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ETH Zürich

Reference: (2017). The KOF education system factbook: United Kingdom. Edition 1. Zurich, Switzerland : ETH Zurich, KOF Swiss Economic Institute.
doi:10.3929/ethz-b-000236208.

This Version is available at:
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KOF Swiss Economic Institute

**The KOF Education System Factbook:
United Kingdom**

Edition 1, December 2017

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List of Abbreviations

AEB	Adult Education Budget
BIS	Department for Business, Innovation and Skills
BTEC	Business and Technology Education Council
DfE	Department for Education
EPL	Employment Protection Legislation
ESFA	Education and Skills Funding Agency
FHEQ	Framework for Higher Education Qualifications
GDP	Gross Domestic Product
GCE A levels	General Certificate of Education at advanced level
GLH	Guided Learning Hours
GSCE	General Certificate of Secondary Education
GVA	Gross Value Added
HNCs	Higher National Certificates
HNDs	Higher National Diplomas
ISCED	International Standard Classification of Education
ITT	Initial Teacher Training
KOF	Swiss Economic Institute
NVQs	National Vocational Qualifications
OECD	Organisation for Economic Co-operation and Development
Ofqual	Office of Qualifications and Examinations Regulation
Ofsted	Office for Standards in Education, Children's Services and Skills
PDA	Professional Development Award
PET	Professional Education and Training
PGCert	Postgraduate Certificate
PGDip	Postgraduate Diploma
QTS	Qualified Teacher Status
UNESCO	United Nations Educational, Scientific and Cultural Organization
VET	Vocational Education and Training
VPET	Vocational Professional Education and Training
VPETA	Vocational and Professional Education and Training Act

WEF	World Economic Forum
YLMI	Youth Labour Market Index

FOREWORD

The increasing competitiveness of the world economy as well as the high youth unemployment rates after the worldwide economic crises have put pressure on countries to upgrade the skills of their workforces. Consequently, vocational education and training (VET) has received growing attention in recent years, especially amongst policy-makers. For example, the European Commission defined common objectives and an action plan for the development of VET systems in European countries in the *Bruges Communiqué on Enhanced European Cooperation in Vocational Education and Training for 2011-2020* (European Commission, 2010). In addition, a growing number of US states and other industrialized, transition, and developing countries (for example Hong Kong, Singapore, Chile, Costa Rica, Benin and Nepal) are interested in either implementing VET systems or making their VET system more labour-market oriented.

The appealing outcome of the VET system is that it improves the transition of young people into the labour market by simultaneously providing work experience, remuneration and formal education degrees at the secondary education level. If the VET system is optimally designed, VET providers are in constant dialogue with the demand-side of the labour market, i.e. the companies. This close relationship guarantees that the learned skills are in demand on the labour market. Besides practical skills, VET systems also foster soft-skills such as emotional intelligence, reliability, accuracy, precision, and responsibility, which are important attributes for success in the labour market. Depending on the design and permeability of the education system, VET may also provide access to tertiary level education (according to the ISCED classification): either general education at the tertiary A level or professional education and training (PET) at the tertiary B level. PET provides occupation-specific qualifications that prepare students for highly technical and managerial positions. VET and PET systems are often referred to together as “vocational and professional education training (VPET)” systems.

Few countries have elaborate and efficient VPET systems. Among these is the Swiss VPET system, which is an example of an education system that successfully matches market supply and demand. The Swiss VPET system efficiently introduces adolescents to the labour market, as shown by Switzerland’s 2007-2017 average youth unemployment rate of 8.1 percent compared to 14.8 percent for the OECD average (OECD, 2017a).

Though not many countries have VPET systems that are comparable to Switzerland’s in terms of quality, efficiency and permeability, many have education pathways that involve some kind of practical or school-based vocational education. The purpose of the KOF Education System Factbook Series is to provide information about the education systems of countries across the world, with a special focus on vocational and professional education and training.

In the KOF Education System Factbook: United Kingdom, we describe the United Kingdom's vocational system and discuss the characteristics that are crucial to the functioning of the system. Essential components comprise the regulatory framework and the governance of the VPET system, the involved actors, and their competencies and duties. The Factbook also provides information regarding the financing of the system and describes the process of curriculum development and the involved actors.

The Factbook is structured as follows: First, we provide an overview of the United Kingdom's economy, labour market, and political system. The second part is dedicated to the description of the formal education system. The third section explains the United Kingdom's vocational education system. The last section offers a perspective on the United Kingdom's recent education reforms and challenges to be faced in the future.

EDITING AND ACKNOWLEDGEMENTS

This Factbook is edited by Johanna Kemper. We want to thank Pascal Emmenegger for the elaboration of the contents, and Clair Premzic for the excellent language and content editing. Without you, the realization of this Factbook would have been impossible!

The KOF Education System Factbooks has to be regarded as work in progress. The authors do not claim completeness of the information which has been collected carefully and in all conscience. Any suggestions for improvement are highly welcome!

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Suggested citation:

KOF Swiss Economic Institute (2017). KOF Education System Factbook: [CountryName]. KOF Education System Factbooks, ed. 1. Zurich: Swiss Federal Institute of Technology

The British Economy and its Political System

One of the main purposes of an education system is to provide the future workforce with the skills needed in the labour market. The particularities of a country's economy and labour market are important factors determining the current and future demand for skills. Therefore, these will briefly be described in the first part of this Factbook. In addition, this part provides an overview of the United Kingdom's political system with emphasis on the description of the education politics.

1.1 The British Economy

In 2016, the United Kingdom (UK) was the 5th biggest economy in the world with a gross domestic product (GDP) of US\$ 2.6 trillion and a GDP per capita of US\$ 38,450¹. When compared with the average GDP per capita of the G7 countries² (US\$ 40,574) and the average per capita income of US\$ 38,017 of all OECD members, shows that the UK ranks among the most developed countries (OECD, 2017b). Since 1990, the UK's GDP exhibited an average annual growth rate of 2 percent, which exceeded the respective growth rate of the G7 countries (1.7 percent) and was comparable to the OECD (2.1 percent). One expression of its strength is that the British economy recovered well from the 2008 crisis and actually outperformed the G7 and OECD averages with respect to real GDP growth since then (World Bank, 2017a). Despite these positive trends, the UK's labour productivity growth has been subdued since the financial crisis and is perceived as a major driver for the sluggish growth of the country's prosperity measured in real GDP per capita (OECD, 2015a). Moreover, the separation from the European Union following the Brexit referendum in June 2016 may intensify these productivity issues, mostly through shrinking foreign investments arising from deteriorating trade conditions and legal obstacles (Harari, 2017). However, the exact impact of the Brexit is highly uncertain, what may itself contribute to a more cautious investment sentiment. According to the OECD (2015a), private investments are especially needed to enhance the infrastructure to tackle the stagnant productivity by easing capacity constraints

The distribution of the value added and employment by sector (as seen in Table 1) shows that the United Kingdom is a highly developed country. The former industrial pioneer now heavily relies on the services sector which accounted for around 80 percent of the Gross Value Added (GVA) in 2016, whereas the industrial sector only made up approximately one fifth of the overall British economic output. The primary sector only plays a marginal role in the UK with respect

¹ Constant prices, constant purchasing power parity (PPP), reference year 2010.

² Group of 7 economically leading countries: United States of America, Japan, Germany, United Kingdom, France, Italy and Canada.

to employment and value added. The GVA composition of the United Kingdom resembles the one from the average of the 28 members of the European Union (EU-28). The main disparities are found in the more influential tertiary sector of the United Kingdom and the UK's relatively weak secondary sector. The latter mainly owes its diminishing importance to an unchanged output of manufacturing since 1995, which led to a drastic decline of its importance relative to the tertiary sector. Among the G7 countries the UK has the biggest tertiary sector with a particularly strong banking and insurance sector and a high contribution from real estate activities (OECD, 2017c)

Table 1: Value added and employment by sector, 2016

Sector	Country: Value added ³ (%)	EU-28: Value added (%)	Country: Employment (%)	EU-28: Employment (%) ¹
Primary sector	0.6	1.5	1.2	4.5
Agriculture, hunting and forestry, fishing	0.6	1.5	1.2	4.5
Secondary sector	19.2	24.7	16.0	21.6
Manufacturing, mining and quarrying and other industrial activities	13.0	19.3	9.0	15.3
of which: Manufacturing	9.7	16.1	7.8	13.8
Construction	6.2	5.4	7.0	6.3
Tertiary sector	80.1	73.8	82.8	73.8
Wholesale and retail trade, repairs; hotels and restaurants; transport; information and communication	25.3	24.0	30.6	27.6
Financial intermediation; real estate, renting & business activities	32.5	27.3	21.5	16.4
Public administration, defense, education, health, and other service activities	22.3	22.5	30.7	29.8

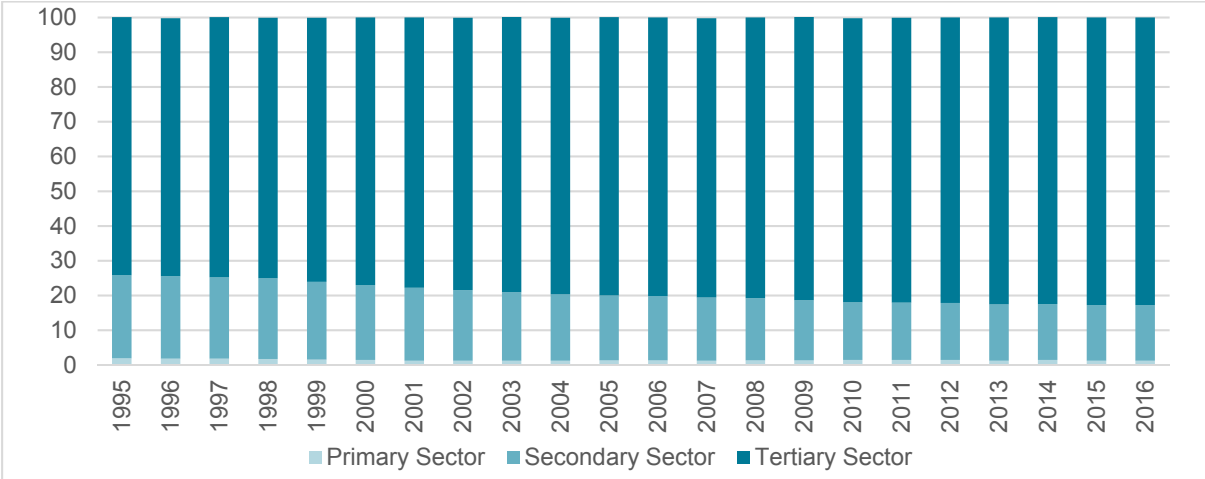
Source: Eurostat (2017a; 2017b).

In 2016, the importance of the sectors in terms of value added correlated strongly with their importance in terms of employment. About 82.8 percent of all employed persons worked in the services sector, while only 16 percent were employed in the industrial sector. The relative employment composition in the UK did not change considerably since 1995, as illustrated in Figure 1 below. Like the value added, the steady decline of the employment in the secondary sector was driven by the manufacturing sector whose relative weight has been halved since 1995. Also, the relative employment in the primary sector decreased approximately by one

³ Due to rounding differences, the sum of all sector falls below 100 percent.

third since 1995 to 1.2 percent in 2016. Remarkably, the highly efficient and mechanized British agriculture is capable to produce about 60 percent of the country’s food needs, despite the low employment share in this sector (CIA, 2017). On the contrary, the relative employment in the tertiary sector grew mostly based on the following subsectors: *professional, scientific and technical activities*⁴ and *administrative and support service activities*⁵.

Figure 1: Employment by sector (as % of total employment), 1995-2016



Source: (Eurostat, 2017b).

Besides its global importance with respect to the size and power, the UK’s economy is also very competitive, which is an essential determinant of the country’s level of productivity. The United Kingdom ranks 7th in the global competitiveness index 2016 published by the World Economic Forum partly due to very efficient goods and labour markets, highly sophisticated business processes and a leading position of technological readiness of businesses and consumers (WEF, 2017). Furthermore, UK’s product market regulations are very competition-friendly. They were ranked 2nd best of all countries by the OECD in 2013, the year of their latest publication, mainly driven by the low state control of companies (OECD, 2014a). Thus, the conditions are optimal to further promote the already vibrant services sector.

However, the competitiveness index ranking was elaborated prior to the Brexit referendum and the UK’s competitiveness is likely going to deteriorate after the decision to withdraw from the European Union. In the short term, the imposed uncertainty is likely holding back investment and is reducing the country’s attractiveness for talented workers and students. Moreover, in the long run, the outcomes of the negotiations with the EU are likely going to alter the *four*

⁴ Legal and accounting activities; management consultancy and activities of head offices; architectural, engineering and technical consultancy; scientific R&D; advertising; other professional, scientific and technical services; veterinary services.

⁵ Rental and leasing (except financial leasing and real estate rental); employment activities; travel agency and related services; security and investigation services (except public order and safety); services to buildings and landscapes; business support activities.

freedoms granted for its members, that is, the free movement of people, goods, services, and capital. Thus, increased costs of trade, investment and the movement of labour will be reflected in a downgraded goods and labour market efficiency as well as a decreasing market size what lowers the UK's overall competitiveness. In addition, fewer international talents will negatively affect the country's innovative capacity (WEF, 2017).

Despite these upcoming headwinds, the United Kingdom is currently an innovative leader what contributes to the country's competitiveness. The Global Innovation Index 2017, which measures the innovativeness of a specific economy, ranks the United Kingdom 5th out of 127 countries. Noteworthy are especially its strong research system with its elite universities and UK's outstanding ICT⁶ infrastructure, what resulted in a top ranking with respect to creative output. But the UK is on the verge of losing its leading innovation position to some extent. While ranked 2nd in 2012, Brexit may lead to a further decline (Dutta et al., 2017).

1.2 The Labour Market

In the first part of this section, we will describe the general situation of the United Kingdom's labour market. In the second part, we will refer to the youth labour market in particular.

1.2.1 Overview of the United Kingdom's Labour Market

The UK has very flexible labour market regulations as reflected for instance in the OECD Index of Employment Protection. This is a multi-dimensional index that tries to quantify the strictness of employment protection legislation (EPL) of a certain country. The index is scaled between zero and six, where zero (six) corresponds to a low (high) level of EPL. This index⁷ was third lowest in the UK in 2013 (index value 1.18) among all OECD countries, whereas the average of all OECD members was 2.04 in 2013 (OECD, 2017d). British labour law mostly covers basic labour protection principles and leaves much scope for the employers. For example, a dismissal is characterized as fair whenever there is a lack of qualification or the employee became redundant (OECD, 2014b).

The trade union density in the UK is relatively high with 25.1 percent in 2014 which exceeds the average density of the OECD members of 16.7 percent considerably (OECD, 2017e). The legal minimum wage in the UK in 2016, as measured in USD PPP⁸ and constant prices, is the third highest among the G7 countries only beaten by Germany and France (OECD, 2017f). In nominal terms, the minimum wage in the UK is age-dependent with a maximum of 7.50 pounds per hour for all workers aged 25 and older. It is yearly reviewed by the government and

⁶ Information and communication technologies.

⁷ With respect to individual dismissals and regular contracts.

⁸ PPP: Purchasing Power Parity.

adjusted if necessary (GOV.uk, 2017a; GOV.uk, 2017e). All in all, the legal flexibility of the employers with respect to employing workers has made up a substantial part of the above-described high level of competitiveness in the UK.

As can be seen in Table 2 below, the UK’s labour market displays a healthy picture. The labour force participation rate, the share of the population aged between 15 and 64 years that is either employed or actively looking for work, was at a record high of 78.2 percent in 2016 in the UK. This is the highest labour force participation rate since the beginning of recordings in 1971 and exceeds the respective rate of the OECD considerably. In addition, the unemployment rate in the UK is lower than the OECD average. In 2016, the British unemployment rate was 5 percent and it even decreased in the first months of 2017 to 4.6 percent, what constitutes the lowest unemployment rate since 1975 (ONS, 2017). However, the youth unemployment rate (people between 15 and 24 years) is slightly higher in the UK (13.2 percent) than the respective rate for the OECD average (12.9 percent) and the average of the G7 countries (11.8 percent). Still, the youth unemployment rate in the UK of 2016 has been lowest since 2005 (OECD, 2017h).

Table 2: Labour force participation rate, unemployment rate by age in 2016

Age Group	Labour force participation rate		Unemployment rate	
	United Kingdom	OECD average	United Kingdom	OECD average
Total (15-64 years)	78.2	71.7	5.0	6.5
Youth (15-24 years)	61.9	47.2	13.2	12.9
Adults (25-64 years)	81.6	77.3	3.7	5.6

Source: OECD (2017h).

Although at record lows, the British unemployment rate is somewhat distorted by the number of people that are involuntarily part-time employed and seeking for more work. Currently, there are approximately 1.2 million working people in the UK that would like to enhance their level of employment. Even though this number has been declining in the last couple of years, it is still almost double its pre-crisis level from 2007 (OECD, 2017k).

As most developed countries, the United Kingdom has an ageing population. For instance, in 2016, the UK’s population share of the 65+ years old (18 percent) exceeded the share of the people younger than 15 (17.8 percent) for the first time since the beginning of recording, even though the population ageing in the UK is moderate relative to the other G7 countries (World Bank, 2017b). To grant a well-functioning pension system and to ensure the needed tax revenue, younger people need to be motivated to work. One essential statistic to measure the willingness to work is the above-mentioned labour force participation rate. The opportunity

costs for not participating⁹ in the labour force must be sufficiently large such that an individual opts for taking part in the labour force. One possible way to obtain higher opportunity costs for non-workers is to attain higher education. This not only increases the foregone earnings when being unemployed, but also broadens the range of attainable and desirable jobs, what grants non-pecuniary benefits (Bowen & Finegan, 1966). The data at hand are in line with this simple theoretical concept. As illustrated in **Error! Reference source not found.** below, the labour force participation rate in the UK in 2015 increased with educational attainment. Especially the increase in the participation rate from less than upper secondary to upper secondary education is striking. The additional increase of the participation rate when gaining tertiary education is considerably smaller. The respective participation rates of the OECD average are comparable although overall smaller than in the UK, as seen before in Table 2. The pattern described before also applies to the unemployment rate: it declined in 2015 in the UK with educational attainment, while again the jump from less than upper secondary to upper secondary education is remarkable. Thereby, the British unemployment rates were substantially lower than the OECD average for any education level. Hence, the data suggest that one possible policy among many others to tackle the demographic challenges ahead in the United Kingdom would be to encourage people to attain at least upper secondary level education.

Table 3: Labour force participation rate, unemployment rate by educational attainment 2015 (persons aged 25-64)

Education Level	Labour force participation		Unemployment rate	
	Country	OECD average	Country	OECD average
Less than upper secondary education	62.9	63.6	6.8	12.5
Upper secondary level education	83.8	80.1	3.6	7.3
Tertiary education	88.2	88.0	2.7	4.8

Source: (OECD, 2017), (OECD, 2017m).

⁹ The overall benefits, pecuniary and non-pecuniary, that could be obtained if participating.

1.2.2 The Youth Labour Market

The KOF Swiss Economic Institute developed the KOF Youth Labour Market Index (KOF YLMI) to compare how adolescents participate in the labour market across countries (Renold et al., 2014). The foundation for this index is the critique that a single indicator, such as the unemployment rate, does not suffice to describe the youth labour market adequately nor provide enough information for a comprehensive cross-country analysis. To increase the amount of information analysed and to foster a multi-dimensional approach, the KOF YLMI consists of twelve labour market indicators¹⁰ that are grouped into four categories.

Dimensions of the KOF YLMI
Activity state - Unemployment rate - Relaxed unemployment rate ¹¹ - Neither in employment nor in education or training rate (NEET rate)
Working conditions Rate of adolescents: - with a temporary contract - in involuntary part-time work - in jobs with atypical working hours - in work at risk of poverty ¹² - Vulnerable unemployment rate ¹³
Education - Rate of adolescents in formal education and training - Skills mismatch rate
Transition smoothness - Relative unemployment ratio ¹⁴ - Long-term unemployment rate ¹⁵
Source: Renold et al. (2014).

The first category describes the *activity state* of youth (ages 15-24 years old) in the labour market. Adolescents are classified according to whether they are employed, in education, or neither (unemployed, discouraged and neither in employment nor in education or training; see info box to the right). The category *working conditions* and the corresponding indicators reflect the type and quality of jobs the working youth have. The *education* category accounts for the share of adolescents in education and training and for the relevance of their skills on the labour market. The fourth category, *transition smoothness*, connects the other three categories by capturing the school-to-work transition phase of the youth. Each country obtains a score of 1 to 7 on each particular indicator of the KOF YLMI. A higher score reflects a more favourable situation regarding the youth labour market and a more efficient integration of the youth into the labour market.

One of the major drawbacks of the KOF YLMI is data availability. When data is lacking, a category can occasionally be based on a single indicator or must be omitted entirely when not a single indicator for that category exists in a given country. A lack of indicators can make

¹⁰ The data for these indicators are collected from different international institutions and cover up to 178 countries for the time period between 1991 and 2012.

¹¹ It is calculated as the number of unemployed and discouraged workers as a share of the entire labour force. Discouraged workers have given up the search for work (not actively seeking), although they have no job and are currently available for work (also: "involuntary inactive").

¹² Those who cannot make a decent living out their earnings, being at risk of poverty as a percentage of the working population.

¹³ Share of the employed population working on their own account or those working in their family business and thus contributing to the entire family income. Both are less likely to have formal work arrangements and are therefore less protected by labour laws and more exposed to economic risk.

¹⁴ Is defined as the youth unemployment rate (15-24 years) as a share of the adult unemployment rate (25+). If the youth cohort is affected in the same way than the adult group with respect to unemployment, then the relative unemployment ratio will be equal to one. If the youth are relatively more affected, then the ratio will be bigger than one.

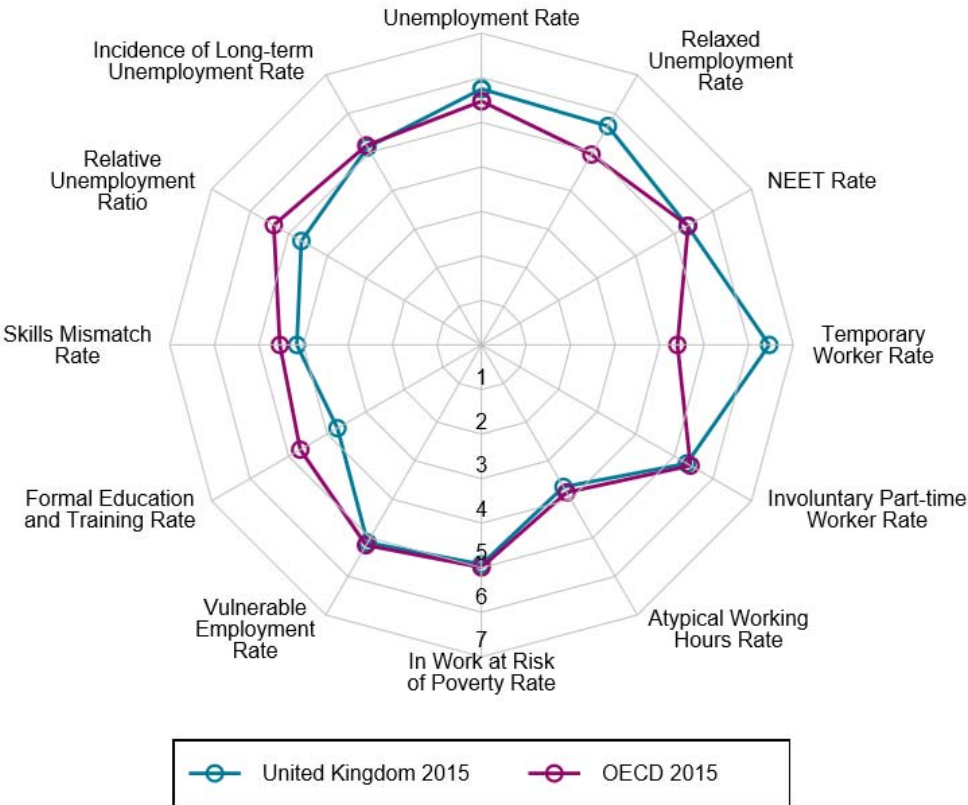
¹⁵ Those unemployed for more than one year (52 weeks) in the total number of unemployed (according to the ILO definition).

comparisons across certain countries or groups of countries problematic and sometimes even impossible.

1.2.3 The KOF Youth Labour Market Index (KOF YLMI) for the United Kingdom

Figure 2 displays the 12 indicators of the KOF YLMI for the United Kingdom and the OECD average for 2015. In that year, the UK’s score of the YLMI slightly underperformed the score of the OECD average (4.9 versus 5.0). By fractionalizing the index, it becomes apparent that the United Kingdom merely tops the OECD average with respect to three indicators. The UK has a strong activity state category (unemployment rate, relaxed unemployment rate, and NEET rate) and an especially low rate of temporarily employed people. The indicator where the United Kingdom performed the worst in 2015 relative to the OECD average was the rate of adolescents which are in formal education or training. This may have been a factor why the *Education and Skills Act 2008* was passed in England in 2008 that says that all young people will have to stay in education or training at least part-time, until they are 18 years old (GOV.uk, 2008).

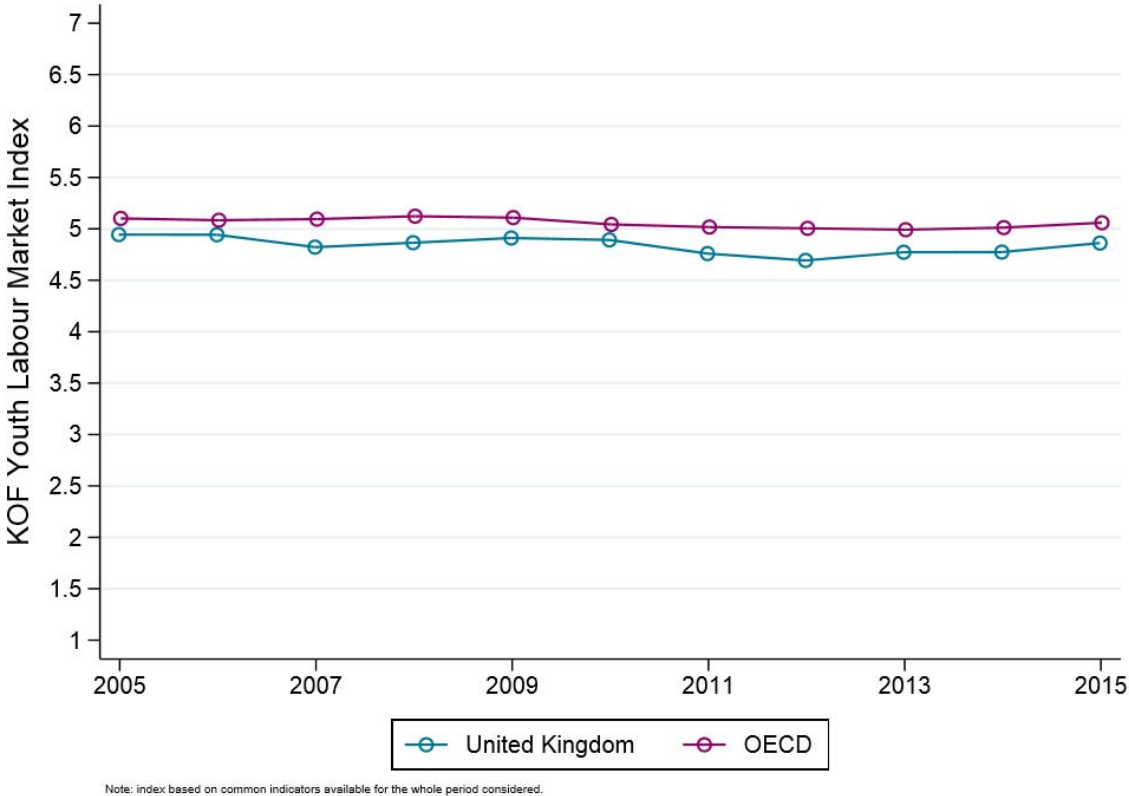
Figure 2: YLM Scoreboard: United Kingdom vs OECD average, 2015



Source: (KOF, 2017).

Figure 3 illustrates the evolution of the KOF YLMI for the United Kingdom and the OECD average from 2005 to 2015. For this period, there were no continuous data of three sub-dimensions in the UK, namely, the temporary worker rate, the involuntary part-time worker rate, and the atypical working hours rate. Thus, these indicators were eliminated for the sake of comparability. Thus, the British average is somewhat understated mainly due to the exclusion of the temporary worker rate, where the UK presented strong figures over this time span. While the KOF YLMI for the UK has been steadily decreasing from 2009 to 2012, it experienced an improvement since then. The positive evolution of the KOF YLMI of the UK since 2012 was mainly because of a favourable development in the activity state category and the improving rate of long-term unemployment. But also the omitted indicator of the rate of involuntary part-time workers decreased considerably in the years after 2012 what even led to an understatement of the increase of the British KOF YLMI.

Figure 3: YLM-Index United Kingdom versus OECD, 2005-2015



Source: (KOF, 2017).

1.3 The Political System

Understanding the basics of a country’s political system and getting to know the political goals with respect to its education system are crucial points for the understanding of the education

system in a broader sense. In the first part, we explain the UK's political system in general. The politics and goals regarding the education system will be referred to in the second part.

1.3.1 Overview of the United Kingdom's Political System

The British political system is officially headed by a monarchy but essentially the powers of the monarch as head of state are ceremonial and symbolic. Rather, powers in the United Kingdom are separated into the three forces, the executive, the legislature, and the judiciary. However, this separation of forces is imperfect in the UK as the ministers that compose the executive are members of the parliament at the same time¹⁶. This also includes the prime minister¹⁷, the politically most powerful person in the United Kingdom and head of the government. Nevertheless, rather than leading to an abuse of powers, the UK's integration of executive and legislature is said to foster stability and efficiency in the operation of government (Benwell & Gay, 2011). The parliamentary sovereignty is regarded to be the most important part of the UK constitution that declares the parliament the supreme legal authority, which can create or end any law (parliament.uk, 2017b). The parliament consists of the House of Commons and the House of Lords. The latter consists of aristocrats and academics with very restricted influence¹⁸ whose membership is determined by the government. The former is the democratically elected chamber and its members represent their respective geographical constituency¹⁹. Another important feature of the political system of the United Kingdom is that three parts of the United Kingdom, Wales, Scotland, and Northern Ireland, have a special status with a local administration with devolved powers in certain areas of local scope, such as health and education, whereas England is governed by the overall British government (Darlington, 2017; parliament.uk, 2017c).

The political system of the United Kingdom is highly developed and well-functioning. First, the United Kingdom is ranked 16th out of 167 countries in the Economist's Democracy Index 2016, 3rd best of the G7 members, and is regarded as a full democracy (Economist, 2017). Second, compared to other countries, the United Kingdom has a low incidence of corruption of the public sector. It is ranked on the 10th position in the Corruption Perception Index 2016 out of overall 176 countries, on the 2nd rank of the G7 states (Transparency International, 2017). The World Bank even ranked the United Kingdom best among the G7 members with respect to the *Control of Corruption* in their latest release in 2015, whereas the UK improved considerably over the preceding years. The governance indicators²⁰ published by the World Bank illustrate

¹⁶ Furthermore, there is an individual, the Lord Chancellor, who is part of all three arms.

¹⁷ The prime minister is the leader of the political party with the largest number of members in the House of Commons.

¹⁸ Its main roles are to revise legislation and keep a check on the government.

¹⁹ Typically, a constituency has around 60'000 to 80'000 voters.

²⁰ Government Effectiveness, Political Stability and Absence of Violence/Terrorism, Regulatory Quality, Rule of Law, Voice and Accountability.

a comparable picture with a strong ranking of the United Kingdom worldwide and always being among the best G7 countries. Only with respect to the *Political Stability and Absence of Violence/Terrorism* exhibited the United Kingdom an average result and high upside potential (World Bank, 2014).

1.3.2 Politics and Goals of the Education System

All four countries of the United Kingdom, England, Northern Ireland, Wales, and Scotland, have a separate government department or directorate that is in charge of educational policies. In England, the whole educational system remains with the Department for Education, while in the rest of the UK, responsibilities depend on the level of the education system: one Department is in charge for the education until the upper-secondary level and another for the post-secondary level. Although most policies are determined by each of the four countries, there are similarities with respect to governance as school education aims to provide a balanced, broad curriculum to promote the development of pupils in all aspects of life (OECD, 2015d; UNESCO, 2012b).

With the change in government that took place in England in 2015, the focus of the current education reform was shifted towards improving productivity— especially in terms of skills. This is due to the UK's productivity levels being below OECD average and the economical need for skilled workers (OECD, 2017q). To address this, the government decided to put a bold emphasis on STEM subjects²¹ in schools and to overhaul the whole VPET system in order to establish it as an equal alternative to the academic route, with the aim to make it a world-class system (GOV.uk, 2016a; GOV.uk, 2016b).

Specifically, the government decided to streamline the whole system and substitute the hitherto existing qualifications and apprenticeship frameworks with employer-designed occupational standards that should warrant a generally higher standard and enable comparability (HMT, 2017, p. 39 et seq.). By establishing an apprenticeship levy so that the employers are now at the core of funding, the funding system has seen a major change too. One of the aims set out in the Enterprise Act 2016 is to increase the number of apprenticeship starts by 30 percent within five years to 3 million by 2020, as opposed to 2 million starts in the period between 2010 and 2015.

On the level of higher education, Institutes of Technology are being established and the research priorities are set by the government for all areas of technology and science (HMT, 2015, p. 37 et seq.). In Northern Ireland, Scotland and Wales too strong efforts to improve

²¹ Science, Technology, Engineering and Mathematics.

especially the vocational education are being undertaken so that the developments can be said to be broadly similar, though the focus on productivity is emphasized far less in school curricula (EURYDICE, 2017g; EURYDICE, 2017i; EURYDICE, 2017i). A main challenge that all four countries of the United Kingdom are addressing is to close the performance gap between students with disadvantaged and advantaged socio-economic backgrounds (OECD, 2015d).

Formal System of Education

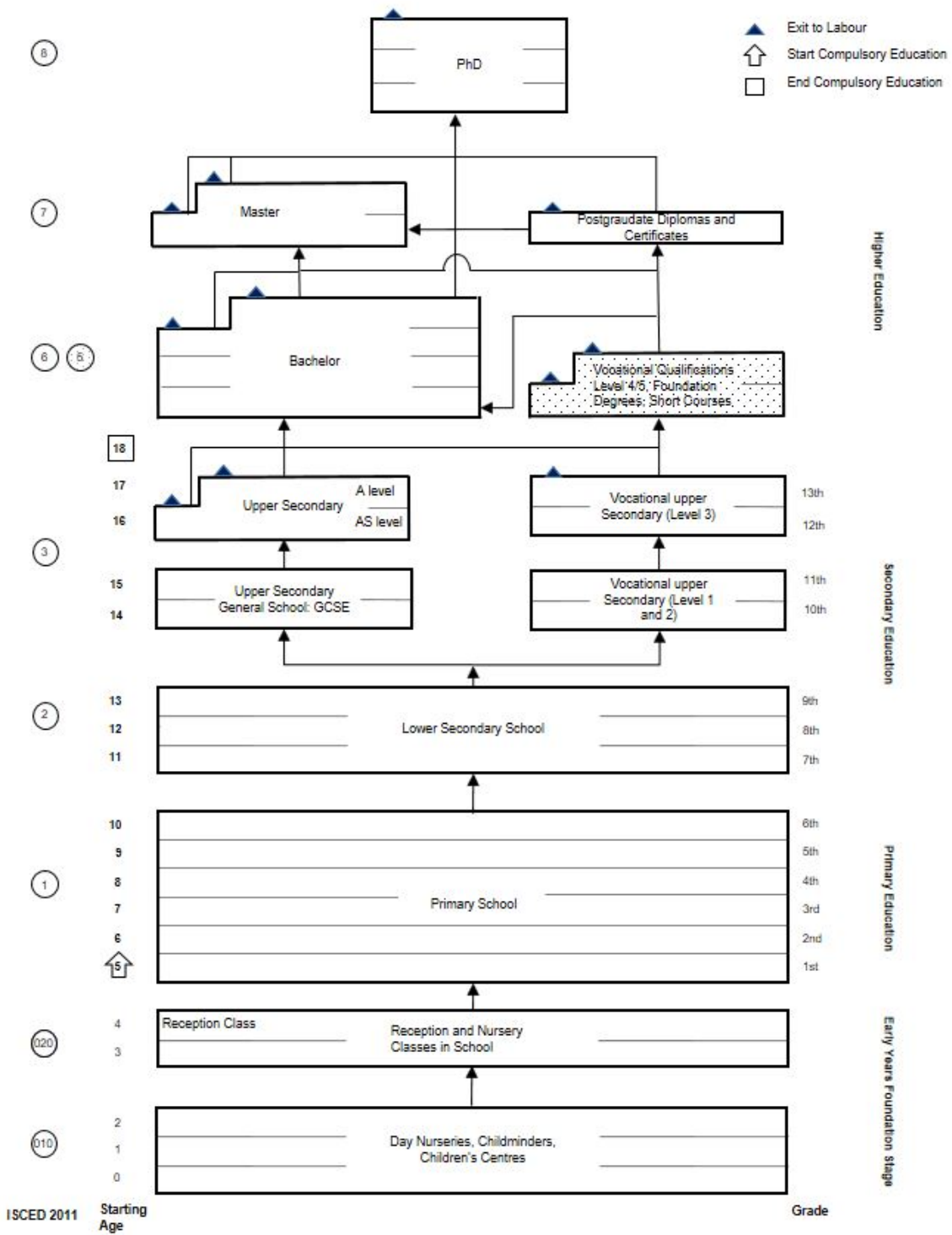
The British education system is subdivided into four stages: primary education, lower secondary education, upper secondary education, and higher education. Any of the attainable qualifications within the education system can be assigned to one of the nine levels (0-8) defined by the International Standard Classification of Education (ISCED) 2011 of the UNESCO Institute for Statistics (UNESCO, 2012a). The four countries of the United Kingdom²² have broadly similar education systems – with the exception of Scotland, whose system has a different structure. Due to England’s superior role within the United Kingdom – e.g. its population made up 84 percent of the total British population in 2016 (ONS, 2016) – this chapter puts a special emphasis on the English education system which is illustrated in Figure 4 above. An illustration of the Scottish Education system can be found in the Appendix. Further notes on any differences across the four nations are provided in the subchapters to come. There are some disparities between the UK’s countries concerning the mandatory school age. In England, the age range of compulsory education²³ is 5 to 18 years, summing up to 13 years. In Northern Ireland, it is 4 to 16 years and in Wales and Scotland are students obliged to attend classes from the age of 5 to 16 (OECD, 2017p).

In 2014, there were overall 15.3 million people enrolled in one of the 8 ISCED education levels in the UK, amounting to 24 percent of the total population (OECD, 2016d). Most students were enrolled in secondary education (42.9 percent), while the primary school pupils made up 31 percent, and 15.4 percent of all students were enrolled in tertiary education (UNESCO, 2017a). Of all students enrolled in lower secondary education, 12.3 percent were enrolled in a vocational program. With 42.7 percent, this figure was considerably higher at the upper secondary level, (UNESCO, 2017b).

²² England, Wales, Northern Ireland, and Scotland.

²³ Full-time education until 16, from 16 to 18 either part- or full-time (EURYDICE, 2016b).

Figure 4: Overview of the English Education System²⁴



Source Own illustration, based on (OECD, 2017g).

²⁴ The size of the boxes does not coincide with the actual size or importance of the program in the education system.

The net enrolment rates²⁵ for the respective educational levels in the UK in 2014 (gross enrolment ratios²⁶ where marked with a star) are listed in Table 4. As expected for a highly developed country as the United Kingdom, the net enrolment rate for the compulsory school age was virtually 100 percent. After that age, educational enrolment substantially decreased as represented by the gross enrolment ratio of 56.5 percent. The percentage of 15 to 24 years old enrolled in vocational education was 18 percent.

Table 4: Enrolment ratios for different educational levels in the UK, 2014 (in %)

Educational level	ISCED 2011	Net Enrolment Rate
Early childhood educational development programs	010	10.2*
Pre-primary education	020	85.3
Primary education	1	99.9
Secondary education	2 – 3	98.3
<i>Lower secondary education</i>	2	96.1
<i>Upper secondary education</i>	3	92.0
<i>Percentage of 15-24 year-olds enrolled in vocational secondary education</i>	2-3	18.0**
Compulsory education age group	1-3	99.9
Post-secondary non-tertiary education	4	na
Tertiary education	5 – 8	56.5*
<i>Short-cycle tertiary education</i>	5	na
<i>Bachelor or equivalent level</i>	6	na
<i>Master or equivalent level</i>	7	na
<i>Doctoral or equivalent level</i>	8	na

*Gross enrolment ratio as the net enrolment ratio was not available.

**Simple share of enrolment in vocational secondary education.

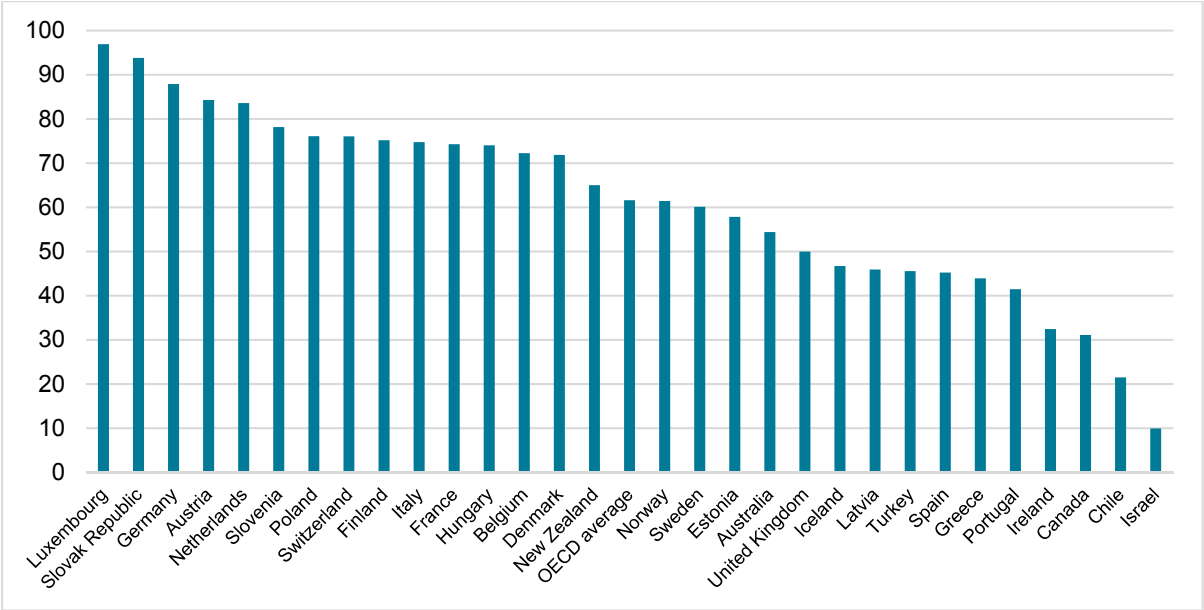
Source: (UNESCO, 2017f).

Figure 5 displays the share of people aged 25 to 34 that attained vocational secondary or post-secondary non-tertiary education of all people with the highest graduation achieved in the upper secondary or post-secondary non-tertiary education (ISCED 3 and 4). In 2016, there were as many adults whose highest graduation was attained in the general education pathway of the ISCED levels 3 and 4 as in the vocational education pathways of these levels (50 versus 50 percent). Compared to the share of vocational graduates at ISCED levels 3 and 4 in other OECD countries which was 62 percent, the vocational share in the UK was relatively low.

²⁵ Total number of students in the theoretical age-group of a specific level of education enrolled in that level, expressed as a percentage of overall population in that age-group. It has minor limitations as certain students of that age-group may be enrolled in a different level of education (UNESCO, 2017d).

²⁶ Total number of students enrolled in a specific level of education irrespective of their age, expressed as percentage of the official school-age population of that educational level. It may exceed 100 percent due to early enrolment, repetition, or late enrolment (UNESCO, 2017e).

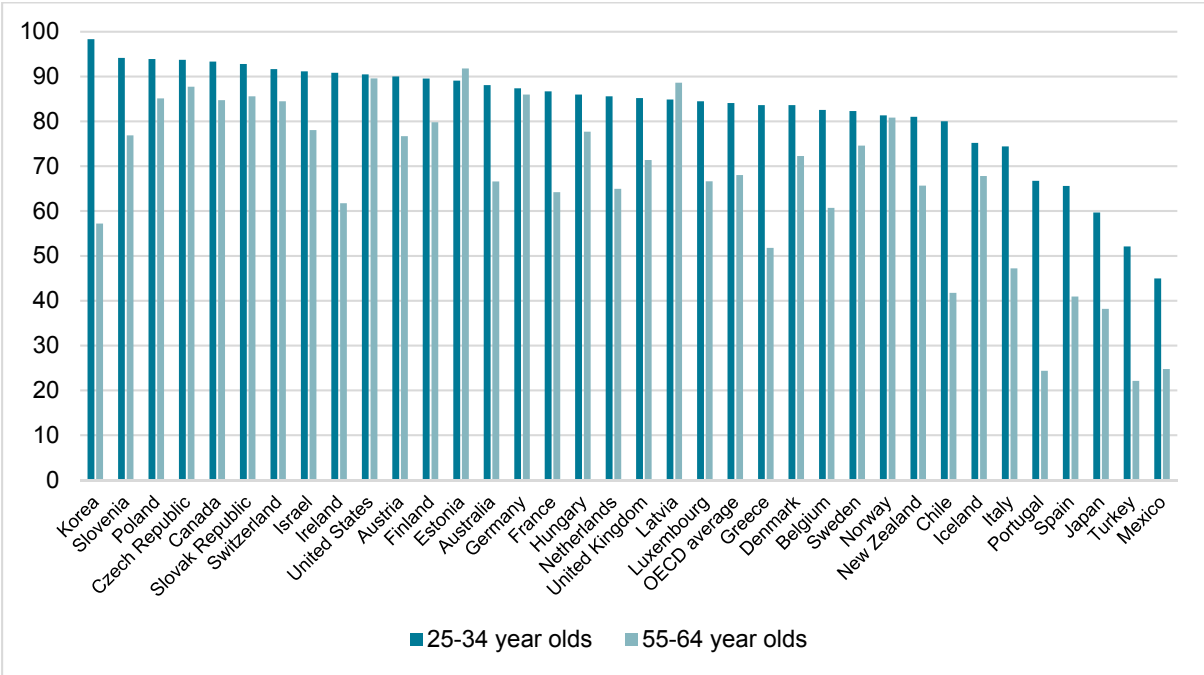
Figure 5: Share of vocational education of upper secondary or post-secondary non-tertiary educational attainment of 25-34 years old in 2016 (in %)



Source: (OECD, 2016c).

In general, the British population is well educated. With 85 percent of all 25 to 34 years old having attained at least upper secondary education in 2015, the United Kingdom approximates the OECD average (84 percent).

Figure 6: Population that has at least attained upper secondary education in OECD countries in 2015 (in %)



Source: (OECD, 2016c).

Moreover, as illustrated in Figure 6, the UK has experienced an increase in educational attainment over the past years: in 2015, the share of 55 to 64 years old with at least upper secondary education was substantially lower with 71 percent compared to the younger people.

2.1 Pre-Primary Education

In England, Wales, and Scotland children are entitled to two years of free provision of early childhood education, for the ages 3 and 4²⁷, whereas in Northern Ireland, there is only one year of free childhood education, starting at age 3. However, in all four British countries, the most disadvantaged²⁸ 2-year-olds are also eligible for free provision of early childhood education and care. While all four nations having 38 weeks of education for these children, the provided hours per week for the 3 to 4-year-olds differ somewhat. English children attend classes during 15 hours a week, Scottish during 16 hours, Welsh at least 10 hours, and Northern Irish children are entitled to at least 12.5 hours of classes per week. In England and Wales, children have the possibility to attend the so-called reception class after their fourth birthday, which is a full-time pre-primary class that is provided at primary schools. All kind of pre-primary education in the United Kingdom is voluntary and the decision to participate rests upon the decision of the children's parents. The learning goals of these pre-primary education and care institutions mainly involve personal, emotional, and social development, as well as first experiences with literacy (reading and writing) and numeracy (shapes, measures, and numbers). All of these are aimed at being explored in a playful environment that promotes the children's curiosity (EURYDICE, 2016; EURYDICE, 2015a; EURYDICE, 2017a; EURYDICE, 2017b).

2.2 Primary and Lower Secondary Education

Primary (ISCED level 1) and lower secondary education (ISCED level 2) are compulsory for all minors in the four British countries, England, Wales, Northern Ireland, and Scotland. In the whole UK, the responsibility for the provision of sufficient school places as well as transportation under certain circumstances²⁹ for these levels of education are assigned to the local authorities.

In England, Wales, and Scotland the compulsory schooling age starts after the fifth birthday, which determines the entry age of the first year of primary school. In Northern Ireland, however, pupils need to attend classes from the age of four, which constitutes the youngest primary

²⁷ Ages correspond to the age when starting the school year.

²⁸ Mostly defined by economic means, but may also include disabled children or those in care of the local authority.

²⁹ Large distance to school, mobility restrictions, or safety issues.

school entry age around the world (World Bank, 2017c). The parents of pupils in the compulsory schooling age are obliged to ensure that their children receive “a full-time education which is efficient, effective and suitable to their age, ability and aptitude, and to any special educational needs they may have” (EURYDICE, 2017b). This does not necessarily need to take place in conventional schools, parents are also allowed to educate their children at home. While personal and social development and the encouragement of child creativity still make up a great part of primary education, the pupils are also expected to achieve fluency in the English language and an adequate confidence with numeracy as a precondition for further educational success. In England and Wales, there are six years of primary education, while primary school in Northern Ireland and Scotland last for seven years.

Across the United Kingdom, there are no further admission requirements for pupils to enter lower secondary education as soon as they have completed the compulsory primary school. However, the so-called Grammar Schools in England have the exclusive right to select all or almost all pupils on the basis of their academic ability. In England, Wales, and Northern Ireland, children usually enter lower secondary school after the completion of the 11th year, in Scotland by the age of 12. On the one hand, in England, Wales, and Northern Ireland, this level of education takes three years and involves solely general education and no vocational teaching. On the other hand, in Scotland, after their third year in lower secondary school, the pupils, usually at age 15, are free to choose the courses for their remaining two years of compulsory education. Thus, they may also acquire further skills for one additional year at the level of lower secondary school (ISCED level 2). Moreover, in that fourth year of secondary school, Scottish pupils can attain first vocational training at the level of lower secondary education to initiate a vocational path of education (SCQF, 2017; OECD, 2016e; EURYDICE, 2016c; EURYDICE, 2016d).

2.3 Upper secondary Education

After the completion of the three years of lower secondary education, English, Welsh, and Northern Irish pupils proceed to upper secondary school, usually at the age of 14. The Scottish system deviates somewhat here and is described in the end of this subchapter. In the following two years of general education, a set of subjects are chosen that are examined in the end to achieve a General Certificate of Secondary Education (GCSE) for every course taken. There are also GCSEs in applied or work-related subjects (UNESCO, 2012b). After these two years, Welsh and Northern Irish pupils typically reach the end of compulsory education schooling age with 16. As mentioned above, since 2008, English pupils are required to be in full- or part-time education another two years from the age of 16 to 18 (GOV.uk, 2008).

After completion of lower secondary school, British pupils can decide to take vocational subjects along with general academic subjects as part of their GCSEs (UK NARIC, 2016, p. 14). As many vocational qualifications were in fact no more than an easy option to attain a certain number of good GCSEs passes,³⁰ restrictions to qualifications eligible for funding were made (BIS, 2016a, p. 16). At the age of 16, students can choose apprenticeships as work-based option. A bridging option, especially for those lacking the basic skills and experience needed for apprenticeships, are offered by so-called traineeships.

Students who would like to go to university are required to obtain additional education, typically in the *sixth form* which is usually started at age 16. After two years in this program, students are granted the General Certificate of Education at advanced level (GCE A level), which is awarded in various subjects. The first year of this stage is called the AS (Advanced Subsidiary) level and the second year the A2 level. In most cases, students need at least five good GCSE grades to be admitted to the *sixth form*, while the exact requirements are set by the specific colleges or schools, taking into account the demands of the programme (nidirect, 2017d).

As on the level of GCEs, there is the possibility to enrol in a school-based VET programme or an advanced apprenticeship programme on the level of *sixth form* to obtain a specific number of GCE A levels. Also at this stage, the Business and Technology Education Council (BTEC) courses are the most popular form of school-based VET programmes (unionlearn, 2017a; Wolf, 2011). The educational training at is mainly provided in the 334 colleges in the UK that offer classical academic and also vocational qualifications as of fall 2017 (HEFCE, 2017).

The education system in Scotland until the end of upper secondary school is determined by the *Curriculum for Excellence*, introduced in 2010 (BBC, 2011). According to Education Scotland (2017), the “Curriculum for Excellence is designed to achieve a transformation in education in Scotland by providing a coherent, more flexible and enriched curriculum from 3 to 18 [years]”. The curriculum has two stages, the *broad general education*³¹ that would usually end at the age of 15, and the *senior upper phase*³² from around ages 15 to 18. In the senior upper phase, there is no clear pathway for education. It is up to the students’ individual decisions what qualifications they want to acquire.

Similar to GCE A level in the other British countries, pupils in Scotland can attend pre-university school lasting 1 or 2 years that would lead to the so-called Highers.³³ As part of the curriculum, Scottish pupils can take a two year lasting work-based training programme called foundation

³⁰ Good defined here as grades in the range of A⁻-C within the scale of A⁻-G with A⁺ being the best grade.

³¹ From the early years until the end of the compulsory 3-year lower secondary school block (see the diagram in the Appendix).

³² The 3 years of upper secondary school following the broad general education (see the diagram in the Appendix).

³³ The first year is called Higher, the second year Advanced Higher.

apprenticeships. They may also take school-based vocational qualifications at this level of the education system that would also take two years. These qualifications have the aim to prepare pupils for employment, career development or progression to more advanced vocational studies. Most prominent examples of such qualifications are *National Certificates*, *National Progression Awards* and *Scottish Vocational Qualifications* (EURYDICE, 2016g). Instead of continuing school, modern apprenticeships are the most prominent vocational option (UCAS, 2017a).

2.4 Postsecondary/Higher Education

While there are some postsecondary non-tertiary programmes in the UK, students usually proceed directly from upper secondary education to higher/tertiary education. England, Wales, and Northern Ireland have the same structure and framework of higher education, called Framework for Higher Education Qualifications (FHEQ). The FHEQ intends to promote consistency across the educational systems to reach a common understanding and ensuring that the attained qualifications with the same titles are of an equivalent academic standard. In higher education, there are three stages, consisting of the first, second, and third cycle programmes. Traditionally, students who intend to pursue an academic pathway do so by being admitted to a bachelor's programme (ISCED level 6), where it is commonly required to have at least obtained 3 GCE A levels and 3 GCSEs at different subjects. However, in practice, each academic institution has autonomy to decide which admission requirements it will accept, and other qualifications may be accepted. Typically, a bachelor's programme takes 3 to 4 years³⁴ where the degree awarded can be either an *ordinary* or an *honours degree*, with the honours programme merely indicating a higher study load and more examinations.³⁵

While students receive a degree upon graduation from university, there are also non-degree higher vocational education programs at the ISCED level 4/5, or so-called Professional Education and Training (PET) programmes. The most important examples are the *Higher National Certificate* (level 4) and the *Higher National Diploma* (level 5). These are mostly no longer provided by universities, but by other (often private) education institutions. Entry requirements involve either the completion of sufficient GCSE and GCE A level grades or the graduation from vocational upper secondary programme at level 3 (see Figure 4), for instance BTEC level 3, although relevant work experience may be considered alongside or instead of formal qualifications. These PET qualifications at ISCED level 5 usually grant access to the second year of a bachelor's programme, but sometimes also to a master's programme. The

³⁴ A Bachelor mostly takes 3 years (EP nuffic, 2015).

³⁵ An honours degree does not indicate better performance or grades.

general admission requirement for master's programmes is an honours bachelor's degree with good grades.³⁶ An ordinary master's programme takes one full-time calendar year including a master's thesis, even though there exist programmes that skip the bachelor and last for four full-time calendar years (EP nuffic, 2015; EURYDICE, 2017h).

Alongside the degree programme, there are also non-degree programmes at the ISCED 7 level, so-called *Postgraduate Certificate* (PGCert) or *Postgraduate Diploma* (PGDip) that are also offered by universities. The former usually takes 15 weeks, the latter 30 and are either academic, vocational, or professional training programmes, with the latter being designed for entering profession. These programmes mostly have the same admission requirements as master's programmes, namely an undergraduate degree in a related field and in the case of a professional program, relevant work experience. It is also possible to transfer between PGCert, PGDip and master's programmes as graduates from a PGDip simply need to write a thesis in addition to the PGDip degree to get a master's degree. Likewise, a master's student may also drop out of his program and still earns a postgraduate certificate or diploma. Due to their shorter duration, these postgraduate courses may also be ideal for already employed persons intending to upgrade their skills (FindAMasters, 2016).

The doctoral degree at ISCED level 8 can exclusively be acquired at universities. That is one main difference between Scotland and the rest of the United Kingdom lies regarding higher education (apart from differences in the naming of degrees and diplomas). In England, Wales, and Northern Ireland, students with good bachelor grades in the respective field, a master's degree with relevant qualifications, or postgraduate certificates/diplomas may be admitted to a doctoral programme, whereas in Scotland, bachelor's graduates are rarely granted access to PhD (Doctor of Philosophy) courses (EURYDICE, 2017i; nuffic, 2015; FindAMasters, 2016).

In all four British countries, there are apprenticeships programmes available at the tertiary education level that combine workplace experience with part-time academic study. During the time of the apprenticeship, apprentices are employed and receive a salary. The entry requirements vary among the different levels of apprenticeships and countries, but are similar to the ones expected when entering a degree programme, consisting of GCSEs, GCE A levels, and also vocational qualifications at level 3 (see Figure 4). Qualifications acquired during an apprenticeship can be classified at the same level as a full bachelor's or master's degree. At ISCED levels 3 to 6, so called Advanced Learner Loans are available (BIS, 2015a). Such an apprenticeship may take up to six years (UCAS, 2017b).

³⁶ Good defined here as first class or upper-second class. The other satisfactory grades, lower upper-second and third class, mostly do not suffice the entry requirements.

2.5 Continuing Education (Adult Education)

As of 2015, 15.7 percent of the adult population in the UK were engaged in lifelong learning, which is a significantly higher share than the EU-average of 10.7 percent (CEDEFOP, 2016). At a national level, there is even a ministry for continuing education, titled Minister of State for Skills (formerly Minister for Further Education, Skills and Lifelong Learning). In previous years, government funding prioritised especially basic needs such as adults who could not attain literacy or numeracy (BIS, 2010). Because England continues performing below OECD-standard in these regards, the government aims to have raise the standard (EURYDICE, 2015b). The aim is that all people achieve GCSEs grade 4 (ISCED level 3) or similar measurements in the key subjects of English and maths (DfE, 2017b, p. 6). Therefore, education for adults who failed to achieve these qualifications is offered for free (BIS, 2016a, p. 30).

Programmes designed for adults to achieve these qualifications are provided at further education colleges on a part-time basis. They also offer Access to Higher Education programmes for those who wish to attain higher education but lack the required qualifications. Grants paid to these providers were previously the only funding of adult education the government supplied, but in 2016 the adult education budget (AEB) was formed, amounting to £1.5bn in 2016-17. It allows more diverse funding of adult learners, but the focus on literacy and numeracy as well as the acquisition of a first full qualification remains (BIS, 2015a).

The government also funds vocational programmes such as pre-employment training or work experiences designed for unemployed persons looking to improving their chances (EURYDICE, 2015b). Of the unemployed, 14.2 percent were partaking in lifelong learning in 2015 (CEDEFOP, 2016). Besides above mentioned provisions focussing on covering essential skills for the labour market, the AEB further provides some funding for non-formal kinds of adult education such as community learning offered by further education colleges, local authorities and voluntary organisations (BIS, 2015a). Workplace-related learning however needs to be funded either by the employer or the employee.

2.6 Teacher Education

The pathways into teaching in the UK differ for school education, higher education and further education, which may then again diversify (DfE, 2017a). For further and higher education institutions, recruitment procedures are not regulated but subject to the individual institutions themselves, as treated in section 3.6. Here, we focus on school education in England and Wales, with remarks on Northern Ireland and Scotland at the end of this passage.

For school education, a plethora of routes and providers of initial teacher training (ITT) exist, but all lead to Qualified Teacher Status (QTS³⁷). The QTS accreditation was set by the Secretary of State to define the standards for teachers at maintained schools (schools funded by the local authority) (GOV.uk, 2016c). The basic eligibility requirements for teacher training are a GSCE (or standard equivalent) grade C in English and maths for secondary level or in addition also a grade C in a science subject for primary level. On top of this, prospective teachers need to pass the professional skills tests, which ensures competency in literacy and numeracy. While the entrant's suitability to teach has to be assessed, there are no subject knowledge requirements; admission decisions including estimating whether or not the candidate will be able to meet the standards for the QTS are in the responsibility of the training provider.

The two most common routes are a more practically orientated school-based and a more theoretical university-based training that both last for a year (if taken full-time; part-time is possible), though all courses involve at least 24 weeks of training in two schools. In most cases, trainees pay tuition fees but are eligible for financial support, though career-changers and high-attaining graduates may earn a salary as unqualified teachers (EURYDICE, 2016h). Both routes lead to a QTS and usually also grant graduates a Postgraduate Certificate in Education upon completion. For those who have already taught in at least two schools and already meet the standards for QTS, an assessment-only route is also available (NCTL, 2015). For teachers trained in countries other than England, it is possible to directly apply for the QTS.

After being awarded the QTS, teachers get employed as public employees (but not civil servants). The so called newly qualified teachers have an induction period of an academic year. During this time, they teach a reduced timetable of 90 percent of a full-time teacher and receive individual support (EURYDICE, 2017o). Professional development will then continue based on an annual appraisal meeting which also affects the teacher's salary. The according training can, among other forms, be operated in the schools internally, in teaching schools, or in higher and further education institutes. The funding of such training measures is part of the schools budget, over which they can decide autonomously. However, because the Office for Standards in Education, Children's Services and Skills' publishes regular inspection reports, there is strong incentive for schools to spend money for such training in order to perform well in these reports. In case a school is judged to require improvement, there's also the

³⁷ Will be replaced by a stricter accreditation similar to such of other high status professions in order to raise teacher quality, a key priority of the government, see (DfE, 2016a).

governmentally funded school-to-school support, a programme in which head teachers of high-performing schools support the teachers of low-performing schools (GOV.uk, 2016d).

In Northern Ireland, aspiring primary school teachers usually follow a four-year bachelor's in education programme including 32 weeks of teaching at schools. With post-primary teachers being required to be specialized, the main route is the one-year long Postgraduate Certificate in Education involving at least 18 weeks of teaching (EURYDICE, 2016i). Similarly in Scotland, the necessary teaching qualification is usually acquired by undertaking a four-year undergraduate programme in a specialism such as history or maths and with at least 30 weeks of school experience or a one-year Postgraduate Diploma in Education with 18 weeks at schools, with both ways leading either to a primary or secondary teaching qualification (EURYDICE, 2015c). After being employed by local authorities (but not as civil servants), teachers are required to create an annual plan together with their line manager of at least 35 hours of professional development activities to ensure professional learning and maintain their learning record in an online portfolio (EURYDICE, 2016k).

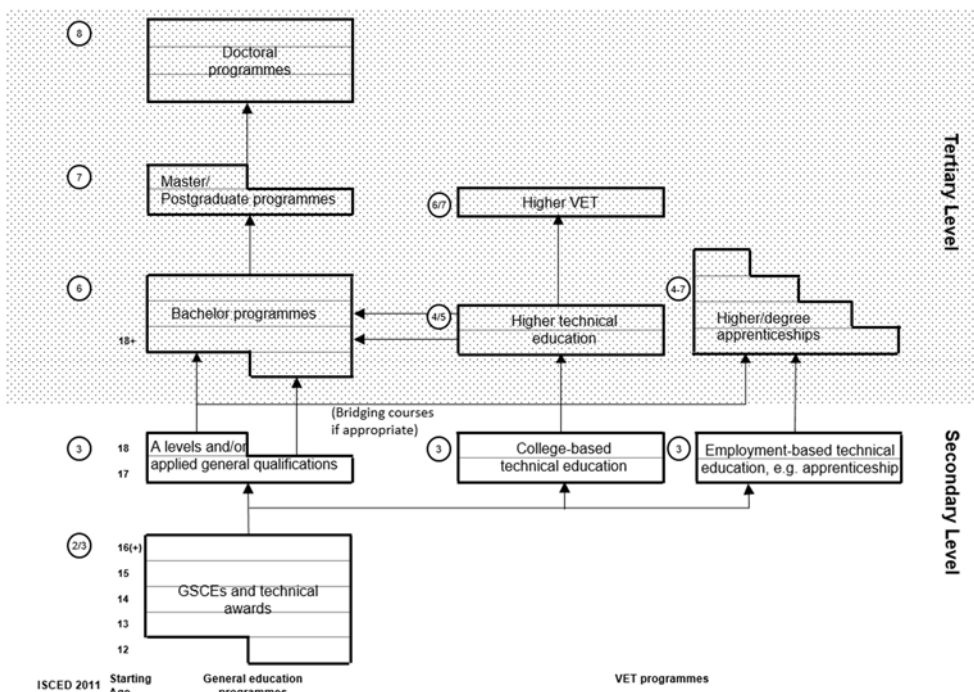
The System of Vocational and Professional Education and Training

This section of the Factbook describes the UK's vocational education and training (VET) system at the upper secondary level and the professional education and training system (PET) at the tertiary level in more detail. Thereby, the term vocational and professional education and training (VPET) refers to both, the VET and the PET system.

After some general remarks, we first start with a discussion of the initial courses at the secondary level (see Figure 7), and will work our way towards higher education level.

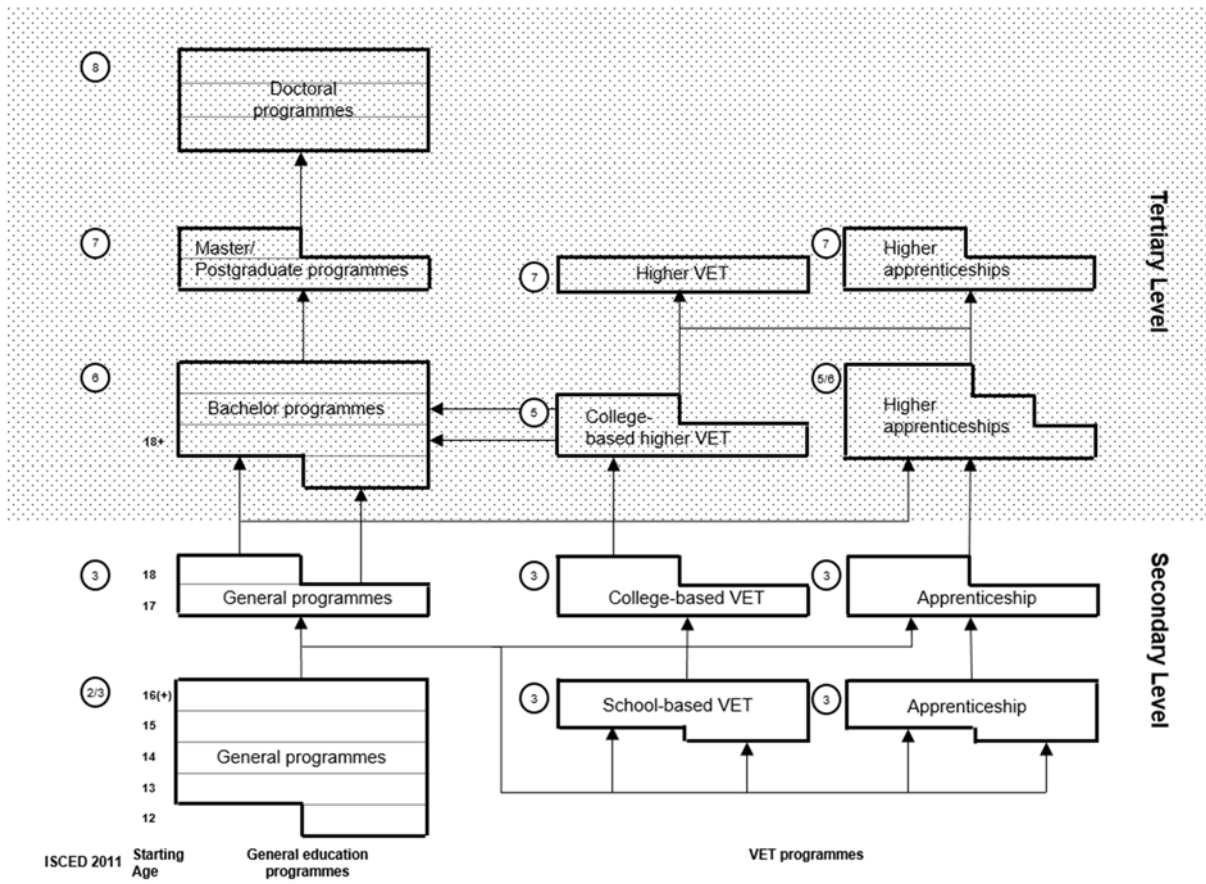
As a result of profound reforms, a new system is gradually being introduced at the time this Factbook is written (fall 2017). Despite most components of the former system still remaining, the attention is directed towards the new system which will be described as if it was already fully implemented, while also providing insight on the former system. As discussed in section 2, the focus of this chapter is on England, with information on the Scottish system being given at the end of each paragraph. In order to guarantee coherence and avoid confusion, we will refer to the qualification levels as given according to ISCED classification. A comparison chart of the different qualification frameworks in the UK can be found in Table A 1 in the appendix.

Figure 7 VET in the UK's education system after the reformations



Source own illustration, based on (BIS, 2016a, p. 15).

Figure 8 VET in the UK's education system before the reformations



Source Own illustration, based on (UK NARIC, 2016).

Table 5: Summary statistics of the UK VET system

VET pathway enrollment share out of all upper secondary (%)	40%
Program enrollment share out of all VET pathway (%)	65% school-based VET 35% apprenticeships
Number of curricula/qualifications	The qualifications system is being reformed. Before, there were over 13'000 qualifications. Once the new system has been fully established, there will presumably be around 1'500 qualifications.

Ø Share of time spent in workplace (vs. classroom)	Maximum 80%
Work contract (Yes/No)	Yes
Ø Share of vocation-specific content (vs. general) in classroom education	Depending on individual contracts; English, maths and digital skills as compulsory general content.
Classroom/workplace sequencing (Alternating, Sequentially)	Flexible
Frequency of workplace learning (Annually, Semi-annually, quarterly, monthly, weekly)	Flexible
Program duration (Years)	Minimum 12 months
Involved Actors	Employer, training provider, apprentice
Reform Years	Currently undergoing reforms; latest changes in legal framework in 2016.
Reforms Summary	Thorough streamlining and redesign of pathways and qualifications in all vocational education. New funding model.

3.1 Vocational Education and Training (VET; Upper Secondary Education Level)

As the rest of the education systems, the VET systems in England, Northern Ireland and Wales share similarities while the Scottish system is different in structure. In all the four countries, the achievements in the final examinations, which usually take place at age 16 (GSCE/National qualifications), define the study opportunities within VET. However, there are about 163 recognized awarding organisations designing and assessing the qualifications in England, Northern Ireland and Wales. In order to gain recognition, the qualifications were often designed in cooperation with intermediary bodies such as Ofqual and Sector Skills Councils, which proved to be no effective measure for employer-involvement (Wolf, 2011, p. 101).

Training providers such as Further Education colleges are then able to buy and to deliver these qualifications in compliance with the awarding organisations' requirements (Musset, 2013, p. 60 et seq.). The result is that students' opportunities to participate in a certain programme also vary according to the organisation. There are over vocational 13'000 courses for 16-18 year olds, which are often of questionable value (BIS, 2016a, p. 45 et seq.). For example, if a student wants to become a plumber, he or she needs to choose between 33 recognized qualifications for this single occupation. This is not only confusing for individuals, but also the familiarity of possible employers with a qualification (that should guarantee a set of competences) cannot be taken for granted, especially because they were often not involved in designing the qualifications.

In the case of apprenticeships, a specific qualification is prescribed according to the chosen framework that leads to one of 1500 occupations, thus seemingly guaranteeing a certain level (HCL, 2017a, S. 4). However, in absence of a common standard across the different frameworks, there is a lack of comparability between the qualifications. Also, transferability within a level as well as progression to the next level may be guaranteed only within one provider (UK NARIC, 2016, p. 12). Further, with different qualification frameworks in use, equivalence between vocational and academic qualifications are merely theoretical, so that recognition and progression between the two systems prove to be difficult (Musset, 2013, p. 44).

Vocational pathways are thus generally much less structured than academic ones, but huge reforms to fix such flaws and to establish a clear technical option are underway as of 2017. As one measure, apprenticeship frameworks are being replaced by outcome-based competency standards that define the knowledge, skills and behaviours needed in order to be fully competent in an occupation, and the therefore appropriate qualification. They are defined by the employers in a given industry and in cooperation with education experts under the guidance of Institute for Apprenticeships. This non-departmental public body sponsored by the Department for Education will however act as central policy-making and monitoring institution for all vocational education programmes up to level 5, thus providing one common framework for all VET and also many PET programmes. Hence in a second step, it will be renamed the Institute for Apprenticeships and Technical Education in April 2018 and the recognized technical qualifications (T-levels) will be aligned to employer-set standards (HCL, 2017a, S. 7; IfA, 2017a).

The pathways in VPET are being streamlined to 15 routes, in which occupations that share training requirements are grouped, with only one tech level qualification for each occupation

(BIS, 2016a, p. 8).³⁸ For example, jobs such as office manager or administrative officer will be part of the more general route called Business and Administrative, while the Construction-route lead students to becoming e.g. a bricklayer, electrician or carpenter (BIS, 2016a, p. 22 et seq.). While the number of occupations is not necessarily affected, the number of acknowledged qualifications decreases drastically.³⁹ Full implementation of the first routes will start in September 2019 and completion should be achieved by 2022 (HCL, 2017b, S. 3). Thus, students at the age of 16 will effectively need to choose between an academic and a vocational option.

Although the government has been making efforts in expanding VET, the number of students who go on to pursue vocational qualifications (40 percent) is still below OECD-average (46 percent), with numbers being relatively stable in the past few years (OECD, 2017n, p. 3). Of 4'039'996 students in upper secondary education in the UK in 2015/16, 1'619'546 or 40 percent were pursuing the vocational path, which is fairly lower than the EU-average of around 47.5 percent (Eurostat, 2017c). In 2015/16, about 564'973 pupils enrolled in an apprenticeship programme, but more than 40 percent of the apprentices were aged 25+ and only around 32 percent in the age of upper-secondary students (HCL, 2016, S. 3; HESA, 2017a). In contrast, enrolment in apprenticeship programmes at the postsecondary level have almost tripled since 09/10 (HCL, 2016, S. 8). This has been achieved mainly by rebranding labour market integration programmes as apprenticeships, implying a focus on quantity rather than holistic formation, which is affirmed by the fact that around 60 percent of the new enrolments in 2014/15 were at ISCED level 2 (Kirby, 2015, p. 7). The most popular routes are Health and Social Care, Business Administration and Management (HCL, 2016, S. 10).

Table 6 Apprenticeship Programme Starts in 2015/16

	England	Wales	Northern Ireland	Scotland
Intermediate Apprenticeship	291'300	8'410	2'616	9'000
Advanced Apprenticeship	190'900	9'300	3'346	15'800
Higher Apprenticeship	27'200	5'980	121	960
All Apprenticeships	509'400	23'690	6'083	25'800

Source for England: (SFA, 2017); for Wales: (LLWR, 2017); for Northern Ireland: (NISRA, 2017); for Scotland: (SDS, 2017a).

3.1.1 Lower Secondary Vocational Education

Students studying at the GSCE-level at the age of 15-16 can choose vocational subjects along with general academic subjects (UK NARIC, 2016, p. 14). Basically, schools are free to offer any recognized qualification suitable at this stage of education. However, some of those

³⁸ Occupations requiring almost no technical knowledge and skill are not part of the technical education.

³⁹ For a constantly updated list of apprenticeship standards, see (IfA, 2017b).

qualifications proved to be merely easy alternatives to standard GCSEs with low quality and little value in the labour market. In light of the fact that 30 percent of young people with GCSEs or similar alternatives as their highest qualification have low basic skills, the government decided to raise the standards (OECD, 2016f, p. 13). Because of this, only those judged to be of high quality and at least the same size as GCSEs (120 guided learning hours) will be reported in performance tables and continue receiving funding by the government (BIS, 2016a, p. 16) (EURYDICE, 2017p). The Department for Education publishes them as approved technical awards (GOV.uk, 2017h).

3.1.2 Upper Secondary Vocational Education

From the age of 16, Students can enroll in VET programmes in the aforementioned 15 different routes, or in one of the BTEC programmes as described towards the end of this section. All these programmes are also open to adults. As can be seen in Figure 7, there are two-year, college-based programmes on the one hand and employment-based programmes on the other hand. In some cases, it's possible to move between them as the college-based courses are being aligned to apprenticeships. However, for some occupations only apprenticeships, for others only college-based programmes are offered. For all qualification standards, there is a 'common core' education that involves English, maths as well as digital skills (BIS, 2016a, p. 23 et seq.). In order to be able to graduate from VET programmes, all individuals must reach a GCSE level in the first two core subjects. This is partly because this is a common requirement for progressing to higher education (DfE, 2017b, p. 12).

While choosing a specific occupation is already part of the process of choosing an apprenticeship, in college-based programmes, students choose a more general route and study a broader, more general curriculum that is common to the cluster of occupations the route encompasses. After some short-duration work experience in the first year, students will usually specialize in an occupation during the second year, including practical training, for which especially work placement is essential. It can be in the form of working once a week, during a certain amount an-block, or a rotation of placements (DfE, 2017b, p. 15). To this end and to further accommodate to local economic needs, the training providers, most commonly further education colleges, cooperate with local employers. Except for the common skills applicable for all routes, the details of the training depend on the particular standards with many of them not having been worked out yet (BIS, 2016a, p. 24 et seq.). Entry requirements too differ according to each standard; other than being at least 16 years old, there's no general requirements (UCAS, 2017c).

The college-based programs lead to nationally recognized vocational certificates (T-levels) at EQF level 3 and 4,⁴⁰ with only one approved qualification per occupation. The according assessments that are defined in the qualification standards are shaped in accordance with the contents of each qualification, but usually include a synoptic assessment that combines theoretical with practical knowledge. Each of these qualifications is awarded by only one organization that is licensed for a fixed period of time following a bidding process (BIS, 2016a, p. 48 et seq.). These tech levels can be implemented into apprenticeships, but this is subject to the employers designing the apprenticeship standards; other qualifications can be more suitable.

Then, there's the employment-based path, which in most cases means apprenticeships. Apprenticeships take between one and four years and can lead to a recognised qualification at EQF level 3 (intermediate apprenticeships) or 4 (advanced apprenticeships) specified in the apprenticeship standard, but do not mandatorily do so (HCL, 2017a, S. 4). Thus, whether an apprenticeship involves a strong dual (educational) component thus leading to skilled employment or is rather a work experience programme often depends on the individual employer, with smaller companies not having the means to do the former. This has raised strong concerns (Clifton, 2016, p. 16 et seq.).

However, the Department for Education sets minimum requirements, e.g. 280 guided learning hours (GLH) per year, and the provision of English and maths for all apprenticeship standards (DfE, 2017d). The apprenticeship standard also defines the entry requirements; as in college-based education. The only general requirement is being at least 16 years old. Apprenticeships focus on the workplace, and apprentices are legally regular employees with the same rights such as holiday entitlement and a minimum wage. The apprentice needs to be employed for at least 30 hours a week including off-the-job learning at training providers which has to take up at least 20 percent of the total time (HCL, 2017a, S. 3 et seq.). The study part is adjusted to the particular job and can take the form of day (usually one day a week) or block course (UCAS, 2017b).

Besides the newer apprenticeship standards, apprenticeship frameworks are being replaced but are still in use. The apprenticeship frameworks were developed by Sector Skills Councils and prescribe specific qualifications, but lack a clear common standard (UCAS, 2017c). Instead, the qualifications are designed and assessed by awarding organisations, with training providers being able to buying the right to deliver them in compliance with the awarding

⁴⁰ The European Qualifications Framework differentiates between general secondary (level 3) and upper-secondary (level 4) education. On the ISCED scale, both are classified as level 3.

organisations' requirements (Musset, 2013, p. 60). Therefore, qualifications are often not comparable across occupations, making it impossible to set a common standard.

In the transition period, while any qualification may be taught, only the existing qualifications closest to the national standards are approved as technical qualifications and thus eligible for public subsidy (DfE, 2017b, S. 9). They are published annually by the government and can be classified into three kinds (EURYDICE, 2017q) (HCL, 2017b, p. 5 et seq.)⁴¹:

- 1) Tech level qualifications at EQF level 4 that lead to recognised occupations, with only one approved qualification per occupation. They are backed by a professional body or at least five employers. Tech levels are considered on a par with A levels and are taken following after two years of studying, including at least 300 GLH and are assessed either by observation of specific tasks at work or by compiling a portfolio of evidence. They can lead to skilled employment, an apprenticeship or a technical degree.
- 2) Applied general qualifications that assess transferable knowledge and skills related to a vocational area at EQF level 4 with a minimum of 150 GLH. They are typically two-year study programmes that are backed by at least three universities and offer a route to higher education (often alongside other qualifications).
- 3) Technical certificates at EQF level 3 that can lead to skilled employment, tech levels or apprenticeships. They are taken after one year of post-16 study involving at least 150 GLH.

The most widespread vocational qualification in England, Northern Ireland and Wales are the BTEC qualifications. As the provider decided not to partake in the reformed system, they provide an alternative path to vocational education that is completely independent of the above described programmes. BTECs are designed as modular courses similar to GCSEs, and can be studied in schools and colleges from ISCED level 2 up to level 7. As such, BTECs are especially strong in the field of applied general learning. For example, BTEC Nationals offer a similar standard to A levels and are accepted by many universities and further education colleges, although sometimes they need to be combined with further qualifications (Pearson, 2017a). In general, after achieving upper secondary level vocational or mixed qualifications, access to higher education is possible in the UK but is subject to institutional discretion. The same holds true for progression to higher VET programmes (UK NARIC, 2016, p. 13).

⁴¹ On levels ISCED 4 and above too there will be national standards that are overseen by the Institute for Apprenticeships and Technical Education. As this body operates in a first step as Institute for Apprenticeships until April 2018 and the standards are still under development, the list includes only qualifications up to ISCED level 3 as of fall 2017.

In Scotland, after completing the National Qualification courses, the usually 16 year old students are free to choose how they want to proceed within the education system. With only 11 percent leaving school at that stage and 65 percent completing all six years of secondary school until the age of 18 (2013/14), pursuing the general educational path is common (EURYDICE, 2015d). Only English and maths are compulsory so that the students enjoy great freedom in choosing between a broad range of courses (the variety depending on the individual institution) including National Certificates. These are single-subject qualifications. In addition, a variety of vocational programmes available. The so-called foundation apprenticeships are a further option: during the last two years of secondary school, pupils can enrol in a two-year long work-based learning opportunity with an employer while completing their other subjects at school. They are usually accounted for as an equivalent to two Highers, the Scottish equivalent to the A levels. Foundation apprenticeships are currently available in eight subjects and enable the trainees to progress to a fast-track apprenticeship, a job or to further study (SDS, 2017b).

For students choosing to leave school, modern apprenticeships are one of the main vocational options. They are available at EQF levels 3 to 5 and around 25'000 starts a year (see Table 6). They include the completion of the relevant Scottish Vocational Qualification (SVQ) which were developed by Sector Skills Councils and are based on standards of competence. Like the tech level qualifications in the rest of the UK, they are not written exams but assessed either by observation of specific tasks at work or by compiling a portfolio of evidence. These qualifications can also be taken as part of college-based vocational education. Other vocational qualifications such as National Certificates or National Progression Awards too may be part of the curriculum of apprenticeships or be studied full-time or part-time on their own. All of these vocational options are part of adult and further education in Scotland (EURYDICE, 2016g) (UK NARIC, 2016, p. 23).

For students who are not ready to start a route after completing the compulsory general education, there will be a 'transition year' that offers support based on prior attainment and aspirations and may last up to one year. It can be school-based, but there's also the traineeship programme (BIS, 2016a, p. 28). It was introduced in England in 2013 for youngsters aged 16 to 24 who are unsuccessful at applying for an apprenticeship or other employment. It provides work experience and, if needed, support in English and maths (GOV.uk, 2016e). In the first two years, 30'000 people undertook traineeships with two-thirds of them reaching apprenticeships or similar occupations after successfully concluding the traineeship (BIS, 2015b, S. 31 et seq.). Similar programmes are in operation in Wales and Scotland.

3.1.3 Post-secondary non-tertiary education

National Vocational Qualifications (NVQs)⁴² at level 4 as well as BTEC Higher National Certificates (HNCs) are mapped as ISCED 454 and are therefore post-secondary non-tertiary vocational education (UNESCO, 2011). Most commonly, they are attended at further education colleges, sometimes as part of a higher apprenticeship. NVQs are work based awarded for the ability of performing a job to a certain standard and are assessed by observation or portfolio. HNCs are technical qualifications that usually take one year of full-time studying and most of them will then give access to studying another year for a Higher National Diploma at ISCED level 5, which then again may provide access to bachelor's programmes (Pearson, 2017b). Because students would usually proceed from upper secondary higher/tertiary education directly, HNCs and other ISCED level 4 qualifications have an in-between status: they are regarded as equivalent to the first year of a University degree and thus merely a stepping stone to ISCED level 5 or 6 qualifications (Musset, 2013, p. 44).

3.2 Professional Education and Training (PET; Post-Secondary Level)

In the UK's vocational education system, a clear distinction between further and higher education on the one hand and VET and PET on the other hand are difficult to draw. This is mainly due to the fact that there are in principle no limitations on what qualifications a training provider may provide, as long as they are granted the right to teach them from an awarding organization. Thus, they would often fail to fall into one of these categories. For example, while further education colleges usually offer various programmes that may enable students to progress into higher education, they often also provide higher education programmes that are awarded either by a higher education institution such as a university or by an independent awarding body. One example for the latter are the BTEC Higher National Diplomas (HNDs), which are classified as tertiary vocational education (ISCED 550) (UNESCO, 2011). Thus, the levels of the qualifications provide the best orientation to navigate through the UK's PET system.

At ISCED level 5, there's the NVQs at level 5, signifying a higher standard of competency than those at level 4 mentioned in the last section. Another combined academic and work-based learning qualification at ISCED level 5, are the foundation degrees, which resemble the aforementioned HNDs. Though students usually need a completed ISCED level 3 qualification to enroll in a foundation degree programme, there are no nationally set entry requirements. The foundation degree programmes can be studied on a full-time basis, which typically takes two years, or on a part-time basis. However, they are recognized degrees and, as such, may

⁴² In the case of Scotland, Scottish Vocational Qualifications.

entitle holders access to an occupational field. Moreover, since foundation degrees are awarded by universities, they can also allow students to pursue a full honours degree (unionlearn, 2017b).

Especially at levels 5-7, there are individual awards, certificates and diplomas such as graduate certificates related to specific occupations like career guidance or business psychology that are typically offered at universities. These or similar qualifications are part of higher apprenticeships which involve work-based qualifications at ISCED levels 4 up to level 6. In 2015/16, about 34'261 students enrolled in a higher apprenticeship programme (see Table 6). These programmes have seen a rapid grow in demand since 2009/10. This can be attributed to three main factors. The first is a direct reaction to the continuing demand of highly skilled people on the labour market (BIS, 2016a, p. 7). The second is the government's response to this situation, the growing investment in apprenticeships from 2010 onwards. Aiming to raise apprenticeships' status to being an equal alternative to the academic route, establishing higher apprenticeships is crucial. The third is the increase in university fees, indirectly rendering apprenticeships more attractive (Musset, 2013, p. 48).

Therefore, as a flagship of the VPET system, the degree apprenticeships (ISCED levels 6-7) were launched in 2015 in England and Wales. These industry-designed programmes involve the option to study at a university or college and lead to a bachelor's or master's degree. The courses are either existing degree programmes whose knowledge is desirable for a profession, or a newly designed fully-integrated degree course. In the former case, assessing the different training requirements is done separately, while in the latter case tests will cover all aspects. They take between three and six years to complete. About 24 different degree apprenticeships are offered right now, most of them for technical jobs (UCAS, 2017d).

Like apprenticeships at lower levels, degree apprenticeships need to comply with the apprenticeship standards that are approved by the Institute of Apprenticeships. The degree content including the respective qualification is under the responsibility of the providing institutions that are regulated by the Office for Students, a public body established in 2017 to regulate all higher education, with full operation starting in April 2018 (GOV.uk, 2017f). Some of the degree apprenticeships are taught at the four National Colleges.⁴³ They were launched between 2016 and 2017 as a means to provide specialized training at levels 4 to 6 in technical sectors where there is a lack of providers, especially nuclear (the UK is planning to build five new nuclear plants by 2030) and the new industry of high-speed rail, and hold degree-awarding

⁴³ Five National Colleges were planned to launch by September 2017 but the National College for Onshore Oil and Gas is delayed (HCL, 2017b, S. 14).

powers (BIS, 2016a, p. 26 et seq.). Currently, there are 100 higher and degree apprenticeships, but because of the greater specialization on tertiary level, a wider range of qualifications is under development (GOV.uk, 2017g) (HCL, 2017b, S. 12).

The aforementioned HND qualifications, classified at the ISCED level 5, are also offered in Scotland. They or other qualifications such as a Professional Development Award (PDA) at the respective level are included in the so-called *technical apprenticeships*. At the level of honours degrees and above, there are professional apprenticeships that include a PDA or professional Graduate Diploma at ISCED level 6 or 7. In both cases, the training provider is usually a college and the training lasts between one and four years, depending on the apprenticeship framework (AS, 2017a). As a close equivalent to the degree apprenticeships in other parts of the UK, graduate-level apprenticeships were launched in Scotland in 2017. Delivered at universities or colleges, they provide the apprentice with a development framework with options for entry and exit points ranging from a HND to a master's degree and last between two and four years. As of fall 2017, graduate-level apprenticeships are only available in engineering, but other subjects are under development (AS, 2017b).

3.3 Regulatory and Institutional Framework of the VPET System

3.3.1 Central Elements of VPET Legislation

England's and Wales' education system is regulated by various Acts of Parliament (UNESCO, 2012b). There is no single regulatory framework that would define the legal basis of the school system, which is especially true for the VPET system. The legal framework for general schools and further education colleges, thus also the VET system, is defined in the Education Act 1996 and the School Standards and Framework Act 1998. Since then, the Education Act 1996 has seen multiple amendments. Among these, the Education Act 2011 is of particular importance as it includes measures that aim to increase the skill level of the youngsters, such as securing the public funding of apprenticeships for those aged 16-18. However, the most important regulations concerning the VPET system are set out in the Further and Higher Education Act 1992, taking further educational institutions, the providers of vocational education, out of the control of local authorities and creating a single higher education sector.

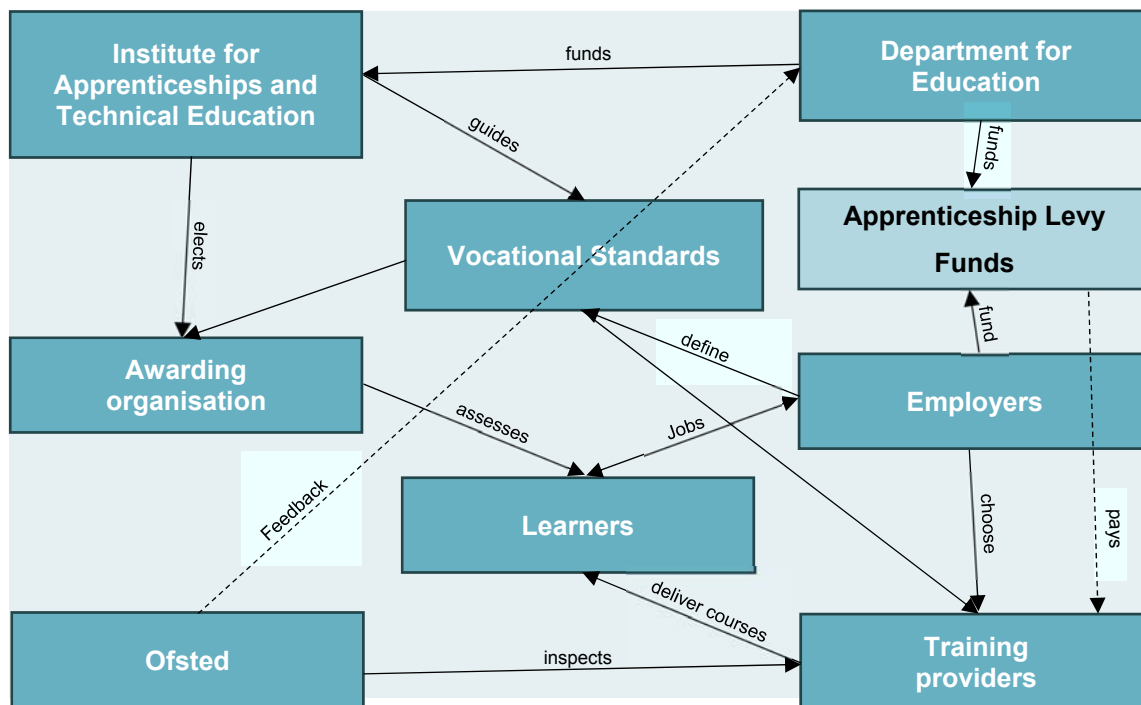
The Enterprise Act 2016 contains measures to promote apprenticeships such as setting targets for public sector bodies for the number of apprenticeships that should be achieved, and it established the Institute for Apprenticeships.

In general, the educational legislation in the UK sets the framework and broad aims for the educational system, leaving large room for local governments and especially individual schools to decide about concrete elements and processes of the education system (OECD, 2015d).

3.3.2 Key Actors of the VPET System

The different actors that are relevant for the UK's VPET system are described in this section. Because there is no clear separation of actors between the VET and PET system, both systems are treated at the same time. Figure 9 below provides an overview of how those actors are linked to each other, thus showing how the VPET system is structured.

Figure 9 English VPET system



Government

The overarching guidance for all policy makers in England is set by Her Majesty's Treasury (HMT), providing political recommendations in order to ensure public funds are spent to the best public benefit. HMT's Green Book (HMT, 2011) advises on how to analyse how policies have performed against their own objectives, and then develop, implement and re-evaluate policies, programmes and projects. In the area of education, responsibility for policy lies with the Department for Education (DfE), which defines the national framework for England's VPET-system (BIS, 2016a, p. 19). However, the responsibility for the post-secondary level was with the Department for Business, Innovation and Skills (BIS) until July 2016, which was then replaced and the responsibilities transferred to the DfE (HCL, 2017a, S. 7).

Every department publishes its priorities during a parliament⁴⁴ in single departmental plans. More detailed strategic plans that work out specific aspects of these priorities are then

⁴⁴ Currently: 2015-2020.

published. As vocational education was the responsibility of the Department for Business, Innovation and Skills until July 2016, much of the design for the current reforms were conducted under its guidance (HCL, 2017a, S. 7). One example for a strategic plan is “English Apprenticeships: Our 2020 Vision” (BIS, 2015b), another the “Post-16 Skills Plan” (BIS, 2016a). These set up the framework of the new VPET system. Based on reviews of the former VPET system, which stressed that vocational education needed to have a clear structure and strong employer support in order to be successful, they define the roles of employers and training providers.

The institution in charge of quality assurance in England is the Office for Standards in Education, Children’s Services and Skills (Ofsted).⁴⁵ It is a non-ministerial government department, and covers all education including work-based learning and adult education, except for all higher education institutions such as Universities and colleges of higher education, which are self-governing within the framework for higher education set by the Higher Education Funding Council for England, a non-departmental public body sponsored by the DfE.⁴⁶ The Ofsted inspects and judges schools and other providers of education according to the framework of quality assurance set by the central government and publishes the reports on their website annually (EURYDICE, 2015e).

The Office of Qualifications and Examinations Regulation (Ofqual), a non-ministerial government department, is responsible for regulating qualifications that were funded by the government (except for those in higher education because Universities and some other institutes possess degree awarding powers) (BIS, 2015b, S. 17).⁴⁷ It does so by accrediting independent awarding bodies. However, as a result of the reforms, the Department for Education took over the responsibility to approve qualifications. Only those that are close to the national standards are eligible for public funding (EURYDICE, 2015f).

In Northern Ireland, the Department of Education is responsible for VPET at the upper-secondary and the Department for the Economy for VPET at the post-secondary level. In Wales, the Department for Education and Public Services is the responsible ministry for VPET at the upper-secondary and the Department for Economy, Skills and Infrastructure at the post-secondary level. And in Scotland, it is the Department of Learning and the Department of Lifelong Learning respectively.

⁴⁵ As institutions pursuing a very similar function, in Northern Ireland, there’s the Education and Training Inspectorate; in Wales, Her Majesty’s Inspectorate for Education and Training; and in Scotland, Education Scotland.

⁴⁶ Although not obliged by law to do so, they are however relying on the Quality Assurance Agency for independent review.

⁴⁷ Here again there’s similar agencies in other parts of the UK. In Northern Ireland, it is the Council for the Curriculum, Examinations and Assessment; in Wales, Qualifications Wales; and in Scotland, the Scottish Qualifications Authority (UK NARIC, 2016, p. 24).

Representation and advisory bodies

Before the current reforms started taking place, England relied on market conditions: the idea was that Ofqual recognised private degree awarding bodies which would then design qualifications in cooperation with different stakeholders on their own initiative in order to gain an edge over their competitors. However, this in fact had led to the situation that the awarding bodies are much more concerned with satisfying Ofqual than employer or teacher organisations (Wolf, 2011, S. 101). As a result, the government decided that in order to receive public funding, qualifications need to correspond to national occupational standards that act as learning targets for vocational and professional education. They were conceived mainly as a guidance for awarding bodies and were, together with the apprenticeship frameworks, developed by Sector Skills Councils (SSCs). These consist of employers, trade unions and professional bodies that each cover a specific sector each and are licensed by the Department for Education (GOV.uk, 2014).

However, they are now being redesigned under the guidance and quality control of the Institute for Apprenticeships and Technical Education. The parties developing them are no longer Sector Skills Councils but 'trailblazers', i.e. employer-groups representing their sector and occupation, which develop occupational standards and assessment plans. They work together with provider groups to ensure strong linkage between the two groups (BIS, 2015b, S. 46). Further, a panel of apprentices has been appointed so as to make sure the apprentices have a voice in decision-making processes, which however is not regulated by law (HCL, 2017b, S. 22).

Besides these groups that are formed on governmental incentive, associations are independently organized. Employer's associations are usually organized sector or occupation-wide, such as the CITB⁴⁸-Construction Skills organization for the construction industry (UKTI, 2012, S. 36). Education providers are organized according to type or level of education. To represent the interests of all kinds of colleges, there's the Association of Colleges. Universities are grouped in the Universities UK organization, with many of them also being part of GuildHE, a body representing higher educational institutions in the UK. As a further association spanning across different levels and types, there's the Association of Employment and Learning Providers which represents vocational education and employment providers.

These associations also conduct research and act as advisory bodies. However, to have neutral advisory bodies reviewing the education sector, the Department for Education (formerly

⁴⁸ Construction Industry Training Board.

the BIS) commissions independent panels. The current reforms were strongly shaped by the Wolf Review (pre-19 vocational education), the Whitehead Review (adult vocational qualifications) and the Holt Review as well as the Richard Review (apprenticeships) (UK NARIC, 2016, p. 34). Also for the reform application, the government appointed the independent Sainsbury panel, whose proposals the BIS chose to implement altogether (BIS, 2016a, p. 6).

Education and training providers

In the UK's VPET system, the education providers are not regulated by law. Rather, the training providers negotiate with the awarding organisations for having the right to deliver a specific qualification. Any organisation that completes the Education and Skills Funding Agency's market entry pre-qualification process is eligible for government funding, of which there were 3980 in January 2017 (ESFA, 2017). Thus, there is a wide range of providers including many private organisations (UK NARIC, 2016, p. 23). One of the biggest education providers are the universities, usually offering courses at professional level resulting in qualifications such as HNCs or higher. They are also the main educational providers of higher and degree apprenticeships.

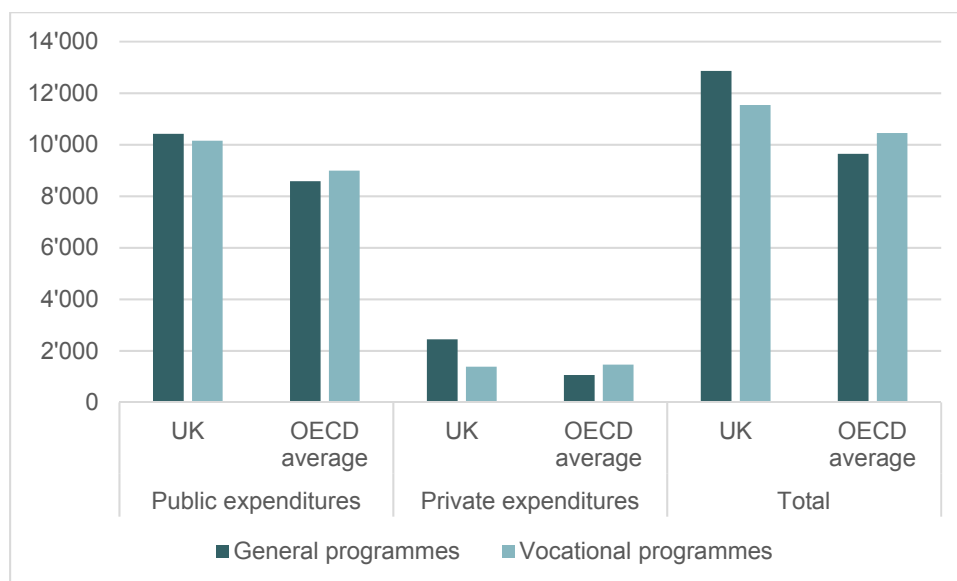
However, the main training providers in UK's VPET system are the 334 further education colleges, of which 288 are located in England as of fall 2017 (HEFCE, 2017). They used to focus on VET courses and are still the main providers of the increasingly popular HNCs, HNDs and foundation degrees, making up for three quarters of undergraduate students taught at further education colleges, but are now offering a broader programme, often including GCSEs and A levels. There are currently 313'000 people who do their apprenticeship training in further education colleges, but the government predicted an increase of share of further education colleges in the apprenticeship training market (BIS, 2015b, S. 44). Of these 288 colleges, the most widespread ones are the 189 general further education colleges. Together with the 73 sixth form colleges which are exclusively for students of the age of 16-19, they also offer full-time courses. Other forms of colleges are land-based (14), specialist designated (10) as well as art, design and performing art colleges (2) (AoC, 2017).

3.4 Educational Finance of the VPET System

In 2014, the United Kingdom spent 6.6 percent of its GDP on education, which is the highest share spent on education among all OECD countries, and significantly more than the OECD average of 5.2 percent (OECD, 2017n). At the upper-secondary level, the UK spent 1.2 percent of its GDP for general educational programmes and 0.5 percent for vocational programmes.

This reflects mainly the lower enrolment rates for the vocational path, which is at 33 percent at the upper-secondary level.

Figure 10 Expenditures at the upper-secondary level in 2014



Source (OECD, 2017n).

The Education and Skills Funding Agency (ESFA), an executive agency sponsored by England’s Department for Education, is the governmental agency responsible for providing public funding for the entire educational sector except for higher education which is described in the section on PET below. Apart from that, the funding in England’s VPET system generally works on a per-student-basis with the amount depending on the programme. As a special case, the funding of basic achievements is however funded by the adult education budget provided by the ESFA as described above in section 2.5 (ESFA, 2017, p. 22). English and maths provision up to ISECD level 2 are fully funded for all learners, whereas the first full level qualifications at ISCED levels 2 and 3 are fully funded through public money for 19-23 year-olds as well as the unemployed. Employees are eligible for co-funding of 50 percent of school-based training costs at ISECD level 2, while financial support for higher levels is provided through loans. For 16-19 year-old full-time students, the study programme is funded by the national 16-19 funding formula which defines a funding rate of currently £4000 per 16 and 17 year old full-time student (HCL, 2017b, S. 5).

3.4.1 Educational finance of the VET system

As first full level qualifications up to ISCED level 3 are fully funded for most learners, college-based VET is funded by the government in the same way as students pursuing the path of general education. This is why the educational finance of work-based VET, or apprenticeships, is discussed in this section. In April 2017, a new apprenticeship funding system came into

effect in the whole of UK. Employers themselves are now purchasing the apprenticeship training (BIS, 2015a). To this end, there is the Digital Apprenticeship Service. This is a platform on which employers can first select an apprenticeship, find a candidate and then choose a training provider with which they can negotiate the price for the training and assessment of the apprentice.

All apprenticeship standards and frameworks are now assigned to a specific funding band, with the upper limit ranging from £1500 to £27'000 (HCL, 2017a, S. 14 et seq.). These bands set the maximum amount spent for educational training (including the external assessments) that the government supports. The total price may exceed the upper limit. In that case, employers need to pay the difference between the upper limit and the actual amount (DfE, 2016b, p. 10). Within the funding band however, the government pays two-thirds and the employers one-third of the total price.

Employers do so by using an apprenticeship levy funds provided by the Digital Apprenticeship Service, by which they also pay the training providers (BIS, 2015b, S. 49). Employers with a pay bill of over £3 million a year are required to pay a levy set at 0.5 percent of the pay bill, minus an allowance of £15'000 (HCL, 2017a, S. 3 et seq.). This means that the effective levy on employers with a pay bill of exactly £3 million amounts to zero. It is paid into an apprenticeship service account, which's funds' use is restricted to training and assessment of apprentices. Workplace-based learning in contrast may not receive any public funding. The government pays an extra 10 percent on top of the levy paid by the employers. For example, employers with a pay bill of £5 million have a levy of £10'000, and the government would then pay an additional £1000 into the apprenticeship service account. Unused funds are made available to pay for the apprentices of other employers after a certain amount of time (BIS, 2015b, S. 52). Employers with a pay bill below £ 3 million a year do not pay the levy and thus have no funds available. Instead, they pay 10 percent of the cost of training and the government covers the remaining 90 percent. In the case of small employers with fewer than 50 employees, the government pays all the costs for apprentices aged 16-18. In so doing, the annual spending on apprenticeships will amount to £2.5 billion by 2019/20, which means a doubling compared with 2010/11, with the government granting around £1 billion (BIS, 2016a, p. 37).

In Northern Ireland, VET funding is provided by the Department for the Economy; in Scotland, by Skills Development Scotland; and in Wales, by Welsh Government and the Higher Education Funding Council for Wales (UK NARIC, 2016, p. 23).

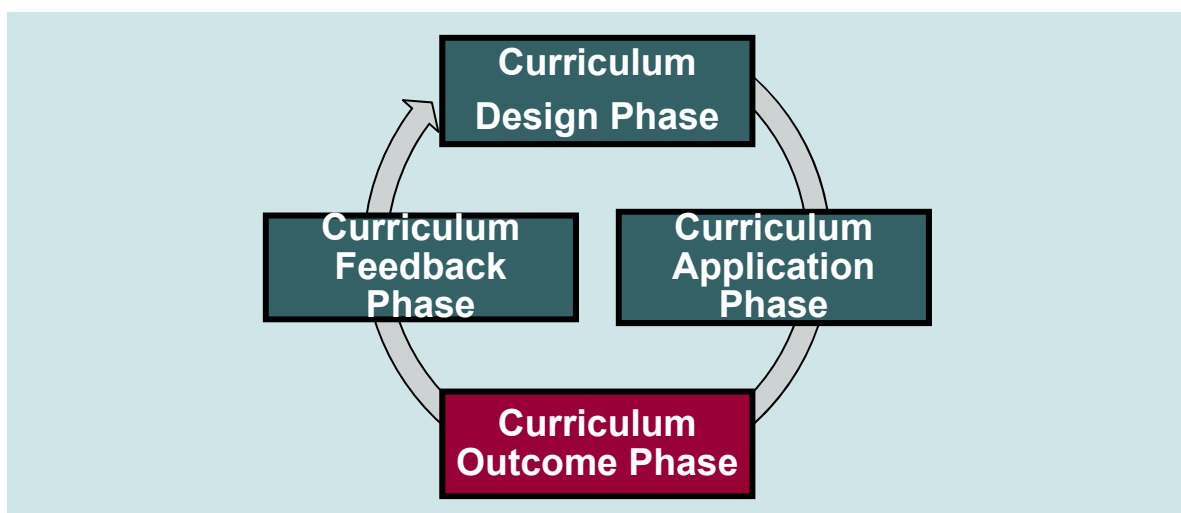
3.4.2 Educational finance of the PET system

PET courses that are part of higher or degree apprenticeships are financed in the same way as other kinds of apprenticeships, but standalone courses that are part of higher education fall under a different kind of funding system described in this section. Higher education provision is funded by the Higher Education Funding Council for England (HEFCE), a non-departmental public body sponsored by the DfE (EURYDICE, 2016). It funds prescribed courses of higher education including HNCs, HNDs or foundation degrees (UKCES, 2013a). The courses are funded directly by the HEFCE if conducted at higher education institutions themselves. Higher education institutions can however also have a franchise arrangement with a further education college to deliver the teaching. In the latter case, the student would be inscribed at the higher education institute that accordingly receives the funding by the HEFCE, but parts of the funding are passed to the further education college as part of the franchise agreement.

3.5 Curriculum Development

The curriculum is a central element for the functioning of a VPET system by defining the framework and the (quality) standards for the education system. The development of a curriculum can be decomposed into a three-step process with a curriculum design, a curriculum application and a curriculum feedback phase. This theoretical concept is called the Curriculum Value Chain and is depicted in the picture below (CVC; for more details see (Bolli, et al., 2016)).

Figure 11: Curriculum Value Chain (CVC)



Source: (Bolli, et al., 2016)

In the curriculum design phase, VET curriculum content and qualification standards are decided upon by the relevant actors. Therefore, the discussion in the respective subchapter below focuses on the degree and the amount of stakeholder participation concerning

curriculum design in the UK. The curriculum application phase revolves around the implementation of the curriculum. Because learning environments differ heavily across countries—especially with respect to the prevalence of workplace learning—the curriculum application phase subchapter in this factbook focuses those learning environments. Specifically, it addresses where learning takes place and whether the curriculum dictates both school and workplace learning or only one of the two. Finally, curriculum outcomes can be collected and analysed in the curriculum feedback phase. This evaluation process is important as it may render a more refined curriculum design than was possible in the first place.

3.5.1 Curriculum Design Phase

The design phase is crucial for the whole curriculum process. In order to ensure that the skills taught in the VPET programmes correspond to the needs of the labour market, experts from companies should be involved in defining the qualification standards and learning contents of the curricula.

Employers are responsible for setting the standards for skilled employment which define the behaviour, knowledge and skills required for every occupation (IfA, 2017d). Over 2600 employers from all sectors of the economy are involved in this process as of fall 2017 (GOV.uk, 2017g). They do so in cooperation with expert education professionals provided by the Institute for Apprenticeships and Technical Education, a non-departmental public body sponsored by the Department for Education, which is in charge of providing a coherent strategy for the entire VPET system, e.g. ensuring all programmes include a common core of general education, as well as mechanisms to ensure quality control of the system (IfA, 2017c). The employer-groups that design the standards are encouraged to involve other industrial experts and as well as representatives from education and assessment providers, which is common practice, but there is no legal requirement to do so (BIS, 2015b, p. 22 et seq.). The submitted standards are then peer-reviewed by experts.

Based on these standards, all the vocational programmes as well as the assessments are designed (IfA, 2017b). Educational providers are basically free in determining the concrete curriculum needed to meet the standards assessed by integral end-point examinations at the end of a programme (BIS, 2015b, p. 12). They combine practical tasks with theoretical knowledge to ensure that the examinee can put together the different elements learnt and are designed by the employer-led trailblazers that also define the standards. These examinations are delivered by assessment organisations which are accredited as such by Ofqual. The training focuses on enabling the students to meeting these standards, with the focus of the curriculum usually lying on directly work-related aspects, especially at lower levels. However, this depends on the individual programmes.

While this is true for school-based as well as work-based VET, in case of apprenticeships, employers negotiate with the education providers on the form and style of the school-based learning. As a result, education providers need to adapt to the market-style situation by working together with local employers on the base of area reviews that display the local economic demands (DfE, 2017e). In order to support the restructuring of the training providers, the government however provides funding (BIS, 2016a, p. 34).

3.5.2 Curriculum Application Phase

The way in which a curriculum is implemented—especially with respect to learning environments—is important to achieve the intended learning outcome. As described in section 3.1.2 VET programmes (upper secondary level) in the UK have a school- and a work based component. In contrast, although the educational programmes can be part of apprenticeships, PET programmes (postsecondary level) are school-based, as described in section 3.2.

Accordingly, the share of classroom education and workplace training depends on the programme. In the case of apprenticeships, classroom education has to take up at least 20 percent of the total time employment time of an apprentice, which is an absolute minimum of 6 hours (HCL, 2017a, S. 3 et seq.). This covers the core education in English, maths as well as digital skills that is required in all standards.

However, the exact amount is negotiated between the employer of an apprentice and the education providers. Concrete details are agreed individually in a contract (“apprenticeship agreement”) signed by the employer, the educational training provider and the apprentice that includes schedules and key milestones (BIS, 2015b, p. 16 et seq.). Equipment provision can also be part of these negotiations. The agreement needs to be shaped such that it leads the apprentice to achieve the occupational standards, i.e. full competency in an occupation (BIS, 2015b, p. 11 et seq.). This is ensured by an assessment plan that is a part of every occupational standard, defining the examination modalities particular to an occupation including quality assurance arrangements. Thereby, the curriculum of the workplace training too is automatically fixed to some extent. A suggestion for a concrete curriculum is included in many standards, but this does not need to be the case (BIS, 2016a, p. 21). In general, there are no regulations regarding the workplace curricula.

Due to the fact that there is no clear distinction between vocational or professional and general education in terms of education providers, no reliable statistical data regarding teachers in the VPET sector are available.

3.5.3 Curriculum Feedback Phase

The curriculum feedback phase deals with the question, whether and how educational outcomes are analysed. Based on this, the curriculum could be re-worked and improved.

The Office for Standards in Education, Children's Services and Skills (Ofsted) is England's department responsible for inspection of schools and further education colleges, i.e. the main providers of vocational education (UK NARIC, 2016, p. 20 et seq.). Its goal is to evaluate the effectiveness of the training for the learners. This is done by external assessment based on the common inspection framework (Ofsted, 2015) as well as self-assessment by the teachers and students, which again inform the inspectorates, especially regarding the quality of leadership and management of the schools and colleges (UKTI, 2012, S. 16). The self-assessments however are not required by law, but common practice. The inspection reports are then published in order to inform potential candidates (EURYDICE, 2015e).

The frequency of inspection is usually within three years but depends on the status: providers judged outstanding may be inspected less frequently, while inadequate providers will be reinspected within 15 months. In the latter case however, there will be an intervention process: the education providers are supported by Ofsted on an individual basis in order to target specific shortcomings (Ofsted, 2016). During this time, monitoring to assess the improvements takes place every three months. Similar institutions and procedures are also operating in different parts of the UK: the Education and Training Inspectorate in Northern Ireland, Education Scotland in Scotland and Estyn in Wales.

The Institute for Apprenticeships and Technical Education reviews the quality of technical standards on the base of apprenticeship starts and wage returns and adjusts the designing process accordingly (BIS, 2015b, p. 42). Further, the employer groups designing the standards are required to review their standards within three years. Another instrument concerning the development of vocational education is the Labour Force Survey that is used along with other surveys to predict market needs and thereupon align the provision (UK NARIC, 2016, p. 30 et seq.).

The overall evaluation of vocational education as well as general education is however not done by any specific body. Rather, the government, especially the Department for Education, commissions independent expert panels to review elements such as apprenticeships. Examples are the Wolf Review of pre-19 vocational education, the Whitehead Review concerning adult vocational qualifications, and relating to apprenticeships, the Holt Review as well as the Richard Review. Upon them, the government decided to enact profound reforms of the VPET system, for which again an independent panel comprising of industry, education and

business experts was appointed, and resulted in the Sainsbury report (2016) which's proposals are the reforms themselves (BIS, 2016a, p. 6).

3.6 Supplying Personnel for the VPET System (Teacher Education)

The qualification requirements and working conditions for teaching staff working in the UKs VPET system are not regulated legally, so that the framework described in section 2.6 does not apply for teachers in the VPET system. Instead, it is up to the educational institutions themselves, especially the head teachers, to determine the appropriate qualifications (DfE, 2016a, p. 25). Pay, duties, training and other conditions are the responsibility of the head teacher of a school. Therefore, VET providers can employ experts from other fields even if they have no teacher training at all. Therefore, in contrast e.g. to the Swiss VPET system where teachers undergo a well-developed pedagogical programme, there are also many vocational teachers with only very limited pedagogical skills in England, especially in fields with teacher shortages such as maths (Musset, 2013, p. 96). However, occupational qualifications at ISCED level 3 and a teaching qualification usually at level 5 such as the Diploma in Education and Training are common employment requirements to become a full teacher in many further education colleges (UK NARIC, 2016, p. 8 et seq.). The practice is similar in all of the UK. For teaching staff in the further education sector in Wales, a teaching qualification is required whereas in Northern Ireland, teachers moreover need to possess occupation qualifications at ISCED level 5 or higher.

The usual path for teachers is to go through initial teacher training (ITT), lasting around one year. There are various providers of ITT, but since school-based ITT has proved to be more effective than other forms, it is encouraged by the government since 2010, resulting in over half of the trainees undertaking school-based ITT in 2016 (DfE, 2016a, p. 29). However, there is a "further education learning and skills teacher" apprenticeship at ISCED level 5 that lasts for two years (IfA, 2015). With competence in a vocational or specialist area being entrance requirements, this is a "dual-professional" programme that leads experienced professionals to a career in teaching in the VET sector. As there are few dedicated providers of vocational education in the UK, no numbers can be given on VPET school teachers. During 2013/14, there were around 122'000 teachers working in further colleges in England, 3500 in Northern Ireland, 5000 in Scotland and 9000 in Wales, but it is unclear how many of them are involved in VPET (UK NARIC, 2016, p. 10 et seq.).

Major Reforms in the Past and Challenges for the Future

4.1 Major reforms

During the past decades, the VPET system in the UK has been constantly reformed, with various changes regarding qualifications frameworks, inspection policies and the overall system. Notably, the Modern Apprenticeship system, introduced in 1994, and the upper limit of 25 years were abandoned in 2003/03 (HCL, 2016, p. 5 et seq.). In 2006/07, apprenticeships located at the higher education sector were introduced. The key aim of the government in 2010-15 in their skills strategy was to improve the VPET system in order to tackle the skills lack of the population (HCL, 2015). The Education Act 2011 guaranteed public funding for apprenticeships for some people such as those aged 16-18, and the government raised the minimum standards for apprenticeships such as a length of 12 months or more and training in maths and English.

As a result of the Wolf Report (2011) and the Richard Review (2012), the government acknowledged the need for substantial reforms of the VPET system, especially regarding the qualifications and apprenticeship systems. The Department for Business, Innovation and Skills, which was in charge of post-secondary education until 2016, designed reform plans that ultimately led to the ongoing reforms concerning the entire VPET system, as is described in part 3 of this Factbook.

Under the current government that took office in 2015, the Department for Education is now in charge for all kinds of education. The Institute for Apprenticeships (and Technical Education), a newly established non-departmental public body sponsored by the DfE, acts as ultimate instance in matters regarding the VPET system. All vocational education is being streamlined to 15 general routes, with the exception of BTEC courses that offer a vocational path independent of the reformed system. These routes group together occupations with similar training requirements. Instead of the hitherto existing numerous qualifications, employer-led trailblazers are designing one standard for each occupation in which the end-point assessment that should guarantee full competency in an occupation is specified, so that there is just one qualification. New programmes at a higher level such as degree apprenticeships are being launched, aiming at establishing the vocational path as an equal alternative to the academic one. With the introduction of the apprenticeship levy, the funding model of apprenticeships has also been reformed.

4.2 Major challenges

According to the OECD Skills Outlook (2017q), the UK's productivity growth is below OECD average, and recommends upskilling the workforce—especially at advanced and basic education levels. Another report by the OECD, “Building Skills for All: A Review of England” (2016f), goes in the same direction but describes the challenges in great details and gives concrete proposals. With the reviews of the UK's VPET system mentioned in section 3.5.3 have recognized similar problems, the reforms that are taking place can all be seen as measures to tackle these problems. Therefore, the objectives are presumably the right ones.

However, with the reforms being implemented as of fall 2017, there is no data on the success of the reforms, and evaluations cannot be made yet. As the whole VPET system has seen a major redesign, it remains to be seen how effectively the reforms can be implemented and how good the quality of the vocational and professional education will actually be.

There are however substantial doubts about the design of the new system. In school-based vocational education, work placements should be essential, but this element is not clearer worked out. Instead, training providers are asked to negotiate with local companies. Therefore, it is questionable whether work placements can and will always be implemented, and if they are, of what quality they will be.

In the case of apprenticeships, a recognised qualification can but must not necessarily be part of the programme, as mentioned in section 3.1.2. Therefore, many trailblazers chose to leave this open so that individual employers can decide. As the apprenticeship levy's funds need to be used for external training, it was supposed to be the measure to tackle this problem. However, many companies expressed concern about the lack of flexibility (CBI, 2017, p. 67 et seq.). Businesses, committed to investing in skills, were looking to reconfiguring their training programmes into apprenticeships so they could use the funds for upskilling, cutting down on internal provision instead. Therefore, the result of the employers being able to negotiate about the terms of assessment is that many would choose not to include a qualification in order to reduce the costs they have to bear. But in that case, the off-the-job training's significance may be only a formal one, and there is virtually no guarantee for the quality of an apprenticeship. Smaller companies that are not paying the levy are, in lack of incentives, liable to offer no apprenticeship at all, whereas larger businesses can be liable to offer programmes that are merely branded as apprenticeships (Clifton, 2016, p. 22 et seq.). The design of the levy is hence suspected to drive numbers, especially of apprenticeships at lower levels, rather than quality, as was the case with reforms of previous governments (Kirby, 2015, p. 7).

Moreover, there is a lack of regulations on the employer's side regarding the on-the-job training. In contrast to e.g. Switzerland, no qualifications such as apprentice trainer need to be fulfilled in order to be able to instruct apprentices. Therefore, the quality of an apprenticeship completely depends on the employer, with only few employers using their resources to support a holistic formation programme. Rather, most apprenticeships continue being merely labour market integration-programmes.

Thus, if nationally recognised qualifications are no mandatory part of apprenticeships and the levy offering no benefit for smaller employers, it is highly questionable whether the standards of the VPET system can really be raised and the skills shortages tackled by current reforms. This also shows in the reportedly sharp fall-off in apprenticeship enrolments in this year. Early indications are that the main tool by which the government is looking to drive numbers of apprenticeship starts to 3 million, the apprenticeship levy, looks to be ineffective. However, official data is not available yet.

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Appendix

Figure A 1 Overview of the Scottish Education System

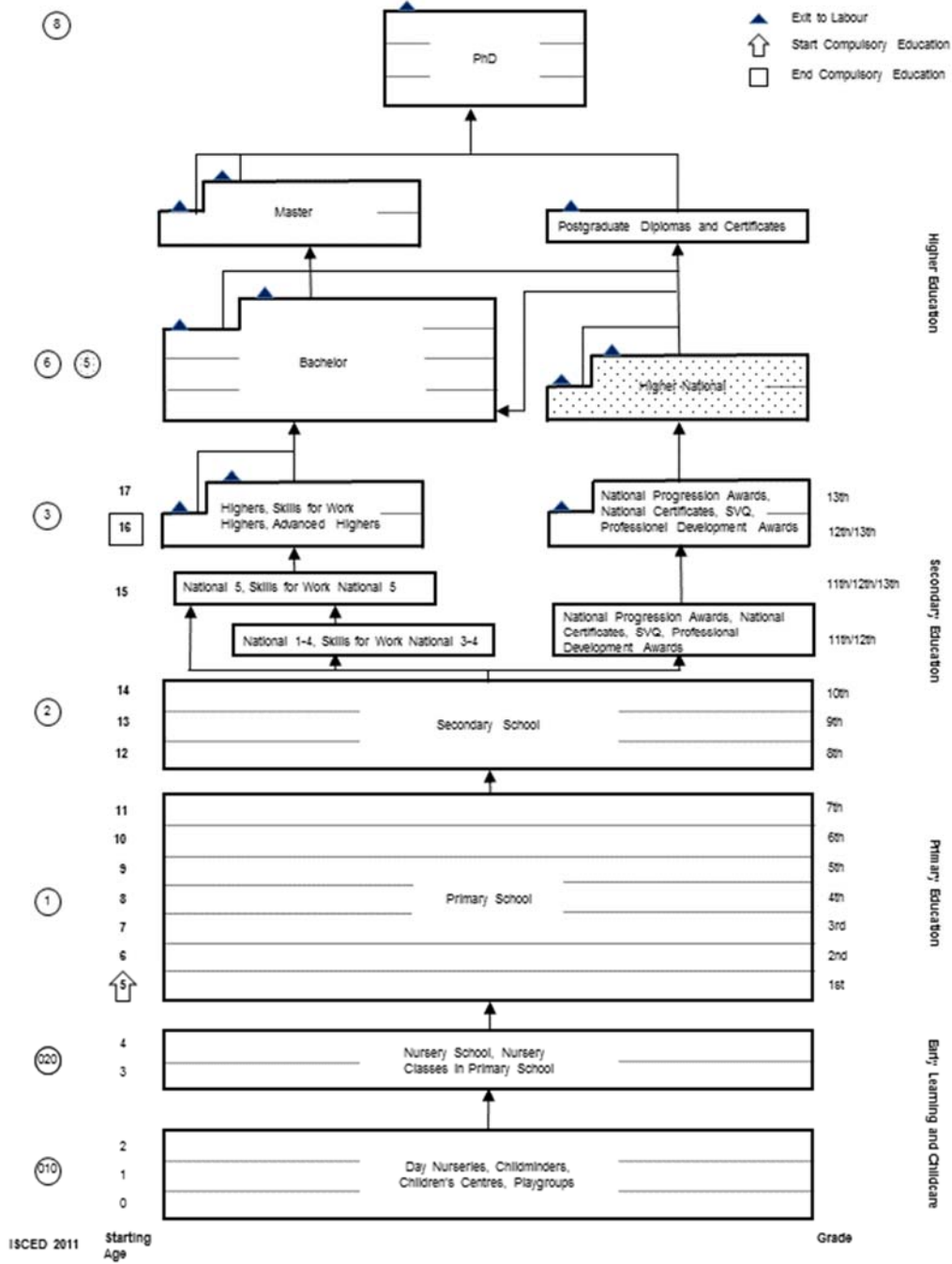


Table A 1 UK Qualification Comparison Chart

ISCED 2011		EQF	Regulated Qualifications Framework for England, Northern Ireland/Qualifications and Credit Framework for Wales		Scottish Credit and Qualifications Framework	
Level		Level	Level		Level	
8	Doctoral or equivalent	8	8	Doctoral Degree	12	Doctoral Degree Professional Development Awards
7	Master or equivalent	7	7	Master's Degree Vocational Qualifications Level 7 Post-Graduate Diploma Higher apprenticeships Degree apprenticeships	11	Masters Degree Professional Apprenticeships Post-Graduate Diploma Professional Development Awards
6	Bachelor or equivalent	6	6	Vocational Qualifications Level 6 Higher apprenticeships Degree apprenticeships	10	Honours Degree Graduate Diploma Graduate-level Apprenticeships Professional Apprenticeships
					9	Graduate Diploma Graduate-level Apprenticeships Technical Apprenticeships
5	Short-cycle tertiary education	5	5	Vocational Qualifications Level 5 National Vocation Qualification Level 5 Foundation Degree Higher National Diploma Higher apprenticeships	8	SVQ Level 5 Higher National Diploma Graduate-level Apprenticeships Technical Apprenticeships
4	Post-secondary non-tertiary education					
3	Upper secondary education	4	3	A Level Advanced Apprenticeships	6	Higher Modern Apprenticeships
2	Lower secondary education	3	2	GCSEs at grade A-C Intermediate Apprenticeships	5	Standard Grades Modern Apprenticeships

Source (UNESCO, 2011) (UK NARIC, 2016, p. 16)