society's needs for modern and flexible employees. In the most recent 2014 reform, the term 'competences' was no longer used although the content is still comparable to 'competences' but with more emphasis on general and vocational knowledge.

(UKCES, 2013; interview Onstenk, 2015)

References

- Aarkrog, V. (2012) Best for the bright? The pros and cons of the new Danish apprenticeship model, in Piltz, M. (Ed.), *The Future of Vocational Education and Training in a Changing World*, New York: Springer.
- Brockmann, M., Clarke, L. and Winch, C. (2010) The apprenticeship framework in England: a new beginning or a continuing sham?, *Journal of Education and Work*, 23(2): 111–127.
- Casey, P (2013) *The Vocational Education Training System in the Netherlands*, Briefing Paper, London: UK Commission for Employment and Skills (UKCES).
- Chae, C. and Chung, J. (2009) *Pre-Employment Vocational Education and Training in Korea*, SP Discussion Paper No. 0921, Washington, DC: Social Protection Unit of the World Bank and Korean Ministry of Labor.
- Chancellor, W, and Abbott, M. (2015) Apprenticeship training and productivity growth: a case study of the Australian construction industry, *Australian Bulletin of Labour*, 41(1): 22–37.
- Chung, J. S. (2011) Lifelong vocational education and training in Korea: the vision and tasks. *Journal of Technical Education and Training*, 2(1): 77–88.
- Clarke, L. and Winch, C. (2004) Apprenticeship and applied theoretical knowledge, *Educational Philosophy and Theory*, 36(5): 509–521.
- Cushnahan, M. (2012) *The Australian Apprenticeship System: Informing Future Directions and Solutions*, Carlton, Victoria: International Specialist Skills Institute.
- Department for Business, Innovation and Skills (BIS) (2015a) *Specification of Apprenticeship Standards for England (SASE)*, London: Department for Business, Innovation and Skills.
- Department for Business, Innovation and Skills (BIS) (2015b) *The Future of Apprenticeships in England: Guidance for Trailblazers – from Standards to Stars*, BIS/15/355, London: Department for Business, Innovation and Skills.
- Department for Business, Innovation and Skills (BIS) (2015c) *Traineeships: Supporting Young People to Develop the Skills for Apprenticeships and Sustainable Employment – Framework for Delivery 2015 to 2016*, London: Department for Business, Innovation and Skills.
- Department for Business, Innovation and Skills (BIS) (2015d) *English Apprenticeships: Our 2020 Vision*. London: Department for Business, Innovation and Skills.

Deissinger, T. (2015) The German dual vocational education and training system as 'good practice'?, *Local Economy*, 30(5): 557–67.

Deitmer, L. (2011a) Building up of innovative capabilities of workers, in Curtin, P. (Ed.), *Fostering Enterprise: the Innovation and Skills Nexus – Research Readings*, Adelaide: National Centre Vocational Education Research (NCVER).

Deitmer, L. (2011b) Quality criteria for establishing work-based learning: an evaluation of in-company learning arrangements, in Fashoyin, T., Tiraboschi, M., Manzella, P. and Rustico, L. (Ed.), *Productivity, Investment in Human Capital and the Challenge of Youth Employment*. Newcastle upon Tyne: Cambridge Scholars Publishing.

Fuller, A., Leonard, P., Unwin, L. and Davey, G. (2015) *Does Apprenticeship Work for Adults? The Experience of Adult Apprentices in England*, London: Institute of Education, University College London.

Gambin, L., and Hogarth, T. (2015) The costs and benefits of apprenticeships to employers: Policy, funding and training quality, in Shipton, H., Budhwar, P., Sparrow, P. and Brown, A. (Eds.), *Human Resource Management, Innovation and Performance*, New York: Palgrave Macmillian.

Green, A. (2013) The role of the state and the social partners in vocational education and training systems, in Flude, M. and Sieminski, S. (Eds.) *Education, Training and the Future of Work II: Developments in Vocational Education and Training*, Abingdon, Oxfordshire: Routledge.

Joslin, H. and Smith, S. (2014) *Progression of Apprentices to Higher Education—Cohort Update*, BIS Research Paper No. 176, London: Department for Business, Innovation and Skills.

Karmel, T. and Mlotkowski, P. (2011) *The Impact of Wages and the Likelihood of Employment on the Probability of Completing an Apprenticeship or Traineeship*, Adelaide: National Centre for Vocational Education and Research.

Lerman, R. (2014) Do firms benefit from apprenticeship investments?, *IZA World of Labor*, 55: 1–10.

Mieschbuehler, R., Hooley, T. and Neary, S. (2015) *Employers' Experience of Higher Apprenticeships: Benefits and Barriers*, Derby and Melton Mowbray: International Centre for Guidance Studies, University of Derby and Pera Training.

Mirza-Davies, J. (2015) *Apprenticeships Policy, England*, Briefing Paper Number 03052. London: House of Commons Library.

Muehleemann, S. and Wolter, S. C. (2014) Return on investment of apprenticeship systems for enterprises: Evidence from cost-benefit analyses, *IZA Journal of Labor Policy*, 3(1): 1–22.

National Apprenticeship Service (NAS) (2015) *Employer Guide to Apprentice Recruitment*, Coventry: National Apprenticeship Service.

O'Hare, T., Herring, E. and Walsh, A. (2013) *Standards Based Apprenticeship in Ireland: Are Changes Required to Meet Current Economic and Social Needs?*, Masters Thesis, Galway: National University of Ireland.

Organisation for Economic Co-operation and Development (OECD) (2001) *Measuring Productivity: OECD Manual – Measurement of Aggregate and Industry-Level Productivity Growth*, Paris: Organisation for Economic Co-operation and Development (OECD).

Organisation for Economic Co-operation and Development (OECD) (2012) *OECD Note on 'Quality Apprenticeships' for the G20 Task Force on Employment*, G20, Mexico: Organisation for Economic Co-operation and Development.

Office for Standards in Education, Children's Services and Skills (Ofsted) (2015) *Apprenticeships: Developing Skills for Future Prosperity*, Manchester: Office for Standards in Education, Children's Services and Skills (Ofsted).

Onstenk, J. and Blokhuis, F. (2007) Apprenticeship in the Netherlands: connecting school- and work-based learning, *Education and Training*, 49(6): 489–99.

Rauner, F., Heinemann, L., Piening, D. and Bischoff, R. (2010) Costs, Benefits and Quality of Apprenticeships – A Regional Case Study, in Rauner, F. and Smith, E. (Ed.), *Rediscovering Apprenticeship: Research Findings of the International Network on Innovative Apprenticeship* (INAP). Dordrecht, Heidelberg, London and New York: Springer.

Rauner, F. and Spöttl, G. (2002) *Der Automobilmechatroniker Vom Neuling zum Experten*. Bielefeld: Bertelsmann.

Richard, D (2012) *The Richard Review of Apprenticeships*, London: School for Startups.

Rolls, S. (2012) *VET in Europe – Country Report*, Aarhus and Bruxelles: ReferNet and Cedefop.

Seeber, S. and Lehmann, R. (2013) Basic competencies as determinants of success in commercial apprenticeships, in Beck, K. and Zlatkin-Troitschanskaia, O. (Eds.), *From Diagnostics to Learning Success*, Rotterdam: SensePublishers.

Sennett, R. (2008) *The Craftsman*, London: Penguin Books.

Steedman, H. (2011) *Apprenticeship Policy in England: Increasing Skills versus Boosting Young People's Job Prospects*, Policy Analysis. London: Centre for Economic Performance (CEP), London School of Economics and Political Science.

Steedman, H. (2012) *Overview of Apprenticeship Systems and Issues ILO Contribution to the G20 Task Force on Employment*, Geneva: International Labour Organization.

Sweet, R. (2013) Apprenticeship, pathways and career guidance: A cautionary tale, in Deitmer, L., Hauschildt, U., Rauner, F. and Zelloth, H. (Eds.), *The Architecture of Innovative Apprenticeship*, Dordrecht: Springer Netherlands.

The Research Base (2015) *Country Reports: South Korea*, London: The Research Base.

Toner, P. (2011) *Workforce Skills and Innovation: An Overview of Major Themes in the Literature*, OECD Education Working Paper Series, Paris: OECD Directory for Science, Technology and Industry (STI) and Centre for Educational Research and Innovation (CERI).

Watts, A. G. (2009) *The Relationship of Career Guidance to VET*, Paris: OECD.

Wentzel, J. (2011) *An Imperative to Adjust? Skills Formation in England and Germany*, Wisenbaden, Germany: VS Verlag für Sozialwissenschaften, Springer Fachmedian GmbH.

World Bank (WB) and International Labour Organization (ILO) (2013) *Towards a Model Apprenticeship Framework: A Comparative Analysis of National Apprenticeship Systems*, Geneva: World Bank and International Labour Organization.



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