

**The socio-cultural-political economy of
apprenticeships in England and Germany:**
*Comparative case studies from the chemical
industries*

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The candidate confirms that the work submitted is her own and that appropriate credit has been given where reference has been made to the work of others.

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*“Craftsmanship names an enduring, basic human impulse, the desire
to do a job well for its own sake.”*

Richard Sennett, The Craftsman, p. 9

Coming from a family of shoemakers on my German side and a family of engineers on my British side, the tradition of craftsmanship has always been strong throughout the generations. In the spirit of C Wright Mill’s intellectual craftsmanship I hope to keep this tradition alive.

I have many childhood memories of being in my grandparents’ shoe shop in Steinhagen, Germany. My grandfather, Herbert Aufderhorst, who had a Meister qualification, ran the workshop and trained apprentices whilst my grandmother, Ruth Aufderhorst, managed the shop. This thesis is dedicated to them.

Abstract

The study examines how institutional and policy-led changes are impacting the organisation of apprenticeships at the workplace level in England and Germany. There is a renewed policy interest and increased investment in apprenticeships in England in contrast to Germany where higher education is gaining increasing popularity over apprenticeships. The overall impact of these developments for policy, firms and apprentices remains unclear. This integrated study encompasses three schools of thought: the macro institutional context of apprenticeship systems (the political perspective); the effect of apprentice identities and agency on their transition into work (the social perspective); and the apprentice learning process within the context of learning environments (the cultural perspective).

The research draws upon 45 qualitative semi-structured interviews with apprentices, managers, labour market institutions, training providers and other associated actors. It draws on two case studies in the chemical industries: PharmCo in England and ChemCo in Germany. Although both companies experienced converging market-led pressures, their apprentices faced diverging experiences and outcomes, reflecting national differences in the organisation of apprenticeships and employment relations structures, and revealing the impact of institutional and policy-led changes. Apprenticeships at PharmCo were viewed as work, which led to restrictive and individualised working environments, narrow skills development and insecure job mobility. The apprentices embraced precarity as a lifestyle, foreshadowing their insecure futures. At ChemCo, apprenticeships were understood as an educational journey during which apprentices learnt in expansive and collective learning environments. The apprentices expressed themselves through structured working identities which gave them broad skills and labour market agency.

To understand the impact of institutional and policy-led change, the research challenges accounts that study apprenticeships in a vacuum, arguing that apprenticeships should be examined through the socio-cultural-political integration of apprenticeship literatures. Arguing that previous studies have privileged certain actors over others, this research provides an inclusive and empirical multi-level account of how policy is implemented in practice by foregrounding the perspectives of all relevant apprenticeship actors. Departing from previous technocratic perspectives, the study advocates for a comparative approach that recognises the institutional differences between apprenticeships but also embraces complexity and change.

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List of abbreviations

API	Active Pharmaceutical Ingredient
ATA	Apprentice Training Agency
BIBB	Bundesinstitut fuer Berufsbildung, (Federal Institute for Vocational Education and Training)
BRIC	Brazil, Russia, India and China
BTEC	Business and Technology Education
CME	Coordinated Market Economy
CoP	Community of Practice
CRD	Chemical Research and Development Department
CVET	Vocational Education and Training
DAS	Digital Apprenticeship Service
DATSCH	Deutscher Ausschuss fuer technisches Schulwesen (German Committee for Technical Education)
DINTA	Deutsches Institut fuer technische Arbeitsschulung, (German Institute for technical Training)
DPD	Drug Product Design
DQP	Diversified Quality Production
EPA	End-Point-Assessment
ESFA	Educational and Skills Funding Agency
EU	European Union
EQF	European Qualifications Framework
FTE	Full Time Employment
GCSE	General Certificate of Education
GDR	German Democratic Republic
GMP	Good Manufacturing Practice
HCT	Human Capital Theory
HE	Higher Education
HEFCE	Higher Education Funding Council for England
HNC	Higher National Certificate
HRM	Human Resource Management
IFATE	Institute for Apprenticeships and Technical Education
ILM	Internal Labour Market
ITB	Industrial Training Board
JAV	Jugend und Auszubildendenvertretung, (Youth and Apprenticeship Network)
LATA	Laboratory and Associated Technical Activities

LME	Liberal Market Economy
LPP	Legitimate Peripheral Participation
MA	Modern Apprenticeship
MNE	Multinational Enterprise
MSC	Manpower Services Commission
NEET	not in Education, Employment or Training
NVQ	National Vocational Qualification
OECD	Organisation for Economic Cooperation and Development
OFSTED	Office for Standards in Education, Children's Services and Skills
OLM	Occupational Labour Market
PDP	Personal Development Plan
SDM	Solid Dose Manufacturing
SEPAC	Science End-Point-Assessment Company
SME	Small and Medium Enterprise
SSC	Sector Skills Council
SSSN	Science Sector Skills Network
STEM	Science, Technology, Engineering and Mathematics
TEC	Training and Enterprise Councils
TUC	Trade Union Congress
UKCES	UK Commission of Employment Skills
VDMA	Verein Deutscher Maschinenbauer, (Association of German Machine Builders)
VET	Vocational Education and Training
VOC	Varieties of Capitalism

1 Introduction

1.1 The changing socio-cultural-political economy of apprenticeships in England and Germany

1.1.1 Research context

The apprenticeship systems of England and Germany face change, yet the future implications of recent developments remain unclear both in the wider policy context but also within the workplace for both firms and apprentices. Apprenticeships are commonly considered a contributory driver of intermediate skills formation, national competitiveness, innovation and job creation (Finegold and Soskice, 1988), but such outcomes can be highly variable across different firms, sectors, industries and also different capitalist economies (Hall and Soskice, 2001). The “dual” German apprenticeship system where both firms and vocational schools provide highly structured training (Rubery and Grimshaw, 2003; Grugulis, 2007) is seen as an exemplar of a coordinated approach where apprenticeships are connected to the labour market (Bosch, 2010; Crouch et al., 1999). England’s apprenticeship system, on the other hand, has undergone continuous political upheaval and is typically characterised as market-led, with the flexibility of the economy and labour market given priority (Finegold and Soskice, 1988; Hall and Soskice, 2001; Crouch et al., 1999; Gospel, 1995).

Indeed, the traditional view of the German and English apprenticeship systems is that they are polar opposites; both systems have contrasting approaches to apprenticeship training, curriculum, qualifications, wages and regulation and have different levels of social standing within their consecutive labour markets (Finegold and Soskice, 1988; Crouch et al., 1999). These contrasting conceptualisations are also underpinned by their national institutional differences. Germany has a strong tradition of social partnership where trade unions, employer organisations, chambers of commerce and the state continually regulate and develop the apprenticeship system (Streeck, 1989). England, conversely, has minimal involvement of the state and employers freely control apprenticeships in a voluntarist fashion with limited institutional support and regulation (Crouch et al., 1999).

However, recent developments offer the potential for both systems to change direction and, therefore, possibly converge with higher investment in apprenticeships forecast in England compared to an increasing provision and popularity of higher education (HE) in Germany (Bosch and Charest, 2008; 2010). Change in the two apprenticeship systems derive from two juxtaposing state-driven initiatives in both countries. In England, there has been a focus to reform the system away from provider-led to employer-led control

of training, highlighted in the Richard Review in 2012 and materialised in an initiative called the 'Trailblazers' scheme in 2015, which sought to bring entirely employer-led groups together to create new apprenticeship standards. Overall, in England there has been an overriding drive to increase apprenticeship participation with the introduction of an apprenticeship levy in 2017 to facilitate this aim. Conversely, in Germany, there has been increased participation in- and investment into- HE, particularly through the Bologna reforms, which sought to standardise HE qualifications across the European Union (EU), finalised in 2010/11. This combined with educational expansion and changing social aspirations has arguably lowered the social standing of the system for both apprentices and firms (Thelen, 2004; Bosch, 2010; Crouch et al., 1999; Culpepper, 1999). These changes have also potentially led to labour market dualization with a growing disparity between so-called high- and low achievers set within the damaging context of the continued rise of non-standard employment (Thelen and Busemeyer, 2012).

1.1.2 Uniting socio-cultural-political perspectives

The study of apprenticeships can be broadly divided into three different theoretical and conceptual perspectives. The first school of thought, the political perspective, is embedded within the comparative political economy, political science and economic policy disciplines and broadly study a country's apprenticeship system within the context of its macro institutional context (Hall and Soskice, 2001; Thelen, 2004; Finegold and Soskice, 1988; Streeck, 1989). Here, the English and German apprenticeships systems are often conceptualised as distinct and opposing ideal types (Hall and Soskice, 2001; Finegold and Soskice, 1988). This approach has often been critiqued for viewing contrasting national capitalisms as forever fixed, deterministic and stationary in their traditional statuses (Hauptmeier and Morgan, 2014; Streeck, 2016). It has also traditionally overlooked the political agency, social relations and power struggles of different institutional actors (Hauptmeier and Morgan, 2014; Lloyd and Payne, 2016) and not acknowledged within-country differences (Deeg and Jackson, 2007; Katz and Darbishire, 2000). As such structure is often prioritised over socio-political agency as well as cultural perspectives.

The second school of thought, the cultural perspective, is situated in a broad number of disciplines spanning from education, psychology and anthropology and focuses on conceptualising the apprentice learning process within its socio- and cultural- context at a micro-level. This has been popularised in the situated learning (Lave and Wenger, 1991) literatures and has been extended by Fuller and Unwin's (2003; 2004) continuum of expansive and restrictive learning environments. The latter builds on the former by acknowledging the political and institutional context of learning environments, including

formal educational institutions, and how this affects learning. However, workplace democracy through labour market institutions such as trade unions and the study of other national apprenticeship actors are not considered, which, too, shape the learning context and process. As such, the culture of the learning context, often override political structures as well as social agency.

Finally, the third school of thought, the social perspective, is set within education, sociology and cultural studies disciplines and puts emphasis on apprentice identities, analysing how their backgrounds impact their agency and transitions into the labour market. These micro-level studies highlighted that young peoples' agency and class backgrounds often override the institutional structures they are situated in, with learners choosing their own paths over the ones dictated by their learning contexts (Willis, 1977). Indeed, gender, class, disability and race often play a central role in apprentice backgrounds and identities. Studying apprentices as individuals is therefore essential to understand their diverse experiences (Brockmann, 2012). Different countries, with their different institutional structures, can also invariably impose challenges and barriers for young peoples' development (Brockmann, 2012; Evans, 2002). This highlights the importance of not just focusing on social agency in isolation, but also understanding the remit of wider political and institutional structures as well as cultural differences.

These three schools of thought provide a lively and diverse foundation for the study of apprenticeships under different socio-cultural-political conceptual lenses. The research unites these three separate fields, recognising the importance of studying apprenticeships not in isolation, but, instead, in interplay across these broad socio-cultural-political perspectives. Of particular concern for the current analysis, is that all three perspectives have tended to neglect the workplace and the employment relationship as the central focal point of analysis. This is surprising given that apprentices are situated for the majority of their training within the workplace. Yet, in order to understand skill formation and training one must put the employment relationship at the centre of such analysis (Lloyd and Payne, 2016). The employment relationship embodies the interplay between market relations and managerial relations between an employer and employee (Flanders, 1974). The former, is made up of visible market-led rules, which include contracted pay, working conditions, hours and benefits and the latter comprises of much more invisible and abstract managerial relations that define social norms and cultural rules within the workplace. Other actors can also mediate this relationship including unions, works councils, the state and, in the case of apprenticeships, educational providers, chambers of commerce and employment training agencies. These relationships have remained unexplored (Hauptmeier and Morgan, 2014; Schmidt, 2009; Hannon, 2014; Thelen and Bussemeyer, 2012) and this thesis contributes to the academic literature by studying these different apprenticeship actors within the

employment relationship holistically and comprehensively across socio-cultural and political perspectives.

1.1.3 Research aims and questions in context

The principle concern of the research is to explore how apprenticeship organisation, within the workplace is affected by changes within their macro environment. The overarching research question therefore is:

How is apprenticeship organisation within the workplace changing in response to institutional and policy-led changes in England and Germany?

Institutions can have formal and informal embedded rules, practices, norms, traditions and laws in place, which shape and coordinate the behaviour of their social, cultural, political, economic structures. The thesis therefore acknowledges that study of apprenticeships is informed by a diverse set of different socio-cultural and political theoretical and conceptual perspectives, which all impact on the nature of the employment relationship. By studying the employment relationship, the thesis aims to draw on the experiences of the diverse actors involved in the socio-cultural-political organisation of apprenticeships at workplace level in England and Germany. The research therefore poses the following sub questions:

How are these macro changes affecting apprentices' sense of agency and identity within the context of their own backgrounds?

This question allows for sociological enquiry into why apprentices were motivated to become apprentices in the first place and how their backgrounds and identities informed their career and lifestyle choices. The aim of this question is to also highlight how the firms respond to different national social attitudes towards vocational education and training (VET) within this process to attract talent.

How are these macro changes affecting managerial strategies and apprentices' working conditions, job security and sense of voice?

How apprentices interpreted and view their material working environments and working conditions is integral to understanding the underlying managerial relations and politics of the workplace. This question aims to unearth the nature of the employment relationship for apprentices and how this impacts their sense of voice within the workplace, their job security and future training prospects as well as their pay and working conditions.

How are these macro changes affecting apprentices' learning and skill development within their learning environments?

The cultural context of the learning environment can shape and structure the skills development and learning of an apprentice. This question aims to understand ongoing changes shaping the social context of the learning environment, and the subsequent expectations of apprentices within the culture of the workplace as well as in their educational institution and personal lives.

1.1.4 The research process

The study presents a comparative analysis of how institutional and policy-led changes in England and Germany are impacting the organisation of apprenticeships at the workplace level. Comparative analysis helps to tease out similarities, differences and change processes in the organisation of work across cases and countries (Lloyd and Payne, 2016). The research aims to “extend out” from the socio-cultural-political context of the shop floor at the micro-level up to the drivers affecting them at the macro-institutional level (Burawoy, 1998; 2009). The empirical research is based on two case-studies in the chemical industries, PharmCo in England and ChemCo in Germany. The case-studies included an extensive programme of data collection, including qualitative semi-structured interviews, observations, company information and photographs, collected between November 2017 and March 2018. Eight scoping interviews with apprenticeship policymakers and opinion-formers in England and Germany were carried out prior to the case-studies to inform the research process, influence case selection and provide insight into the changing national institutional settings of the two apprenticeship systems. From here, in total 45 interviews were conducted with apprentices, senior management, line-managers, training instructors, vocational teachers, works council representatives, union representatives and sector skills council (SSC) managers at the two companies.

1.1.5 Thesis structure

The thesis is a comparative study of apprenticeships in England and Germany and therefore the structure and presentation reflect this comparative approach with the countries being continually compared and not presented in isolation of each other.

Chapter two outlines the conceptual framework of the thesis, exploring and stating the socio-cultural and political- foundations of apprenticeship research that provide the foundation of this study. Firstly, the chapter sets the scene by identifying the relationship between apprenticeships, skills and society. An ideal philosophy of apprenticeships is elucidated with a forewarning that this ideal structure is at threat within the context of the contradictory upskilling and deskilling forces of modern society. From here, the evolution of the comparative political economy discipline is described, the dominant theoretical lens to study apprenticeships. The thesis argues against the heavily popularised (Thelen,

2004) and purely macro-level political economy approach of the study of apprenticeships, in favour of a more nuanced and holistic approach that also considers important socio-cultural dimensions of apprenticeships. Overall, an interrelated conceptual framing of the socio-cultural-political economy of apprenticeships is advocated. This includes three separate but inter-related fields of study. The first field, the social perspective, examines the identities, backgrounds and agency of the apprentices, drawing on the work of Willis (1977), Brockmann (2012) and Evans (2002). The second field, the political perspective, explores the institutional contexts of the organisation of apprenticeships, critically engaging in these literatures (Hall and Soskice, 2001; Thelen, 2004; Finegold and Soskice, 1988; Streeck, 1989) and developing this approach through the work of Lloyd and Payne (2016) and Doellgast (2012). Finally, the third field, the cultural perspective, investigates how the social-cultural dynamics and context of the workplace shape learning; this field is informed by the work of Lave and Wenger (1991) and Fuller and Unwin (2003; 2004).

Chapter three provides a critical review of the literature on apprenticeships in England and Germany, structured in three parts. Firstly, the structure of apprenticeships in England and Germany is outlined within the literature, followed by a critical discussion that highlights how the two countries adopt very different strategies in terms of their VET systems. Secondly, a chronological policy review of the changing developments within both systems is presented, spanning from medieval period up to now. Finally, current challenges and issues are critically analysed with insights from the academic literature as well as policy reports. In particular, the social standing of apprenticeships is explored in line with current concerns of educational expansion and a so-called race for high skills. Themes of inequality, precarious work and marketization are also investigated before employer engagement and participation into apprenticeships in both countries is examined.

Chapter four presents the overarching research methodology of this thesis. Firstly, the research philosophy underlying the key ontological and epistemological assumptions of the thesis is presented. A critical realist philosophical orientation is justified with special reference to Archer's (1995) concept of analytical dualism, which unites the interplay between structure, culture and agency. The research strategy and methods are then outlined. The former draws upon Mills' (1959) concept of the sociological imagination, which sets out to study the interplay between individual and the structure of society. Similarly, Burawoy's (1998; 2009) extended case method also forms a central part of the research strategy with its focus of bridging theory and history, micro and macro and past and present. Locke and Thelen's (1995) "matched-comparison" and "contextualized" approach to comparative case study research is then used as inspiration for the case selection strategy. Through this a qualitative and exploratory research methodology is

advocated. In particular, interviews are endorsed as the central research method for the empirical research. Finally, the research design is then described and analysed from a personal perspective, drawing upon the researcher's insights from the research process. This includes an overview of the research design, as well as a discussion on how cases and industries were justified and selected. Access into the case studies is then described, with a summary of the interviews carried out, as well as a personal reflection of the different roles the researcher adopted throughout. The actual data collection process is then examined, with reference to the ethical implications of the study and how the researcher analysed the subsequent data.

Chapter five presents the contextual background of the two companies, ChemCo and PharmCo, in their national institutional context. The training and skills strategies employed at both sites are discussed over time, with emerging challenges elucidated. The educational context of the two apprenticeship programmes are analysed in more detail before a detailed description of both programmes is articulated. In particular, the educational structure, development and assessment processes, training and learning environments and recruitment and selection techniques of both apprenticeship programmes are compared and contrasted. Finally, the chapter ends with a detailed discussion highlighting how the two cases compare to previous observations within the literature on apprenticeships in England and Germany.

Chapter six explores how institutional and policy-led changes impacted apprentices' sense of agency and identity. Firstly, the chapter analyses the apprentices' identities, backgrounds and motivations and how these factors shaped their decisions in education and work. Secondly, perceptions of the social standing of apprenticeships in the two countries, particularly in relation to the expectation to attend university. Thirdly, apprentices' lifestyles and aspirations are discussed in reference to the need for them to earn a living and become independent. Finally, the chapter concludes with a discussion of these three themes in relation to key texts outlined in the study's conceptual framing, including Willis' (1977) notion of cultural reproduction, Brockmann's (2012) approach of learner biographies and Evans (2002) theory of bounded agency.

Chapter seven analyses the politics of skill within the workplace, exploring whether institutional and policy-led changes are affecting managerial strategies and apprentices' working conditions, job security and sense of voice. The chapter analyses the political agency of apprentices, managers and other key actors including labour market institutions involved in the organisation of apprenticeships at both sites. Firstly, the nature of the apprentice-employment relationship is critically analysed, exploring how this relationship shaped the apprentices' sense of voice as well as their general working conditions, pay and benefits. Secondly, the apprentices' potential progression routes are

analysed, highlighting managerial strategies in this area and access to further VET or HE courses. Thirdly, the apprentices' job security is explored, considering both companies' post-apprenticeship recruitment strategies. Finally, the chapter closes with a detailed synthesis of these themes in line with the study's conceptual framing, including the work of Lloyd and Payne (2016) and Doellgast (2012).

Chapter eight examines how the PharmCo and ChemCo apprentices learned within the workplace, particularly exploring whether institutional and policy-led changes affected the apprentices' learning and skill development. Firstly, the chapter analyses the structure of the apprenticeship and the learning environment of the two companies. Secondly, the social dynamics and culture of the workplaces are explored in relation to how these factors impacted apprentices' agency in navigating access to further training, support and feedback. Thirdly, the apprentices' work/life balance is scrutinised, revealing how apprentices' work, training, education and private lives were negotiated. Finally, the chapter ends with a critical analysis of the core issues raised in line with Lave and Wenger's (1991) theory of situated learning and Fuller and Unwin's (2003; 2004) expansive and restrictive continuum of learning environments.

Chapter nine draws the study to a close, initially summarising the study's key findings. This is followed with a discussion of the study's contribution, spanning three key themes, including conceptual and empirical integration and comparative analysis. From here, implications for future research are outlined, followed by some reflections on apprenticeship policy.

2 The socio-cultural-political economy of apprenticeships: A conceptual framework

This chapter introduces the conceptual and theoretical framework for the thesis, which adopts a socio-cultural-political economy lens to researching apprenticeships. The study of apprenticeships has traditionally been divided into three different schools of thought, which study the: macro-institutional context of apprenticeships (the political perspective); apprentice learning process in context (the cultural perspective); and effect of apprentice identities and backgrounds on their transitions into work (the social perspective). All three fields have abandoned the workplace and the apprentice-employment relationship as the central focal point of analysis. The study of apprenticeships has been glamorised and popularised within the comparative political economy discipline, which has researched the development of national institutional systems as a lever to mechanise effective skill development (Thelen, 2004). Indeed, the study of contemporary comparative capitalism has been dominated by deterministic accounts of economic processes with little appreciation of the political agency and socio-cultural aspects that underpin institutional change and, indeed, continuity. Streeck (2016: 203) notes the deterministic and economic logic underpinning comparative political economy approaches is hindering meaningful development within the discipline. Streeck (2016: 203) calls for a more inter-related and dynamic study of the relationship between economy and society with increased emphasis on the latter:

‘Capitalism must be studied, not as a static and timeless ideal type of an economic system that exists outside of or apart from society, but as a historical social order that is precisely about the relationship between the social and the economic...’

This thesis aims to unite socio-cultural-political perspectives within the literature. This chapter outlines and proposes this conceptual framing and adopts the following structure. The chapter starts by analysing how apprenticeship is tightly bound to the notion of skill in modern society, mapping the changing demand of skill in contemporary capitalist society and how, in turn, this affects the meaning and need for apprenticeship today. A working definition of apprenticeship is initially outlined, followed by a consideration of debates on the nature of the contradictory forces of up-skilling and deskilling. From here, skill is taken on a journey into the comparative political economy conceptualisation of contemporary capitalism, outlining how national institutional differences and contexts produce different outcomes and trajectories, leading to institutional changes. The evolution of the comparative political economy discipline is outlined before ending with a critical analysis of recent scholarship in the area, which the thesis draws on for its conceptual framing. Finally, the socio-cultural aspects of

apprenticeship are considered, which interlink two different literatures: the socio-cultural analysis of the learning process and the educational literatures, which focus on learner identities and backgrounds. This section ends by highlighting the relationship between the socio-cultural and political perspectives, which united to form the core framing of the thesis.

2.1 A philosophy of apprenticeships: In search for “Bildung” and craftsmanship in the “spectre of uselessness”

2.1.1 Introduction

This section discusses how apprenticeship and skill can be understood within the changing context of ‘modern’ society moving towards a working definition and philosophy of apprenticeship as a conceptual framework for this thesis. The changing demands of skill are also considered within the context of how skill is shaped by the currents of contemporary capitalism in society, thereby effecting apprenticeship as a viable mechanism for skill development. Skills and apprenticeships are considered to be a panacea for solving widespread societal problems (Keep and Mayhew, 2010) creating a rhetoric that investment into skills and increasing the level of skills in society will lead to increased mobility, productivity and innovation (Becker, 1964). On the other hand, skill has also been contested (Braverman, 1998), posing the question if there is a need for skills and apprenticeships to really play a role in society today. The recipe for delivering the many benefits of skills and apprenticeship to society is much more mysterious due to the elusive nature of skill. A definition of skill is initially outlined to provide a contextual foundation of understanding apprenticeships. The apprentice employment relationship is then critically analysed, highlighting the unique features of the relationship and how it impacts apprentice learning and inclusion in the workplace. This is followed by an explorative discussion of the ethos underlying apprenticeship and how it relates to concepts of skill. From this, debates surrounding the nature of contemporary capitalism are critically analysed, leading to a summary of how skill and apprenticeship link into these debates. Further engagement into other debates are then elucidated to progress this debate within the remit of this thesis.

2.1.2 The contested terrain of skill

To define apprenticeship, one must first define skill, and the role skills plays in modern society. However, skill is an ‘essentially contested concept’ (Gallie, 1956, quoted in Lloyd and Payne, 2016: 39) that defies definition. Skill cannot be quantified, measured or even compared across different industries and indeed countries and hence there is little consensus of its definition (Lloyd and Payne, 2016). Littler (1982) defines skill under three main facets: Skill as job-learning time, job autonomy and social status. The former

defines skill by the work routines and tasks carried out and the occupational knowledge that develops over time and accumulates within the worker (Littler, 1982). The middle definition links skill to the context of the organisation of work and control that skill is embedded within, effecting the worker's decision-making, discretion, and responsibility (Littler, 1982). Finally, the latter points towards the socially constructed status of skill, where work is somewhat artificially labelled and determined as skilled or not, typically based on 'custom and tradition plus collective organization' (Littler, 1982: 9) as well as 'complex social and political processes which involve issues of power' (Lloyd and Payne, 2016: 36).

The conceptualisation of Robinson Crusoe by Marx et al. (1974) is the epitome of Littler's (1982) first two definitions of skill. As Marx et al. (1974: 81) assert, the shipwrecked Crusoe spends time performing 'useful labour of various sorts' by making tools, building structures, fishing, hunting and taming llamas, due to necessity, usefulness and for his own individual survival. Crusoe keeps a log of his inventory of objects, noting the skill processes that were required to produce the object and equally the time it took to complete (Marx et al., 1974). This process encapsulates the real value of Crusoe's wealth and is developed by Marx et al. (1974: 82) where the 'organisation of free men' take Crusoe's place, working, this time, in a 'common means of production' to 'expend their many individual labour-powers consciously as one social labour-power'. Here, production is transformed into a social product of the organisation, creating value through the workers' human labour (Marx et al., 1974). This social product is divided, with one aspect used directly for fuelling the means of production, and the other remaining part divided amongst members as necessities. Logic would presuppose that the division is defined by the workers' objective labour-time. However, the social product is instead abstracted as the workers' individual labours become compounded into a homogenous entity, concealing their objective relationship to the product. This somewhat encapsulates the social status of skill (Littler, 1982), which remains a mystery and dependent on 'the particular manner of the social production-organism itself and the comparable historical level of development of the producers' (Marx et al., 1974: 82). Skill as social status (Littler, 1982) destabilises the objectivity of skill encapsulated in Crusoe and creates an ambiguity open to interpretation of its definition and use in modern capitalist society. As such, skill is not just defined by its objective technical façade of worker tasks and time, but, pivotally, is also rooted within the employment relationship (Grugulis, 2007) and in wider societal norms and conceptions of power (Lloyd and Payne, 2016).

2.1.3 The unique context of the apprentice employment relationship

Skill development is therefore deeply entangled within the power relations of the employment relationship (Grugulis, 2007). As such, learning and skill development cannot materialise in a vacuum; people, institutions and society at large are required for the development of skill and competence. The relationship between apprentice and 'master' shapes the outcomes of skill development in action. Historically, the master in the apprentice-employment relationship was a skilled master craftsman who would provide food, lodging, training and minimal pay to the apprentice over a number of years in return for their labour (De Munck and Soly, 2007). Today, an apprenticeship is:

'based on a set of reciprocal rights and obligations between employer and trainees which are set out in an agreement or contract' (Gospel and Fuller, 1998: 5).

However, it is important to note that the employment contract between the two parties, even today, remains incomplete (De Munck and Soly, 2007); the apprentice is not a worker in the traditional meaning of the word and is in an on-going process of becoming skilled and competent. Equal and mutual commitment from both parties is essential for stable skill formation; without such a set-up, countries face the risk of their apprenticeship programmes decreasing and deteriorating (Thelen, 2004). This lack of stability leads to potential conflict between the two parties within the workplace, either for the employer who loses time and resources to initially train the apprentice and who also carries the risk of the apprentice being poached or leaving the firm (Streeck, 1989), or for the worker who might be used as cheap labour and receive inadequate training (Thelen, 2004; De Munck and Soly, 2007). The power relations between the two parties cause a unique and ambiguous situation within the already contested power struggle and structured antagonism of the employment relationship (Edwards, 1995).

The apprentice employment relationship can therefore affect the process of skill development, knowledge and mastery of the apprentice. Indeed, the notion of apprenticeship is tightly bound up with the concept that skill development, which leads to a supposed outcome of the mastery of a profession, occupation or skill. However, mastery is not just shaped by the conditions and training set by the master craftsman, line-manager or wider social relations of the workplace but is also encapsulated and inherently influenced by the social status of skill itself (Littler, 1982) and the ruling forces of society (Lloyd and Payne, 2016). Mastery, governed by the socio-cultural and political laws that surround the social status of skills, therefore has the power to shape and threaten the meaning of skill and indeed apprenticeships today. The mastery of skill development therefore cannot be realised in its entirety. This is apparent in the never-ending process of skill development, where the apprentice has the expansive capacity

to constantly add to their pool of knowledge and competency in a continual process of lifelong learning; here mastery is not achieved, but, in a rather utopian and forward-looking approach where skill is linked to the continuous art of craftsmanship. However, mastery and skill development are also shaped by managerial discretion, the process of production and by the institutional context (Grugulis, 2007). Here mastery has the potential power to disrupt the well-meaning intentions of skill development. The two contradictory faces of mastery are therefore constantly in conflict with one another and undoubtedly shape the process of skill development and the employment relationship reflected in Nietzsche's (2001: 230) analysis:

'Every craft even if it should have a golden floor, has the leaden ceiling over it that presses and presses down upon the soul until that becomes queer and crooked...On this earth one pays dearly for every kind of mastery, and perhaps one pays too dearly for everything. For having a speciality, one pays by also being the victim of this speciality.'

Here the forces of mastery have the power to lead to a narrow and restrictive skill set. Mastery as a means to an end stifles meaningful engagement and self-engagement in one's craft, whereas mastery as an ongoing and iterative process is a vocation in itself, leading the apprentice to a forward-looking sense of self-realisation and meaningful skill development.

2.1.4 An ideal philosophy of apprenticeships: From craftsmanship, to Bildung, to diversified quality production

Littler (1982) viewed craftsmanship as an amalgamation of his first two definitions of skills – skill as job-learning-time and knowledge, and skill as autonomy - and refers to Mills (1951, quoted in Littler, 1982:11) to explain this:

'There is no ulterior motive in work other than the product being made and the processes of its creation. The details of daily work are meaningful because they are not detached in the worker's mind from the product of the work. The worker is free to control his working action. The craftsman is thus able to learn from his work and to use and develop his capacities and skills in its prosecution. There is no split of work and play, or work and culture. The craftsman's very livelihood determines and infuses his entire mode of living.'

Craftsmanship can therefore be viewed as an extension of Marx et al.'s (1974) example of Robinson Crusoe as a pre-capitalist man. Unlike Crusoe, however, the individually crafted and produced goods of craftsmanship can produce profit. Craftsmanship configures 'doing something well for its own sake' (Sennet, 2006: 104) and projects a sense of meaningful objectification within the work process and also a deep passion and

obsessive type of quality in one's work. Craftsmanship is not just exclusive to the craft sectors but to all forms of work with the overriding prerequisite of requiring experience and dedication (Holmes, 2014). For Sennett, craftsmanship is situated within the physical embodiment of practice-based skilled work, learnt through repeated experience of action and movement enabled through different tools; skill is essentially practice, it characterises the notion of "know-how" and continual problem-solving within the work context (Holmes, 2014). Craftsmanship is a practice which wholly concerns itself objectively outside the immediate realm of capitalist relations, which henceforth creates a sense of pride and dignity within the craftsperson (Sennett, 2006; 2008). Much like Sennett's (2006; 2008) notion of craftsmanship, the German notion of *Bildung* also has the power to subsist outside socio-political ideological frames of reference and is therefore characterised as a process of becoming emancipated and autonomous through one's own vocation and journey of skill development (Winch, 2006). "*Bildung*" refers to a formation of education and culture through a journey of self-discovery in a future-orientated process of becoming. "*Bildung*" echoes the underlying coming-of-age ethos of the German '*Bildungsroman*', where the protagonist typically undergoes a process of self-realisation and moral virtue set within the wider cultural landscape of society. Goethe's '*Wilhelm Meister's Apprenticeship*' (1983) is the archetypical example of the genre, with the main character Wilhelm undergoing a journey to escape his petty bourgeois background in a quest to seek a sense of self-fulfilment. Wilhelm travels and encounters different people and situations, leading him to a career in the arts and theatre but pivotally to a process where he can continually learn through his own experiences. *Bildung*, essentially, is therefore an apprenticeship, where an individual becomes skilled in a particular occupation whilst also undergoing a journey of self-realisation and maturation within the context of the workplace set within the aspirations of wider society (Winch, 2006). Fuller and Unwin (2009) extend this definition by arguing that apprenticeship is a journey of skill development, set within a specific 'model of learning, which combines both theoretical and applied approaches' (Fuller and Unwin, 2009: 405). However, an apprenticeship is not just an economic entity supported by national institutions but also historically comprises of important processes of socio-cultural norms, which make-up the employment relationship between apprentice and employer:

'Apprenticeship is essentially an economic contract and may need to be enforced by economic or other institutions. The training also comprises an important socio-cultural component: apprentices are inculcated into the way of life associated with the trade and are introduced to the norms and values of the social group, class or trade to which their master belongs.' (De Munck and Soly, 2007: 4).

Fuller and Unwin (2009: 405) also refer to the socio-cultural norms of apprenticeship, where the apprentice undergoes not just a journey of skill development through craftsmanship (Sennett, 2006; 2008) but a journey of self-discovery:

'Apprenticeship has long been synonymous with people's understanding of the journey that an individual takes in order to acquire the specific disciplinary and vocational knowledge; applied skills, values and processes/rules associated with a particular occupation (in essence, an occupational identity). Along the way, a process of maturation would also enable the individual to grow into the behaviours and understandings associated with being a useful citizen and a sense of self.' (Fuller and Unwin, 2009: 405)

Indeed, the concept of "Bildung" was championed by the educational theorist and philosopher Georg Kerschensteiner, a forerunner of the German VET system (Kerschensteiner, 1926; Winch, 2006). For Kerschensteiner, vocational education was linked to notions of citizenship; through VET young people could build the ability to work collegially with others in a sense of common good, whilst also having the agency and voice to shape the work environment, linking to the German tradition of Mitbestimmung or co-determination (Kerschensteiner, 1926; Winch, 2006). For Kerschensteiner, vocational education was also centrally located in a process of character formation, where the young person would discover and develop their talents, abilities and skills, creating a sense of pride and vocation, much like Sennett's (2006; 2008) notion of craftsmanship, whilst equally achieving a sense of independence and security in their new sense of self (Winch, 2006). Learning was configured within the workplace, which, too, was viewed by Kerschensteiner (1926) as not just an economic activity but also as a space for meaningful and humanistic pursuits and a space for continually developing through further VET and leading to increased levels of self-realisation (Winch, 2006).

Kerschensteiner (1926) also strongly advocated a 'learning-by-doing' approach, where learning was situated in a practical site of activity and craftsmanship, rather than being dictated through an instruction-based approach (Winch, 2006). Streeck's (1992) notion of diversified quality production (DQP) also embodies the notions of craftsmanship and Bildung and is set within a progressive industrial society. Good wages, skilled work and non-Tayloristic forms of work design combined with a portfolio of varied industrial products and long-term non-price competitive business strategies are said to contribute to national productivity and innovation outputs (Streeck, 1992). Skill development under DQP allows apprentices to learn a broad range of intermediate-level skills, thereby giving them the training to produce a wide range of different products (Streeck, 1992). This enables them to react autonomously, flexibly and quickly to changing business demands and maximising profitability (Streeck, 1992).

Apprenticeship in its ideal form comprises the elements of craftsmanship, Bildung and DQP. Yet this ideal type of apprenticeship, within the context of the modern skills society, is put into question through Littler's (1982) third definition of skill which elusively emphasises the social status of skill. The social status of skill acts as a superstructure over the first two definitions of skill (Adler, 2004) fragmenting the ability of craftsmanship, Bildung and DQP, and, therefore apprenticeship to exist within its ideal form in modern society.

2.1.5 Skill as social status: Upskilling and deskilling debates

How can Littler's (1982) third definition of skill, skill as social status, be conceptualised and understood within modern society and contemporary capitalism? Sennett (2006) argues that the context of an ever-increasing globalised labour market combined with automation and an ageing population threatens the actual need for skill today in society. The superstructure of the social status of skill (Adler, 2004) has overtaken the core bases of skill and craftsmanship. Littler (1982) points out how craftsmanship has been used as a benchmark for what skill has turned into in modern work organisation in today's capitalist society; craftsmanship has apparently been shaped by two opposing contradictory forces. On the one hand, craftsmanship has been upgraded due to technological change, which has led to an intensifying need for high skills levels and knowledge-led creation in society, and, through this, a move to professionalization in social class structures (Littler, 1982). On the other hand, craftsmanship has been eradicated by the exploitation of work tasks and worker relations, leading to falling skills levels and changing societal order towards proletarianization (Littler, 1982). Sennett (2006) explains the contradictory forces of capitalism and its impact on skills in society further through his analogy of the "spectre of uselessness". Under this model Sennett (2006) tenets a society where the skilled and educated are barraged with a subsuming reality of over-qualification, deskilling, ageism and skills deterioration.

Although education has generally improved worldwide, the spectre of uselessness has intensified, argues Sennett (2006). Similarly, Lloyd and Payne (2016) argue that there is a growing group of over-qualified workers with under-utilised skills that are stuck in low-level jobs; this has created a skills mismatch. Human capital theory (HCT) posits that investment into human capital, including skills, knowledge, attitude and know-how acquired through education or training, will automatically lead to an increase in wages, productivity growth and international competitiveness (Becker, 1964). The narrative of HCT promises gains to workers who upskill, expand their knowledge base and acquire qualifications. This has led to a policy discourse, which adopts the assumption that technological change, globalisation and other economic changes require a higher skilled and knowledge-led educated workforce to meet shifting forms of work organisation and

global competition; this logic postulates that the demand for skilled workers and for upskilling is increasing (Lloyd and Payne, 2016). Yet, although the education system continually churns out the skilled and educated, there is an open question as to whether economies are really meeting this demand by producing enough skilled jobs (Sennet, 2006). Indeed, over-qualification and skills under-utilisation (Lloyd and Payne, 2016) is arguably leading to a global auction and secret war amongst potential talent who, since birth, are constantly bidding, battling and competing against each other to secure their futures in so-called modern society (Brown et al., 2011). The upskilling narrative therefore offers a false promise of hope and nostalgia (Brown et al., 2011); in the past workers relied on qualifications, training and skills for both employment protection and progression (Sennet, 2006). Yet, this no longer translates into the intensifying, harsh and uncompromising reality of today's labour market:

'In the Great Depression individuals believed in a personal remedy for uselessness which transcended any government nostrum: their children should get an education and a special skill which would make the young always needed, always employed. Today, too, that is the armour people seek, but again, the context has changed. In the "skills society" many of those who face unemployment are educated and skilled, but the work they want has migrated to places in the world where skilled labor is cheaper' (Sennett, 2006: 83-84).

Sennett (2006) argues that the welfare state has eschewed the spectre of uselessness, with few meaningful, humanistic and forward-thinking policies in place to confront issues of unemployment or, indeed, the grey ambiguities of underemployment. This, in turn, has created a culture of dependency, individualism and hopelessness where 'uselessness begets dependency; insufficiency breeds the need for help' (Sennett, 2006: 101). Within this vicious cycle of capitalist relations, societies have arguably moved towards a bleak deskilled reality (Braverman, 1998). Braverman (1998) aptly asserted that Tayloristic forms of scientific management led to the degradation of white-collar jobs, much like its predecessor of craft-based employment, leading to the destruction of the notion of craftsmanship in its entirety:

'With the development of the capitalist mode of production, the very concept of skill becomes degraded along with the degradation of labor and the yardstick by which it is measured shrinks to such a point that today the worker is considered to possess a "skill" if his or her job requires a few days' or weeks' training, several months of training in unusually demanding, and the job that calls for a learning period of six months or a year – such as

computer programming - inspires a paroxysm of awe.' (Braverman, 1998: 307).

The historical notion of a craft apprenticeship, for example, could take between an indentured period of four to seven years. Braverman (1998) argued that work had become degraded due to the development of capitalist management relations and processes. Before the advent of industrialisation craft workers, on the other hand, had autonomy over their work, with each part of the craft process conscientiously pre-imagined and led by the craftsman; work was therefore not divided amongst others and, hence, deskilled, but was firmly encapsulated within the mind and skilled execution of the worker (Felstead, 2015). The deterioration of craftsmanship eradicated control from craft workers to management who enforced the specialisation of work tasks to decrease costs and increase worker productivity. Ritzer's (2013) theory of the McDonaldisation of society states that efficiency, calculability, predictability and control through nonhuman technology now embody work organisation in a rational system of control, initially outlined by Weber's notion of bureaucracy. In such a system, not only are people's work tasks quantified, standardised and scrutinised but also their personal credentials such as school grades and ranking as well as the prestige of their places of study (Ritzer, 2013). Fate is determined by the adherence to the McDonaldisation of society; people compete and comply by amassing a portfolio of appropriate credentials and qualifications to increase their likelihood in an increasingly quantified labour market (Ritzer, 2013). Instruction books and standardised curriculums also infiltrate learning and training processes, thereby controlling employees and also hindering meaningful skill development of more broad skills (Ritzer, 2013).

Ritzer's (2013) theory of the McDonaldisation of society links to Sennett's (2006) argument that modern society has become an incarnation of meritocracy and social inequality. On these grounds, hierarchical and bureaucratic norms of superiority legitimise whether a person is conceived as talented or indeed able in a now elite-led society, naturally leaving workers open to racial, class, disability or gender-led prejudice (Sennett, 2006). Meritocracy creates a grounding for the legitimisation of intangible, superficial and ambiguous measures, namely assessing workers' talents on notions of their so-called "potential" (Sennett, 2006). Young people entering the world of work are typically assessed on their potential; those not carrying this inner indefinable characteristic are discarded to an indistinguishable and powerless group within society. As a result, young workers are particularly vulnerable to being treated as cheap labour; they have less experience and superiority within the workplace, are more cautious and eager to please, which makes them less likely to challenge poor workplace terms and conditions (Sennett, 2006). Young workers are therefore viewed as cheaper and as more subservient and malleable resources than older workers:

“Young workers, more pliant, favour exit when discontented; older workers, more judgemental, give voice to their discontents.” (Sennett, 2006: 97).

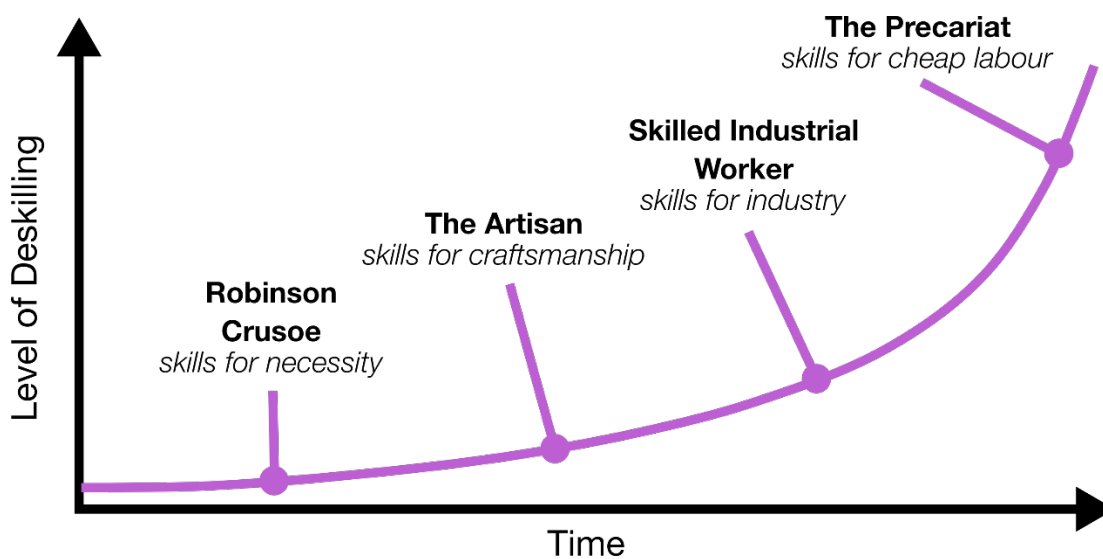
Experience, skill and knowledge are disregarded in such a society, where the notions of lifelong learning, training or any sense of creativity or ingenuity are not valued as useful. Through this craftsmanship has become muddled and diluted in the intensified flexible time pressures of the business-ridden demands of the workplace of day-to-day working life, which dictate and mould worker tasks and expectations. The modern workplace does not allow for meaningful skill development and, instead, relies on a somewhat much more superficial search for so-called ingrained talent and potential. For Sennett (2006), the notion of meritocracy epitomises uselessness in modern society; it also epitomises the social status of skill and thereby threatens the core philosophy of apprenticeship in contemporary capitalism.

2.1.6 Concluding comments

The section started with a conceptualisation of skill, characterised by job learning time, autonomy and social status (Littler, 1982). Learning time and job autonomy in skill make up the core elements of Marx et al.'s (1974) characterisation of Robinson Crusoe's notion of skill as necessity and can extend to the ethos of craftsmanship (Littler, 1982), a fundamental aspect of skill development, which focuses on 'doing something well for its own sake' (Sennett, 2006: 104). Craftsmanship is an ongoing, iterative and never-ending process of skill development that takes time for the worker to deepen and perfect through trial and error (Sennett, 2006; 2008). The journey of skill development inherent within the ethos of craftsmanship mirrors the German notion of *Bildung*, which combines elements of education, culture and self-discovery. In this sense, *Bildung*, combined with craftsmanship, embodies the philosophical ethos of apprenticeship (Winch, 2006). For Kerschensteiner (1926), *Bildung* exemplified a sense of citizenship and character formation, development of agency and voice, and a sense of purpose in viewing work as a meaningful pursuit, thereby encouraging continual lifelong learning (Winch, 2006). Kerschensteiner (1926) also heralded a learning-by-doing approach to skill development, mirroring the core ethos of craftsmanship (Sennett, 2008) but also emphasising the importance of the workplace in fostering learning. Streeck (1992) creates a further link by linking apprenticeships to industry, creating an ideal system of skill formation in apprenticeship learning named DQP that links the creation of intermediate skills to industrial innovation and national productivity. Indeed, this system of DQP is all underpinned by good wages and non-Tayloristic forms of work organisation. Yet, the social status of skill has deteriorated the need for craftsmanship in modern society. The contradictory forces of capitalism through both the so-called upskilling agenda (Becker, 1964) and the deskilling nature of contemporary capitalism through

degradation of work (Braverman, 1998) have arguably created a surplus of overqualified and underutilised talent, with not enough demand to meet the increasing need for skilled work (Brown et al., 2011). This had led to an emerging social class of a precarious proletariats, named the precariat (Standing, 2014), facing economic, job and identity insecurities. This evolution of skill in contemporary capitalism, is qualitatively described in Figure 1. Depending on the nature of the apprentice-employment relationship and the social status of skill, the apprentice could embody different identities and realities depending on the proportion of the degradation of work.

Figure 1: The evolution of skill in contemporary capitalism.



The social status of skill in society has legitimised work to a process of McDonaldisation (Ritzer, 2013) where skill and talent is bureaucratised and labelled legitimate only under an underlying logic of a meritocracy and social inequality (Sennett, 2006). Sennett (2006; 2008) laments the loss of skill in today's society, where workers now follow a fragmented portfolio career in different workplaces and with a variety of surface-level skills over dedication to one solid career path. This, for Sennett, (2006) has created a spectre of uselessness. Despite the apparent eradication of craftsmanship through the spectre of uselessness, Sennett (2006; 2008) calls for a revival of the term as a hopeful call for action against the deterioration of meaningful work in modern society. Sennett (2008) uses modern day examples, such as nurses, doctors, software designers, architects and bakers to describe how workers can translate the principles of craftsmanship into the modern-day workplace. Craftsmanship, where the worker owns their own set of portable talents, skills and knowledge and, through this, produces tangible results of their own labour, can have the power to disrupt the inherent legitimisation of meritocracy within society (Sennett, 2006; 2008). Apprenticeship, under such a direction, could be a mechanism to create meaningful work that links, education, work, society and industry. However, apprenticeships cannot be studied in a vacuum and also need to be

understood as 'skill formation and vocational and professional education systems' (Fuller and Unwin, 2009: 405) situated and embedded within the wider context of their national context (Bosch and Charest, 2012), which, too, have different structures of capitalist formation and shape the outcomes of apprenticeships in modern society.

2.2 The evolution of the comparative political economy approach: Breaking free from determinism

2.2.1 Introduction

The last section debated the interlinked relationship between skills and apprenticeships, through analysing the contradictory drivers of upskilling and deskilling forces with modern society. Yet, different forms and interpretations of capitalism exist within different national economies, each imposing different impacts on skill formation and, indeed, the employment relationship; this focus belongs to the study of the comparative political economy literatures. The explanations and meaning behind the apparent diversity in employment and skill systems remains a puzzle within the expansive comparative political economy discipline. Indeed, the effects of globalisation, industrialisation and technological change on industrial societies poses the question as to whether there is a universal theory that can explain the effects of these changing forces across the global economy. Yet, each nation state, with its own inherently unique and distinct set of characteristics and behaviours, makes it difficult to quantify and understand the intensity of such change (or indeed continuity) in comparison to their neighbours. This section discusses this diversity, highlighting the key stages of thought in line with this agenda of study. Initially notions of convergence and divergence are discussed, followed by a paradigm shift that instigated and celebrated the apparent diversity in different national capitalisms. From this, new research that moves away from polaristic and deterministic conceptions of change and considers the minutiae of within-country diversity is discussed. This has led to a new research agenda that celebrates complexity and places work organisation at the centre of its research as a lens to explain shifting institutional differences. Finally, these debates are critically summarised in line with the study's conceptual framework.

2.2.2 In search of a universal theory of contemporary capitalism: Convergence, divergence or just different?

As a reaction to this puzzle, the quest for finding an overarching and encompassing theory to explain apparent changes within the capitalist diversity of different national economics dominated academic debates (Morgan and Hull Kristensen, 2014) between the 1950's to 1980's. The emergent logic motivating such debates was the notion that these apparent differences would soon evaporate due to the new demands of efficiency

driven by technological change (Morgan and Hull Kristensen, 2014), much like Marx and Engels (1967) said of the development of capitalism: “all that is solid melts into air”. For example, Kerr et al. (1960) argued that the combination of market forces and the rise of technology within the general move towards an increasingly beckoning industrialisation process was leading to patterns of consistencies, rather than differences, and an overall uniformity of practices:

‘We find within this apparent diversity, patterns of behaviour which allow explanation and comparison and understanding of what is universal, what is related to the common strategies of industrialization, and what is unique. There may be no social laws, but there are social consistencies.’ (Kerr et al., 1960: 2).

Kerr et al.’s (1960) argument pointed broadly towards a rationally-bound and all-encompassing explanatory thesis of convergence within the industrialising economies despite their outward diversity. Kerr’s approach was widely condemned for its ideological, prescriptive and technologically deterministic approach (Wailes et al., 2016). The convergence thesis was also threatening to more corporatist formations of capitalist societies (Thelen, 2004) with the implication of the convergence thesis pointing to the need for economies to adopt certain approaches to modernise and industrialise (Wailes et al., 2016). Ronald Dore (1973) challenged the notion of a universalistic theory of contemporary capitalism through his comparative study of both a British and a Japanese factory. The features of teamwork, quality-based circles, improvement programmes and employee dependability within the Japanese factory, combined with Japan’s unique late development of capitalism, highlighted that Japan did not fit into such universalistic theories (Morgan and Hull Kristensen, 2014). Dore (1973: 10-11) argued against the so-called universal relationship between human experience and machines that the convergence theorists popularised:

‘In their effects these motives are all the same; they transform the opportunities of technology into the imperatives of technology; they provide a justification for moulding men and the relations between men in such a way that the machines can be as productive as possible. And, by and large, so the convergence theory assumes, since human nature is basically much the same anywhere, the same technology is likely to produce the same sort of institutions.’

Dore’s approach challenged the notion of uniformity across the capitalist economies by emphasising their differences. Similarly, Goldthorpe’s (1984) noteworthy study also argued against the deterministic ethos of industrialism and convergence by arguing that national economies were actually following a path of economic dualism, creating two

main outcomes, impacting the employment relations of two different types of national economies. Germany and the Scandinavian countries adopted more corporatist tendencies, involving coordination between employers, unions and the state, and, therefore, leading to employment relations with a continuing, although somewhat decentralised emphasis on unionisation and collective bargaining (Wailes et al., 2016). Conversely, countries such as the UK or the US emerged with much more market-orientated policies that weakened collective bargaining and led to individualised working practices and increased contractual control strategies (Wailes et al., 2016). In this sense, Goldthorpe's analysis positioned the debate towards the concept of divergence and institutional differences.

The notion of universalist theories of change was later challenged by the societal-effects school of thinking led by a group of European researchers (Brossard and Maurice, 1974). Empirically based comparative cases of comparable factories, namely in England, France and Germany were carried out to explore the different social conditions of organisations in different countries (Lloyd and Payne, 2016). This school of thinking emphasised the social context of the workplace but highlighted how different countries produced different social effects in response to the implementation of the same types of technologies (Morgan and Hull Kristensen, 2014); managers would inhabit different roles, skill levels, responsibilities and hierarchies in different countries, e.g. (Maurice et al., 1980) due to the different social embeddedness of manufacturing processes, industrial relations and VET systems (Lloyd and Payne, 2016).

Through this, scholars started to assess the link between skills and productivity with Finegold and Soskice (1988) proposing the concept of a low skill equilibrium. The notion of an equilibrium epitomised a:

'self-reinforcing network of societal and state institutions which interact and stifle the demand for improvements in skill levels' (Finegold and Soskice, 1988: 22).

Countries, like the UK, which occupied a low skills equilibrium, relied on producing low quality products with only low-level skills for their business strategies and did not have adequately trained managers (Finegold and Soskice, 1988). A country such as Germany was considered to be an exemplar that existed in a high skill equilibrium with its rich institutional network of social actors, which reinforced high skill strategies and high-quality product ranges (Finegold, 1991). A key point behind this notion was that countries that were stuck in a low skills equilibrium were doomed to the reality of system failure, 'spinning into disequilibrium' (Crouch et al., 2001: 22), and, hence the notion of apparent stability within the skills equilibrium was somewhat deceptive. Countries in low skill

equilibriums therefore had no sense of comparative advantage over their high skill counterparts.

Building on such analysis was the development of further studies exploring the interplay between institutions, market relations and work organisation, focusing primarily on comparative industrial relations (Morgan and Hull Kristensen, 2014). This was set in the context of the continuing interest into the notion of corporatism, particularly in a European context. Corporatism emphasised how institutions and social actors facilitated meaningful negotiation into employment relations issues such as wages and collective bargaining, to mitigate the risk of economic recession or competition from international markets (Morgan and Hull Kristensen, 2014). The strong institutional frameworks of corporatist economies, which favoured codetermination and, through this, adopted much more long-term strategies in terms of finance, VET, wage setting, and employment protection were sought after for their distinct competitive advantages (Lloyd and Payne, 2016). In particular, the study of skill and training regimes were interwoven into this analysis, with the emphasis on how skill systems could impact economic productivity (Crouch et al., 2001; Streeck, 1992). Streeck (1992) termed the concept of diversified quality production, which described how Germany's emphasis on intermediate skills through its superior institutionally embedded VET system linked to its industrial policy and led to the development of global competitiveness, national innovation and job growth. Other scholars refocused attention onto the study of different welfare systems to explain capitalist diversity (Korpi, 1983; Esping-Andersen, 1990). Esping-Andersen's (1990) seminal 'The Three Worlds of Welfare Capitalism' emphasised the force of unions, social democracy and class mobilisation as factors shaping the debate of capitalist diversity within his study analysing the different welfare states of Western Europe. This approach provided an insight into the inherent power relations between different actors and how these actors negotiated change.

2.2.3 Capitalist diversity: National business systems, varieties of capitalism and historical institutionalism

The societal effects school, combined with the comparative industrial relations and welfare state approaches, influenced the development of the growing theorisation of distinct national models of capitalism. Boyer and Hollingsworth (1997), for example, led the social systems of production approach, which emphasised how certain national economies create similar institutional complementary regimes of coordination. This led to Whitley's (1999) notion of national business systems, which developed the idea of divergent capitalisms. Whitley (1999) outlined six different national business systems: fragmented, coordinated industrial district, compartmentalized, state-organised, collaborative and highly coordinated (Vidal and Hauptmeier, 2014: 5). Whitley (1999)

centred his analysis around the firm, challenging previous analyses, which did not analyse how firm structures might be different and more multidimensional in nature. Whitley (1999) asserted that ownership as well as legal structures impacted organisational outcomes, particularly, the effect on the firm's employment relations for both managers and workers (Morgan and Hull Kristensen, 2014). Whitley (1999) also differentiated himself from previous analyses by studying the external interactions and networks between firms, and other firms in the wider business environment, as well as actors within the firm's institutional and market environment (Morgan and Hull Kristensen, 2014). Whitley shows that risk within the capitalist market is therefore not just placed on the firm, but also distributed across the other different economic actors surrounding the firm (Morgan and Hull Kristensen, 2014). This highlights that the firm's surrounding institutional context as well as its relationships with different economic actors supports and promotes certain distinct business strategies making up the national business systems approach (Morgan and Hull Kristensen, 2014).

These approaches were forerunners to a new framework for explaining capitalist diversity, namely the Varieties of Capitalism (VoC) (Hall and Soskice, 2001) approach, which also set itself apart from the convergence thesis. Instead VoC argued for a model of capitalist diversity and variety amongst the advanced industrialised capitalist economies. Instead of creating a broad and equal sweep of marketization across the different national economies, as outlined in the convergence thesis, market forces disrupted or eroded existing institutions of a country's national context. Hall and Soskice (2001) outlined two distinct models or "ideal types" of capitalist diversity, liberal market economies (LMEs), such as the UK or the US, and coordinated market economies (CMEs), including Germany, Japan and the Scandinavian countries. LMEs typically promote competitive market-led relationships between firms and other economic actors (Hall and Soskice, 2001). While CMEs nurture coordinated working relationships between the two (Hall and Soskice, 2001; Wailes et al., 2016). These relationships are structured by five different institutional spheres, which mutually interact with one another under a rather rational-choice driven-model; these include a country's approach to industrial relations, VET, corporate governance, inter-firm relations, and employees (Hall and Soskice, 2001). These different spheres highlight that the national context in which different actors operate shape outcomes and, indeed, that countries within certain institutional structures are likely to generate similar outcomes and certain comparative advantages over others (Deeg and Jackson, 2007; Wailes et al., 2016). Hall and Soskice (2001) centre their core analysis on the logic of the firm. Indeed, the firm becomes the core protagonist of the path that different capitalist nations follow; their success depends on the different strategies employed with their own employees but also with external actors, such as: unions, trade or business associations, the state, clients and other

suppliers or stakeholders (Hall and Soskice, 2001). Firms in LMEs and CMEs have their own advantageous institutionally complementary strategies in this sense, which they can exploit, creating comparative advantage (Hall and Soskice, 2001; Vidal and Hauptmeier, 2014). Firms in LMEs coordinate up to hierarchical structures or market-led mechanisms, whereas firms in CMEs depend on non-market-based approaches by readily coordinating with other actors whilst also creating cross industry and firm alliances (Lloyd and Payne, 2016). This creates a self-reinforcing path for the firm leading to economies which are inherently path dependent on their own comparative advantages. LMEs implement much more radical change and short-term innovations whilst CMEs are more akin to adopting incremental change based on consensus (Hall and Soskice, 2001). The theory of path dependency therefore postulates that changes that took place in the early stages of path creation had a much deeper and resounding impact on the currents and contours of path development than processes of change which occurred much later (Busemeyer, 2015). Under the VoC approach institutional change is not characterised as wholesale change, but as incremental evolutionary change with its clear emphasis on the resounding presence of national institutional diversity (Deeg and Jackson, 2007). The unique institutional complementarities of both LMEs and CMEs therefore lock the respective countries into supposed preconceived future trajectories (Lloyd and Payne, 2016).

The notion of path dependency led to critiques that VoC was overly deterministic about the future directions of capitalist economies. Indeed, Thelen (2004) challenged the functionalist approaches to path dependency in her seminal cross-national and longitudinal study of the gradual development of the VET systems of the UK, United States, Germany and Japan. Thelen (2004), like the VoC approach (Hall and Soskice, 2001), argues against the notion of convergence by, instead, calling for the study of the development of institutions with a particular fine-tuned focus on national institutional differences across the capitalist economies to understand shifts in capitalism and skill formation. Thelen (2004) argues that differences in national VET systems originated from the different political formations that emerged between employers, skilled workers and the artisanal communities in the early industrial period; these coalitions were also underpinned by state engagement or, indeed, disengagement, and henceforth sustained coordination or aggravated conflict between unions, employers and firms (Thelen, 2004). Through this argument, the rational-choice discourse of path dependency is disregarded for its determinism:

'It is not sufficient to view institutions as frozen residue of critical junctures, or even "locked in" in the straightforward sense path dependence arguments adapted from the economics literature often suggest.' (Thelen, 2004: 8).

Instead, Thelen (2004) calls for an integration between the notions of institutional reproduction and institutional change, creating a sense of gradual institutional change underpinned by a moving and developing sense of continuity. This approach departs from the extant comparative political economy literature, which views reproduction and change as mutually exclusive entities; here reproduction is epitomised as stagnant and path-dependent while change is characterised as a shock to the system, creating disjointedness and discontinuity.

2.2.4 Embracing complexity and change

The emergence and popularity of national model paradigm, particularly VoC and historical institutionalist approaches, has led some scholars to question their functionalistic and somewhat deterministic approaches through their emphasis on path dependent processes (Deeg and Jackson, 2007). VoC and historical institutionalism have been subject to key points of critique. VoC failed to acknowledge other countries and hence not all countries are represented in its typologies (Wailes et al., 2016). The overarching LME/CME typology also overlooked the minutiae of important differences of countries within the same variety, leading to an over-simplification of capitalist diversity (Wailes et al., 2016). Indeed, there are no predetermined scripts of behaviour that define institutional contexts and institutions in one country are not necessarily comparable to the 'same' institution in another (Hauptmeier and Morgan, 2016). Hence, it is difficult to translate, interpret and understand the inherent differences between different roles, occupations, actors and labour market institutions (Hauptmeier and Morgan, 2016). VoC bypassed the need to examine the agency of the different actors involved in facilitating institutional change, the force of international institutions and processes, such as MNEs, global supply chains and international governing bodies (Wailes et al., 2016) and also the role of power and politics through organised labour and class conflict (Lloyd and Payne, 2016). Hence, the country of analysis is typically portrayed as living in a vacuum with no external influences. Empirical workplace studies have identified that the VoC approach does not adequately explain change at a micro-level (Bosch et al., 2009, quoted in Vidal and Hauptmeier, 2014) as Deeg and Jackson (2007:157) explain:

'A growing wealth of empirical literature has shown national forms of capitalism to be more institutionally fragmented, internally diverse and display greater 'plasticity' with regard to the combinations of institutional forms and functions.'

The emerging notion that countries have within-country variation (Deeg and Jackson, 2007; Katz and Darbishire, 2000; Lane and Wood, 2009) has also led to a departure from the perfect ideal type uniformity of the national models' approach. This new approach emphasises that each country's employment relations systems and practices

are increasingly becoming much more diverse in nature, particularly, the use of non-standard employment, outsourcing and dual patterns of employer coordination (Wailes et al., 2016). Another example of within-country variation is how different sectors within a country react rather differently and provide different outcomes in comparison to other sectors (Wailes et al., 2016; Lloyd and Payne, 2016). Others have argued that there is a growing polarisation between labour market insiders and outsiders (Emmedegger et al., 2012) leading to stratification, dualization (Hassel, 2012), labour market polarisation (Goos et al., 2009; Kalleberg, 2018; 2011) and the segmentation of national economies (Thelen and Bussemeyer, 2012). Morgan and Whitley (2012) also started investigating capitalist diversity by studying international influences that went beyond the notion of just the nation state as a unit of analysis, such as multinational companies, global supply chains, as well as the rise of the BRIC (Brazil, Russia, India and China) economies (Vidal and Hauptmeier, 2014; Wailes et al., 2016).

Through this new research agenda, it becomes clear that the workplace and the organisation of work have traditionally been underdeveloped within the study of comparative political economy and institutional change. Indeed, the power, agency and relations of workers, institutions and employers have often been disregarded in favour of path dependent processes overriding their agency at the micro level (Vidal and Hauptmeier, 2016; Lloyd and Payne, 2016). However, Lloyd and Payne's (2016) comparison of different service sector jobs including vocational teachers, fitness instructors and café workers in the UK, Norway and France, departs from much more deterministic debates. Instead, the study focuses on the social dynamics and power struggles at both sector and workplace level to understand institutional change (Lloyd and Payne, 2016). Equally, Doellgast's (2012) comparative study of call centres in Germany and the US not only emphasises the underlying pressures and changing dynamics of the workplace, but also acknowledges that these processes are undoubtedly influenced by each country's institutional environment. Doellgast's (2012) study focuses its core analysis on workplace democracy, primarily, through strategic industrial relations actors such as unions and works councils. She finds that both call-centres in their respective countries face similar competitive demands to outsource and to cut costs, leading to the erosion of working conditions and relations (Doellgast, 2012). Yet, although convergence is apparent at a workplace level through similar restructuring processes, divergence is reported in the different respective national employment systems (Doellgast, 2012). For example, in Germany workers are provided with much more established and embedded voice mechanisms through works councils to bargain and leverage their power to protect their working rights, leading to much more favourable outcomes for workers (Doellgast, 2012). Conversely, in the US workers have fewer formal avenues to both shape and resist marketization pressures and managerial

strategies (Doellgast, 2012). In this analysis, therefore, workplace pressures *and* institutional contexts are considered. This dual approach provides a much more nuanced account of institutional change processes within the context of the workplace.

2.2.5 Concluding comments

This section has focused on the context of the political economy of national contexts in comparison and highlighting how differences and changes can be conceptualised. To summarise, initially universalistic debates on the convergence (Kerr et al., 1960) and, indeed, divergence (Goldthorpe, 1984) of capitalist economies dominated debates which paved the way for alternative models of thought, which actually captured and embraced the notion of capitalist diversity and functional models of change (Hall and Soskice, 2001) underpinned by path-dependent processes that linked change to a country's unique national context. However, these more deterministic theories of diversity and change gave little appreciation of the relations of the social (Lloyd and Payne, 2016), political and cultural spheres (Vidal and Hauptmeier, 2016) and aspects that underpin institutional change and, indeed, continuity. As such, there has been a growing trend to understandably explore the internal diversity of the national economies and not just their superficial exteriors. Recent literature that explores within country variation emphasises the intricacies of a country's institutional make-up, sector and industry diversity and work organisation and employment practices (Deeg and Jackson, 2007; Katz and Darbishire, 2000; Lane and Wood, 2009; Crouch et al., 2009; Wailes et al., 2016). Now the interplay and power dynamics of agency between different actors (Lloyd and Payne, 2016) and labour market institutions (Doellgast, 2012) are being studied, contributing to the comparative political literatures and bringing the workplace as a unit of analysis to the forefront (Vidal and Hauptmeier, 2016).

Returning to the subject of this thesis, the study of apprenticeships in comparative context under a purely comparative political economy approach is clearly problematic considering the socio-cultural-political spheres of the workplace (Vidal and Hauptmeier, 2016) and of apprenticeships in society today, as outlined in the previous section. Equally, as outlined in the previous section, apprenticeships have dominated in policy debates and discourses, where they were repeatedly viewed as an economic panacea to solve youth unemployment, deepening skills gaps and national productivity slumps (Keep and Mayhew, 2010). This economic perspective is rarely united with workplace analysis and/or also socio-cultural and educational studies of apprenticeship. This thesis aims to address this lacuna by engaging in recent debates of within-country differences that encapsulate institutional analysis within the political context of the workplace whilst also exploring the power resources of actors involved (Doellgast, 2012; Lloyd and Payne, 2016; Vidal and Hauptmeier, 2016) with socio-cultural analysis.

2.3 Bringing the socio-cultural- into the political economy of apprenticeships

2.3.1 Introduction

Despite the dominance of comparative political economy approaches in the study of apprenticeships (Thelen, 2004), other socio-cultural angles have also been prevalent, and these approaches will now be discussed. This final section brings together these debates and argues for a consideration of both the socio-cultural and the political elements of apprenticeship to be united. This section outlines the socio-cultural dimension of apprenticeship in both the learning context and in identities and backgrounds of apprentices. Firstly, the social and cultural dynamics and structures of the workplace are discussed, highlighting how this affects apprentices' theoretical learning and on-the-job training. The next subsection outlines how the apprentices' own socio-cultural identities and backgrounds affect their transitions and uptake of training and learning in the workplace. The section finishes with a conceptualisation of three different strands of literature, bringing together elements of the political economy literature from the previous section, with the two different socio-cultural elements introduced in this section.

2.3.2 The learning process in the socio-cultural context

This section explores how the workplace can impact the learning process for apprentices drawing on Lave and Wenger's (1991) theory of legitimate peripheral participation (LPP) and Fuller and Unwin's (2003; 2004) continuum of expansive and restrictive learning environments. The socio-cultural-political dynamics of the workplace can impact the possible outcomes of learning within LPP, a learning process where a learner acquires knowledge through being accepted, integrated and moved closer to full participation within a wider community of practice (CoP) made up of a rich and varied network of other practitioners:

'LPP provides a way to speak about the relations between newcomers and old-timers, and about activities, identities, artefacts and communities of knowledge and practice. It concerns the process by which newcomers become part of a community of practice. A person's intentions to learn are engaged and the meaning of learning is configured through the process of becoming a full participant in a socio-cultural practice.' (Lave and Wenger, 1991: 29).

Lave and Wenger (1991: 98) define a CoP as a:

“...set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice...The social structure of this practice, its power relations, and its conditions for legitimacy define possibilities for learning (i.e., for LPP).”

Learning therefore is not just an internal individual process of knowledge acquisition but carries an important wider socio-cultural element within a CoP, which shapes the learning experience and concerns and envelops ‘the whole person acting in the world’ (Lave and Wenger, 1991: 49). The social world and the learning process are therefore inseparable and both entities are required in order to move the learner from peripheral to full participation in the CoP (Lave and Wenger, 1991). The socio-cultural relations of the CoP therefore determine the learning experience for the apprentice and shape their identities (Lave and Wenger, 1991). LPP also affects the CoP’s cycle of reproduction as new-timers gradually integrate and replace old-timers and, through this, create new relationships, identities, cultures and ways of working (Lave and Wenger, 1991). This creates a paradox, where learning sustains the CoP but also creates pressures, tensions and conflicts, which threaten the CoP: Learning is therefore closely entwined with not just reproduction but also the notion of change (Lave and Wenger, 1991). The notion of conflict, manipulation and coercion is explored and illustrated much more deeply through Lave and Wenger’s (1991) analysis. However, apprenticeships are situated in a wide variety of socio-historical, cultural and industrial customs, practices and settings, which affect and shape learning and the division of labour within the CoP (Lave and Wenger, 1991). Indeed, apprenticeships can either promote or prevent situated learning. CoPs can be coercive and conflictual and can therefore deny access to LPP, not creating an inclusive environment for the learner to develop into a full participant:

‘The commoditisation of labour can transfer apprentices into a cheap source of unskilled labor, put to work in ways that deny them access to activities in the arenas of mature practice. Gaining legitimacy may be so difficult that some fail to learn until a considerable amount of time has passed... Gaining legitimacy is also a problem when masters prevent learning by acting in effect as pedagogical authoritarians, viewing apprentices as novices who “should be instructed” rather than as peripheral participants in a community engaged in its own reproduction.’ (Lave and Wenger, 1991: 76).

Lave and Wenger (1991) use an example of a butcher’s apprentice, where the division of labour is split into giving the apprentice shorter, more repetitive and profit-making tasks, which match the business demand but hamper the apprentice’s learning. The newcomer apprentices are also separated from the place of learning, working primarily on the shop counter, rather than observing other journeymen, the old-timers, preparing

the meat and hence often never learn the full range of tasks available (Lave and Wenger, 1991). Transparent access to the community is therefore crucial, which includes engaging in its technologies and tools, social environment, production processes, and other happenings within the cultural life of the CoP (Lave and Wenger, 1991). The social relations of the community define the learning experience; learning is not just defined by a specific Master or line-manager, but by the broad community of other apprentices, workers and masters/managers (Lave and Wenger, 1991). Earning legitimacy is ensured through learning by experience, practice, participation, observation and engagement within the wider CoP through an active “learning curriculum” and cannot be met by just being taught specific tasks and curriculums divorced of the social context known as a “teaching curriculum” (Lave and Wenger, 1991). Indeed, the CoP itself is the actual metaphorical curriculum for the apprentice and access to the community is therefore essential to facilitate learning (Lave and Wenger, 1991). As learning and knowledge develops in the learner, so do the social relations of the CoP as the learner learns to speak the language of the CoP, sharing stories to display shared membership, identity and practice to others in the CoP (Lave and Wenger, 1991). But learning is not defined by imitation or replication of tasks or the reproduction of knowledge, but involves the individual gradually interpreting, engaging and developing within the social community around them (Lave and Wenger, 1991).

However, the CoP is also undoubtedly shaped by the political-economic and institutional drivers and also by the commercial and industrial priorities of the modes of production (Fuller and Unwin, 2003). This is a point that Fuller and Unwin (2004) explore in order to open up the so-called “black box” of employee learning in an organisational context and culture. Their framework of the ‘expansive-restrictive continuum’ (see Table 1) of learning environments, based on Engeström’s notion of ‘expansive learning’ (1994), conceptualises this point of enquiry in line with different workplace approaches of barriers and/or opportunities to learning adopted in apprenticeship training (Fuller and Unwin, 2004: 127). Fuller and Unwin (2004) draw on Lave and Wenger’s (1991) notion of LPP but provide a framework as to how learning can differ from company to company, affecting the types of opportunities available to apprentices. Indeed, Fuller and Unwin (2003; 2004) argue that Lave and Wenger’s (1991) situated learning theory fails to acknowledge how formal educational institutions, and, more generally, how structural relations and inequalities shape learning within the workplace. Additionally, Fuller and Unwin (2004) also point out that Lave and Wenger’s (1991) analysis did not acknowledge that a learner might typically cross boundaries to other contexts and CoPs. Fuller and Unwin (2004) argue that an apprentice learning both inside and outside of the company, will lead to much more expansive learning opportunities, through gaining membership to different CoPs, having the opportunity to gain different qualifications and to have time to

reflect on their learning experiences. Their conceptual framework is based on educational, organisational and cultural factors of analysis to understand how work organisation, job design, skills and the employment relationship shape the learning process, and, how both informal and formal learning as well as qualifications explain the quality of learning environments (Fuller and Unwin, 2003; 2004). Expansive learning environments generally lead to an increase in the quality of opportunities to participate in the learning environment, thereby leading to a much more creative, abundant, richer and embedded learning experience for the individual, compared to a more restrictive environment (Fuller and Unwin, 2003; 2004).

Table 1: *The expansive-restrictive continuum (Fuller and Unwin, 2003: 411).*

EXPANSIVE	RESTRICTIVE
Participation in multiple communities of practice inside and outside the workplace	Restricted participation in multiple communities of practice
Primary community of practice has shared ‘participative memory’: cultural inheritance of apprenticeship	Primary community of practice has little or no ‘participative memory’: no or little tradition of apprenticeship
Breadth: access to learning fostered by cross-company experiences built in to programme	Narrow: access to learning restricted in terms of tasks/knowledge/location
Access to range of qualifications including knowledge-based vocational qualifications	Access to competence-based qualification only
Planned time off-the-job including for college attendance and for reflection	Virtually all-on-job: limited opportunities for reflection
Gradual transition to full participation	Fast—transition as quick as possible
Apprenticeship aim: rounded expert/full participant	Apprenticeship aim: partial expert/full participant
Post-apprenticeship vision: progression for career	Post-apprenticeship vision: static for job
Explicit institutional recognition of, and support for, apprentices’ status as learner	Ambivalent institutional recognition of, and support for, apprentice’s status as learner
Named individual acts as dedicated support to apprentices	No dedicated individual ad-hoc support
Apprenticeship is used as a vehicle for aligning the goals of developing the individual and organisational capability	Apprenticeship is used to tailor individual capability to organisational need
Apprenticeship design fosters opportunities to extend identity through boundary crossing	Apprenticeship design limits opportunity to extend identity: little boundary crossing experienced
Reification of apprenticeship highly developed (eg through documents, symbols, language, tools) and accessible to apprentices	Limited reification of apprenticeship, patchy access to reificatory aspects of practice

2.3.3 Apprentice backgrounds and identities

Whilst expansive learning environments positively influence learning within the workplace, an individual's 'learning territory' (Fuller and Unwin, 2004: 127), made up of their personal backgrounds, identities and prior experiences, can also impact whether they actually engage within the learning process. Although this is acknowledged in their analysis, the notion of the 'learning territory' (Fuller and Unwin, 2004: 127) is not discussed in much detail. Indeed, a whole stream of literatures within the educational field, encompasses how young people transition from education into the labour market and make sense of this process through their own lived reality of their socio-economic and cultural backgrounds and identities. This section draws on further examples, particularly Willis' (1977) notion of cultural reproduction, Brockmann's (2012) inter-related framework of learner biographies and learner cultures, and Evans' (2002) notion of bounded agency, to further conceptualise the socio-cultural aspect of apprenticeship, particularly the journey of self-discovery apprentices undertake in entering the workplace.

Willis' (1977) seminal 'Learning to labour: How working-class kids get working class jobs' studies the lives of 12 non-academic working class "lads" in Hammerton both in the school context but also in the factories where they worked after school. In contrast to Lave and Wenger (1991) and Fuller and Unwin (2003; 2004) who focus on the socio-cultural relations of the actual learning process, Willis' study focuses on how the lads, as political actors, exert agency through their own identities by reacting against (Dolby and Dimitriadis, 2004) the authoritative and hierarchical pedagogical structure of the school. In doing so, Willis' (1977) ethnography explores how the lads enact and embody the cultural reproduction and underlying logic of their own class and do not fall victim or "fail" as wider society might assert. Through this, Willis (1977) unites debates of structure, agency, identity and cultural resistance.

Central to the analysis is the lads' making of their own counterculture within the school, where authority is opposed, conformity is rejected, and formal structures and rules ignored for more informal expressions of their own working-class culture (Willis, 1977). The lads, not belonging to the social expectations and rules evoked by the school environment, produce their own culture, striving for their own cultural autonomy in order to escape from the institutional complex of school (Willis, 1977). The lads' counterculture was expressed by them dossing, blagging and wagging off, in other words, not attending school (Willis, 1977). This defeated the main purpose of school for learning and working hard. This was facilitated by the social and cultural language of "having a laff" by the lads, used as a get-out-clause in any situation and the opposite of a command in the formal authoritative and rule-ridden context of the school (Willis, 1977). The lads not only

differentiated themselves from authority but also from girls and ethnic minority groups, re-enacting attitudes of sexism and racism within their language of “having a laff” (Willis, 1977). The value of qualifications was disregarded and viewed suspiciously by the lads, particularly given the amount of obedience, conformity and work required to get good grades (Willis, 1977). Qualifications also led to apprenticeship-level or administrative office-based jobs, which, too, mirrored the formal and rule-led environment of the school and did not appeal to the lads (Willis, 1977). This again clashed with their collective sense of a counterculture that reflected their working-class identities.

Willis (1977) emphasises the need to analyse and decode the structures at the cultural level, which are frequently overshadowed by the dominant logic of individualism in contemporary capitalism. The lads learn and teach themselves to labour. They resist schoolwork and qualifications, accordingly assuming their supposed role as manual workers, thereby legitimising their distance from education (Willis, 1977). The lads contrast the academic environment of school to the strenuous and gruelling context of manual work, where they can embody their white, working-class and masculinised counterculture identity (Willis, 1977). The counterculture that the lads embodied and personified in the classroom therefore transfers to the macho and tough shop floor of the factory, where the lads embody and re-enact their own personal histories into the future (Willis, 1977). The lads’ reproduction of their own class leads them to an inescapable process of what Willis (1977) terms “partial penetration”, a continual cycle of irreversibility of their own actions. The lads exercise agency and power over the power relations that face them daily but also, concurrently, reproduce these structured power relations (Dolby and Dimitriadis, 2004):

“When the cultural apprenticeship of the shop floor is fully worked out, and its main real activity of arduous production for others in unpleasant surroundings is seen more clearly, there is a double kind of entrapment in what might be seen, as the school was seen before, as the prison of the workshop.” (Willis, 1977: 107).

Yet, despite this reality, Willis (1977) stresses that the lads continue to also sabotage, control and resist these harsh realities, continuing to embody their own identities and culture. Hence culture and identity ultimately dominate the existing institutional norms and rules; the lads ultimately subvert the institutional rules of the CoP (Lave and Wenger, 1991) within both the school and the workplace. Burawoy’s (1979) ethnographic study, *Manufacturing Consent*, highlights a similar sense of identity formation within the workplace to Willis’ (1977) lads. Burawoy (1979) describes that instead of resisting work demands altogether, workers collectively played a secret game, called ‘making out’, with other machine operatives to actually increase productivity and earn extra incentives; this

created a sense of free will and autonomy from both the everyday realities of working life but also the management-led relations of the shop floor (Burawoy, 1979). “Making out” (Burawoy, 1979) allowed the workers to express their own counterculture to pass the day quicker within the repetitive work of the factory and to express their own identities within the politics of the workplace. However, by doing so, the workers somewhat accept their reality and do not resist managerial expectations, and through this reproduce their own realities and futures within the workplace, whilst also pivotally sustaining their own working-class identities.

Willis (1977) and Burawoy (1979) highlight how students and/or workers exert a collective culture, which contrasts to the much more individualist-driven institutional structures they find themselves in. Willis’ (1977) account articulates the lads’ resistance to school as political agency, while Burawoy (1979) argues that workers ironically *comply with*, rather than resist, work demands through “making out”. However, in both cases the students/workers express their own cultural identities and working-class background through their actions, i.e. they do not outwardly adopt the culture or CoP (Lave and Wenger, 1991) set by the teacher or manager in the school or workplace. As such the students/workers therefore become a homogenous entity and embodiment of their own working-class backgrounds, and indeed, futures. Brockmann (2012) departs from Willis’ (1977) much more homogenous and structural conceptualisation of working-class learners disaffected by their learning environments. Instead, Brockmann’s (2012) ethnographic and biographical study of apprentices in both the retail and motor trade industries in England and Germany focuses on their identity formation within their respective learning cultures. Brockmann (2012) recognises the apprentices’ own individual biographies and how their backgrounds interact with the supposed learner identities expected of them within the workplace or college environment. In doing so, she rejects the notion of apprentices being anti-learners, passively following a certain path in life to low skilled low-quality work (Brockmann, 2012). For example, Brockmann (2012) notes that some of the apprentices were characterised as non-academic learners at school, an identity they carried through and performed later in life through their celebration of more practice-based work. Through her use of biographical interviews, however, Brockmann reveals a much more nuanced picture of the apprentices’ learner identities, highlighting their interests outside of school and work, which clash with their labelled identities as so-called non-academic learners at school.

Brockmann’s (2012) account also follows how apprentices’ identities change throughout the learning and working process. Brockmann (2012) argues that apprentices form and perform certain learner identities, based on their own biographical pasts but also on their interpretation to the supposed institutional norms, values and social relations of their learning environments (Brockmann, 2012). Apprentices felt a strong sense of wanting to

conform to the expectations of tutors, managers and co-workers, a process which led to the creation of distinct learning cultures (Brockmann, 2012) somewhat mirroring the LPP within a CoP (Lave and Wenger, 1991). However, the apprentices' conformity was dependent on their social class and background, the occupational identity of the apprenticeship, the social norms of the industry, as well as the educational norms of the national context (Brockmann, 2012). Therefore, the apprentices could not necessarily express their own individual identities and biographies as outwardly as Willis' (1979) account portrays. Instead, the apprentices' identities were also shaped by the expectations work and learning context in action. Therefore, Brockmann (2012) provides an interplay with the apprentices' prior background' and how their backgrounds translate into and interact with the new learning context.

Additionally, Brockmann (2012) highlights how the apprentices' identity formation in their apprenticeships are influenced by their national context. In Germany the dual apprenticeship system, with its strong and embedded focus on both theory and practice, creates a socially respected system (Brockmann, 2012). This contrasts to England, where there are a strong academic/vocational divide and belief that apprentices reject classroom and theory-based learning in favour for more practice-based approaches, which, too, reflects its general low social standing and opportunities for future progression (Brockmann, 2012). In England, for example, motor mechanic apprentices appropriated more laddish behaviour and disregarded theoretical learning, which contrasted to Germany, where the mechanic apprentices were much more diligent and hardworking (Brockmann, 2012). Both groups of apprentices represent the different identities engineered within the different national institutional frameworks (Brockmann, 2012). This links to Evans' (2002) notion of bounded agency, which maps how societal features, young peoples' social backgrounds, and, particularly, changing national institutional environments either impede or assist their sense of agency and control in their chosen path and future terrains. In England, for example, young people viewed themselves as failures within the much more unstructured education, training and labour market system (Evans, 2002). However, in Germany, external issues were cited as contributing to someone's so-called failure due to the highly structured and clearly defined education and training system, which promoted inclusive opportunities for self-development (Evans, 2002). Evans (2002: 90) also notes that individuals generally felt a much more individualistic drive of 'frustrated agency' rather than a collective and defeated sense of hopelessness in their situations and current realities, mirroring the move to a much more individualistic sense of self in an uncertain and unpredictable society (Beck 1992; 1998 quoted in Evans, 2002). Evans therefore links the notion of young people's transitions to a situated context of changing modern society.

2.3.4 Uniting socio-cultural- and -political dimensions

Research into apprenticeships has remained fragmented and divided across three separate schools of thought. Either the macro or the micro has been prioritised with little understanding of the relationship between these two states. Equally apprenticeships have often been divorced from their work context with too much focus on their educational context or the wider political economy of skill.

Apprenticeships have been studied firstly in a policy or political economy context from a macro-driven perspective (Finegold and Soskice, 1988), within the context of national skill formation systems (Hall and Soskice, 2001; Thelen, 2004). This political perspective has traditionally tended to be technocratic in nature, ignoring the political agency of different institutional actors, within-country differences and workplace analysis (Vidal and Hauptmeier, 2016), which new research uncovers by analysing the interplay between workplace pressures in specific sectors and wider institutional change processes (Doellgast 2012; Lloyd and Payne, 2016).

Secondly, apprenticeships have also been studied in a cultural perspective, mapping the socio-cultural dimensions of learning at a micro level context (Lave and Wenger, 1991; Fuller and Unwin, 2003; 2004). Lave and Wenger (1991) outlined the basis of LPP, the process in which an individual procures knowledge through being integrated within a CoP. As Fuller and Unwin (2003; 2004) note, LPP (Lave and Wenger, 1991) fails to acknowledge the institutional, political and structural struggles surrounding the learning environment as well as formal educational institutions and other CoPs. Although Fuller and Unwin (2003) explore the employment relationship and 'managerial strategies of labour control' (Rainbird et al., 2001, quoted in Fuller and Unwin, 2003: 419) in their analysis, they do not acknowledge the role of labour market institutions and the wider national institutional context, which invariably shape both the apprentice employment relationship, and, the learning context. Doellgast's (2012) analysis studies mechanisms of workplace democracy through labour market institutions, which are not acknowledged with Fuller and Unwin's (2003; 2004) expansive-restrictive continuum. Similarly, Lloyd and Payne (2016) explore the link between the workplace and the meso-level institutional actors at sector level, providing insight into their political agencies.

Thirdly, apprenticeships have been studied in relation to young people's identity formations and transitions into the workplace, focusing on individual micro-level accounts (Willis, 1977; Brockmann, 2012; Evans, 2002). This social perspective adds to the Lave and Wenger's (1991) and Fuller and Unwin's (2003; 2004) conceptualisation of the learning process set within different learning and work environments, which somewhat overlooks the learner's own agency and personal background and experiences. Willis (1977) seminal study analyses how the cultural reproduction of the lads' white working-

class backgrounds was re-enacted in their transition into factory work. Willis (1977) uncovers a bold finding, highlighting that despite the strong institutional and structural forces at play in the lads' school, these hierarchical pedagogical pressures do not shape their agency and decision-making overall; instead the lads embrace their own culture over the school's. Willis' (1977) analysis compounds the lads' identity into a solid, fixed, but indistinguishable entity; their collective culture emerges but individual biographies and diversity of experiences are not reported. The lads' identity seems to be fixed forever in Willis' (1977) account, even into late working life, where the lads' earlier decisions at school, endure continuously into the future. Brockmann (2012), on the other, translates individual learner biographies into the learning context, workplace and national context, articulating how identity changes as the learners interpret the expectations of the learning cultures around them. Similarly, Evans' (2002) notion of bounded agency, also considers how national institutional environments shape agency and control of young people's transitions and how this relates to the state of contemporary capitalism. Evans' (2002) and Brockmann's (2012) comparative accounts also pivotally link the learner to different national institutional contexts and structures (Hall and Soskice, 2001), analysing how national institutional structures shape individual learning experiences.

These three schools of thought highlight the socio-cultural and political elements of apprenticeships and are summarised in Figure 2 and expanded in Figure 3. Apprenticeship is embedded within the confines of the apprentice employment relationship, which encapsulates the politics of skill development and mastery in a particular occupation, trade or profession. Mastery depends on equality and fairness within the employment relationship (Thelen, 2004; Grugulis, 2007), which invariably shapes the learning and training experience (Lave and Wenger, 1991; Fuller and Unwin, 2003) but also the structural conditions of society, which shape agency and individual transitions and journeys within the labour market (Willis, 1977; Brockmann, 2012; Evans, 2002). In this sense mastery is incomplete; it mirrors the continual dedication to craftsmanship (Sennett, 2008) but is also at odds with the incomplete nature of the social status of skill in contemporary society (Sennett, 2006; Ritzer, 2013), which, too, shapes the employment relationship between apprentice and employer (De Munck and Soly, 2007).

Figure 2: *The socio-cultural-political economy of apprenticeships*

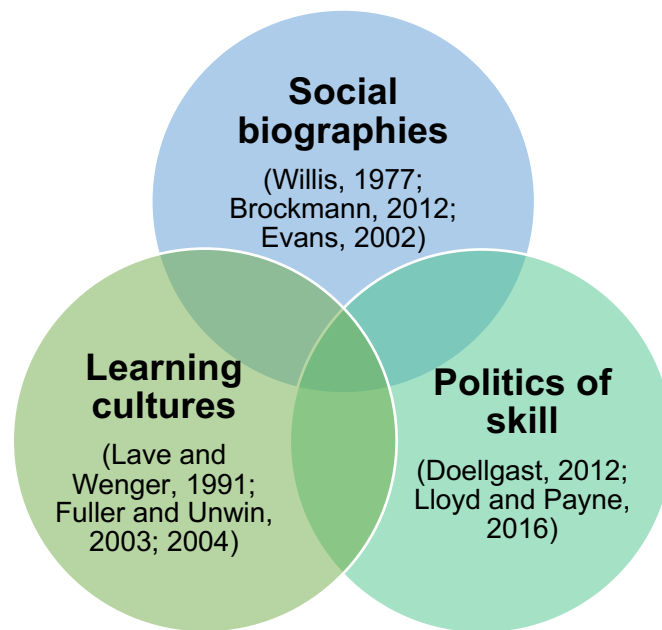
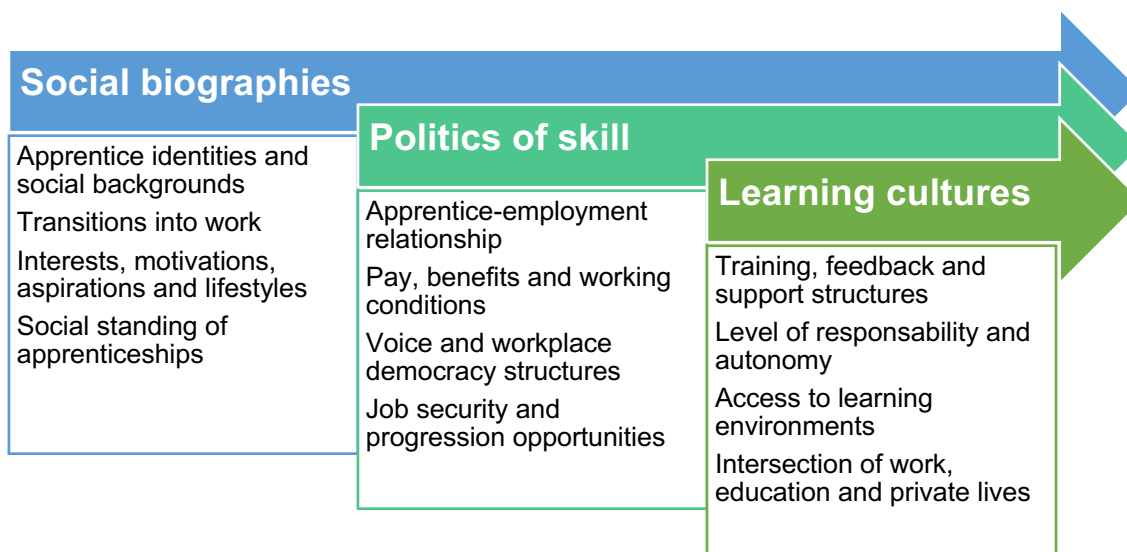


Figure 3: *A detailed outline of the socio-cultural-political economy of apprenticeships.*



3 Apprenticeships in England and Germany

The last chapter outlined the conceptual underpinning of the study. This chapter focuses on the main focus and object of study: the apprenticeship systems of England and Germany. It provides a review of core debates, changes and challenges concerning both apprenticeship systems. England has been refocusing efforts to increase investment and participation into apprenticeships (Bosch and Charest, 2010) within the context of continuous training failure (Finegold and Soskice, 1988) and decreasing apprenticeship numbers (Gospel 1995; 1998). Conversely, Germany has been expanding its HE offer leading to a growth of its popularity (Bosch and Charest, 2010) within the context of demographic change and educational expansion, leading to a reduction in social standing for apprenticeships (Thelen and Busemeyer, 2012; Thelen, 2004; Bosch, 2010; Crouch et al., 1999; Culpepper, 1999). The review unpicks these debates and initially presents a conceptualisation of both systems as “ideal types”, highlighting how the two systems embedded within their national contexts and wider vocational education and training (VET) systems. The next section of the review is a chronological and historical account of policy shifts in the English and German apprenticeship systems, portraying how the two systems have changed historically under socio-economic and political change. Finally, the next section examines emerging contemporary challenges and issues within both systems drawing from current literature as well as recent policy reports and surveys.

3.1 Conceptualising the English and German apprenticeship systems

3.1.1 Introduction

England and Germany adopt different approaches to apprenticeships and VET and these differences are shaped by a number of different factors and structures (Bosch and Charest, 2010). This section analyses the contrasting structures of the English and German apprenticeship systems, highlighting the structure of their apprenticeships programmes, their entry requirement and the “typical” apprentice they attract. From here, a review of how the English and German apprenticeships are conceptualised within the literature as “ideal types” is presented. This is followed by a short summary of the core features and differences of the two systems.

3.1.2 The structure of apprenticeships in England and Germany

England and Germany adopt contrasting approaches to apprenticeships, which is visible even in the structure of their apprenticeship programmes. In England, an apprenticeship can be no less than one year long but can last as long as six years. Overall, therefore there are four different levels of apprenticeships in England, as shown in Table 2.

Table 2: *Different types of apprenticeship (based on Gov.uk, 2018).*

Type of apprenticeship	Level	Equivalent qualification
Intermediate	2	GCSE
Advanced	3	A-Level
Higher	4-5	Foundation degree
Degree	6-7	Bachelor's or Master's degree

Apprentices spend one day per week on off-the-job training carried out through external private training providers, further education colleges (Rainbird, 2010) and recently even universities for higher and degree apprenticeships. In Germany apprenticeships are typically three and a half years long (Grugulis, 2007) but some apprenticeships now last only two years (Busemeyer, 2012). Apprenticeships are embedded within Germany's famous dual system of training, where apprentices learn on-the-job within the workplace and combine this with structured theoretical learning within publicly run vocational schools (Bosch, 2010). Apprentices spend three to four days per week learning in the workplace under the supervision of industry-specialised trainers sometimes known as 'Meisters' with the remainder of the week learning in vocational schools (Crouch et al., 1999). German employers are regulated as fit-to-train by the Chambers of Commerce, which contrasts with England, where training is not regulated or directed by specially trained 'Meisters'. Instead on-the-job training is directed and led by the employer and hence is typically shaped by firm-led demands (Crouch et al., 1999).

German apprentices typically enter into apprenticeships straight from school, although transitions into VET are becoming much more diversified with many young people choosing to complete an apprenticeship later (Jacob and Solga, 2015) or combining VET with HE (Protsch and Solga, 2015; Bosch, 2010). Germany's education system is ranked at three different levels. The Hauptschule leads to a lower school leaving certificate at age 16. Realschule leaving certificates (mittlere Reife) are ranked much higher than a Hauptschule leaving certificate and are a good entry point to VET or to progressing to the Abitur (A-levels). Gymnasium students work towards the Abitur qualification which affords entry to HE at age 18. The Gesamtschule (comprehensive school) combines all three levels. Previously apprenticeships were more typical to those who had attended a Hauptschule or Realschule (Bosch, 2010). Apprenticeships are inclusive to all school levels in Germany, but increasingly more young people leave school with higher school-leaving qualifications and more apprentices than ever have the Abitur (Bosch, 2010). In England, apprentices can be as young as 16 but there is no upper age limit, which means there are more adult apprentices and existing employees than school-leaver age

apprentices (Foley, 2020; Pullen and Clifton, 2016). The shift to older apprentices participating in the English system has questioned the value of the apprenticeship system providing a vehicle for youth to transition into the labour market (Fuller et al., 2015).

English apprentices are awarded an apprenticeship certificate according to their level of apprenticeship and apprenticeship standard. Standards are designed by employer-led groups in specific occupations and industries. Some apprentices also gain an extra qualification on top of this (for example, a BTEC, a degree or professional qualification) but this varies across the different apprenticeship standards, as employers no longer have an obligation to attach qualifications to standards (Unwin, 2017). Standards are relatively new as they were only introduced in 2012 to replace apprenticeship frameworks and many standards have yet to be completed by employers (Mizra-Davies, 2015). Bosch and Charest (2010) previously reasoned that England's apprenticeship curriculum and certification was too disjointed and wide-ranging under the apprenticeship frameworks structure. Yet, it is unclear as to how attractive, useful and coherent the new apprenticeships standards are to employers and apprentices alike.

Germany's certification has broadly remained the same. Apprenticeship certificates are highly prized and recognised in society and by employers (Culpepper, 1999; Bosch and Charest, 2010), leading to employment for apprentices and highly trained workers for employers (Crouch et al., 1999). Curricula of specific occupations are collectively organised and designed by the system's social partners of employers, the state, unions and chambers of commerce (Rubery and Grimshaw, 2003). Additionally, the Chambers of Commerce set apprentice examinations and manage and distribute apprentice certificates (Rubery and Grimshaw, 2003). Unions also represent apprentice interests through negotiating better pay and conditions through collective bargaining for apprentices (Rubery and Grimshaw, 2003; Bosch and Charest, 2010), which contrasts with England, where unions have minimal voice in consulting for better outcomes in the apprenticeship system (Ryan, 2000). Apprentices in England can be paid as little as the national minimum wage for apprentices, which is limited to £3.90 per hour for 16-18-year olds and those in the first year of their apprenticeship (SFA, 2015). Employer organisations represent sector and industry employer interests in Germany to improve the efficiency and quality of training to changing industry demands (Hall and Soskice, 2001).

Overall, England's apprenticeship system is much more variable in its structure, its curriculum and qualifications offer and also in the type of people who participate in the system. Germany's dual apprenticeship system, by contrast, is highly standardised in its structure, curriculum and qualifications framework and typically attracts school-leavers

although there is evidence to suggest that this might be changing (Jacob and Solga, 2015; Protsch and Solga, 2015; Bosch, 2010). Germany's system exhibits robust links between schools, the VET system and the labour market or the HE system (Bosch and Charest, 2010), which differs greatly to England's system with its weak linkage between schools and VET (Crouch et al., 1999) and transitions to the labour market remain disjointed and precarious (Evans, 2007).

3.1.3 England and Germany's contrasting national VET approaches

How can the contrasting structures of England and Germany's apprenticeship systems be understood? Apprenticeships are fundamentally shaped by the VET systems they are embedded within. Indeed, VET systems are not just defined by their internal structures and work organisation but also pivotally by their national industrial relations system, welfare state, approach to policymaking as well as its future economic outlook and dispersion of income (Bosch and Charest, 2010). England and Germany's VET systems are typically conceptualised in the literature as characterising opposing ideal type forms of skill formation (Bosch and Charest, 2010; Hall and Soskice, 2011; Finegold and Soskice, 1988; Crouch et al., 1999).

The English VET system is a voluntarist and employer-led system where the state has minimal involvement and employers freely control the supply of training and skills, most recently without the involvement of other parties such as trade unions (Crouch et al., 1999). England's apprenticeship system is set within the context of an LME, which is contingent on a market-led economy structure (Hall and Soskice, 2001). This creates a short-term perspective on skills development and profit accumulation and relies less on the support of institutional actors such as trade unions or other firms to progress its apprenticeship system (Hall and Soskice, 2011). The lack of institutional regulation within the English system is significant as it means that minimal demands are placed on employers to facilitate training, which in turn reduces the quality, breadth and social standing of apprenticeships (Finegold and Soskice, 1988). Policy on training and skills is centrally managed by the state, which favours a model based on the employer ownership of apprenticeships over one on social partnership. This has been apparent since the 1980's when the manufacturing-led industries and union controls were dismantled by the then Thatcher Conservative government (Marsden and Ryan, 1990). Since then trade unions and employers' associations have had minimal involvement in apprenticeship policy and regulation (Ryan, 2000). The current employer-ownership model means that firms prioritise training apprentices' internal firm-specific skills over skills that will be applicable to the wider labour market, which would in turn drive national economic growth (Gospel, 1995). The model also means that firms often fail to participate in apprenticeships due to fear of poaching and therefore consequently rely

on employing already skilled workers within the labour market (Finegold and Soskice, 1988). As such, England prioritises tertiary education and general skills over investing in the expense required for nurturing intermediate skills developed through apprenticeships (Bosch and Charest, 2010). This is achieved through firms relying on the steady supply of graduate recruits available from England's strong university-led education (Bosch and Charest, 2010) and training mainly through on-the-job training (Hall and Soskice, 2001). Apprenticeships therefore carry less social status. Jobs dominate more in high-skilled or low-skilled jobs with less scope for intermediate-level jobs. Flexible and unstable labour markets therefore determine skills and hence technical or craft-based skills are often abandoned (Hall and Soskice, 2001). Finegold and Soskice (1988:22) aptly define England's skills dilemma as being 'trapped in a low-skills equilibrium', due to its emphasis on low value production strategies, which only require narrow and standardised skills.

England's employer-led and voluntarist apprenticeship system contrasts with Germany's corporatist approach, which supports an ethos of social partnership, where unions, employers' associations, chambers of commerce, the state and firms coordinate decision-making collectively to regulate the system (Rubery and Grimshaw, 2003). Germany's apprenticeship system is set within the context of a CME, facilitating a coordinated approach with other firms, labour market institutions, the state and banks to facilitate a long-term approach to skills and financial development (Hall and Soskice, 2001). This creates a steady foundation for apprentices to learn a wide variety of skills to innovate business strategies (Hall and Soskice, 2011; Streeck, 1989) and a smooth transition to the labour market or further training opportunities. Indeed, approximately 10 per cent of qualified apprentices' progress to advanced levels of continued vocational education and training (CVET) with state-funded grants provided for these advanced programmes (Krewerth, 2004, cited in Bosch and Kalina, 2008: 72).

The tradition of social partnership in Germany's dual system ensures incremental change occurs within the system, thereby protecting the system from external market pressures (Streeck, 1992). Germany's economy relies on the continual development of intermediate skills to grow its high net value innovation- and export-led economy (Finegold and Soskice, 1988). Therefore, the majority of jobs in Germany are concentrated towards occupationally led professions at an intermediate skill level, with fewer jobs in low (Oesch and Rodriguez-Menes, 2011) and high-skilled sectors (Crouch et al., 1999). The lack of high-skilled jobs partly reflects the low rate of participation in continued VET (Thelen, 2007; Trappmann, 2010) and university education, which is significantly lower in Germany than in other Organisation for Economic Cooperation and Development (OECD) countries (Bosch, 2010). Although there is evidence to suggest that the number of low-skilled jobs is increasing (Grugulis, 2007; Finegold et al., 2000) and that a high-skills route via HE is becoming more attractive (Bosch, 2010; Thelen,

2004), apprenticeships are the main contributor to skill development. Equally, employers value them, with many companies favouring them for middle management positions over graduates (Bosch, 2010). This has historically guaranteed social mobility within the system as two thirds of young people traditionally completed apprenticeships (Grugulis, 2007). In addition, equal wage bargaining for apprentices set by unions reduces the likelihood of poaching (Streeck, 1992 Culpepper, 1999). Streeck's (1992:4) concept of 'diversified quality production' further encapsulates how apprentices contribute to the economy; their wide portfolio of intermediate skills produces multitudes of different products to meet different customer demands and innovative production strategies. The broad spectrum of skills that apprentices learn in Germany therefore provides the foundation and 'functional flexibility' for apprentices to rotate around different tasks (Marsden, 1999:213), which adds value by developing company production strategies (Hall and Soskice, 2011) as well as compensating for any future market uncertainty (Streeck, 1992). Apprentices therefore gain broad comprehensive skills, which contribute to industry-recognised and standardised qualifications for particular occupations, relevant and attractive to the wider labour market (Crouch et al., 1999). As such, and in contrast to England, Germany is characterised as a 'high skills equilibrium' (Finegold and Soskice, 1988:38).

Both the English and German apprenticeship systems traditionally shared the status of an occupational labour market (OLM) model, often being contrasted to France and Italy where internal labour markets that upheld internal promotion structures dominated (Marsden, 2007). Indeed, Bosch and Charest (2010:22) stress that VET systems only:

'acquire their societal significance and their value for companies and trainees until they are embedded in the labour market'.

OLMs integrate apprenticeships into the labour market by facilitating formal entry routes into specific occupations within the external labour market (Marsden and Ryan, 1990). Skills learnt via an apprenticeship therefore become portable and transferable to the labour market, encouraging and allowing labour mobility (Streeck, 1989; Marsden, 2007). Germany's apprenticeship system is embedded in a highly established OLM model through its dual system set-up and model of social partnership to stabilise its system (Rubery and Grimshaw, 2003). However, since the 1980's England's OLM has significantly diminished due to the transition from its traditional industrial- to service-led economy and the reduction in power of its labour market institutions (Marsden, 1999; 2007). The demise of skilled occupations and institutional regulation, which formerly acted at the cornerstone of England's OLM has significantly reduced the status of England's apprenticeships. Unions formerly regulated the supply of skilled labour to the labour market, which enhanced the market value of apprentices' occupational status

(Marsden, 2007) and provided better rates of pay (Stuart, 1994). The institutional erosion of England's apprenticeship system signifies a shift away from a traditional OLM apprenticeship structure to one where employers control the system of apprenticeships. The reduction of England's occupational approach is characterised through the inclusion of its NVQ competency-led curriculum, which allowed employers to 'codify on-the-job learning' to more 'ILM skills' (Marsden, 2007:974). Clarke et al. (2013) also highlight this shift in England, where apprenticeships have adopted a "trade" based route where skills are narrowly attached to productivity and task performance measures defined by the needs of employers. This set-up contrasts to Germany, which exhibits an occupationally led skills route based on qualifications, which are collectively negotiated by the various interests of the system's stakeholders (Clarke et al., 2013). Streeck (1989:89) argues that a lack of institutional controls, present in the English system, leads to a deregulated system that only produces 'suboptimal outcomes'. Hence, the lack of institutional coordination in England destabilizes the desired OLM model needed to facilitate apprenticeships (Marsden and Ryan, 1990). As such apprenticeships cannot be fully realized within England and the apprenticeship system remains incomplete and contradictory in its set-up (Marsden and Ryan, 1990; Gospel, 1998; Streeck, 1989).

3.1.4 Concluding comments

It is clear from the analysis that Germany's dual apprenticeship system very much epitomises an archetypal kind of apprenticeship system. Its structure of both practical and theoretical education and training is a clear product of its model of social partnership and collective skill formation. As such the system ensures that apprenticeships are attractive enough for both employers to invest in the system but also for young people to participate in the system (Culpepper, 1999; Bosch, 2010). England's system lacks Germany's strong institutional skeleton of different social partners and instead relies on employers to lead the delivery, curriculum design and investment into apprenticeships (Crouch et al., 1999). This has led apprenticeships to be highly variable and diffuse (Bosch and Charest, 2010), leading to less structured routes for apprentices in the labour market (Evans, 2007). There is also a general lack of accountability placed on employers and the state, unlike Germany's model of social partnership, which applies pressure on all parties involved to deliver towards the key outcomes of the system (Crouch et al., 1999; Streeck, 1992). Therefore, in order to encourage national skills development a collective and institutional system of social partnership needs to be in place to ensure that employers engage within the system (Marsden, 1999; Streeck, 1989). Without a collective and coordinated institutional network to facilitate skills development, national apprenticeship systems fail to reach their full potential (Marsden, 1999; Streeck, 1989).

3.2 The development of apprenticeship policy in historical perspective

3.2.1 Introduction

The last section provided an analysis of the structure and conceptualisation of the English and German apprenticeship systems in the academic literature. This section provides the context of the materialisation of these two very distinct apprenticeship systems by introducing key historical changes and policy drivers within both systems, from medieval times up to the present day. This section helps explain the conceptualisation of the English and German apprenticeship systems outlined in the previous section by following instances of change and continuity over time. England's apprenticeship system is historically marked by political conflict between capital, labour and the state (Ashton and Green, 1996) and a general deregulation of traditional apprenticeship, demonstrating that this is a much more market-led and voluntarist system. In stark contrast, Germany's apprenticeship system exemplifies the preservation of traditional apprenticeship through the long-standing protection of artisanal interests; this foundation provided a solid template for its industrial training system, where capital, labour and the state worked in cooperation, explaining Germany's corporatist and coordinated system. The section starts with an overview of the medieval origins of apprenticeship in both countries, mapping the acceleration of both systems through the industrial revolution up to the end of the 19th century. From here, the start of the twentieth century up to mid-1900s highlights further developments, specifically how World War 1 affected apprenticeship and skill demand. The 1960s marked a period of significant change in both systems and this is analysed in historical context up to the 1980s. Finally, both apprenticeship systems are studied in contemporary context from a policy perspective from the 1990s onwards up to how the two systems exist in the present day.

3.2.2 Medieval period to the late nineteenth century

In medieval and early modern Europe craft guilds were established in urban cities and towns, which regulated apprenticeships, but these were much less common in the countryside (De Munck and Soly, 2007: 10). In England, guilds started to diminish even as early as the Tudor and Stuart period, due to the progression of the putting out system of production within the countryside (Thelen, 2004). However, in Germany, apprenticeships continued to be organised by craft guilds until the latter half of the nineteenth century (De Munck and Soly, 2007; Thelen, 2004).

Thelen (2004) highlights that in England many rural employers did not comply with guild rules and employed apprentices on lower wages, thereby imposing undue competition on urban guilds. However, in 1563, the Statute of Artificers was introduced, which set the length of an apprenticeship, its training ratio and apprentice working conditions and

wages (Fuller and Unwin, 2009). Unlike mainland Europe, this regulation applied to employers not just in the cities but also in the countryside (De Munck and Soly, 2007). Apprentices were obliged to serve up to seven years learning broad skills as a route to a particular manual trade (Gospel, 1998) and masters could not have more than three apprentices at a time (De Munck and Soly, 2007). In comparison to England, apprenticeships in Germany were typically shorter, lasting anywhere between three and six years (De Munck and Soly, 2007). In 1869 it was made obligatory for apprentices to attend continuation schools although attendance legislation varied across the different regions (Deissinger, 1996). Interestingly, no similar national apprenticeship regulation like the Statute of Artificers existed in continental Europe at the time and instead local craft guilds regulated the general amount of training and the length of the apprenticeship (De Munck and Soly, 2007).

In mid-sixteenth century England, 90 per cent of apprenticeship vacancies were taken up by young people from poor and rural areas who moved to larger cities to complete an apprenticeship (De Munck and Soly, 2007). In the mid-seventeenth century this number declined to 85 per cent (De Munck and Soly, 2007). In 1550 there were circa 1400 apprenticeships starts, and in 1650 approximately 2800 (De Munck and Soly, 2007: 17). In the early modern period, apprentices in England and Germany were aged anywhere between fourteen and sixteen years old at the start of their apprenticeship (De Munck and Soly, 2007). Apprentices were often the children of guild members sustaining the family occupational tradition or business, whilst other apprentices moved locations to train with a particular master. As such, apprentices in England and Germany typically lived onsite in the same residences as the master; compulsory boarding in Germany was eradicated in 1875 (De Munck and Soly, 2007; Deissinger, 1996) and existed until the middle of the 19th century in England (Gospel, 1994). In England this led to high dropout rates for youngsters who had to acclimatise to a different way of life and working routine, especially those who had travelled far from much more rural locations (De Munck and Soly, 2007). However, despite this, the master was also often referred to as a surrogate parent, raising the apprentice like one of his own children, under a model named the 'ganze Haus' (whole house) model (De Munck and Soly, 2007: 23). Despite this harmonious image, apprentices would often be used for cheap labour and would often complain of poor-quality training, mistreatment and physical abuse (De Munck and Soly, 2007).

With the run-up to the industrial revolution there was mixed opinion about the link between apprenticeships and the success of industry. Traditional perspectives viewed apprenticeship as a product of the established hierarchical nature of the master artisans, generally viewed as barriers to the expansion of the free market economy, the development of technology and social mobility (De Munck and Soly, 2007; Deissinger,

1996). Hence, under this perspective apprentices were viewed as dependent on their masters and shaped by the expectations of the craft guilds; as such apprenticeships, a product of the craft guilds, were epitomised by the notion of 'Gemeinschaft (community)' in contrast to 'Gesellschaft (society)' in the lead-up to industrialisation (De Munck and Soly, 2007: 11). However, many have argued since that craft guilds were generally not a hindrance to the rise of a capitalist economy (De Munck and Soly, 2007: 11) and if anything contributed to the superior rise of Europe in the run-up to the industrial revolution (Epstein, 1998; De la Croix et al., 2016). Indeed, in the late middle ages there was an emphasis on product innovation over process innovation, which meant that employers often relied on the link between apprenticeship and corporatist structures, like the craft guilds, as a route to ensure product quality (De Munck and Soly, 2007).

However, in England, the regulatory framework of the Statute was not adapted to meet changing market demands and technological change (Thelen, 2004). Indeed, enforcement of the Statute was afforded to the guilds with no overarching institutional enforcement led by the state itself (Thelen, 2004). Rather tellingly government took less interest in defending the set regulations of the Statute despite tensions arising during the industrial revolution from the artisanal community and guilds, who were increasingly losing their stature and prominence (Thelen, 2004). Guilds could report employer breaches of the Statute to the courts but increasingly the Statute was only applied to urban employers and to occupations that only existed at the Statute's introduction, not new occupations (Thelen, 2004). As such there was a growing imbalance of both good and rogue employers, the latter typically larger capitalist employers who did not comply with the Statute and who were using the disintegrating apprenticeship regulations to their advantage (Thelen, 2004). Alliances were created amongst smaller masters and journeymen in industry, who were determined to rescue the downhill trajectory of the Statute to stay competitive in the labour market (Thelen, 2004). This involved campaigning for apprentices to be only trained by those who had completed seven years of training themselves, sensible master/apprentice ratios that would be officially recorded and set indenture periods for apprentices (Thelen, 2004). However, despite these calls for change, the Statute of Artificers was officially revoked in 1814, leading to the diminishment of small master craftsmen and journeymen, who now had no means to defend their influence and prestige within their trades (Thelen, 2004). At the time, the Combination Acts of 1799 and 1800 banned trade unions from operation yet this affected unskilled workers much more than skilled workers (Thelen, 2004). The latter sought to defend their skilled status through trade-based organisations after the abolishment of the Statute (Thelen, 2004). During this time, voluntary workers associations known as "friendly societies" increased in popularity and were an important meeting ground for skilled workers and artisans, while also providing insurance and financial services.

Insurance funds were used as an early bargaining tool to secure worker rights and union control (Thelen, 2004). The rise in union organising amongst skilled workers, combined with the abolishment of the Combination laws in 1824, led to the pull of unions enforcing craft control strategies over apprenticeships, restricting the number of apprentices and defining occupations and skill levels (Thelen, 2004). Unlike in Germany, unions in England adopted a leading role in regulating apprenticeships during the industrial revolution, but with a noticeably much more liberal state policy (Thelen, 2004).

However, with no formal state policy or regulation, with the abolishment of the Statute, apprenticeships became entirely unregulated with no state-led enforcement or stable institutional framework to support apprenticeships (Thelen, 2004). As such formal indentures were typically replaced with verbal or informal contracts lasting five to seven years (Gospel, 1994). The length of training or number of apprentices per master/employer were no longer defined and employers were not directly accountable for the quality of apprentices' training (Thelen, 2004). From 1870 onwards, the apprenticeship system developed onto a different path to the public education system (Fuller and Unwin, 2009). In 1870 compulsory state education was enforced through the 1870 Education Act. However, apprentices did not need to complete their general education alongside their apprenticeship and thus workplace training dominated (Fuller and Unwin, 2009). In contrast to Germany, there was also no formal institutionalised certification and examination system, which hindered the quality of apprenticeship training (Thelen, 2004). Accordingly, the type of apprenticeships available at the start of the nineteenth century onwards varied in length and quality from formalised indentures to much more flexible training arrangements (Thelen, 2004) particularly with new apprenticeships emerging in the metalwork industries (Gospel, 1994). Previously membership of a union relied on the formal completion of an apprenticeship but as training became much more flexible and fragmented throughout the nineteenth century, unions relied more on years of work experience or wages as an indication of skill level (Thelen, 2004). Unions did implement multi-employer collective bargaining to further regulate the system, but despite this there was minimal state involvement in apprenticeship matters (Gospel, 1994).

In Germany, the artisan and craft sector played an important role in the formation of the German apprenticeship system, even up to the process of industrialisation (Thelen, 2004). The distinctions between artisanal communities and industrial workshops were clearly demarcated. A series of trade acts in 1845 and 1849 kerbed the practice of free craftsmanship and mandated that only masters who were examined journeymen and were members of a guild could take on an apprentice (Deissinger, 1996). However, the 1860's was a time of liberalisation, and in 1869 any existing apprenticeship regulations that stated who could employ and train apprentices were lifted (Thelen, 2004; Deissinger,

1996). This led to a reduction in apprenticeship quality and increased the use of exploitation apprentices through cheap labour (Tollkuehn, 1926, cited in Thelen, 2004). In the 1870s social democratic forces were uprising, and with it a robust and radical labour movement, which prompted conservative and centre political parties to promote the artisanal sector as a solid base and alternative to the threat of social and political unrest (Thelen, 2004). The 1800s was a period of reform for Germany, which initially led to more powers being granted to the guilds at a time when the artisanal sector was campaigning for more protection due to economic crisis (Deissinger, 1996). This ultimately led to the emergence of the German apprenticeship system. In 1897, the Handicraft Protection law legally organised the artisanal sector into compulsory chambers that regulated the content of training and controlled how many apprentices were trained by firm and sector (Thelen, 2004; Deissinger, 1996). This stabilised apprenticeship training, which at the time was deteriorating in quality. Training masters had to be over 24 years old and be certified journeymen or have at least five years' experience within the artisanal section (Thelen, 2004; Deissinger, 1996). The chambers also oversaw the certification and examination of apprentices, and also carried out regular checks on employers to ensure quality of training; this provided a more institutional foundation to the system (Thelen, 2004). Unions played less of a role within the apprenticeship system at this time, and unlike England, did not control the supply of skills to the labour market, but did have extensive experience in organising skilled workers (Thelen, 2004).

In the 1890s industrial associations representing employers' interests within the market to enhance competitiveness rose in prominence (Thelen, 2004). The artisanal sector was still protected by guilds, which continued to gain power. This created tensions with some more forward-looking employers and the industrial associations, which were concerned that the protection of the artisanal sector might hinder meaningful development of their industries (Thelen, 2004). This led to an alternation in the 1897 law, which changed the legislation from an original emphasis on handicraft producers being protected from the market, to a new direction of embracing the market (Hansen, 1977, cited in Thelen, 2004). Indeed, some large firms argued that the skills supplied by Handwerk were increasingly not meeting their demands and were not sufficient enough for changing technologies (Thelen, 2004). Larger firms in the metalworking industry responded to this concern over the years by implementing firm-based training workshops or schools to internalise skill formation. Apprentices were provided with specific training aligned to the companies' segmentalist production strategies, forming a core elite of talent to secure the companies' future success (Thelen, 2004).

3.2.3 The twentieth century to the mid-1900s

In the early 1900s industry continued to grow in Germany and overtook the Handwerk sector in prominence. However, companies had no means to certify their apprentices as certification could only be granted through the Handicraft chambers (Thelen, 2004). There was no certification process to verify industrial training, causing tension between the industrial and artisanal sectors (Thelen, 2004). In 1908 the German Committee for Technical Education (Deutscher Ausschuss fuer Technisches Schulwesen or DATSCH) was formed and, in alliance, with the Association for German Engineers (Verein Deutscher Ingenieure) and the Association of German machine building firms (Verband Deutscher Maschinenbauanstalten), set out to demand separate certification and examination of industry apprentices (Thelen, 2004). This was at a time of immense skill shortages. Young people over the age of 14 also had to attend continuation schools, which varied across regions. By 1908 most young people attended these schools (Thelen, 2004). This introduced debates about the State's role in training and training as a social good with companies lobbying for the State to share the cost of training (Thelen, 2004).

New technologies were increasingly being introduced into the workplace in England from 1890 to 1915; this changed the demand for skilled labour, leading to an increased need for semi- or unskilled labour as new machines were introduced (Thelen, 2004). At the start of the 1900s, there were approximately 340,000 apprentices (Mizra-Davies, 2015). Unlike Germany, organised labour took a much more central role in negotiating these changes. New technologies threatened local craft controls and introduced intensifying employer strategies to drive forward managerial discretion and prerogative, which led to unions fighting back in the infamous lockout of 1897 (Thelen, 2004). Unions were defeated in the lockout by employer groups, notably the Engineering Employers Federation, which led to centralised union organisation structures through collective bargaining and dispute resolution mechanisms, a move to mitigate the risk of another lockout (Thelen, 2004). Unlike Germany, where industrial employers had minimal voice in training arrangements, industrial employers in England suddenly had exclusive control over apprenticeship arrangements. Indeed, restrictions on the employment of apprentices were lifted, leading to a much more unregulated system with employers now controlling the recruitment, selection and training of apprentices. Apprentices were increasingly used as cheap labour and only trained to operate specific machines, which led to more specialised, repetitive or narrow skill sets and young people decided to pursue higher wages for unskilled work and avoided long indenture processes of five to eight years (Thelen, 2004). This reduced the social standing of apprenticeships at the start of the twentieth century.

In response to this, the voluntary-led Apprenticeship and Skilled Employment Association was formed to encourage routes into different vocational trades and to provide information on vacancies with good prospects and working conditions for young people (Thelen, 2004). Large engineering and manufacturing firms also devised more comprehensive training programmes, often with their own in-house technical schools, paying for the apprentices' class fees and robust on-the-job training, much like large industrial employers in Germany (Thelen, 2004). Training was variable across the board in England and these types of superior training programmes were vulnerable to poaching, particularly in a voluntarist system with no state-led compulsory education or training for young people (Thelen, 2004). Around this time, and like Germany, there was a growing narrative for state-led compulsory training and education (Thelen, 2004).

World War I led to weakened union controls and industrial action in England due to government sanctions and increasing skill shortages. The latter brought a renewed interest in skills and training (Thelen, 2004). The Fisher Act in 1918 raised the school leaving age to 14 and expanded continuation schooling for 14 to 16-year olds and in 1919 the Association for the Advancement of Education in Industry and Commerce was founded (Thelen, 2004). The post war years also led to an increase in shop floor labour organisation and militancy as unions tried to regain lost ground from the war years, which changed again after the economic recession in 1922 that led to employers cutting wages and trying to regain control over workplace conflicts, evidenced in the 1922 unsuccessful Amalgamated Engineering Union lockout (Thelen, 2004). Across the 1920s to 1930s the unregulated nature of apprenticeship training steadily waned in prominence and in quality and young people lost faith in investing their time in apprenticeship training due to lengthy training times, low pay and recognised training that would translate well to the labour market (Thelen, 2004). Equally, in the 1940s and 1950s there were continuing and significant skills shortages and a general reduction in apprenticeships in England (Thelen, 2004).

Germany was recovering from World War I during the Weimar period and suffering from major skill shortages, a dearth of vacancies for apprenticeships and competition amongst firms for skilled labour in a time of economic stagnation (Thelen, 2004). Young people in apprenticeships were typically exploited as cheap labour, following economic recession after 1918, causing further calls for reform of the Handwerk system from the business communities (Thelen, 2004). In the 1920's reform never came but voluntarist efforts from industry and organised labour shaped the trajectory for the German system, namely, at this point from the Association of German Machine Builders (VDMA) and the Zentralarbeitsgemeinschaft (ZAG) (Thelen, 2004). Unions took a more prominent role at this time, especially since they now had legal recognition. Unions called for an overhaul of the Handwerk-based training system, took an active role in plant-level skill

development and enforced collective bargaining to regulate apprenticeships (Thelen, 2004). The VDMA also pushed for a collective effort of the standardisation of industrial apprenticeships across small, Mittelstand and large businesses through partnering with DATSCH. This included standardised contracts, training materials and inventories and skill profiles of different trades (Thelen, 2004). Through the combined and voluntarist effort of unions, trade associations and firms, a much more uniform and standardised apprenticeship system was created (Thelen, 2004). The artisanal sector heavily relied on apprentices for inexpensive, flexible and productive labour, which helped maintain their competitiveness. They did not welcome any reforms that gave the industrial sector the advantage of certifying their apprentices or any union involvement, which could impact apprentice wages (Thelen, 2004). Industry tried to oppose this status quo and founded the German Institute for Technical Training (Deutsches Institut fuer Technische Arbeitsschulung or Dinta) in 1925 that adopted a firm-centred, paternalistic, self-sufficient and anti-union stance on industrial training (Thelen, 2004). However, no reforms materialised and in 1929 the Depression severely impacted apprenticeships with companies making workers redundant and not offering any apprentice vacancies (Thelen, 2004).

In 1938 attendance at Berufsschulen (vocational schools) over three years was made compulsory so that apprentices could be released from the workplace and fees were administered if employers did not comply (Deissinger, 1996). In 1940 it was agreed that six to eight hours a week of education at the vocational schools was required (Deissinger, 1996). Certification was finally mandated by the National Socialists who increased apprenticeship participation and standardised the industrial training system under industry and trade chambers (Thelen, 2004). In 1953, the Craft Regulation Act, made extra provisions to in-house company training and drafted an inventory of 111 defined and authorised occupations that created an initial apprenticeship model for the post-war years (Deissinger, 1996). After World War II, occupationally led school-based training was also introduced, which differed from the dual system (Protsch and Solga, 2015). This school-based vocational system was organised separately by the German states and offered qualifications in subjects focussing on health, social, education and media (Protsch and Solga, 2015). The period from the 1920s onwards had been defined by consecutive events to implement state legislative action of the regulation of apprenticeships (Deissinger, 1996). In 1927 a Vocational Training Act was outlined but it was ultimately unsuccessful due to the economic uncertainty at the time (Deissinger, 1996). In 1942 another attempt at a bill did not successfully emerge due to World War II, leading to further outcries from other actors such as unions and the social democrats from the 1950s onwards (Deissinger, 1996).

3.2.4 The 1960s to 1980s

The Vocational Training Act was finally introduced in Germany in 1969 to further improve apprenticeship standards and engender improved cohesiveness between the different social actors within the system, including trade unions, chambers of commerce and the state (Thelen, 2004). The Federal Institute for Vocational Education and Training (BIBB) was created in 1970 to enable the key goals of the Act (BIBB, 2014). The resultant coordinated structure created a strong institutional culture of co-determination, allowing the social stakeholders within the dual system to regulate the system and facilitate curriculum development and certification (Rubery and Grimshaw, 2003). The act also encouraged a sense of social obligation for firms to participate in the system (Bosch, 2010). Trade unions provided voice to apprentices' workplace relations (Rubery and Grimshaw, 2003) and with their newly increased power also drove forward the broadening of occupational skill profiles and centralised equal-pay bargaining (Thelen and Bussemeyer, 2012). This ensured the standardisation of wages across firms and sectors, which, in turn encouraged more firms to participate (Thelen and Bussemeyer, 2012) and reduced the prospect of talent poaching (Culpepper, 1999). Apprenticeship wages were established at relatively low rates, which also increased employer participation and was acknowledged by apprentices who were keen to progress to an established career route and trade (Crouch et al., 1999). Works councils also increased in authority, particularly in 1972 through the Revised Codetermination Act where they phased out lesser quality two-year apprenticeships introduced during World War II to address skills shortages (Thelen and Bussemeyer, 2012).

As in Germany, apprenticeships in England came under significant criticism in the 1960's, leading to a period of reform. At this point, a third of male school-leavers were typically undertaking apprenticeships (Mizra-Davies, 2015). Apprenticeships were criticised due to the narrow nature of training, lack of applicability to industry developments and the fact that certain trades were not represented (Gospel, 1994). Unions commented on the state of apprenticeships during this time with disdain:

"Apprenticeship is a farce and provides less training than a properly constituted course lasting only a few months...The fact that a man has completed an apprenticeship does not therefore of itself guarantee that he has acquired any particular level of skills, or that he has passed any form of test of ability." (Royal Commission on Trade Unions and Employers' Associations, 1968, quoted in Mizra-Davies, 2015)

The reforms in this period re-assessed the need for excessive timeserving, leading to a three to five-year training period (Gospel, 1994; 1998). In response, employers started to implement improved methods of off-the-job training that emphasised a modular

approach, where apprentices were trained to specific standards (Gospel, 1994). The Industrial Training Act was introduced in 1964 to instigate this reform and established training levies and Industrial Training Boards (ITB) (Crouch et al., 1999) as well as increased inclusivity, gender diversity and curriculum content that met developments in new technology (Donovan, 1968; Sheldrake and Vickerstaff, 1987). During 1970s the ITBs started to develop more modular and competency-led approaches to apprenticeship training and also sought to develop apprenticeships into new emerging trades (Gospel, 1994).

However, recession in the mid-1970's led to the development of policies to tackle youth unemployment through the formation of the Manpower Service Commission (MSC) in 1973, a tripartite body, comprising of government, the Trade Unions Congress and the Confederation of British Industry (Crouch et al., 1999; Raggat and Williams, 1999). A number of state-led one-year long training schemes between 1978-1990, including the 'Youth Opportunities Programme', 'Youth Training Scheme' and 'Youth Training' were introduced, after the election of the conservative government in 1979 (Keep and Rainbird, 1995). However, the schemes were condemned for their lack of quality training, resulting in diminishing participation (Finegold and Soskice, 1988). Some employers replaced apprenticeship programmes for the schemes or used the schemes as a probationary period to upgrade trainees to apprenticeships upon successful completion (Gospel, 1998). These youth programmes both destabilised apprenticeships due to the state-funded structure of the programmes but also sustained them in the public awareness as many firms started to pay attention to the concept of training (Gospel, 1994;1998).

Germany also experienced increased bouts of unemployment in the 1970s as well as a breaking apart of traditional craft industries and the introduction of labour flexibility measures (Trappmann, 2016). Pre-vocational training was also introduced as a transitional system to prepare young people for apprenticeships but unlike the dual system did not grant certification (Jakob and Solga, 2015). Apprenticeship participation did however significantly increase between the 1960's and 1980's; only 20 per cent of workers had gained a vocational qualification before the 1960's, which increased to 60 per cent by the 1980's (Geissler, 2002:339, cited in Bosch and Charest, 2008:429) due to the baby boomer generation (Jacob and Solga, 2015). Educational expansion also catered to the general increase in apprenticeship participation, e.g. in the mid-1960's 20 per cent left school without any kind of qualification and by the mid-1980's this was reduced to under ten per cent whilst those gaining the Abitur (German school leaving certificate for entry into HE, equivalent to A-Levels), increased from seven to 27 per cent between 1965-1990 (Jacob and Solga, 2015) and stands at 50 per cent today (Protsch and Solga, 2015). Despite this, the 1970's and 1980's experienced the start of increasing

debates on the beginnings of an 'academic proletariat' (Jacob and Solga, 2015:166) and the potential for HE to provide an alternative, especially due to increasing rates of Abitur qualified youth. The first hybrid VET and HE institution, the Berufsakademie Baden-Württemberg, opened in 1974 and marked the start of a number of similar universities offering the opportunity for both VET training and a HE certificates. The hybridisation of VET and HE ensures apprenticeships are combined into an undergraduate degree and typically attracts higher-achieving candidates (Bosch and Charest, 2010).

While Germany was experiencing an emerging trend of academisation, leading to increased apprenticeship participation and educational aspiration, England's apprenticeship system was viewed in much less aspirational terms, with a reduced social standing and a much more voluntarist and deregulated approach. The period of Thatcherism from 1979 brought about the destabilisation of markets through the addition of neo-liberal policy (Crouch et al., 1999). This time entrenched a more voluntarist, unregulated and employer-led approach to training. State-funding for training was reduced, trade union activity declined and the training levy system as well as ITBs and the Manpower Service Commission were disbanded in 1988 (Gospel, 1998; Crouch et al., 1999). Apprenticeships were therefore no longer measured through a process of timeserving and traditional craft requirements but by competency-led standards, which focused more on 'outputs rather than inputs' (Stuart, 1994:58). Institutional supports such as unions were therefore relegated within this process to make way for a more market-driven approach to apprenticeships delivery, solely led by the interests of employers (Stuart, 2001; Gospel, 1994). Private sector Training and Enterprise Councils (TEC) comprised of employer-led groups at local level were introduced to oversee the youth training schemes (Gospel, 1994). TECs epitomised an 'explicit rejection' of the previous remnants of the 'collectivist and interventionist principles' of the MSC, leading to a much more 'decentralised, employer-led governance structure' (Wood, 1999: 364) to training. Government, at this time, also encouraged lower pay for trainees and the introduction of private providers under this new employer-led guise, with the core emphasis of giving more power to employers in training decisions (Gospel, 1994; Wood, 1999).

In 1988 the modular and competency-based system of National Vocational Qualifications (NVQ) was introduced to create transferable standards focused on meeting employer skill requirements (Grugulis, 2000). NVQ's were overseen by the National Council for Vocational Qualifications, which set standards centred around specific competencies (in stark contrast to the time-serving model), primarily designed and led by employer and business representatives (Crouch et al., 1999; Gospel, 1994). The system was criticised for undermining apprentices' work responsibilities and development needs (Grugulis, 2000), displaying variable quality of standards across different sectors (Gospel, 1995),

provision of narrow skill-sets (Gospel, 1994) and having limited technical and coursework components (Ryan, 2000; Brockmann et al., 2005). The introduction of NVQs also marked the clear shift from a structured time-serving and occupationally-led training to an indeterminate and unregulated employer-led system based on demonstrating competencies over learning structured occupational skills and theoretical knowledge (Crouch et al., 1999). Equally the inclusion of NVQs also meant that firms often preferred training providers over traditional colleges, which, alleviated the inconvenience of dealing with unions and pivotally offered lower-cost training (Crouch et al., 1999). The variety of NVQ qualifications did, however, allow apprenticeships to branch out to new occupations and sectors and thus required new standards to be created. This opened up a powerful skills paradigm to women and highlighted a departure from a purely historically male-dominated, manually led labour image of apprenticeships.

Overall, the English apprenticeship system moved to the reality that there were fewer incentives or compulsions for employers to actually invest in apprenticeships (Gospel, 1994). This damaged the traditional foundations of the apprenticeship system in England. Apprenticeships became fragmented through the move from its previous occupational labour market framework to an internal one, set within the context of an unregulated free market economy and an underdeveloped vocational school system to support apprenticeship training (Gospel, 1994).

3.2.5 The 1990s to present day

The fall of the Berlin wall in 1989 and reunification initiated a process of significant national economic reorganisation in Germany. The former German Democratic Republic (GDR) was affected most, leading to many lay-offs, high levels of joblessness and minimal or often only state-funded apprenticeship opportunities (Culpepper, 1999). Equally, the German economy faced global economic pressures and a deterioration of economic competitiveness, especially during the succeeding recession in 1992-1993 following reunification, which generated significant job losses particularly in the manufacturing sector (Hassel, 2014; Wagner, 1991). However, overall, the dual system remained intact throughout this period.

England faced much more change from a policy perspective at this time. Modern Apprenticeships (MA) were introduced by the then Conservative government in 1994 to revamp England's traditional apprenticeship system and occupationally led training (Fuller and Unwin, 2001). Apprentices under the MA model were paid a wage and were considered an employee (Mizra-Davies, 2015). Within the context of minimal union regulation MAs offered the prospect of harnessing employer-led management of apprenticeships and attracting increased apprentice participation and boosting intermediate skills levels; previous schemes had failed to achieve this (Gospel, 1998).

The programme was, however, criticised for its variable quality of training as well as not reaching key participation targets (Gospel, 1998). Gospel's (1995) analysis of two datasets highlights this well, with a clear decrease in participation from 243,000 in 1966 to 53,000 in 1990 (according to Department of Employment data) and from 154,000 in 1976 to 76,000 in 1993 (documented in Labour Force Survey data).

In 1997 the Labour Party returned to power and focused on increasing investment into apprenticeships and making them more inclusive. Labour also introduced inspections on learning providers in 1998 through the Training Standards Council, which was later reallocated to the Office for Standards in Education, Children's Services and Skills, (OFSTED). The Conservative model of the MA scheme only offered level 3 apprenticeships, equivalent to A-Levels. However, in 2000 level 2 apprenticeships, termed as National Traineeships and equivalent to GCSE level, the same level as the previous Youth Training scheme, were also included (Steedman, 2011). As such apprenticeship participation increased significantly, highlighting the successful transition to level 2 apprenticeships from the previous lower-quality work-based and government-led training schemes from the 1970's (Steedman, 2011). At the beginning of the 2000s national apprenticeship frameworks were introduced, which described the skill requirements and standard of any given apprenticeship (Mizra-Davies, 2015). SSCs were also created in 2002 with the aim of developing industry-specific skills that involved both employers and union representatives on the board (Payne, 2007). In 2004 the age limit of 25 was removed, allowing anybody to apply for an apprenticeship (Mizra-Davies, 2015). At this point, pre-apprenticeships were also introduced for those without adequate qualifications to enter into an apprenticeship automatically as well as young apprenticeships for 14- to 16-year-olds (Mizra-Davies, 2015). In 2006 the Leitch Review of Skills (2006), led by Lord Sandy Leitch, argued that for a significant rise in skills investment to meet national productivity aims, stipulating that the UK should aim to be a world leader on skills by 2020. This enforced Labour's view adopting a high-skill, high-wage and high-productivity economy, invested in technology (Lloyd and Payne, 2002). Recommendations of the report were also centred upon a more demand-led system, with shared responsibility amongst employers (Leitch, 2006) however the report, and Government's general response, was criticised for its HCT rhetoric to skills policy-making, viewing skills as a lever to banish a plethora of societal issues including social mobility, poverty and unemployment to name but a few (Keep and Mayhew, 2010). Through the Leitch Review, the UK Commission of Employment and Skills (UKCES) was formed to oversee the reforms. In 2009 the Apprenticeships, Skills, Children and Learning Act was passed and provided the right for any school leaver with five or more General Certificates of Secondary Education (GCSE) passes to undertake an

apprenticeship and also led to the formation of the National Apprenticeship Service, established to persuade employers to invest in apprenticeships (Steedman, 2011).

In Germany the dual system's occupational profiles have been gradually reorganised and simplified since the 1970s (Bosch, 2010) to cater to new industries within the technology and service sectors and the decline of traditional manufacturing or craft-based industries (Thelen, 2004). 901 occupations existed in 1950 (Bosch, 2010) and only 328 remain in 2015 (Esser, 2015). It is clear that Germany's occupational structure has changed, with some arguing that its occupational philosophy is at risk (Brockmann et al., 2005) and others highlighting that the loosening of occupational profiles has effectively broadened the previous inflexible nature of the system (Bosch, 2010).

The Hartz reforms between 2003 and 2005 also had a significant effect on the German labour market. The reforms terminated key unemployment benefits and social welfare rights and increased pressure for the unemployed to enter back into employment (Bosch, 2010). Through this, the unemployed became accountable for the costs of their own work statuses, i.e. failure to enter employment leads to cuts in benefit rights, and through this, often leads to poorly-paid, low-skilled work (Bosch, 2010). Equally, rights to re-train and gain VET qualifications to re-enter Germany's strong OLM also diminished (Bosch, 2010), leading to an increase of the socially and economically vulnerable on the periphery of the labour market. Indeed, in 2000 343,000 people were participating in training programmes but by 2005 this had been reduced to 114,000, reflecting the impact of the implementation of the Hartz reforms (Heyes, 2012). The reforms also pivotally increased employers' rights to exercise flexible employment practices, such as fixed-term contracts, casual part-time employment and the use of temp agencies (Hassel, 2014; Helfen, 2015). However, despite the global financial crisis in 2008 and unlike other countries, Germany's labour market has not been affected and has even experienced an acceleration of new jobs created and a reduction in unemployment (Eichhorst, 2015; Hassel, 2014).

In the early 2000s new changes were also being imposed to Germany's apprenticeship system. In 2003 the length of apprenticeships was cut from the traditional 3-3.5-year term to 2 years for 30 occupational profiles by the Social Democrat-Green coalition (Trappmann, 2016; Thelen and Busemeyer, 2012). This was brought forward by the Social Democratic Party who were keen to increase training places, increase employer commitment to apprenticeships and encourage the entry of low-achieving students, much like in England. It was also supported by employers who had argued for different levels of apprenticeship training to sidestep excessive training costs and the need to conform to the enforced equal wage rates (Busemeyer, 2012). Consequentially, unions became strongly opposed to the risk of disintegration of collective bargaining

arrangements and the dilution of apprenticeship curriculum to meet immediate business needs (Bussemeyer, 2012). Bussemeyer (2012) notes that the reduction of the apprenticeship term to two years by the German government was a critical breaking point of the traditional codetermination and consensual apprenticeship model, as trade unions were not consulted within the process and catering to employer and industry requirements. Due to growing concerns for increasing training places, a proposal for an apprenticeship levy was also brought forward by the leftist sections of the coalition government in 2003 (Bussemeyer, 2012). However, the plans for the levy were abandoned due to strong opposition from the central coalition government and employers' associations (Bosch and Kalina, 2008) as well as mixed reactions from unions and, were replaced with a training 'pact', which sought to create 30,000 extra apprenticeships per year (Bussemeyer, 2012). Later, in 2009, the German government called on firms to provide an extra 600,000 training vacancies (Heyes, 2012). However, the Federal minister for Labour refused to sign the declaration. It was eventually signed in 2010, revealing wider political tensions from employers, signalling their reluctance to further invest in the dual system (Bosch, 2010, cited in Heyes, 2012).

The Federal Vocational Education and Training Act in 2004/2005 reevaluated the original 1969 Act bringing in the opportunity to complete training abroad (Bosch, 2010), the ability for school-based VET students to obtain dual certificates from chambers of commerce (Bussemeyer, 2012) and the inclusion of "staged" apprenticeships within the dual system (Thelen and Bussemeyer, 2012). The dual and the school-based VET systems had traditionally remained separate to avoid competition and hence unions and employers were opposed to systems undertaking the same exams (Bussemeyer, 2012; Bosch, 2010). Equally, employer controlled 'staged' apprenticeships, where apprentices start training on a less demanding training track and depending on progression and employer discretion potentially progress to a longer and more demanding training track was also strongly contested (Thelen and Bussemeyer, 2012).

The Bologna reforms, which sought to standardise HE qualifications across the EU introduced three-year bachelors and two-year master's degrees in Germany, were fully finalised and introduced by 2011/12 (BMBF, 2018). Bachelor and Master programmes replaced the Diplom, which had previously been awarded for economics and science-technical degrees, and, the Magister for humanities and social sciences degrees. These two degrees previously took up to five years to complete in a more self-directed format. This made HE much more attractive from a time-perspective and also bolstered HE back into the public consciousness, particularly given Germany's drive for educational expansion and increased investment into HE. In 2012 the apprenticeship system also faced structural threats through its inclusion into the European Qualifications Framework, which created a common structure to understand and compare certification levels and

skills proficiencies across the EU. Social actors have been responding with strategies to protect the system from such challenges. In 2014 another pact, the Alliance for Initial Training and Further Training, was introduced to increase apprenticeship participation and was formed by a tripartite arrangement of unions, the state and employers (Trappmann, 2012). In addition, unions tried to gain power by integrating the right for apprenticeships for all through the Constitutional Law of the Federal Republic of Germany (Trappmann, 2012).

In 2010 Labour lost power to a Conservative and Liberal Democrat coalition government in England. Consequentially the rights of the Apprenticeships, Skills, Children and Learning Act were removed in 2011. This saw an increase in adult apprenticeships, signalling a move away from a social inclusive model to one that purely favoured accelerating skills levels (Steedman, 2011). NVQs were also withdrawn from 2010 and replaced by The Qualifications and Credit Framework, which was also terminated for further review in 2014, causing further uncertainty to the vocational qualifications system. Within this context, SSCs had undergone a transformation over a challenging number of years. SSCs were wholly funded by the Government through the UKCES until 2011. Funding was then withdrawn, which signalled a move to a market-led system, where SSCs had to compete for bid-based project-based grants. Within this, UKCES was also closed down in 2017 signalling an equal reflection of the apprenticeship and skills system's move towards a market-led philosophy. During this time, higher apprenticeships equivalent to a university foundation degree were introduced, whilst young apprenticeships were phased out (Mizra-Davies, 2015). The Wolf Report (2011) in 2011, led by Baroness Alison Wolf, criticised the VET system and highlighted how young peoples' progression within the system was frequently hampered by ineffective routes to work or higher education.

After a period of training provider-led control of apprenticeship training and funding, the Richard Review (2012) instigated the need for employer-led ownership of apprenticeships, leading to an upheaval of the system. It also proposed that employers should be given the ability to influence and control the content of apprenticeships by working together in voluntarist groups to agree the skills profiles and competencies of different apprenticeship standards. The review (2012) also proposed that employers should be able to select training providers independently to meet their individual requirements, thus giving them free control over apprenticeship funding. In 2012 standards were introduced to ensure that an apprenticeship must last one year at the very least, include 30 hours of weekly employment and 20 per cent off the job learning (Mizra-Davies, 2015). Additionally, maths and English training also became compulsory for those without GCSEs in these subjects (Mizra-Davies, 2015).

These changes coincided with the Conservative government coming into power in 2015. It pledged to reform apprenticeships and further increase participation to an ambitious figure of three million apprenticeships by 2020 (BIS, 2015). In addition to the three million target a public sector target was also enforced, stating that 2.3 per cent of any public sector organisation with over 250 staff should be a new apprentice start. The “Trailblazers” scheme was also launched in 2015 to meet the recommendations set out in the Richard Review (2012), catering to the so-called growing need to increase apprenticeship quantity and quality. The scheme aims to place employers in the driving seat for creating new apprenticeship standards and assessments that are relevant to industry by giving employers control over funding allocation for external apprenticeship training (BIS, 2015). Trailblazers aimed to migrate the majority of the apprenticeship system to new standards by 2017/18, replacing the existing apprenticeship framework system (BIS, 2015). Table 3 demonstrates that apprenticeship starts progressing on standards (rather than frameworks) jumped quite dramatically between 2016/17 to 2017/18 from two to 25 per cent (Foley, 2020: 16). At the same time, the number of frameworks starts decreased by 260,000 (Foley, 2020: 16).

Table 3: Framework and standards starts since 2014/15 (Based on Foley, 2020: 16).

Year	2014/15	2015/16	2016/17	2017/18	2018/19
Frameworks	498,910	505,080	470,270	212,080	145,300
Standards	10	1,240	9,130	69,920	248,080

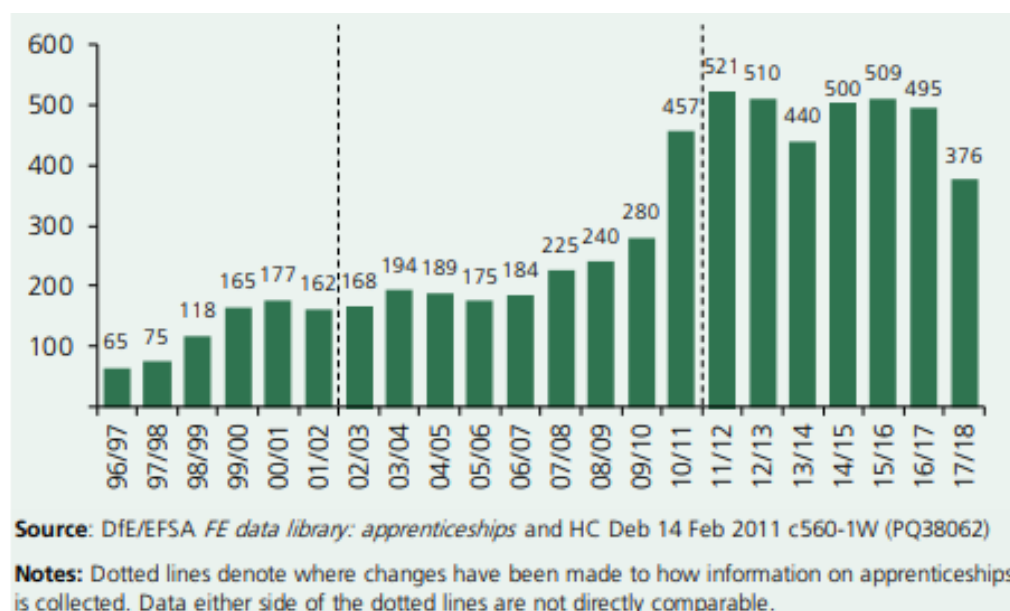
Degree apprenticeships were introduced in 2015 as part of the Trailblazer reforms, creating opportunities for apprentices to undertake training alongside completing an academic degree (Bishop and Hordern, 2017). The non-departmental public and employer-led body, the Institute for Apprenticeships and Technical Education (IFATE), was introduced in 2017 to facilitate these reforms and to oversee the quality control, development and approval of apprenticeship standards. The IFATE is also responsible for publishing technical qualifications for T-Level programs, highlighting a uniting of both apprenticeship and technical education streams within government under a central umbrella.

From this, an apprenticeship levy for all large employers was announced from April 2017 (HM Treasury, 2015) to further promote increased investment into apprenticeships nationally. The levy stipulates that firms with a pay bill of over £3 million will need to contribute to the levy; overall less than 2 per cent of firms therefore contribute to the levy (HM Revenue and Customs, 2019). Half of one per cent of the firm’s pay bill is charged as a tax to fund new apprenticeships; the proceeds are moved to the Digital

Apprenticeship Service, which employers can access (HM Revenue and Customs, 2019). Levy employers are also provided with an extra 10 per cent top-up monthly on any funds that they spend and a £15,000 allowance on top of their levy proceeds (HM Revenue and Customs, 2019). The levy was predicted to raise £2.6 billion in 2017/18 and £2.8 billion in 2018/19 (CIPD, 2019: 8). For employers not paying the levy, the Government now co-invests 95 per cent of the cost training with employers paying 5 per cent (CIPD, 2019).

The three million apprenticeship participation target was viewed as a highly ambitious target. The central logic behind the three million target and the apprenticeship levy, was hypothesised on the idea that the number of apprenticeships would steadily increase and create higher employer engagement into training. Policymaking was therefore configured around a supply side logic over one that linked supply with demand. However, historically participation has remained significantly below this target reaching only approximately one twelfth of the three million target (Gospel, 1995). Equally, in 2014 only eight per cent of UK firms (Lewis, 2014) and approximately six per cent of 16-18-year olds in 2015 participated in apprenticeships (DFE, 2015). Indeed, as Figure 4 shows participation has gradually decreased since 2011/12 with a significant decrease in the year following the implementation of the apprenticeship levy.

Figure 4: Apprenticeship starts in England since 1996/97, (thousands) (Foley, 2020: 9).



End-point assessments (EPA) were also introduced, departing from continuous assessment (Unwin, 2017). Qualifications attached to apprenticeships also became optional and no longer mandatory (Unwin, 2017). This reflected the Richard Review's (2012) recommendations that continuous assessment was bureaucratic, inefficient and an arduous activity. The new standards are therefore viewed to replace both the old apprenticeship frameworks and the associated qualification. The Richard (2012) report

also stated that employers (or educators) could assess their own apprentices and that apprentices should be graded, rather than being awarded with a pass or fail.

More recently plans have been announced for a national retraining scheme aimed at adults seeking to retrain and upskill into higher quality jobs (DfE, 2018), linked to industrial policy plans, in a pledge to again increased productivity much like the Leitch Review in 2006.

3.2.6 Concluding comments

Skills and training policies in England and Germany have broadly remained the same in nature with England's apprenticeship system marked by instability and change (City of Guilds, 2014) and Germany's apprenticeship system characterised by stability and strength. In England apprenticeship policy has been solely focused on increasing apprenticeship supply, with no focus on increasing apprenticeship demand (Lloyd and Payne, 2016). This is intensified with England's focus on maintaining a flexible labour market, where firms have no real incentives to train and can operate in a free market economy, with no cooperative mechanisms for change (Finegold and Soskice, 1988; Crouch et al., 2001, Keep and Mayhew, 2010).

Apprenticeships have been destabilised further by the system's continuous political change, disbanding of policies and overarching conflict between the state, employers and capital, which has existed since the middle ages. To illustrate this change in modern context, the City of Guilds 'Sense and Instability' Report (2014) highlights that since 1981 there had been 28 key reform Acts associated with VET, further education and skills, 61 secretaries of state responsible for skills and employment, and six different government departmental changes associated with VET. Additionally, since the MSC, there have been seven consecutive agencies and a variety of other bodies sharing responsibility on training, education and skills under the development with a wide array of programmes and initiatives associated with VET (City and Guilds, 2014).

It is worth noting that England's apprenticeship system has remained employer-led since the late 1970s. Hence, the recent policy moves of Trailblazers, the Richard Review (2012) and the employer-led IFATE are not necessarily such a new development as has been portrayed in the rationale of these initiatives. Instead, recent policy initiatives are arguably a rebrand of prevailing government ideology. In this sense, although the levy has been deemed a positive policy move (Steedman, 2015), its place within an employer-led system makes it difficult for progressive change to increase the quality and quantity of apprenticeships in England. Marsden and Ryan (1990) argue that England's apprenticeship system cannot fruitfully develop without cultivating a more embedded institutional underpinning to support apprenticeships. From this perspective, a purely

employer-led system will therefore not provide the foundation to achieve the current government's ambitious aims.

By stark contrast, the broad structure, regulation and delivery of the German apprenticeship system has remained relatively similar due to only incremental policy changes within the system. Unlike England's apprenticeship system, Germany's system is linked to wider national industrial strategy and takes a long-term perspective to industry and training (Streeck, 1992), and therefore operates on a demand-led model. The origin of this approach is inherent in Germany's history. Indeed, Germany's apprenticeship system derives from an economy embedded within a tradition of regulated and certified craftsmanship and artisan production (Streeck, 1992). This handicraft training system acted as the foundation of the later creation of an industrial model for training in the late nineteenth century (Thelen, 2004), which lacked the same certification rights. However, the need for high quality training within the context of burgeoning industrialism instigated collective action from industry to gain certification in the early 1990s (Thelen and Busemeyer, 2012). The 1920's experienced the subsequent drive for industrial firms to standardise skills through trade associations due to an increased flux of training activity driven by wage compression, which, in turn, also impacted the handicraft sector (Thelen and Busemeyer, 2012). These processes set the foundation for Germany's national system of training, the dual apprenticeship system where both firms and vocational schools provide a structured experience of both practical and theoretical training. This system remains in this structure to the present day. However, the introduction of staged apprenticeships, two-year apprenticeships (Thelen and Busemeyer, 2012) as well as the steady rise of the service economy and the increase of contingent working practices and contracts (Bosch, 2010) has arguably changed the character of the ecosystem which the German dual system sits within. Although the core of the dual system is still intact exterior forces within Germany's labour market have the potential to disrupt and cause chaos on the future of the system.

3.3 Apprenticeships in contemporary context: Current challenges

3.3.1 Introduction

The previous section outlined the key historical changes in the English and German apprenticeship systems, highlighting any social, economic and political change that impacted apprenticeships. This section focuses on apprenticeships in their current context, focusing on key emerging issues and challenges facing apprenticeships in their national context in more detail. Initially the social standing of apprenticeships is critically analysed, followed by a consideration of how inequality, precarious conditions and marketization is affecting apprenticeships in England and Germany in different ways.

From here, levels of employer demand and engagement into apprenticeships are discussed, followed by a conclusion which specifies the similarities and differences between the two countries.

3.3.2 The social standing of apprenticeships in the race for high skills

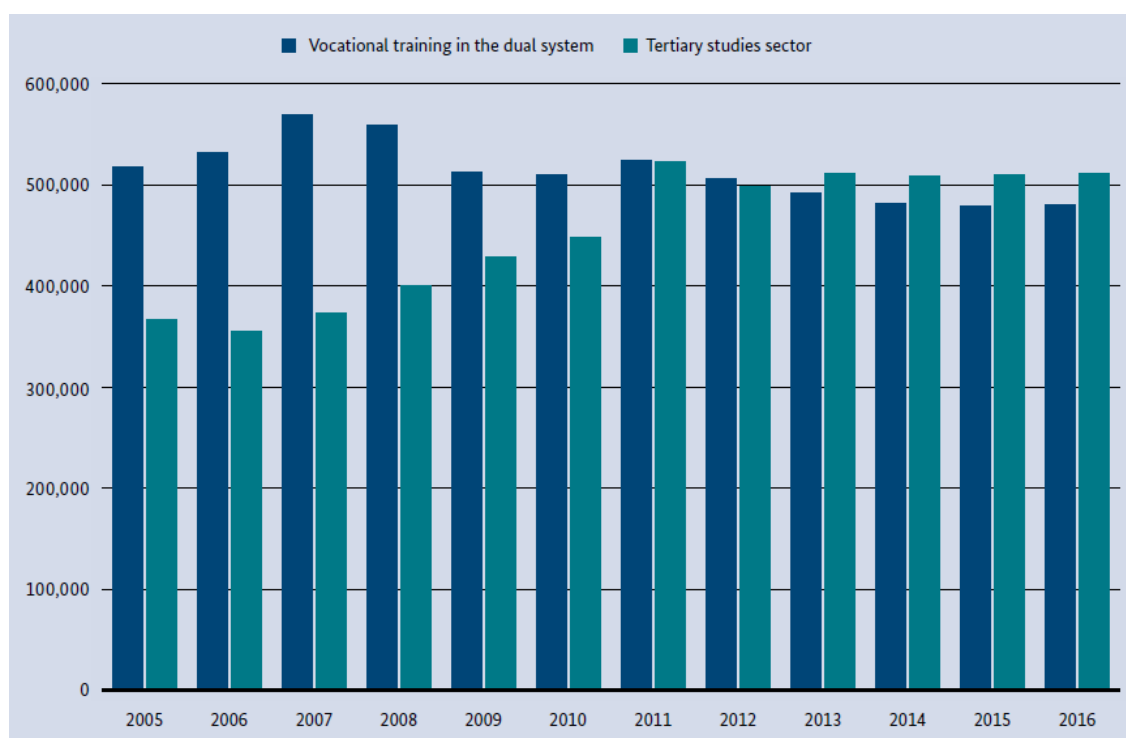
This section evaluates the current social standing of the English and German apprenticeship system with the aim of revealing both social attitudes towards apprenticeships and underlying structural issues affecting quality in apprenticeships. Firstly, the relationship between HE and VET routes in English and German society is analysed and compared, reflecting on the impact of these routes on young people. The structure and quality of apprenticeships is also discussed in terms of curriculum, skill levels, length of apprenticeships and its impact on the social standing of apprenticeships.

A key issue for England's apprenticeship system is that it does not have an established and concrete identity and thereby reduced its social standing (Brockmann et al., 2010a; Hogarth et al., 2012). This is due to the fact that apprenticeships in England have undergone continuous political upheaval through respective political reforms (Brockmann et al., 2010a; Crouch et al., 1999). As such England's apprenticeship system has long stood in the shadow of its superior, HE system and HE has been positioned as the socially prestigious route for young people to take (Brockmann et al., 2010a). High achieving students often favour the prestige of a university education over apprenticeships, leading to a reduced talent pool for apprentice employers (Brockmann et al., 2010a). HE has therefore become a "mass" system for young people (Keep and Mayhew, 2010) who have increasingly become consumers of the system with the introduction of tuition fees (Lloyd and Payne, 2016). Indeed, only five to seven per cent of young people between 16 and 18 complete apprenticeships (Wolf, 2011: 166: quoted in Lloyd and Payne, 2016: 74). Consequentially, there is an excess of both graduates and young people with no training or education competing within the labour market (Bosch and Charest, 2010).

England's low social standing apprenticeship system contrasts to Germany's exemplary and highly successful system (Grugulis, 2012) where apprenticeships are highly prized leading to high recognisable qualifications within the labour market and to good jobs with good pay and conditions (Rubery and Grimshaw, 2003). Compared to England, less young people transitioned into HE historically although this is changing now (Bosch, 2010). The implementation and agreement to the Bologna process (1999) saw Germany's HE sectors undergo a radical change to standardise its HE qualifications to bachelors and masters levels to European requirements (Bosch, 2010). As such, social perception of HE has been growing in interest, with many commenting that it has the potential to overtake the prestige of Germany's dual system (Bosch, 2010; Culpepper,

1999). However, Germany has also become a victim to criticism from the OECD for its below-average university participation rates in comparison to its EU counterparts (Bosch, 2010). Despite this, 2013 was the first year when HE overtook apprenticeship participation (BMBF, 2014). The rate of HE starts have been steadily increasing over the years as shown in Figure 5, while vocational training has remained relatively stable, decreasing slightly since 2011.

Figure 5: New apprenticeship and HE starts, 2005-2006 (BMBF, 2018: 53).

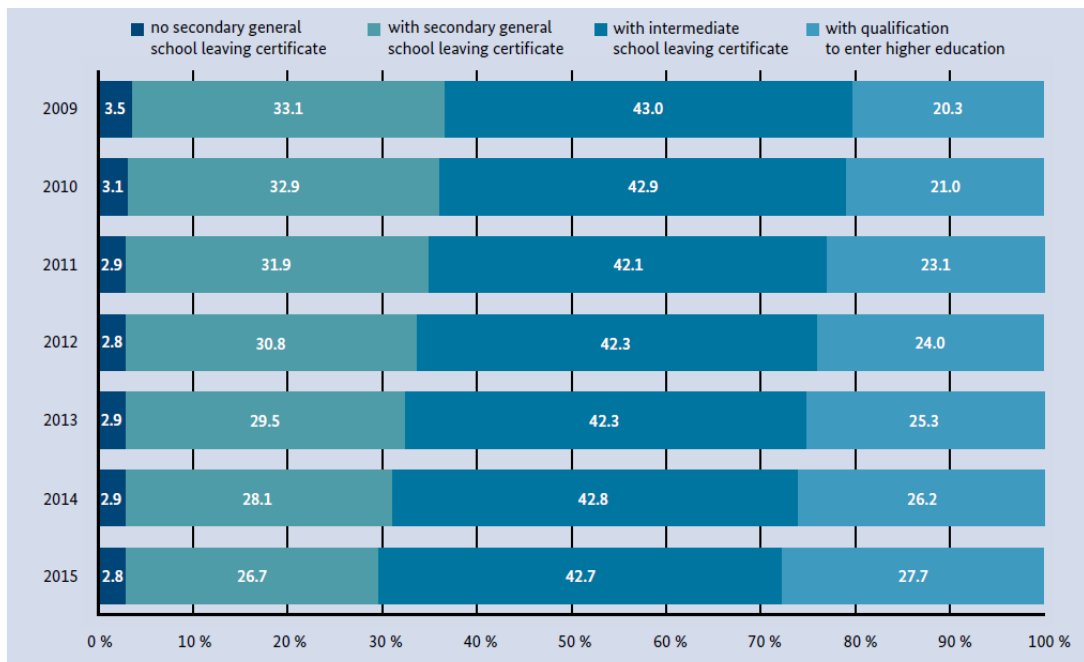


Between 2005 and 2013 participation in apprenticeships and HE increased by approximately 15 per cent, yet 40 per cent of this was HE starts with apprenticeships starts remaining stationary (BMBF, 2014). Drivers for the increased interest in HE includes the promise of higher earnings, parental encouragement and a reduced amount of apprenticeships contracts on offer (BMBF, 2014).

This rise of HE is also linked with the general educational expansion in Germany and young people leaving school with much higher qualifications. Previously attendance at a Gymnasium to obtain the Abitur leaving qualification was an exclusive route in Germany with approximately 10 per cent attending a Gymnasium in the 1960s compared to approximately 50 per cent now (Protsch and Solga, 2015). In terms of apprenticeships, 28 per cent of apprentices in Germany had the abitur qualification in 2015, compared to 20 per cent in 2009 (BMBF, 2017:39). Overall, most apprentices (43 per cent) in 2015 held an intermediate school leaving certificate and this number has remained stable since 2009 (BMBF, 2017: 39). Lower school leaving certificates and attendance at a Hauptschule have decreased from 33 per cent in 2009 down to 27 per cent in 2015

(BMBF, 2017: 39). Hence, there is a clear trend away from lower school leaving certificates towards higher school leaving certificates as highlighted in Figure 6.

Figure 6: School leaving qualifications of school leavers, 2009-2015 (BMBF, 2017: 39).



The rise of HE and educational expansion is leading to growing competition and individualism amongst young people to strive for higher qualifications and gain entry in more specialised and professional fields, creating a more competitive labour market. Indeed, a quarter of young people are completing apprenticeships before entering HE as a 'safety net' (Protsch and Solga, 2015:10) to increase their career chances; therefore, they do not remain within the dual system. However, 28 per cent dropped out of their bachelor's degree in 2012 (Kottman, 2015), creating a new untapped source of talent for employers to fill their apprenticeship vacancies (Jacob and Solga, 2015). Therefore, the transitions to the labour market for young people in Germany are becoming much more diverse and heterogeneous in nature. Indeed, many young people now also complete dual study programmes, that combines a bachelor's degree course with vocational training, which are particularly attractive to high-achieving students (Thelen, 2012, cited in Protsch and Solga, 2015). These programmes have significantly expanded; in 2011 there were 59,628 dual study apprentices, with an increase to 100,739 in 2016 (BIBB, 2018: 10). These dual studies programmes have contributed to an 'institutional divide' (Protsch and Solga, 2015: 12) between HE and VET. Indeed, the programmes are also not regulated under the social partnership model of the dual system (Graf, 2018). This has led firms to develop much more firm-led skill strategies, thereby departing from a DQP (Sorge and Streeck, 1987) model of skill development and a departure from collective skill formation (Graf, 2018). It has also fragmented working conditions and pay for apprentices on dual-study programmes, who do not have

access to the benefits provided through the dual apprenticeship system (Graf, 2018). Finally, the programmes have the potential to contribute to inequality and social stratification; access to such elite programmes requires an Abitur and might not be inclusive to those with lower grades and disadvantaged backgrounds (Graf, 2018; Protsch and Solga, 2015).

Like Germany's dual-studies apprenticeships, degree apprenticeships in England provide a socially prestigious qualification (UniversitiesUK, 2019) and therefore are set apart from the stereotypical view of apprenticeships as being low-skill, low prospects and of general low social standing. In 2017/18 13 per cent of apprenticeships were at levels 4-7, highlighting a substantial increase in higher and degree apprenticeships; in 2010/11 there was no advanced apprenticeships (Foley, 2020: 14). Higher and degree apprenticeships have somewhat muddled the meaning of apprenticeships, creating a hybridised version of an apprenticeship, where an apprentice completes a degree part-time whilst working and training on-the-job. Management and leadership degree apprenticeships have also come under scrutiny for their value within the system as well as offering such programmes to existing employees (UniversitiesUK, 2019). However, degree apprenticeships can act as an attractive alternative to not paying university tuition fees, creating a potentially socially mobile space for those who cannot afford to go to university. However, such programmes typically attract high performers with the right grades to be accepted onto actual degree courses (Bishop and Hordern, 2017) and are therefore somewhat elite and not particularly inclusive to all. Equally degree apprenticeships can remove the learner from the academic learning environment of the university, with much of the learning completed online and therefore apprentices often do not benefit from the other advantages of student culture (Bishop and Hordern, 2017). Larger employers typically benefit most from degree apprenticeships through their levy pots compared to many SMEs who are below the levy threshold (Bishop and Hordern, 2017) creating a heterogeneity between different employers, which could also decrease the social standing of apprenticeships through the lack of standardisation of experience across employers, sectors and industries.

Hogarth et al. (2012) note the heterogeneous identity and nature of the English system; indeed, length, curriculum, social value and quality of apprenticeships varies widely across different sectors (Lloyd and Payne, 2016). The English apprenticeship system is defined by its diversity and lack of standardisation (Hogarth et al., 2012). Before 2012 the length of training in England was not recognised but now stands at a one-year minimum (Lloyd and Payne, 2016). However, the length of apprenticeships varies across different sectors, with many at the one-year minimum and others, typically in the engineering sectors, lasting 3-years or much longer, particularly if they are higher or degree apprenticeships. The heterogeneous nature of the system is also demonstrated

with the highly variable apprenticeship completion rates across different sectors, with service sector apprenticeships faring worse (UKCES, 2010; Hogarth et al, 2012; Lloyd and Payne, 2016). VET is also often confused with the notion of training and these two terms are often, but wrongly, used interchangeably in England (Brockmann et al., 2010a). Additionally, many apprentices do not even know they are an actual apprentice; 64 per cent of apprentices in 2014 worked in the same firm before starting their apprenticeship but 33 per cent did not realise that they were undertaking an apprenticeship and 21 per cent received no off-the-job training (Higton et al., 2014). The fact that employers no longer have the obligation to attach a formal qualification onto an apprenticeship is very concerning (Unwin, 2017). This means that some Trailblazer groups will add a qualification to a standard whilst others choose not to, leading to variable outcomes and a general lack of uniformity within the system (Pullen and Clifton, 2016).

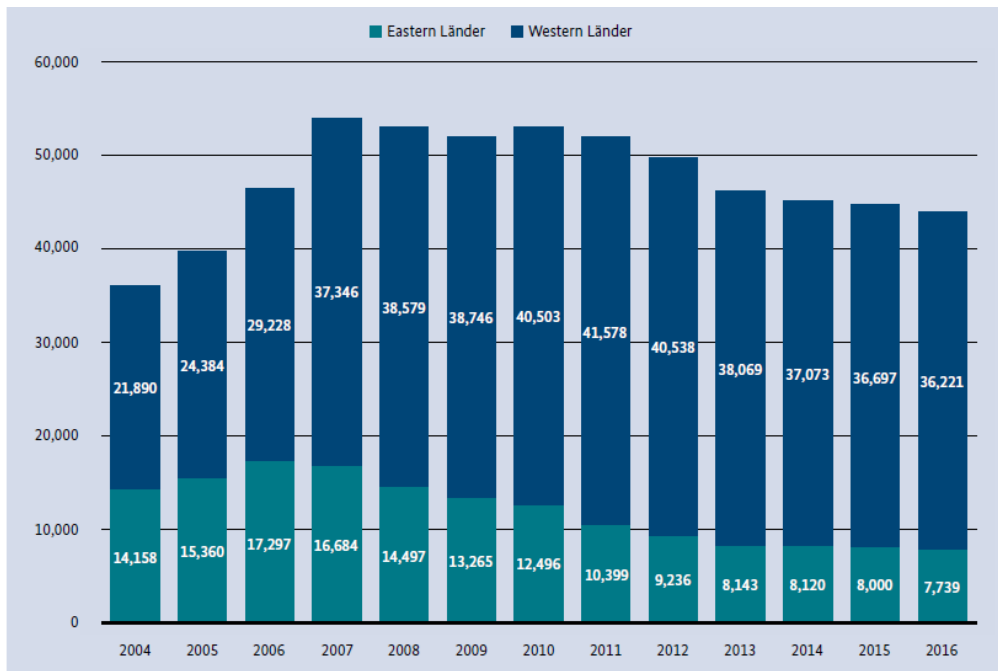
The low social standing of the English system is also reflected in low-level and narrow skills learnt, which do not translate into the competitive demands of the labour market (Brockmann et al., 2010a). 43 per cent of apprenticeships were at level 2 in 2017/18 (Foley, 2020: 14), which is comparable to GCSE level, meaning that VET content will not be at a challenging standard. However, level 2 apprenticeships have decreased by 20 per cent since 2011/12, highlighting a clear trend to higher apprenticeship levels (Foley, 2020: 14). An equal amount of apprenticeships (44 per cent) were at level 3 in 2017/18 an increase of 10 per cent since 2010/11 (Foley, 2020: 14). Level 3 is transferable to the value of intermediate skills found in the German dual system and typically in the traditional manufacturing and engineering industries (Hogarth et al., 2012). Although there is a trend towards higher-level skills (Foley, 2020) there is an open question as to whether apprenticeships will be socially inclusive or marketed more towards high-achievers or existing employees.

Furthermore, the apprenticeship curriculum and qualifications frameworks in England have often been criticised for their complex but patchy structure and the narrow level of skills breadth offered (Bosch and Charest, 2010). As a result, qualifications are often less transferable to and not broad enough for the jobs market (Brockmann et al., 2005) with employers failing to recognise their face value (Finegold et al., 2000). Equally progression to other apprenticeship levels remains weak and inadequate (Steedman, 2010; Higton et al., 2014). A key issue is that further training to higher skills levels is often seen as a hindrance to employers and firm efficiency (Brockmann et al., 2010a). Even firms that are committed to high quality apprenticeships often fail to acknowledge the importance of the educational component of apprenticeships (Ryan et al., 2006).

The employer-led Trailblazers system of creating standards, has provided employers free reign to create standards on their own accord and currently there are 702 standards. Too many standards could fragment the system, leading to a further decrease in social standing, with employers and apprentices not recognising their value (Pullen and Clifton, 2016). Indeed, too many standards could also imply a narrowness of training and skill content, with employers tailoring standards to meet firm-driven demands. Indeed, English apprenticeships are often limited to immediate task-related demands and on-the-job training related to short-term company needs and hence there is a limited structured route of learning (Brockmann et al., 2010a). The curriculum focuses more on the demonstration of competencies rather than the concrete knowledge that underpins work-based tasks (Grugulis, 2000; Brockmann et al., 2010a). The recent move to end-point-assessments also reinforces the narrow nature of learning, with apprentices no longer being examined on their competency for the role as whole, creating an assessment system more akin to theoretical learning found in the academic system (Pullen and Clifton, 2016). Equally, the caveat that firms have the power to assess and pass their own apprentices (Unwin, 2017) can also reduce the scope and integrity of training offered (Ryan, 2000).

While some view the fragmented and heterogeneous nature of England's apprenticeship system (Hogarth et al., 2012) in stark contrast to Germany's dual system, there are signs that Germany's apprenticeship system also seems to be becoming more 'heterogeneous' (Culpepper, 1999: 57). Some scholars suggest that the inclusion of personal competencies and soft skills into the apprenticeship curriculum (Brockmann et al., 2005) and the increasing demands to adapt to a centralised European qualifications framework has posed concern for the increasing 'Europeanisation' of the dual system (Thelen and Bussemeyer, 2012) and abandonment of Germany's occupational ethos (Bosch, 2010; Brockmann et al., 2005). There are also concerns of an increasing modularisation of apprenticeships where the dual system has been broken down to two-year apprenticeships as well as staged apprenticeships for lower-performing youth (Thelen and Bussemeyer, 2012). This could hinder the quality of training and social standing of the system. Overall, two-year apprenticeships account for 8.4 per cent of the total share of training places in Germany (BMBF, 2017: 37). 43,960 two-year apprenticeships were concluded in 2016, 1.6 per cent less than 2015 (BMBF, 2017: 37). Since two-year apprenticeships were re-introduced in 2003, the number rose quite considerably but has now stabilised with a slow fall in popularity as demonstrated in Figure 7.

Figure 7: Newly concluded two-year apprenticeships, 2004-2016 (BMBF, 2017: 38).



The proportion of these two-year apprenticeships is higher in the Eastern Laender (11 per cent) compared to the Western Laender (8 per cent) (BMBF, 2017). This is due to the higher reliance of non-company publicly sponsored training schemes in the Eastern Laender. In 2016 18.2 per cent were publicly funded without an in-work training component but the amount of these programmes has declined over time with 37 per cent in 2011 (BMBF, 2017: 37). This combined with the general reduction of two-year apprenticeships suggests their prevalence are becoming less prominent in the future of the dual system.

3.3.3 Inequality, precarious work and marketization

Inequality and precarious work are a continuing trend in England within the context of increased marketization of the apprenticeship system (Lloyd and Payne, 2016). This contrasts with the marketed 'hope' of current skills policy, which is typically positioned as a cure to inequality, poverty, unemployment, social mobility and skills shortages, but essentially acts as a façade for neo-liberal policy-making (Keep and Mayhew, 2010). Germany is facing similar challenges with the impact of the Hartz reforms, the rise of the service economy and the dismantling of collective bargaining. Many scholars have argued that these factors have contributed to a polarisation (Trappmann, 2012), dualisation (Thelen and Bussemeyer, 2012; Bussemeyer, 2012; Eichhorst, 2015), social stratification (Protsch and Solga, 2015) and increasing social inequality both within the dual system and the wider labour market (Culpepper, 1999).

Increased competition between public college and private training providers, the management of the certification of qualifications by private firms and increased choice

for parents and students alike to exert their own preferences have accelerated the marketization of VET in England (Lloyd and Payne, 2016). The majority of training is now provided by private training providers (Lloyd and Payne, 2016) creating a VET system, which operates like a for-profit business (Keep, 2012). Against the backdrop of increased government funding, the amount of independent training providers has grown within the apprenticeship market (Morris, 2016). 62 per cent of providers who receive public funding are private and provide training for 63 per cent of apprenticeships in England (Chankseliani and Relly, 2015, cited in Morris, 2016). This has created a marketized system whereby private providers are in direct competition with public providers including further education colleges, which also needed to adopt more commercial strategies to survive (Morris, 2016; Keep, 2012). Indeed, the institutional make-up of the English apprenticeship system lies bare compared to Germany's system of social partnership. Unions, SSCs, tripartite organisation and critically engaged governmental organisations like UKCES have been swept away in favour of employer-led agencies (Lloyd and Payne, 2016). This has created a market-based system, where private training providers lead the education of apprentices, while employers manage the remainder of the system, including curriculum, apprentice working conditions and pay and progression (Crouch et al., 1999).

Like England, the growing relevance of a new service-orientated economy in Germany has strained the German VET system (Crouch et al., 1999; Bosch, 2010) through the rise of flexible working measures (Eichhorst and Tobsch, 2013) and employers' reluctance to invest in the expense and time needed to nurture apprenticeships (Casey, 2012; Thelen, 2007; Crouch et al., 1999). Consequentially, service sector apprenticeships are increasingly mirroring LME labour standards due to increased market competition, atypical employment, limited or inconsistent unionisation and low wages (Hassel, 2014). At present 25 per cent of apprentices in Germany drop out of their apprenticeship prematurely due to disagreement with supervisors, poor quality training or working conditions, personal issues, and change of profession or company closure (BMBF, 2017). However, there are particularly high premature termination rates in the hospitality and Handwerk sectors with up to 50 per cent premature termination rates of many occupations within the sectors (BMBF, 2017). The relatively high rate of apprentice dropouts in Germany, highlights the need for further government intervention through vocational orientation, careers support measures and mentoring, support and assistance for young people in apprenticeships (BMBF, 2017) but also signifies particular issues in the employment conditions within Handwerk and service industries. This contrasts to the superiority of the manufacturing sector, where there are much lower dropout rates (BMBF, 2017) and which is highly structured and unionised. Young people are often discouraged from applying to service-sector apprenticeships as they will often receive

the same pay as low-skilled staff (Hassel, 2014). Linked to this, are the obvious gender disparities within Germany's old and new industries (BMBF, 2014), which can lead to significant differences in pay, progression and work conditions. Women generally choose options in service-led sectors like sales, retail, caring, administrative or beauty professions where completion rates are typically lower and men opt for apprenticeships in engineering, manufacturing, IT, sales or logistic roles (BMBF, 2014).

It is also noteworthy that compared to other countries such as the United States or the UK, Germany's service-led but low pay industries rely on vocationally trained talent. Both in the retail and call center sectors 75 per cent of staff have a vocational qualification (Voss-Dahm, 2008; Weinkopf, 2008: 128). Equally Bosch and Kalina (2008: 31) report that 76 per cent of low wage workers in Germany are vocationally qualified, with a much higher share of vocationally qualified low wage workers in East Germany standing at 90 per cent. Indeed, Germany has a particularly limited pool of unskilled labour to choose from compared to other countries such as the United States, which explains the prevalence of vocationally qualified workers in the low wage sector (Bosch and Kalina, 2008). However, the rise of the low-pay service sector is impacting the wages of apprentices and newly qualified apprentices. Monthly apprenticeship salaries have increased to 908 euros on average in 2018, a 4 per cent increase compared to the previous year (BIBB, 2018). Wages remain much lower in East Germany and Handwerk and service sectors (BIBB, 2018). Doellgast and Greer (2007) argue that outsourcing through vertical disintegration has caused a disorganisation of German industrial relations and collective bargaining arrangements. This had led to the segmentation of workforces, intensifying diversity in pay and working conditions and collective bargaining being undermined (Doellgast and Greer, 2007). Increased flexibility measures and casualization are being increasingly imposed on skilled core workforces whilst use on non-standard work is more common in less well-defined skilled workers or those without any VET (Eichorst, 2015; Benassi, 2016).

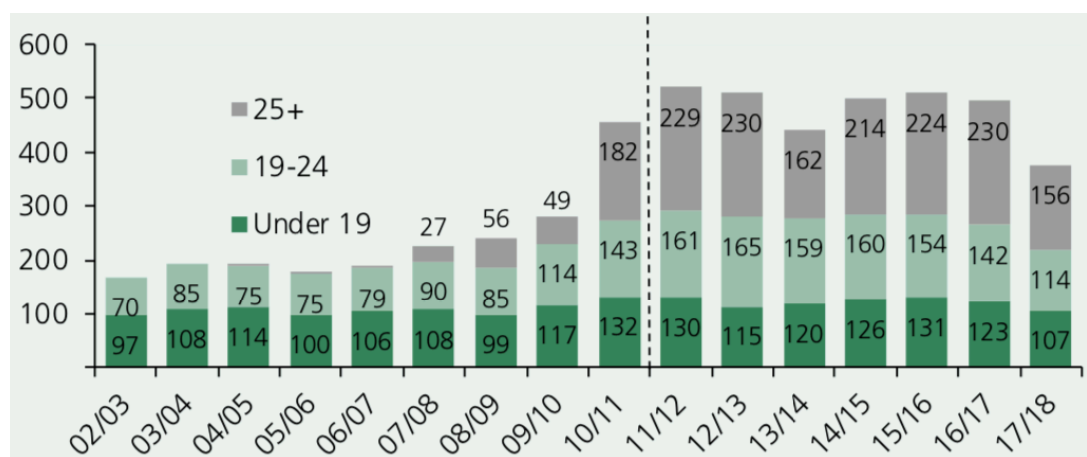
Unlike Germany, England does not rely on unions to collectively regulate pay and conditions and unions have minimal input in representing apprentices' interests (Brockmann et al., 2010a). According to figures from the Learners and Apprentices survey 2018, 17 per cent of apprentices answered to earning below the personal tax allowance level of £11,500, 39 per cent reported earnings in the range between £11,500 and £21,000 and 24 per cent stated that they earned more than £21,000 (DfE, 2018: 24). However, the current base wage stands at £3.30 per hour for apprentices (SFA, 2016), thereby automatically deterring people from undertaking an apprenticeship in the first place (Brockmann et al., 2010a) is often due to the low pay, lack of family financial support or caring responsibilities. Employers are often viewed as exploiting apprentices for cheap labour through minimal wages and training, leading youth to reject

apprenticeships for alternative low-skilled work with increased pay (Evans and Niemeyer, 2004). Indeed, in 2017, 14 per cent of apprentices did not partake in any formal training in spite of the fact that all employers were obliged to send apprentices one day per week to off-the-job training (TUC, 2018: 16). Poor pay and poor-quality training can reduce likelihood of apprenticeships acting as a vehicle of social mobility, leading to increased social inequality instead (Brockmann et al., 2010a), a reality which lies in the shadow of a wider reality of pay inequality in England. Pay inequality remains at low levels in England, with 22 per cent of full-time employees labelled as 'low paid' in the sense that they are paid no more than two thirds of median earnings (Lloyd and Payne, 2016: 85).

Low paid and low-skilled workers are less likely to have access and progression to training opportunities through their current employer, highlighting a lack of social mobility for economically disadvantaged groups (Phipott, 2014). This is combined with the bleak reality of scarce welfare assistance and increased vulnerability to poverty both within and out of work (Lloyd and Payne, 2016). Indeed, the UK also has one of the lowest social mobility ratings compared to other developed countries (OECD, 2010, cited in Lloyd and Payne, 2016) highlighting a lack of sustainable progression out of low paid work or poverty. At present 12 per cent of young people are not in education, employment or training (NEET) (ONS, 2019). After the 2008 recession, the then coalition government axed training policies and social benefits, including the "Young Persons Guarantee", which promised NEETs a place in employment, education or training (Heyes, 2012). A significant cutback of 41 per cent between 2010 and 2016 in the adult skills budget has also led to a substantial decrease in the further training prospects for both young people and adults (TUC, 2018: 16). Equally, since the introduction of the levy the number of traineeships has reduced by 22 per cent between 2015 and 2019 to 5,900 traineeships (DfE, 2019), highlighting a lack of progression routes for people who do not have the entry requirements for an apprenticeship. This could be due to the fact the levy does not cover traineeship funding. This acts as a disincentive for employers to invest in traineeships. There is also a limited relationship between the English school system and the VET system, which reduces the transparency and awareness of opportunities available for school leavers (Crouch et al., 1999). Recession, deindustrialisation and a lack of economic vitality in poor neighbourhoods and geographies have contributed to a heightened vicious cycle of class inequality, social exclusion and poverty (Macdonald et al., 2005). Furthermore, there are persistent gender and racial divisions. Only 11 per cent of apprenticeship starts were from a black and minority ethnic background in 2018 (DfE, 2018) and women predominantly worked in more service-led sectors whilst men undertook apprenticeship in traditional engineering and manufacturing areas (Higton et al., 2014).

Apprenticeships are increasingly being marketed towards older learners or existing employees and over time the age of apprentices has steadily increased (McNally, 2018). The lack of an upper age limit on apprenticeships has created more uncertainty for school-leavers or those from disadvantaged groups to enter into apprenticeships. It has also changed the meaning and aims of apprenticeships, to act as a bridge between school and work (Fuller et al., 2015). Since 2010/11, the number of apprentices aged 25 and over has significantly rose as shown in Figure 8. At present 29 per cent of apprentices are under 19, 29 per cent are 19-24 and 41 per cent are aged 25 and over (Foley, 2020: 8). Indeed, the 2018 Learners and Apprentices Survey highlighted that two thirds of apprentices were employed by their employer prior to starting their apprenticeship, with only one third were recruited externally (DfE, 2018: 5). The lack of school leavers in apprenticeships also highlights the potential for skills gaps to accumulate amongst young people, especially for those with little education or training. The increase of higher-level apprenticeships (Foley, 2020) as well as older apprentices suggests that employers are employing existing staff as apprentices (McNally, 2018; Pullen and Clifton, 2016) and potentially using levy funds to fund higher-level skills and more expensive courses. This could substantially create social divides, accelerate social inequality and create a barrier for the development of sustainable routes into work for young people.

Figure 8: *Apprenticeship starts in England by age since 2002 (Foley, 2020: 9).*



In Germany, the increased amount of young people gaining Abitur qualifications, has meant that entry levels into apprenticeships have also increased (Bosch, 2010; Crouch et al., 1999), leaving young people with Abitur at an advantage within the labour market and increasing the inequality gap between high-achievers and low-achievers (Culpepper, 1999). It is more difficult than before for low-achieving students to enter into the dual system due to rising entry requirements for apprenticeships, leading to increased stigmatization for this group (Protsch and Solga, 2015). Firms can now choose

and pick the best possible candidates, with the best grades. This means that many candidates, often with non-German backgrounds and with the lowest level of schooling at Hauptschule level, increasingly known as “sink schools”, are no longer considered for positions (Bosch and Kalina, 2008).

Labour market inequality is also apparent through growing participation within the VET transitional system, where low-achieving youth are assigned until they secure an apprenticeship (Thelen and Busemeyer, 2012). Instead of increasing skills ability to enter the dual system, the transitional system has been argued to simply increase the period between school and employment (Bosch, 2010; Busemeyer, 2012). Young people with Hauptschule School leaving certificates, and particularly those from immigrant or migrant families, are at particular risk of not finding apprenticeships or becoming a NEET (Bosch, 2010; BMBF, 2017). Germany has a low share of 10 per cent of those who are NEET, compared to the OECD average of 14 per cent (OECD, 2018) and 12 per cent in England (ONS, 2019). However, recent migration into Germany has the potential to exacerbate social inequality, unemployment or the proportion of unskilled people in German society. The reality of unemployment for those not originally from Germany is reflected in the point that one in four of NEETs (OECD, 2018) in Germany are born outside of Germany. Indeed in 2015 890,000 people of people seeking asylum arrived in Germany, followed by another 280,000 in 2016 (BMBF, 2017: 51). At present, concrete figures of the number of refugees in the dual system is not known but the transition system has experienced an increase of 12 per cent and 32,587 more people, which is thought to be due to the influx of young people from other countries (BMBF, 2017: 52). Data from 2015 recorded that 26 per cent of young people in the transition system were foreign nationals (BMBF, 2017: 61). Young people from migrant backgrounds are typically underrepresented in the dual system; in 2015 26 per cent of foreign young people started training compared to 57 per cent of young German people (BMBF, 2017: 49). The proportion of young people with migrant backgrounds and with no vocational qualifications is three times higher than in Germans with no migrant background; 30 per cent of young people with a migrant background are unskilled compared to nine per cent of Germans (BMBF, 2017: 74). Protsch and Solga (2015) highlight that approximately one third of low-achieving youth in the transition system successfully progress into an apprenticeship, with those remaining fluctuating between unemployment, unskilled work or training and education measures and initiatives. The transition system is therefore a ‘*secondary training market*’ (Busemeyer, 2012: 706) or holding space for low-skilled young people, with little evidence that it might lead to progression to other paths of development into work or education and training and renewed risk of increasing inequality for young people from migrant backgrounds.

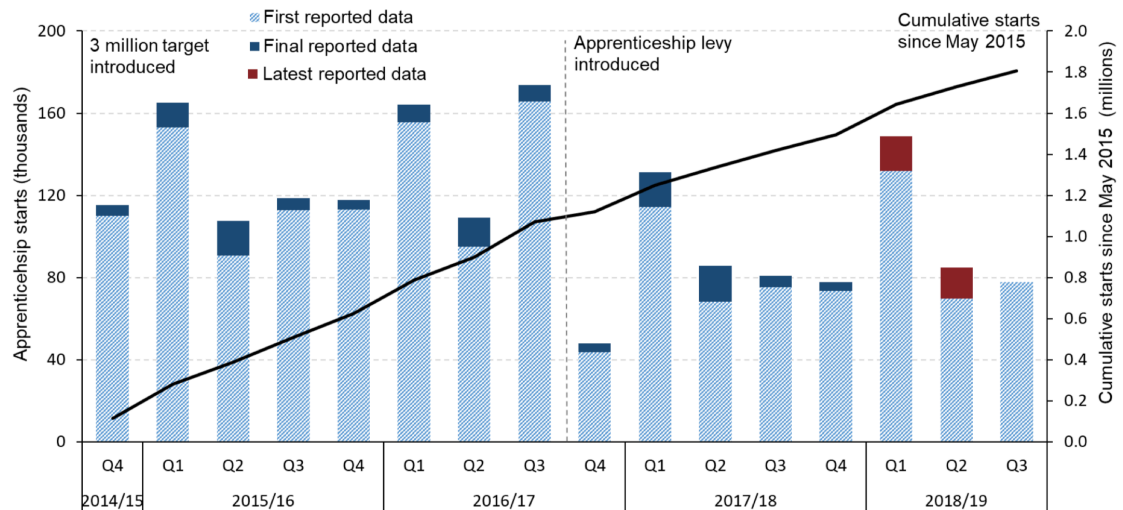
3.3.4 Employer engagement and participation

England's record for employer engagement has historically remained poor, with limited evidence that employers have the capability to lead and manage apprenticeship policy development or indeed training in general (Heyes, 2012; Hogarth et al., 2012). From 1997 to 2009 there was a 44 per cent decline in training for employees in general (Green et al., 2015, quoted in Lloyd and Payne, 2016: 75), highlighting a general lack of employer engagement in training and apprenticeships have steadily decreased over time (Rainbird, 2010). Germany's apprenticeship system, on the other hand, has exhibited impressive training rates and employer engagement that is defined by a strong ethos of social obligation (Bosch, 2010; Streeck, 1992). However, recent debates have referenced key threats to the German system, with less firms engaging and significant unfilled vacancies (Thelen and Busemeyer, 2012; Bosch, 2010; Culpepper, 1999) combined with firms departing from a model DQP to increasingly diverse firm-led skill strategies (Kirchner and Berger, 2014).

At present, demand for apprenticeships outweighs general supply of apprenticeship places and firms participating, reflecting England's supply dominated policy approach to apprenticeships (Hogarth et al., 2012). As a result, there is a limited supply of apprenticeships, with more young people seeking positions than there are available places (Steedman, 2010). In England, increasing employer engagement within the system remains a major challenge within the context of ambitious and aggressive government targets to increase the supply of apprenticeships, i.e. creating 3 million apprenticeships by 2020 (BIS, 2015). Indeed, apprenticeship targets and policy initiatives clash with the reality of what employers can offer and can damage the quality and social value of apprenticeship training (Brockmann et al., 2010a). The general lack of employer engagement historically questions the overarching policy assumption that employers are really keen to drive, participate and invest in apprenticeships; instead labour market demands typically withstand employers' ability to manage the process (Brockmann et al., 2010a).

The repeated market failure of England's apprenticeship system (Finegold and Soskice, 1988) is mirrored in more recent developments concerning the implementation of the apprenticeship levy, which aimed to increase apprenticeship participation to 3 million apprenticeships by 2020 (BIS, 2015). However, the apprenticeship levy has failed to increase participation broadly and the 3 million target is unlikely to be met with currently less than two thirds of this target reached (DfE, 2019b). This is demonstrated in Figure 9, which provides data of both quarterly starts (left axis) and overall cumulative starts (right axis).

Figure 9: Quarterly apprenticeship starts since May 2015 (DfE, 2019b: 5).

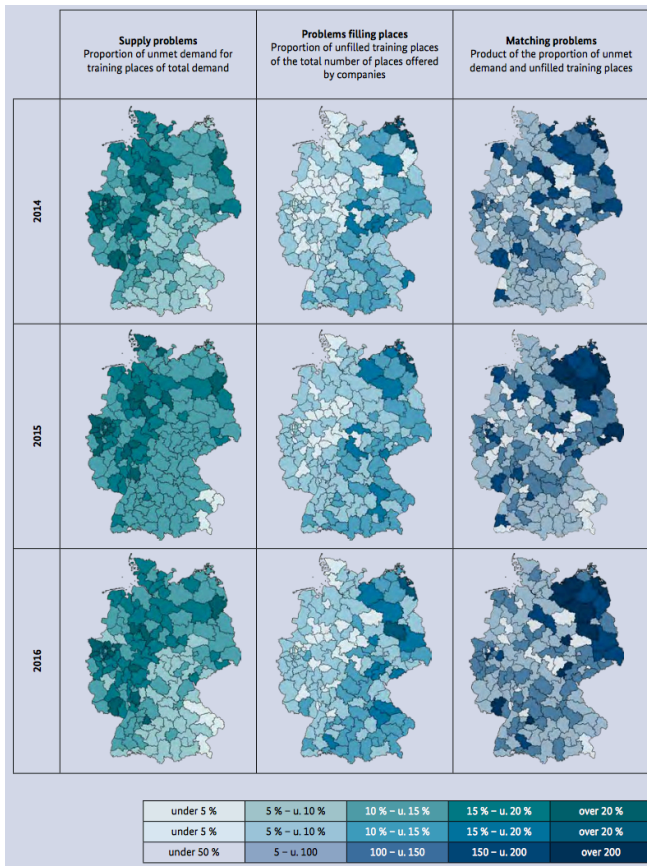


The failure of the levy to meet key targets as well as the general picture of employer engagement into apprenticeships and training is complex (CIPD, 2019). The CIPD (2019) argues that the levy has failed due to a number of grey areas within the system including: deadweight where training that would have happened anyway is funded by government; displacement where investment into other forms of workplace training has been reduced; and, substitution where existing training has been simply relabelled as an apprenticeship. In general, there has been an increase in adult learners undertaking apprenticeships, minimising the opportunities for younger people (Fuller et al., 2015), which suggests that deadweight, displacement and substitution might be happening (CIPD, 2019). This suggests that apprenticeships and training are being used interchangeably and that apprenticeship participation has become ambiguous set within the complexity of general training patterns in England. A sign of this reality is captured in a CIPD (2019) report, which argues that the apprenticeship levy should be rebadged as a much broader *training* levy.

Unlike the problematic nature of England's supply-orientated model (Hogarth et al., 2012), Germany's dual system faces an underlying matching problem between supply and demand (BMBF, 2017). Indeed, the interplay between company and young person is affected greatly by location and regional disparities as well as sectoral and industrial differentiation in the supply and demand of skills (BMBF, 2017). For example, there might be many open apprenticeship places in one region but not enough young people applying or not so many companies or specific sectors in one region and an over-supply of young people present. This is demonstrated in Figure 10, below, which highlights intensifying matching problems, particularly in the regions of Mecklenburg-Western Pomerania and parts of Brandenburg and Saxony. A combination of supply issues with

young people not finding apprenticeship places and demand issues with unfilled vacancies have resulted in this matching problem (BMBF, 2017).

Figure 10: Map highlighting regional disparities of supply problems, unfilled vacancies and matching problems (BMBF, 2017: 71)



Overall, there has been a substantial decline in the number of German firms participating in the dual system; for example, in 1985 34 per cent of firms participated compared to 24 per cent in 2002 (Bosch and Kalina, 2008: 76). Currently the BIBB (2017:67) reports that in 2015 from the 2.14 million companies in Germany, 20 per cent (427,496) offer apprenticeships, one per cent less than in 2014. This change highlights emerging developments in Germany's dual system and ethos of social obligation of firms to participate in the system (Bosch, 2010). The extent employers intend to train within the dual system has lessened through the changes towards the decentralisation of collective bargaining, leading to increased wage differentiation and the growth of the service and low wage sectors (Thelen and Busemeyer, 2012). As a result, employers have increasingly started to employ increased flexibility measures in on-the-job apprenticeship training (Casey, 2012; Doellgast and Greer, 2007), affecting recruitment and leading to a more segmentalist apprenticeship system (Thelen and Busemeyer, 2012). Kirchner and Berger (2014) concur, arguing that firms are increasingly adopting diverse strategies to foster skill progression. The industry and size of firms characterise this heterogeneity, with the majority of firms departing away from apprenticeship strategies in line with

Streeck's (1991) archetypal description of diversified quality production (Kirchner and Berger, 2014).

Certain sectors in Germany, such as banking and insurance, are increasingly refraining from hiring apprentices and prefer to recruit graduates instead, showing divergent trends amongst different sectors and firms in Germany (Bosch and Kalina, 2008). Another indicator of the reduction of firms participating is the challenges small companies face within the system. Companies with only 1-9 employees are largely responsible for the decline in company participation, with all other company sizes experiencing an increase in participation (see Table 4) (BMBF, 2017: 67). The smallest and small companies do however take up the highest proportion of companies participating, reflecting the nature of Germany's Mittelstand economy and reliance on SMEs. Overall, larger firms benefit more in investing in the dual apprenticeship system and are more likely to continue to train to nurture and supply their internal labour markets (Busemeyer et al., 2012; Marsden, 2007). Smaller firms gain less productive benefits from training apprentices, often using apprentices as 'inexpensive substitutes for semi-skilled labour' (Busemeyer et al., 2012: 586) and are therefore less likely to train. Overall, this is causing Germany's OLM to erode (Marsden, 2007).

Table 4: Number of companies participating in the dual system in 2015 (based on BMBF, 2017: 67).

Company type and size	Numbers of companies participating in 2015	Percentage change from 2014
Smallest companies (1-9 employees)	200,340	-3.3%
Small companies (10-49 employees)	157,099	+1.2%
Medium companies (50-249 employees)	57,440	+2%
Large companies (250 or more employees)	12,617	+1.2%
Total number of companies participating:	427,496	-0.8%

In addition, Protsch and Solga (2015) highlight more generally that 30 per cent of firms do not fill their apprenticeship training programmes, citing that firms would rather leave these places open than recruiting more low-achieving candidates. This has created a matching problem, with an oversupply of young people entering the transitional system instead of entering into an apprenticeship from an unfilled vacancy (Protsch and Solga, 2015). Eight per cent of available vacancies in 2016 were unfilled, an increase of five per

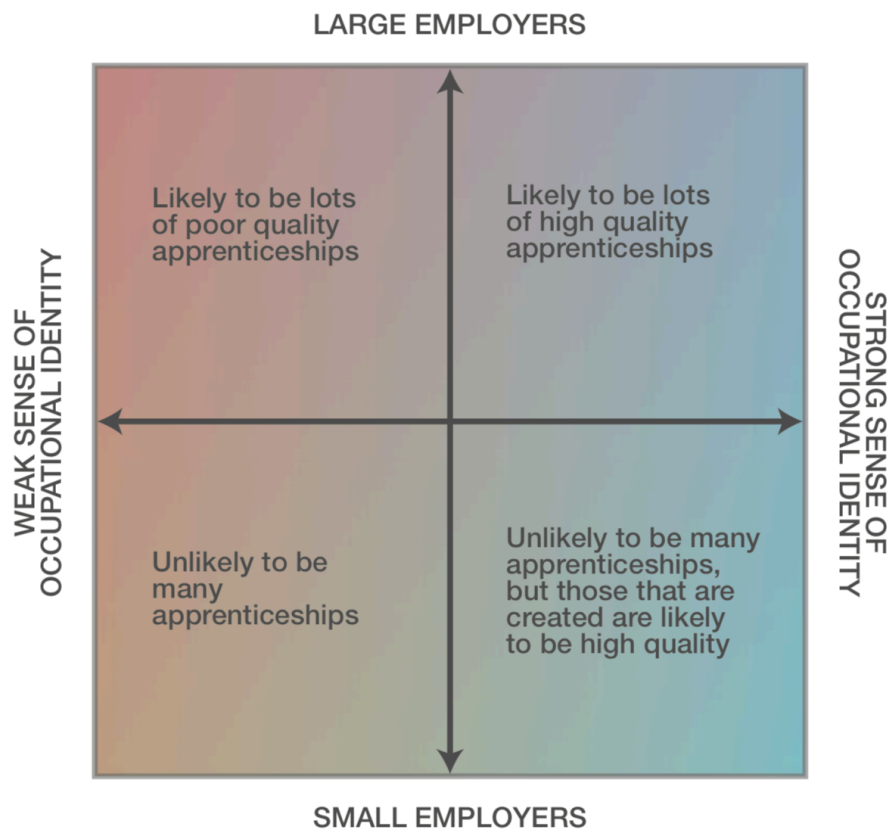
cent compared to the previous year (BMBF, 2017:19). Food, hospitality and Handwerk sectors are particularly effected (BMBF, 2017). These changes are highlighted in Table 5. The rise of HE and educational expansion has decreased the social standing of apprenticeships and therefore the quality of apprentices (Crouch et al., 1999; Bosch and Kalina, 2008), making it difficult for firms to find high quality apprentices (Jacob and Solga, 2015).

Table 5: Comparison of apprenticeship training places and unfilled apprenticeship vacancies, 2009-2016 (BMBF, 2017:20).

	2009	2010	2011	2012	2013	2014	2015	2016	Changes to 2015	
									absolute	in %
National										
registered vocational training places	478,455	486,947	524,378	523,092	513,932	520,144	530,998	546,947	15,949	3.0
► vocational training places in companies	411,499	429,057	473,722	484,593	481,650	489,676	499,403	517,789	18,386	3.7
► vocational training places not filled on the 30 th of September	17,564	19,802	30,446	34,051	34,625	38,269	41,592	43,478	1,886	4.5

Like Germany, a key threat to employer engagement in England is the lack of participation of SMEs, particularly those who are not levy-payers and who have not trained before (Pullen and Clifton, 2016). SMEs were also less likely to use existing employees as apprentices through reskilling, perhaps a product again of the fact that less SMEs were levy payers; the smaller the company the less likely they were to engage in upskilling (FSB, 2019). This diversity in employer engagement across different firms could polarise the system between SMEs and large employers, creating a dualization of employer participation in apprenticeships. Pullen and Clifton (2016) also argue that the levy might lead to a proliferation of low-quality apprenticeships even in large employers. Large employers operating in low-skill industries might adopt a 'low road' approach to apprenticeship implementation in order to recover their levy funds (Pullen and Clifton, 2016: 17). Other firms might use the levy as an opportunity to implement high-quality apprenticeships and increase their overall skill and training offer (Pullen and Clifton, 2016). Overall, however, there will be a heterogeneity in responses from firms to the new apprenticeship reforms, reproducing issues from previous apprenticeship reforms (Pullen and Clifton, 2016), as highlighted in Figure 11.

Figure 11: *Heterogeneous responses from large and small employers to new apprenticeship reform (Pullen and Clifton, 2016: 17).*



Government-driven policy on apprenticeships is facilitated centrally by the state and any changes to apprenticeship policy are not consulted on a wider institutional level (Brockmann et al., 2010a). The Trailblazer's initiative sought to place employers in the driving seat of apprenticeship delivery, policy and curriculum. Yet employers' interests are often marginalised, with often only larger employers being consulted (Brockmann et al., 2010a). Indeed, the Trailblazer process of creating standards is entirely voluntarist, with 10-12 employers joining the groups on a first come first served basis, often meaning that SME interests are not adequately represented (FSB, 2019). Financial and time demands may also hinder employers from joining, particularly SMEs, also leading to lack of employer representations and interests. As a result, employers tend to neglect a long-term perspective on apprenticeship curriculum, favouring only current needs within the market (Brockmann et al., 2010a). This leaves the current curriculum fragmented (Bosch and Charest, 2010) and unsustainable, which means that employers are less likely to invest in the system in the long-term creating an ongoing vicious cycle of lack of employer participation.

In addition, a key issue in increasing employer engagement in England is that employers often lack the organisational structures that are required to facilitate high quality training and support including dedicated trainers and HR personnel (Brockmann et al., 2010a).

This contrasts with Germany, which has a stronger tradition of training apprentices and a stronger institutional framework to encourage firm participation. This is particularly an issue for firms that have never trained apprentices before (Pullen and Clifton, 2016). Apprentices often have limited work experience and knowledge of the workplace, making employers reluctant to recruit them given the competitive and market-driven demands of firms (Brockmann et al., 2010b). Equally apprenticeships require a sense of stability to provide training, yet the status of the apprentice is increasingly regarded as short-term prospect and not as a route to permanent employment (Brockmann et al., 2010a). Indeed, there is a lack of enthusiasm from employers in retaining apprentices after training (Brockmann et al., 2008). This mirrors the more precarious nature of the labour market, increasingly focused on supplying agency or temporary work (Brockmann et al., 2010a).

3.3.5 Concluding comments

This chapter has cast light on the key challenges emerging in the trajectories of the English and German apprenticeship systems and provides a synthesis of how both systems compare and contrast in their current states.

In summary, England's apprenticeship system lacks a coherent identity due to the diversity of different types of apprenticeships within the system and a general lack of standardisation (Hogarth et al., 2012). Apprenticeships in England are becoming much more high-skilled with a clear reduction in level 2 apprenticeships and an increase of higher and degree apprenticeships (Foley, 2020). However, this seems to be more of a reflection of the proliferation of older apprentices and existing employees undertaking apprenticeships (McNally, 2018; Pullen and Clifton, 2016), which is creating a much more socially segregated system. This also implies that the system's core aim is departing from the notion of social mobility to reskilling or retraining of existing employees. Indeed, traineeships have dramatically declined (DfE, 2019), suggesting a deterioration of inclusive routes for people to transition into apprenticeships. The apprenticeship system continues to be run on a marketized system of skill development where training is usually carried out by private training providers (Lloyd and Payne, 2016). This is a symptom of England's supply-led focus to skills development through apprenticeships (Hogarth et al., 2012). Equally, England's recent investment in apprenticeships through the drive to reach three million apprenticeships by 2020 (BIS, 2015) through the apprenticeship levy have failed to increase participation and employer engagement. The apprenticeship levy has instead driven firms to a grey area between apprenticeships and training more broadly, ultimately creating a de facto training levy (CIPD, 2019). The levy has also created a polarisation between large employers and smaller firms (Pullen and Clifton, 2016; FSB, 2019). Overall, the focus on an employer-

ownership system has also made it difficult for employers to engage within the system due to the external market-led pressures that drive the competitive nature of the labour market (Brockmann et al., 2010a).

In clear contrast, Germany's apprenticeship system retains a strong and clear identity and retains its broad structure (Bosch, 2010). The rise of young people entering HE has decreased the social standing of vocational routes in Germany (Bosch and Charest, 2010), with young people exhibiting aspirations to take more high-skill routes (Bosch, 2010). Educational expansion has created increased competition amongst high-achievers and low-achievers (Bosch, 2010; Bosch and Kalina, 2008; Culpepper, 1999). Indeed, dual-studies programs have become more popular, but crucially are not regulated under the same social partnership principles of the dual system, which could increase inequality, poor working conditions and standardization of training (Graf, 2018). However, two-year apprenticeships have decreased in popularity (BMBF, 2017), suggesting that Germany is not following a low-skills route and instead remains committed to the development of intermediate skills through three-year apprenticeships or higher-level skills through HE. Despite this, the rise of the service sector and the low-wage sector (Bosch, 2010) has led to a deterioration of collective bargaining and pay, working conditions (Doellgast and Greer, 2007) and workplace training strategies (Hassel, 2014; Casey, 2012). This has made the dual system vulnerable, particularly within the current context of the increased number of migrants into the system. This could increase social inequality within the transition system and also the number of those NEET in the labour market (BMBF, 2017). This is a growing issue, particularly given that firms are increasingly not incentivized or interested in taking lower-achieving youth, leading to unfilled vacancies and less firms participating (Protsch and Solga, 2015). This is creating a mismatch of supply and demand, which is exacerbated by regional disparities and the changing demand of industries (BMBF, 2017). The German system is therefore adopting a much more segmentalist mode of training (Thelen and Busemeyer, 2012) with firms adopting more divergent training practices (Kirchner and Berger, 2014) away from Germany's core OLM (Marsden, 2007).

Despite their clear differences, the English and German apprenticeship systems seem to be moving towards much less socially equal and socially mobile directions with both systems following a more high-skill rather than low-skill approach. Equally, both systems are becoming much more heterogeneous and divergent in nature, with hybrid routes emerging between VET and HE and firms reacting and adopting to current changes in much more diverse ways. The challenges facing England and Germany's apprenticeship systems debated here reference broad policy implications situated in a macro context. However, it remains unclear as to how these issues translate into the reality of the workplace and indeed specific sectors, impacting the socio-cultural and

political realities and dimensions of managers, apprentices and other actors with the firms' sectoral and industrial ecosystems. This research problem brings the focus of this thesis back to the core aims of the study's research question, which, too, naturally impacts the design of the thesis' methodology, which will be discussed in the next section.

4 Research methodology

This chapter provides a comprehensive discussion of the research methodology of the study, which links back to its central research question:

How is apprenticeship organisation within the workplace changing in response to institutional and policy-led changes in England and Germany?

Germany and England are considered as archetypes of skill formation systems with somewhat opposing institutional structures. The characterisation of England and Germany as contrasting ideal types (Thelen and Busemeyer, 2012) is helpful in terms of framing the debate surrounding the conceptualisation of the two systems. However, this macro-scale view only provides an overriding basic depiction of social reality and ignores the complexities of the relationships and everyday experiences that govern the underlying institutional frameworks of the two systems (Thelen and Busemeyer, 2012). Specifically, in terms of the study, apprenticeship research has tended to either explore the experiences of apprentices from an educational, rather than a work-based, perspective, or in terms of macro-level evaluation of policy approaches to apprenticeships that typically pay little attention to the actors involved. Studying apprenticeships within a particular vacuum has clear implications on the ontological nature of the research, in other words, the social reality of human beings, as well as the epistemological perspectives or the nature of knowledge within this reality (Benton and Craib, 2011).

The distinct and contrasting descriptions of England and Germany within the literature (Finegold and Soskice, 1988; Hall and Soskice, 2011) has also created a supposedly fixed and predestined reality and future trajectory for the two countries (Hauptmeier and Morgan, 2014), making it difficult to examine actual change within the two systems. Central to understanding the pressures present at an institutional level is to understand how they also influence the social interactions, processes and outcomes within the employment relationships at a workplace level within both systems.

Initially, the ontological and epistemological challenges of the thesis will be outlined and through this a critical realist research philosophy will be justified. The research strategy will then be outlined, drawing on Mills' (1959) notion of the sociological imagination and Burawoy's (1998; 2009) extended case method to inform a comparative case study strategy and a qualitative interview-based research methodology. Finally, the research design will be outlined, highlighting the case selection strategy and how this led to gaining access into two separate companies in England and in Germany. This section draws on personal insights from the researcher on the data collection process, as well as ethical considerations and the data analysis process.

4.1 Research philosophy

4.1.1 Introduction

This section considers the research philosophy of the study and draws out its ontological and epistemological assumptions. It initially situates the study within the field of employment relations, drawing upon the employment relationship as a lens to study apprenticeships. From here a discussion of the competing philosophical paradigms, including positivism, interpretivism and critical realism is presented, where critical realism is justified as the research philosophy underpinning this thesis. Finally, a debate on the interplay between structure, agency and culture is discussed, with reference to Giddens' (1984) structuration theory and Archer's (1995) notion of analytical dualism.

4.1.2 Philosophical enquiry: The employment relationship as a lens to study apprenticeships

The study aims to study apprenticeship from the heart of the workplace and therefore careful consideration of the nature of the employment relationship is essential to uncover its philosophical underpinnings. The field of employment relations has changed significantly and thus extends across conflicting approaches from its foundations within the collectivism of industrial relations approaches to the current shift to individualism and strategic human resource management (HRM) (Bach and Edwards, 2013). Fox's (1966) conceptualisation of different frames of reference within the field encapsulates these opposing strands of thought. For example, a pluralist perspective represents the contrasting interests of the workforce through the tools of collective representation and accepts that conflict is an integral component of the employment relationship (Fox, 1966). In contrast, a unitarist perspective rejects any notion of conflict and views organisations as universal wholes that work together towards shared goals steered by management. Finally, a radical perspective seeks to uncover the unequal power imbalances within the employment relationship, which the capitalistic production processes of work produce (Fox, 1966).

The different perspectives of how the employment relationship is perceived impacts how reality is viewed within the research process. For example, a unitarist approach might consider the broad outputs of a firm's success through its HRM practices but fail to recognise the insight provided by the interests and needs of workers or collective bodies such as unions to explain those outcomes. HRM can act as a 'prescriptive toolkit' for managerial strategy but therefore 'lacks the multi-level and multi-disciplinary character' (Clarke et al., 2008: 6) that underpins the complex power dynamics inherent in the employment relationship. Pluralistic thought obscures the notion of conflict within the

employment relationship while a radical perspective typically views worker realities in regard to conflict and employer control (Edwards, 1995).

It is essential to consider the interests, power struggles and agencies of all actors involved within the employment relationship to understand how this impacts the philosophical approach of the research. This is essential in an era where notions of craft and trade are increasingly becoming diluted, and with it a 'blurring of distinctions between employee, independent contractor, self-employed and autonomous workers' as well as a proliferation of 'triangular relationships mediated by employment agencies' (Clarke et al., 2008: 7). New actors, ways of working and 'boundary-spanning relationships' (Doellgast, 2012: 214) have entered into the dynamics of today's employment relationship, which cannot be adequately captured by Dunlop's (1958) theory of industrial relations that viewed the employment relationship as mediated by government, labour and business. Therefore, the frames of reference (Fox, 1966) need to be inductively opened up to consider and explore the contemporary reality of the workplace where new actors, relationships, institutions and employment practices are constantly emerging, potentially making up a new kind of employment relationship, with a different set of actors, realities and struggles. Indeed, within apprenticeship research, meaningful engagement into the perspectives of apprentices, managers, HR, labour market institutions, and other atypical employment actors have not been studied holistically within current academic scholarship. The workplace and the employment relationship as a site and instrument of analysis has been neglected and with it, a diverse range of perspectives and elements of conflict unearthed. It is therefore important to understand how conflict and shared interests and cooperation are organised across the employment relationship (Edwards, 1995). The employment relationship leads to a double indeterminacy where employers both seek to control the apprentices' outputs but also extract their creative craftsmanship (Edwards, 1995). Equally, apprentices might also resist or bargain these attempts of control while also working efficiently highlighting the interlinked relationship between conflict and cooperation (Edwards, 1995). Edwards' (1995) radical pluralist approach therefore uncovers these contradictory and antagonistic forces inherent in the day-to-day structured antagonism of the employment relationship, a central aim of this study.

4.1.3 Exploring competing philosophical paradigms

Forging a suitable research philosophy that also underpins the methods chosen for the research is central to understanding change within the English and German apprenticeship systems. The various schools of thought within social sciences can be conceptualised under a spectrum of opposing philosophies with positivism on one side and interpretivism or social constructionism on the other. These two approaches are

commonly associated with quantitative and qualitative methods, respectively (Bryman, 1988) and have different sets of assumptions of social reality and the production of knowledge (Lincoln and Guba, 1985; Bryman, 1988). A quantitative approach typically adopts surveys or experiments in adherence to natural science rules, while qualitative approaches encompass methods such as participant observation, ethnography and interviews (Bryman, 1988). However, it is important to note that positivism is not exclusive to quantitative methods and that interpretivism is not akin to qualitative methods - they can be used interchangeably (Bryman, 1988).

Positivism characterises a natural sciences ethos, which aims to test set hypotheses and previous theory in a deductive manner (Saunders et al., 2012). As such, a positivist approach assumes the need for the measurement of variables and prior hypotheses to understand the causality between different concepts and, through this, make generalisations that are replicable (Bryman, 1988). Positivists experience the world as an independent and external entity where knowledge is achieved objectively from concrete and material observations (Benton and Craib, 2011). Reality can thus be tested through evidence and fact, creating generalizable claims about the world.

Interpretivism, conversely, adopts a more subjective dimension, which focuses on making sense of the lived everyday experiences of those within the social world (Schwandt, 1998; Lincoln and Guba, 1985). From this perspective, theory is developed in an inductive fashion through the observed experiences of the social world (Bryman and Bell, 2007). Interpretivists reject the positivist notion that reality can be tested, arguing that people are inherently different to the objects studied in the natural sciences (Schutz, 1962). Unlike objects, people are unpredictable and cannot be reduced to universal generalizable claims (Benton and Craib, 2011). Instead, people are rational actors who carry different sets of meanings, experiences and opinions, giving them agency to impact change within social reality (Benton and Craib, 2011; Burr, 2015). However, such an approach also posits that the world itself is socially constructed and that reality is interwoven into our own sense of being and understanding of it (Burr, 2015). Reality and the knowledge created through the social processes governing the social world are therefore inextricably bound, making the concept of truth and validity essentially impossible (Cunliffe, 2008). Hence, institutions only exist if people or society articulate their being, and therefore they are not deemed as external structures (Cunliffe, 2008). The challenge of this paradigm thus lies in the danger of adopting complete relativism, where reality is entirely indefinite and uncertain, thereby reducing the critical grounding to the research (Schwandt, 1998).

Both sides of the continuum provide challenges in terms of social science research. Positivism would diminish the social dimension of the research and fail to capture

underlying contextual implications (Saunders et al., 2012) and causes of change within the two apprenticeship systems. Interpretivism is also inadequate as it views reality as a socially constructed process (Burr, 2015) and consequentially the institutional network of both apprenticeship systems would be diminished to a social construct. The competing philosophical paradigms provide a rather polarising view of the research process (Bryman, 1988). As such it is often assumed that there is no overlap, similarities or intersections between different philosophical approaches and methods (Bryman, 1988). Instead, they are viewed as separate paradigms or ideal types (Bryman, 1988). Hence, structures within the social world and agents of the social world are viewed as opposing and disparate forces that cannot be reconciled. The dominance of either structure or agency in shaping social action is therefore largely contested within the social sciences. On one side, structure is viewed as a constraining force, shaping social action and therefore presents an objective view of social reality. This favours the macro-scale view of national apprenticeship systems, where institutions structure and shape the development of them (Hall and Soskice, 2001). Conversely, the primacy of agency stresses individual free will, where the social agency of individuals can shape and socially construct structures, thereby adopting a subjective social ontology. This perspective would posit that the individual social actors, such as apprentices themselves, shape and lead their own progress. Previous research into apprenticeships have tended towards the macro level policy making (Finegold and Soskice, 1988; Streeck, 1989). However, this ignores the social agency inherent within institutional structures (Hauptmeier and Morgan, 2014) and governing national apprenticeship systems. This is the key focus of this study.

Realist forms of analysis recognise the interaction between structure and agency. The realist paradigm gained significant exposure and increased significance through Roy Bhaskar's (1978) conceptualisation of critical realism, which combines a positivist ontological focus with an epistemological relativist standpoint (Burgoyne, 2008). Ontologically this means that reality subsists independently of social actors' knowledge and perception of them. Yet, despite this, individual agency can react and affects these structures through a subjective understanding of them (Wass and Wells, 1994; Benton and Craib, 2011). Social structures and institutions are therefore external of the social actors who interact with them. Hence, a realist approach acknowledges that the reality social actors observe is not a predictable force based on basic cause and effect reactions (Burgoyne, 2008). Instead, their actual observations provide the empirical grounding of research, which constitutes a true element of the entirety of reality out there and, thus, this element is an expression and depiction of the real (Burgoyne, 2008). An ontology based on critical realist assumptions also allows freedom for a multiplicity of methods and approaches to suit the research problem and garner different perspectives on the

research question (Gill and Johnson, 2002). However, methodological inconsistency can pose challenges in the sense that different aspects of the research process can produce diverging epistemological positions (Wass and Wells, 1994). Equally, such an approach can arguably be deceiving as fusing two opposing ontological and epistemological approaches might demand the social scientist to adopt the same dualistic strategy theoretically, conceptually (Brown, 2014) and methodologically (McLachlan and Garcia, 2015). Adopting a realist approach can therefore be labelled as a tactful or centre ground strategy in resolving the debates within social sciences paradigms (McLachlan and Garcia, 2015). However, epistemologically, knowledge can be accumulated from both observable and unobservable phenomena in a realist approach (Wass and Wells, 1994). Hence, knowledge of the social world with its structures and individual subjective experiences are never fully determined to a fixed knowable outcome (Wass and Wells, 1994). Therefore, a realist approach accepts that knowledge is open to different interpretations of it and that our conception of reality may not be entirely perfect. This acknowledgment overcomes the pitfalls of a deterministic approach through the purist social sciences paradigms of positivism and interpretivism. Equally, a critical realist approach mirrors the unpredictable nature of the research process, which is also not deterministic or fixed (Wass and Wells, 1994) and thereby encourages a healthy sense of criticality in the knowledge production process (Burgoyne, 2008).

4.1.4 Critical realism and the interplay of structure, agency and culture

In terms of elucidating the claims of critical realism further, it is important to acknowledge the relationship between structure and agency, and indeed culture, in more detail. The debate surrounding these concepts has long been contested, with structure being:

‘treated as the concept of the muscle, while agency and culture become its weak-kneed younger cousins’ (Hays, 1994: 58).

Equally culture and agency are often grouped together, with the two often presented as equal to the singular dominant force of structure (Hays, 1994).

Giddens (1984: 25) famous thesis on structure and agency argued for what he termed a duality of structure, where structure and agency are interacting with one another in a process of structuration:

‘the constitutions of agents and structures are not two independently given sets of phenomena, a dualism, but represent a duality’.

Structure is not viewed as an external and concrete entity to the social world but instead is dynamic and reflexive, creating both ‘constraining and enabling’ (Giddens, 1984:25) forces. Individual social agents reinforce this structure recursively, through either accepting or changing the established norms, codes of practices and institutions that

make up these structures in process of reflexivity (Giddens, 1984). In summary, structures are sustained and modified through social agency, whilst individual agency is also shaped by the nature of structures within society. Structures are therefore both the vehicle and the product of social action. Hence, Giddens' (1984) highlights that social sciences research is not just an entirety of individual lived experiences of the social actor at a micro-level or equally just an accumulation of social wholes and structures at a macro-level. Instead, his theory of structuration goes beyond the focus of ideal and encapsulates the notion of 'social practices ordered across space and time' (Giddens, 1984:2) at the intersection between structure and agency.

However, as Archer has observed, research typically prioritises one state of either structure or agency over the other, without examining the interplay between the two, leading to situations of either downwards conflation or upwards conflation consecutively (Archer, 1995). Equally, as in Giddens' (1984) structuration theory, structure can also be seen as an instantaneous consequence and reaction to agency and action itself, leading to a situation of central conflation (Archer, 1995). Here structure is regenerated through agency, which is, at the same time, confined and empowered by structure. Archer's (1995) morphogenetic framework strives to transcend the duality of Giddens' (1984) structuration theory in order to provide the opportunity to analyse and disentangle the sociological impact and distinctive states of both structure and agency in a move away from the general conflation and mutual constitution of the two states. As such, analytical dualism is put forward as an alternative to conflationary theorising, where the interrelated states of structure and agency are acknowledged but are argued to be functioning at separate timetables and schedules across time and space (Archer, 1995). Analytical dualism therefore argues for the need to study the interplay between structure and agency without conflating them. Although structure and agency are symbiotic, with emergence occurring from both sides, it is possible to analyse and extricate these two very different states separately. Indeed, for Archer (1995) structures would not exist without people. However:

'the "people" in society and the "parts" of society are not different aspects of the same thing but are radically different in kind' (Archer, 1995: 15).

Henceforth, Archer (1995: 15) calls for an application in understanding of how these two very different states are interrelated, entwined and linked in her notion of analytical dualism that adopts a lens of 'ontological emergence'. Archer (1995) outlines a morphogenetic cycle with three distinct phases which starts from a point of structural conditioning (1) that leads to social interaction (2), finally culminating to a state of structural elaboration (3), with corresponding morphogenetic cycles for culture and agency. Archer (1995) separates the spheres of structure and culture, paving the way

for analysis of the wider context of agency; this separation provides the foundation to analyse how structure and culture influence and interact with agency, thereby leading to either a reproduction or a change in social relations. A methodology of analytical dualism therefore provides the practical, not just theoretical, basis of empirical analysis; it reveals the inner causal relations of any social interaction over space and time.

Archer also introduces a theory of culture into her analysis (1988), which she perceives as being overlooked in modern sociological thought. Previous attention on just structure and agency and dualistic ontologies have been argued to be depthless and one-dimensional (Ackroyd and Fleetwood, 2000). As such, some scholars have argued for the inclusion of beliefs, ideologies and cultures to be integrated into realist philosophies to overcome these limitations (Archer, 1988; Willmott, 2010). Indeed, culture and agency can be studied in parallel to structure and agency using analytical dualism (Willmott, 2010); both pairs countenance the same issues and the same approach can therefore be used to resolve these challenges (Archer, 1988). However, there are fundamental differences between notions of culture and structure and therefore academic theory needs to acknowledge the autonomous nature of both culture and structure for this approach to be successful (Archer, 1988). For Archer (1988) culture is akin to Popper's notion of Third World Knowledge (1972) a strata made up of much more abstract products of human thought, including stories, myths, institutions, art works, poetry, books, theories and so forth (O'Hear, 1980). Archer (1988: 104) therefore extends Popper's (1972) Third World Knowledge and characterises culture as a place where 'existing intelligibilia' made up of 'all things capable of being grasped, deciphered, understood or known by someone' create a system of a 'common language'. World 3 'comprises of all the products of every cultural activity' and therefore 'embraces everything that is the work of the human spirit' (Corvi, 1997: 89). World 3 differentiates from World 1 which is made up of physical objects and material situations and world 2, which is composed of mental processes, consciousness and behaviour (O'Hear, 1980). The three worlds are independent but interrelated and continually interacting, existing in the same so-called universe (Corvi, 1997). World 3 has an effect on World 2, and via this indirectly influences World 1, too, and is therefore autonomous from it (O'Hear, 1980; Corvi, 1997). World 2 has a clear and direct impact on both Worlds 1 and 3, but Worlds 1 and 3 only interact indirectly with each other through 'the mediation of subjective and personal experiences' (Corvi, 1997: 92). Structure, agency and culture are therefore interrelated and equal 'emergent strata' which are 'ontologically (and thus methodologically) distinguishable from the other' (Willmott, 2010: 83). The interrelation of structure, culture and agency emphasises further the need to research apprenticeships in a much more holistic, rather than one-dimensional perspective. To study apprenticeships in a vacuum lead to conflationary theorising. The stratified

ontological realism through the approach of analytical dualism departs from any conflationary approaches, which reduces structure, agency or culture to the other.

4.1.5 Concluding comments

This section started by defining the philosophical underpinning of the study using the employment relationship as a lens to research apprenticeships. A unitarist perspective was rejected on the basis that it only offered a rather simplistic and top-down ontological basis of reality. Edwards' (1995) radical pluralist perspective was justified on its acknowledgement of the contradictory and antagonistic nature of the employment relationship where conflict and cooperation are entwined. Through this analysis, positivism, interpretivism and critical realism as different philosophical strategies was discussed. The latter was warranted under Archer's (1995) notion of analytical dualism due to its clear acknowledgement of the interrelated nature of structure, agency and culture. This approach aligns with the core aims of this study, which acknowledges the unique, ontologically different but interrelated states of the socio-cultural-political economy of apprenticeships. Archer's (1995) analytical dualism demonstrated that these three states are also methodologically distinguishable from each other and this point will be further expanded upon in the next section in the discussion of research strategy and methods.

4.2 Research strategy and methods

4.2.1 Introduction

This section interlinks the research philosophy outlined in the previous section with a robust research strategy and methodological approach to unify the central aims of this thesis. Firstly, Mills' (1959) notion of the sociological imagination and Burawoy's extended case method (1998; 2009) are used as points of reference and influence to underline the key ethos, approaches and aims of the research methodology. The comparative case study is then presented as the key methodological strategy of the thesis and special reference is made to Locke and Thelen's (1995) "contextualized" approach to comparative case study research as well as the study's critical realist philosophical underpinning. Finally, a qualitative methodology is offered, and with it a rejection of quantitative methods. In particular, the qualitative interview is justified and discussion with the method's relation to its case study context is analysed, including the use of observations and company material.

4.2.2 The sociological imagination and the extended case method: From biography to history and from micro to macro

The previous section emphasized the need for analytical dualism between ‘the “people” in society and the “parts” of society’ (Archer, 1995: 15). Similarly, Mills’ (1959: 6) notion of the sociological imagination studies the ‘interplay of man and society, of biography and history, of self and world’ (Mills, 1959: 4), mirroring Archer’s (1995) interplay of ontological emergence arising from the morphogenetic cycles of structure, culture and agency. Mills (1959: 4) outlines the sociological imagination as a desirable quality and enquiry of mind in the classic sociological tradition in which there is a clear dynamic and appreciation between the study of ‘the personal troubles of milieu’ and ‘the public issues of social structure’ (Mills, 1959: 8). As such there is no need for harsh opposing distinctions between macro against micro and structure versus agency (Watson, 2009). Instead, it is important to look at these opposing binaries not as against each other but as in relationship to each other, mirroring the ‘intersection of biography and history within society’ (Mills, 1970: 14, cited in Watson, 2009: 870). Similarly, Mill’s (1959: 224) asserts:

‘Do not study merely one small milieu after another; study the social structures in which milieux are organized...study them in such a way as to understand the interplay of milieux with structure’.

Mills (1959) therefore calls for the sociologist researcher to appreciate the wider historical picture of the inner states of the individuals they study, not just focusing on one aspect of history or biography over the other. Watson (2009: 869, emphasis in original) concurs by further arguing that:

*‘People’s work (in or out of formal employment) is closely bound up with their conception of self. In looking at how people ‘make a living’ we are looking at how they deal with both the economic and the social or cultural aspects of their **whole** lives.’*

The need to interlink the political with socio and cultural aspects of work form the central motivation of this thesis and is interlinked with Mill’s (1959) notion of the sociological imagination. As Mills (1959) outlines, the state of sociology is divided into three broad but different tendencies, which mirror Archer’s (1995) reservation of conflationary approaches in the social sciences. Indeed, these tendencies have relinquished cultural and political states and are ‘subject to distortion, to being run into the ground’ (Mills, 1959: 22). Firstly, Mills (1959: 22) outlines the tendency ‘towards a theory of history’ where ‘sociology is an encyclopaedic endeavour, concerned with the whole of man’s social life’; here history is used as a template to form often polemic but essentially pessimistic views of the future and as such history is not interlinked to biography. Secondly, there is a tendency towards a ‘systematic theory of “the nature of man and

society” (Mills, 1959: 23) where history is typically ignored in favour for the generalist and abstract conceptualisation of social relations. Finally, there is tendency towards ‘empirical studies of contemporary social facts and problems’; due to the influence of survey methods and the fields of economics and political science, sociological research became an ‘odd job man among the social sciences, consisting of miscellaneous studies of academic leftovers’ (Mills, 1959: 23). This has led to both miscellaneous, unconnected and trivial social studies but also the extreme specialisation in methodology. Indeed Watson (2009) argues that the discipline of the sociology of work has become over-specialised and fragmented, with the division of labour within the field itself divided into different sections and sociological research typically carried out on the work of other sociologists. As such history and biography are not meaningfully interlinked, leading to approaches that do not connect theory, method and issues of public and social concern, but instead arguably prioritises academic and professional sociological interests (Burawoy, 2004).

Burawoy (1998; 2009), too, seeks to bridge theory to history in a fashion akin to Mills’ (1959) link between biography and histories of society. Burawoy (2009: 12) describes his experiences in the field as a researcher:

‘I started with social processes on the shop floor and extended out to the macro-forces shaping them.’

Therefore, Burawoy (1998; 2009) allows the research to “extend out”, moving from micro to macro, from present to past. Burawoy (1998; 2009) describes this process, through his conceptualisation of the extended case method, an approach which originates from the Manchester School of social anthropology. Burawoy (1998: 5) argues that the extended case method motivates the researcher to justify their:

‘extravagant leaps across space and time, from singular to the general, from the mundane to the grand historical themes of the late twentieth century’.

The extended case method is an example of critical realist philosophical orientation (Decoteau, 2017). It is centred upon a model of reflexive science, which embodies methodological duality between both positive and reflexive models of science, as Burawoy (1998: 7) notes:

‘Reflexive science sets out from a dialogue between us and them, between social scientists and the people we study...It starts out from a stock of academic theory on the one side and existent folk theory or indigenous narratives on the other. Both sides begin their interaction from real locations’.

Positive science denotes methods such as survey research; researchers in this field broadly view the social world they study as separate to them and aim to produce reliable,

replicable and representative results free of reactivity between the researcher and the world they study (Burawoy, 1998). Burawoy (1998; 2009) argues that this approach falls prey to “context effects” between the researcher and respondent and the context of the interview itself which is entrenched in the broader and unavoidable social world that surrounds it. Context effects, therefore, constitute the very nature of reality for Burawoy (1998: 13) and should not be something that should be ‘measured, reduced and controlled’. As a result of this inadequacy, Burawoy (1998; 2009) offers a reflexive model of science as an alternative, which typically embodies the use of participant observation methods. Yet, this model is also flawed in its bridging between context and dialogue, leading to “power effects” between the two (Burawoy, 1998; 2009). Both models of science are flawed but Burawoy (1998; 2009) chooses to embrace these flaws rather than succumbing to postmodernism. Burawoy (1998; 2009) asserts that he works on the very boundaries of postmodernism, but never surpasses this boundary by instead adhering to the side of science, which postmodernism decidedly rejects. As such, Burawoy (2009: 39) argues for a methodological duality between the models of science, which allows for an interplay between these two states, reconciling each other’s inadequacies and flaws:

‘Where positive science proposes to insulate subject from object, reflexive science elevates dialogue as its defining principle and intersubjectivity between participant and observer as its premise. It enjoins what positive science separates: participant and observer, knowledge and social situation, situation and its field of location, folk theory and academic theory’.

Burawoy (1998; 2009) outlines the four key principles of intervention, process, structuration and reconstruction that make up reflexive science through the extended case method, which are diametrically opposed to the four values of reactivity, reliability, replicability and representativeness of positive science. Firstly “intervention” emphasises the nature of the interview, which is:

‘not simply a stimulus to reveal the true state of the interviewee but an intervention into her life’ (Burawoy, 1998: 14).

“Intervention” is therefore an unescapable aspect of the research process, revealing clear elements of reactivity; this reactivity should not be disregarded or reduced but instead should be embraced and capitalised on to reveal concealed states of the participant’s inner psyche (Burawoy, 1998; 2009). Secondly, “process” highlights the multitude of meanings attached to the respondent’s experiences, interpretations and responses to the interview, which destabilises the so-called reliability of the research; although interview questions can be standardised, answers cannot (Burawoy, 1998; 2009). As such, “process” through a reflexive science model allows the researcher to:

'unpack those situational experiences by moving with the participants through their space and time' (Burawoy, 1998: 14).

These situational experiences are not static but are constantly moving and unfolding (Burawoy, 1998; 2009). As such, reflexive science calls for these multiple and diverse set of situational experiences to be aggregated into a state of social process; this process of reduction mirrors positive science where survey research is also aggregated, where statistical deductions are made from large survey data sets (Burawoy, 1998; 2009).

Thirdly, "structuration" tenants that the external world of the interview exists independently in a state of constant flux and cannot be controlled, thereby preventing any sense of replication in the research process (Burawoy, 1998; 2009). This external world is made up of social forces which exist outside of the specific parameters of the actual research; these social forces mould and are also moulded by the everyday world and therefore the specific milieu of study, too, leading to structuration (Burawoy, 1998; 2009). Finally, "reconstruction" replaces the notion of representation of the sampling of the research to lead to a sense of generality (Burawoy, 1998; 2009). Burawoy (1998: 16), here, emphasises the need to use extant theory as a starting point to the research process to 'seek not confirmations but refutations that inspire us to deepen that theory'. By "reconstructing" theory the crux of prior claims remains integral to the research process, thereby simultaneously allowing researcher to counteract these claims and add new emerging positions and perspectives to the area of study (Burawoy, 1998; 2009). The central aim of reflexive science is not to produce research that presents an absolute and total truth about the world out there but instead to incrementally and continually add to existing theory in a much more craft-based epistemology (Burawoy, 2009). Hence, there is no absolute sense of truth in science, only a sense of recurrent reconstruction and revision (Burawoy, 1998).

4.2.3 Case studies in comparative context: Exploring difference and complexity

The comparative context of the research offers the potential for explaining key differences or indeed similarities between England and Germany in terms of their changing apprenticeship systems. The case study is therefore the central and overarching research strategy of this thesis. The case study will be used as a tool to craft socio-cultural-political perspectives of the changing nature of apprenticeships within the workplace, as outlined in the conceptual aims of this thesis. Case studies are useful mediums for understanding complex and/or unique phenomena in terms of their interplay and relationship within a situated context (Stake, 1995). Case studies therefore capture 'the subjective meaning systems of those studied' but also pivotally how these emerge and 'combine to inform collective social processes' (Vincent and Wapshott, 2014). Case studies can capture thick depictions of complex and emerging processes (Stake, 1995)

which might be unclear or novel in nature and therefore lack theoretical or empirical grounding in the academic field (Saunders et al., 2012).

In terms of the comparative nature of this research, Locke and Thelen (1995) advocate selecting country cases for their institutional differences (in this case England and Germany) and unifying case selection with investigating a single process (in this example changing apprenticeship systems within the workplace) (Kessler and Bach, 2014). Unlike England, apprenticeships in Germany are of an essentially collective focus, with a complex institutional infrastructure to facilitate skill progression and worker organisation and development (Streeck, 1989). Such cases, with their institutional diversity are 'lightly theorised' and can 'plausibly be seen to moderate the impact of external pressures', which leads to differences in the development and results of these processes across the two cases (Kessler and Bach, 2014). This aligns well with the relationship between theory and history, where theory is used as a foundation to build and develop further research as outlined in Burawoy's (1998; 2009) extended case method.

Case studies provide the medium for exploring a particular casual mechanism in action within a certain context, allowing the research to explore and ascertain 'sequences of causation or casual mechanisms at work' (Ackroyd and Karlsson, 2014: 24). Comparative research and analysis can uncover the quality of a mechanism of study and indeed the diversity in the processes and outcomes emerging from a case (Ackroyd and Karlsson, 2014). For example, despite similarities across different countries in work and labour processes, different institutional environments can shape worker experiences (Burawoy, 1985, cited in Ackroyd and Karlsson, 2014: 31). It is therefore important not to view comparative research cases as deductive instruments for 'naturally occurring experiments' where 'everything is the same except for one crucial aspect' (Ackroyd and Karlsson, 2014: 32). Instead, cases in comparative context carry crucial and varying differences that cannot necessarily be controlled or simplified (Ackroyd and Karlsson, 2014). Realist research of a comparative nature acknowledges difference across different cases and locates the 'generative mechanism at work' which 'has distinctive properties, working itself out in particular circumstances' (Ackroyd and Karlsson, 2014: 32). Indeed, the case study as a strategy allows for the continual refinement of generalisability; novel generalisations are not typically commonplace and modification of generalisations are uncovered (Stake, 1995). Instead of outwardly claiming new results of right and wrong, the case study adds to and progresses extant knowledge and theory (Burawoy, 1998; 2009). Realist cases do lend themselves to providing the opportunity for empirical assessment to verify their plausibility; instead theory and data inform the description of the studied phenomena (Vincent and Wapshott, 2014).

Locke and Thelen (1995:337) note that explaining diversity within different countries' paths of experience in a comparative context can be challenging and problematic in the sense that relationships can be oversimplified and deducted to polarities of 'success and failure' and 'institutional resiliency and breakdown'. Instead of exploring complexity, research findings can often be reduced and simplified to generalisations of change. Comparing two countries is essentially like comparing "apples and oranges" due to their obvious differences (Locke and Thelen, 1995). However, often comparative research between two country cases leads to the assumptions that the two countries can be treated as the same canvas to base comparisons on, i.e. researchers assume countries are in fact "oranges and oranges" when analysing different units of comparison, which can obscure results, providing an over-simplistic or generalised and misleading picture of the phenomena (Locke and Thelen, 1995). As the existing literature has shown, the two cases of England and Germany have been typically characterised as static in their positions as exact opposites (Finegold and Soskice, 1988; Streeck, 1989; Hall and Soskice, 2001). However, Locke and Thelen (1995) challenge the assumption of traditional archetypal indicators of comparison, arguing that cross-country comparisons are not defined by common trends but, in fact, conflicting pressures dependent on specific national procedures. Locke and Thelen (1995) therefore argue against a "matched-comparison" approach and favour a "contextualized" methodological line of enquiry into comparative research, which they argue is integral to understanding a more nuanced, identity-based view of national differences in comparative research. Such an approach focuses on unravelling:

'unexpected parallels across cases that the conventional literature sees as very different and, conversely by underscoring significant differences between cases typically seen as most similar' (Locke and Thelen, 1995: 338).

It recognises that change is not necessarily corresponding or deriving from the same source, but instead can be divergent and can also arrive from conflicting sources.

In line with the emergent ontology of Archer (1959) and the interplay between biography and history (Mills, 1959) and between macro and micro (Burawoy, 1998; 2009) the research will employ Locke and Thelen's (1995) contextualised model in an aim to explore the development of changes, differences and similarities emerging from the cases of England and Germany. The design therefore departs from the notion that England and German are purely defined and dependent on their institutional differences through processes of change (Hall and Soskice, 2001) and thus allows the potential for change to also derive from diverging pressures of conflict (Locke and Thelen, 1995).

4.2.4 A qualitative methodology: Linking interviews to their case study context

Case studies form the core research strategy of this thesis and are supported and formed by a qualitative research methodology, with a focus on developing theory inductively from the emergent empirical data in an exploratory approach (Gill and Johnson, 2002; Bryman and Bell, 2007) which also iteratively considers the existence of extant theory (Burawoy, 1998; 2009; Tracey, 2013). In particular, the qualitative interview forms the core research method to complement the thesis' philosophical assumptions and research strategy. Indeed, the extended case method (Burawoy, 1998; 2009) and Mills' (1959) sociological imagination connects the philosophical approach to the research design. These approaches encourage the researcher to not only "extend out" between macro and micro but to also study the:

'interplay of man and society, of biography and history, of self and world'
(Mills, 1959: 4).

A quantitative research methodology is rejected. Quantitative methods seeking to purely measure, quantify and provide rational explanations of changes within the workplace for apprentices would not adequately allow the researcher to "extend out" and follow a model of reflexive science (Burawoy, 1998; 2009). Indeed, Lloyd et al. (2013) in their study found that quantitative research often made simplistic links between product market strategies, skill and pay, with their qualitative research exposing that the link between the three was actually weak and decoupled. As such a quantitative approach would also not allow for sociological enquiry into uncovering both the pluralistic interests and the power struggles and structures inherent within the employment relationship (Fox, 1966; Edwards, 1995) for apprentices. Additionally, managers, training providers or vocational schools, unions and/or works councils, are also key actors to provide a holistic understanding of change within the workplace for apprentices. A qualitative methodology provides the foundations to understand these diverse sets of views.

Previous literature on national apprenticeship systems has focused on providing policy-led and theoretical contributions of the macro-level institutional analysis of the opposing features of English and German systems (Finegold and Soskice, 1988; Streeck, 1989; Marsden and Ryan, 1990; Hall and Soskice, 2011; Thelen, 2004). Little empirical research has focused on qualitative interviews to understand the relationships that govern the institutional networks of both countries apprenticeship systems. Thelen and Busemeyer (2012) make a convincing instigation of using such methods through interviewing trade unions, firms and the state to specifically examine change within the German system, arguing that the German system is gradually eroding due to lack of employer participation and apprenticeship positions. Such an approach is useful from departing away from the static institutional conceptualisations (Hauptmeier and Morgan,

2014) of the English and German apprenticeship systems within the literature to examine current changes.

An interview guide acts as a frame to structure the semi-structured interviews, as it contains specific research themes outlined by the researcher (Bryman and Bell, 2007). The qualitative interview allows the researcher to delve into the respondent's perspective and to collect their viewpoints, lived experiences and stories about a particular matter (Patton, 2002; Kvale, 1996). A semi-structured approach allows respondents to actively contribute to the discussion in a flexible and open-ended nature, but it is the role of the interviewer to listen and neutrally and sensitively facilitate the context of the discussion without bringing their own viewpoints and opinions into the scene (Bryman and Bell, 2007). It is also important to query and encourage further points of conversation and indeed new questions and insights might emerge throughout the interview (Bryman and Bell, 2007).

Although interviews ultimately rely on the opinions and thoughts of the interviewee (Kvale, 1996), they are not conversations but instead are prearranged social exchanges (Easterby-Smith et al., 1991). They are essentially a tool to develop and create new knowledge within the field (Bryman, 2012) and data is uncovered prior to any scientific rationalisations (Kvale, 1996). Interviewing a variety of different actors within the workplace, and indeed outside of it, from both countries will therefore provide different insights, perspectives and specialist knowledge, (Bryman, 2012; Stake, 1995). Despite this, interviews are often criticised for their subjectivity and the primacy given to the personal insights offered by the interviewee (Kvale, 1996), which can be over-exaggerated, unclear or false (Simms, 2008). In terms of the research, this is particularly the case in terms of interviewing elites and those in positions of power (Richards, 1996). Equally individuals working for companies may also be suspicious of the researcher and not provide key insights. In this case, apprentices might be apprehensive of divulging information in case it might affect their employment security and general performance. However, the sense of performativity arguably reflects the nuanced reality of the social environment where people portray themselves in different ways dependent on context (Kvale, 1996). Interviews therefore embody the social nature of the situation to create knowledge, opinions and facts as well as personal insights and individual perspectives on a given research area (Alvesson and Svensson, 2008).

The interview, set within the context of the case study, is not a one-off enter and exit situation. Instead, it encapsulates the process of gathering initial impressions, emerging familiarity with the case and early observations with gatekeepers (Stake, 1995). Additionally, within the context of the organisation and the time spent there, the researcher builds on their informal and natural observations of the situated context; this

naturalistic data forms the contextualisation of the research in action. Prior emails with the gatekeeper, initial telephone conversations or visits, longer stays within the organisation to conduct the interviews, gathering of company material and events of shadowing of staff and meetings are all instances of the researcher being embedded and acquainted within the situated context of the case study (Stake, 1995). As such non-participant observations also comprised aspects of the research methodology, leading to ethnographic features and nuances within the research strategy (Easterby-Smith et al., 1991). Interviews also lead to new insights, questions and observations therefore keeping a field diary is essential to record such records to inform and improve further interviews and interactions. As such, the interview does not exist independent to the case study itself but is embedded in a rich network of connections, expectations, prior knowledge and research of the case and indeed general observations (Stake, 1995). As such interviews over time in the data collection period gain traction as knowledge progresses and new insights are uncovered.

4.2.5 Concluding comments

This section linked the critical realist philosophical assumptions of Archer's (1995) analytical dualism outlined at the start of this chapter to a research strategy informed by Mills' (1959) sociological imagination and Burawoy's extended case method (1998; 2009). Both approaches promote an interplay between biography and history (Mills, 1959) and micro and macro (Burawoy, 1998; 2009), a key strategy which complements the study's philosophical underpinning. Mills' (1959) approach connects well with Archer's (1995) objections against conflationary theorising. Equally, Burawoy (1998; 2009) highlights the need for a methodological duality between the interplay between positive and reflexive models of science. A reflexive model of science allows the researcher to "extend out" of the field, gradually building new insights onto the template of extant theories (Burawoy, 1998; 2009). By extending-out (Burawoy, 1998; 2009) key differences can be acknowledged in the institutional make-up of England and Germany's apprenticeship systems. This is a point emphasised by Locke and Thelen's (1995) "contextualized" approach, which clearly acknowledges the need to determine national institutional differences in comparative case study research. In line with Burawoy's (1998) model of reflexive science, a qualitative research design was justified with the use of interviews as the key method. A qualitative approach reflects the study's objective to study apprenticeships within the workplace, interviewing a number of different actors in a holistic approach that delves beneath the surface of policy assertions.

4.3 Research design in practice: A personal perspective

4.3.1 Introduction

Now that the research philosophy, strategy and research methods have been elucidated, in this section I will explain how I practically and personally approached the research process and design. As a qualitative researcher, I am essentially the 'instrument of qualitative enquiry' (Patton, 2002: 513) and therefore it seemed appropriate to reflect on and indeed analyse the research process from a personal perspective. I will initially outline the research design, highlighting the process I went through to select cases in line with my "best practice" approach to apprenticeships I pursued to meet the thesis' aims and objectives. Secondly, I will go on to describe how I gained access to the two companies I studied in England and Germany, highlighting how my role as a researcher changed over the research process over time. Finally, I will discuss how I collected my data through interviews and observations, drawing upon the ethical boundaries I put in place to ensure confidentiality, anonymity and respect for the respondents' wishes within the research process. I also draw upon the data analysis process, drawing attention to the techniques I used, including a field diary and thematic analysis.

4.3.2 Overview of the research design: Selecting sectors and cases

As outlined in the last section, the research adopts a qualitative and comparative research design with a case study research strategy. As previous studies have tended to ignore the workplace as a site of analysis, I was motivated to undertake in-depth case studies exploring how wider change in the English and German apprenticeship systems were affecting workplace relations for apprentices. Indeed, previous studies have either focused solely on either representing apprentices' views or management and opinion-former views. The thesis aims to unite socio-cultural and political aspects of apprenticeships through in-depth analysis of apprentices at all levels within the workplace, whilst also analysing key institutional actors outside of the immediate vicinity of the workplace, including educational and training providers and unions. As such two matched cases in the same industry were sought out in both countries, with the expectation of completing up to 20 semi-structured interviews per case, complemented with observations and analysis of company literature. The interviews would target apprentices, senior-management, line-managers, trainers and educational providers, union and/or works council representatives as well as any other relevant actors.

England as a country has typically been viewed as a low-skill provider of apprenticeships (Finegold and Soskice, 1988), often with low pay and a general low social standing within the public conscience (Brockmann et al., 2010a). Indeed, even in Germany, apprenticeships in newer service industries have succumbed to lower working

conditions, precarious contracts, poor pay and progression opportunities (Eichhorst and Tobsch, 2013; Hassel, 2014; Casey, 2012; Thelen, 2007). However, older sectors such as the engineering and manufacturing industries, with their much more high-skill needs, higher pay structures, and indeed higher levels of productivity presented a curious industry of study for me from the outset, leading to several questions such as: How does such a high-skill sector perform in the low skills equilibrium (Finegold and Soskice, 1988) that England is so well-known for? Equally, despite Germany's so-called high-skill equilibrium approach (Finegold and Soskice, 1988), evidence suggests a general erosion of collective bargaining pay structures and working conditions in the service sectors (Doellgast and Greer, 2007 Eichhorst, 2015; Benassi, 2016); are such pressures also inherent in the higher skilled manufacturing and engineering industries? As such, it seemed clear that the engineering and manufacturing industries presented the possibility of studying apprenticeships in a "best practice" scenario in both England and Germany.

Indeed, the manufacturing and engineering industries were a natural place of comparison between England and Germany; the majority of apprenticeships have been traditionally carried out in manufacturing and engineering sectors in both countries (Bosch and Charest, 2010; Streeck, 1992). In England, engineering and manufacturing technologies make up the third largest sector, with 15 per cent of starts in this area (Foley, 2020: 14). In Germany, trade and industry remains the largest sector within the system; 58 per cent of apprenticeship contracts in 2017 were in the sector (BMBF, 2018). The discrepancy between the two countries in terms of starts in the sectors reflect the institutional and industrial differences (Locke and Thelen, 1995) of England and Germany. Germany's economy relies heavily on the engineering and manufacturing sectors whilst England's industries have gradually declined since the 1980's. Despite this decline, the sector is still highly important and relevant to the economy in both countries. Both England and Germany have a strong tradition in engineering and manufacturing. Also engineering, manufacturing and technical apprenticeships have remained relatively steady in both countries, with no significant increase or decrease in participation in the last five years in England and in Germany (Foley, 2020; Deutscher Industrie- und Handelskammertag, 2013; 2015; BMBF, 2018). The sector also exemplifies a "best practice" example of apprenticeships in both countries.

To ensure a "best practice" example of apprenticeships I considered a number of parameters to map a strategy for selecting a credible case. These parameters were informed by eight scoping interviews I carried out with key opinion-formers and policymakers in the area of apprenticeships in England and Germany (see Appendix A). These interviews provided insights into important contextual differences (Locke and Thelen, 1995) to industry developments, institutional changes, policy developments and apprenticeship approaches in the two countries. From this, it became clear that it was

important to find a company that was relatively large, rather than a small or medium sized business. The strategies large major companies employ are significantly connected to changes in their employment relations, including training, wages and working conditions (Doellgast, 2012). In this sense, a small business might not have an HR department to support its apprenticeship programme and may only recruit as little as one apprentice per year. This would not provide the basis of garnering adequate amounts of interviews with apprentices or deliver a satisfactory basis for comparison across countries. Conversely, a larger business is more likely to have a more established apprenticeship programme that recruits cohorts yearly. Matching the country-specific company cases through the types of apprenticeship occupation or standards they offered was also essential. Although it is difficult to compare and translate occupations across countries (Lloyd and Payne, 2016) research and careful consideration of occupations was essential to ensure comparability across cases. While it was impossible to predict the likely outcome of entering the field, it was also important to locate cases, which might be examples of change in terms of responding to government policies or wider institutional challenges. For example, in England, a company might be responding positively or indeed negatively to the apprenticeship levy or the Trailblazer reforms. In Germany, a company might be facing issues with recruitment due to the increased popularity of HE and, in turn, decrease their overall financial commitment to supporting apprentices or might be tailoring their vocational programmes to meet the demand of increased migrants within the country. Information gathering through internet research, reading newspapers and contacting companies and discussing suitability early in the research process can ensure that these parameters are met. Finally, gaining access to a wide range of actors associated with the national institutional context and organisation of the apprenticeship programmes was also essential in meeting the study's objectives. This included access to not just apprentices and managers but also labour market institutions, training providers and any other relevant actors. Hence this kind of access was another essential parameter. The initial scoping interviews (Appendix A) provided essential context to the institutional differences of England and Germany in terms of the different actors involved in the two systems.

In summary, the cases were selected by the following factors:

- A company in the engineering and manufacturing industries,
- A large company (over 250 employees),
- Offering the same types of apprenticeship occupations/standards,
- Situated in a wider institutional context with potential access to relevant institutional actors.

4.3.3 Negotiating access over time: Exploring changing researcher roles

Access was an ongoing and continual process of constant interactions (Stake, 1995) with different gatekeepers, stakeholders and workers. I initially adopted a purposive sampling approach (Easterby-Smith et al., 1991) to target key individuals involved in apprenticeships at company level in both countries, through internet-based research and through personal connections with industry and policymakers within the area. From this, access was negotiated gradually as key gatekeepers emerged into the scene. Using my case selection strategy outlined in the previous section, two cases, one in England and one in Germany, emerged as potentially likely cases. Both companies were large multi-national private businesses in the chemical sectors, set within the wider engineering and manufacturing industries outlined in the case selection strategy. Both offered similar occupations/standards, with the laboratory technician being the main apprenticeship offered in both companies alongside other matched apprenticeships. Equally, both had excellent links to training providers or vocational schools as well as unions and/or works councils, amongst other newer actors. These cases will from now on be referred to as PharmCo in England and ChemCo in Germany (Figure 12).

Figure 12: Research case-studies.



I visited PharmCo in November 2017 and ChemCo in March 2018, both for one working week. The gatekeepers from both companies were senior managers who I initially had contacted by email and slowly secured access by telephone conversations and further email exchanges. At PharmCo, the gatekeeper worked in research and development and although was not the head of apprenticeships at the firm, played a significant role in the apprenticeship programme. As soon as formal access was granted, the gatekeeper devolved responsibility of my site visit to a senior apprentice, who organised the interviews and provided further useful information about the apprenticeship programme there. With the apprentice now being the gatekeeper to further access to the firm, access became much more informal and flexible to negotiate. I also gained an apprentice perspective (rather than just a management lens) on the firm, which was hugely beneficial to me to understand their daily realities. At ChemCo, access was secured with the head of apprenticeships at the firm, who was supportive and friendly towards my research aims. I also had to gain access through gaining official permission from the site's works council; the research was presented to the committee who agreed to the

research going ahead. With the social responsibility of education and training (Bosch, 2010) a key feature to German business culture, my research was viewed as an educational endeavour and was therefore very much championed and supported. When I arrived onsite, I was assigned an apprentice mentor who had coordinated the interviews for me but also showed me around and took me for lunch each day. Through this, and much like PharmCo, I started to develop an insight into what it was like to be an apprentice at ChemCo. I was also introduced to friends of my mentor, which gave me further insights. The head of apprenticeships also gave me a site tour of the training centre there and introduced me to key managers there. This access allowed me to secure further contacts and access through snowball sampling approach (Easterby-Smith et al., 1991) and therefore access was continual through the entire visits.

Overall, I conducted 45 interviews in total, 23 in PharmCo and 22 in ChemCo. The list of the interviews carried out at PharmCo and ChemCo is presented in Appendix B. Data collection reflected the different institutional arrangements of the companies in their respective countries, reflecting the studies “contextualised” approach (Locke and Thelen, 1995) to recognising institutional differences in the different countries of study and focus. For example, in Germany the works council representative was interviewed, but PharmCo did not have a works council presence. Indeed, at PharmCo the SSC’s Apprenticeship Training Agency (ATA) was also interviewed, an actor which did not exist in Germany. All actors involved in apprenticeships in both companies were interviewed in order to gain a broad and holistic perspective of how apprenticeships were delivered and experienced by all.

At PharmCo 12 interviews were carried out with apprentices, including nine science apprentices, one engineering apprentice and two business management apprentices as well as four interviews with the apprentices’ line-managers and one interview with the former head of the apprenticeships who had recently left PharmCo less than one month before the research visit. Three interviews were carried out with the training providers, including the local college and two universities. Two interviews were carried out with the SSC, named here as ScienceSkills, and its associated ATA; this included the manager who managed the actual apprentices and one policy-related senior manager of SSC. Finally, the union representative who also sat on the board of members of ScienceSkills was also interviewed. Observations of the workplace, which included shadowing of the lead apprentice accompanied the interviews.

At ChemCo interviews with 13 apprentices, two training instructors, a training manager (who oversaw the dedicated apprenticeship training centre), the Head of apprenticeships for the south of Germany and the works council representative were conducted at the site. Two vocational teachers from the nearby vocational school and two union

representatives from the chemical union, one who oversaw the youth union association and the other an expert in VET, were also conducted. Apprentices in the chemical laboratory assistant, chemical technician and electronic engineering categories were interviewed. This was combined with shadowing the head of apprenticeships and apprentices onsite as well as general observations of the company's dedicated training centre for apprenticeships, where I was primarily based.

On reflection, I felt like my role as a researcher in terms of negotiating access changed over time. Initially I organised access through adopting the role of a "consultant"; creating a sense of professionalism and knowledge to gatekeepers to create a sense of credibility and mutual trust (Bryman and Bell, 2007). However, during the site visit my role changed and I became a personable "apprentice", mirroring the novelty of the situation and creating an unthreatening presence; I made myself helpful to staff and was eager to learn about my new surroundings (Bryman and Bell, 2007). During actual interviews, I became more of a "confidante", listening attentively to respondents and allowing them to voice their views (Bryman and Bell, 2007). Norris (1993) notes how researchers often move across several different roles in the research process. Indeed, Norris describes how he would often move between different roles of "spy", "member" and "voyeur" despite his main role being that of the "fan" during his ethnography within the police. He would become a "voyeur" when he eavesdropped on conversations, a "spy" when he pardoned himself to write down field notes secretly and a "member" when the police drafted him for work tasks (Norris, 1993). I, too, moved roles mainly between "voyeur" where I often overheard conversations and interactions within the sites' offices and also a "member" particularly when I interacted with apprentices on breaks and gained an insight into office gossip and upcoming controversies. For example, at ChemCo it was at lunch breaks I discovered the upcoming restructuring of the company and the large-scale staff redundancies, a matter which had not specifically arisen in the interviews before.

4.3.4 Data collection, ethics and data analysis

Influenced by the insights from my literature review and my conceptual framework interview guides were produced (Kvale, 1996) with one designed for apprentices and the other for managers and other actors involved in the organisation of apprenticeships (see Appendix C). Over time, I updated my interview guide to reflect new insights and issues I had not considered before that were arising from the field. The interview was typically conducted one-to-one and face-to-face in a private office. However, some interviews were undertaken over the phone or over skype. This typically happened after my formal visit to each of the companies, where snowball sampling (Easterby-Smith et al., 1991) during the site visit led me to further contacts, which I could not fit into my immediate schedule at the time.

The interviews were also carried out in the language of the setting so in the case of ChemCo I conducted the interviews in German. This was challenging for me at times. Although I am bilingual, I did not always feel confident speaking German and felt that I sometimes lost meanings, words and sayings in translation (Hoffman, 1997). One of the managers at ChemCo spoke English so we actually conducted this particular interview in English. The interview was shorter and more stilted and tentative in nature and I soon realised that it was favourable for the respondents to really actually express themselves in their mother tongue. Sometimes I forgot specific words or grammatical syntax but respondents in fact responded better to these shortcomings. In reaction to this, respondents took their time to explain their opinions and views and interviews were longer in length, leading to rich insights and nuances. Indeed, respondents warmed to the fact that I had made an effort to converse with them in German, often joking that this was a rarity for English-speakers. In essence, my non-perfect German also seemed to come across as less threatening; instead of the respondent feeling vulnerable to being questioned by me I instead became the vulnerable one, exposing my imperfect expressions. The power balance between interviewer and respondent both switched and become more neutralised, with the respondents adopting a more dominant role while also becoming more relaxed in divulging and expressing their views.

It was important for me to also consider the ethical boundaries of the data gathering stage. Places of research are often riddled with conflict and contradiction, and as such research participants rarely liked to be objectified and studied under scrutiny (Burawoy, 1998). This can make research interventions, particularly in entering and departing the field, particularly challenging (Burawoy, 1998). It is therefore important to treat the research site and the research respondents with sensitivity, tact and respect. As such I emailed an information sheet, which provided information about the research itself and what to expect from the research process, as well as an informed consent form, to all respondents at least one week before the interview (see Appendix E). Respondents were also invited to ask any questions or express any reservations about the interview process in advance either via email or phone. At the start of all interviews, the purpose of the interview, the nature of the research and the confidentiality and anonymity of the interview process was described. Indeed, regarding anonymity, complete confidentiality was confirmed, with the names of respondents and the names of the companies anonymised within the analysis and publication of results. The consent form was signed before the interview commenced and this provided the basis for confirming that the respondents had considered all of the information and had overall agreed to take part. I emphasised that participation was entirely voluntary, that the interview could be stopped at any time and that equally the respondent had the right to withdraw from the process. I also explained to the respondents that it was entirely acceptable to not answer all the

questions should they not want to. Finally, respondents were asked if they were happy for me to record the interview. After the interview had finished, I thanked the respondents for their time and encouraged them to ask any further questions about the research. Data was stored anonymously and securely on an encrypted hard drive and later backed up on the secure university network.

Throughout the process I recorded a field diary, typically at the end of the day or after interviews if there was time. I tried to record thick and vivid descriptions of any observations, new insights and reflections on the interview process to inform future practice. I also took photographs of the offices and training environments but only at ChemCo where this was consented to. My field diary also informed my data analysis. I tried to transcribe the interview recordings as soon as possible after the interview to keep my immediate thoughts and impressions lucid and alive. The German interviews, however, were transcribed and translated by a translator. Translation of the interviews allowed me to adequately compare the two cases and the translator ensured that the data was as reliably and authentically translated as possible.

Soon after I read through the interview transcripts and noted down any further thoughts and ideas, immersing myself back into the data. From here I coded the interviews thematically (Bryman and Bell, 2007) using NVivo; NVivo helped me to organise my large dataset of interviews into a much more manageable structure. I initially identified first-level codes (Saldana, 2013) of specific words, phrases or chunks of text, which emerged from the transcript. From here, higher-level second-order thematic codes (Saldana, 2013) were identified, creating relationships between- and categorisations of- the first-level codes. I coded the PharmCo and ChemCo cases separately to ensure their unique and contrasting features were retained and not reduced to simplifications (Locke and Thelen, 1995). I also wrote up the cases separately and followed the socio-cultural-political economy conceptual framework to structure and thematise the results chapters. From here, I started analysing the differences and similarities between the two cases as I finally started to compare the two cases, writing them in a holistic and comparative nature.

4.3.5 Concluding comments

This section provided a personal reflection of how I navigated the research process. It built on the study's focus on the employment relationship (Edwards, 1995) as a lens to study apprenticeships, its critical realist underpinnings informed by Archer's (1995) analytical dualism and its research strategy and methods, influenced by Mills' (1959) sociological imagination and Burawoy's extended case method (1998; 2009). I followed a strategy of researching apprenticeships in a "best practice" scenario, which allowed me to probe whether apprenticeship quality was really determined by how high-skill or

low-skill an industry was (Finegold and Soskice, 1988). As I have argued, researching apprenticeships in the high-skill engineering sector provided me with this opportunity. Through scoping interviews with key apprenticeship policymakers in England and Germany, I selected cases based on their sector, company size, apprenticeship occupations/standards offered and potential access to key institutional actors involved in the organisation of apprenticeships in the companies. Following on from the case selection, I negotiated access with key gatekeepers initially through a purposive approach, which led me then to adopt snowball sampling (Easterby-Smith et al., 1991) as I entered and then extended-out in the field (Burawoy, 1998; 2009). This led to the collection of 45 interviews at PharmCo in England and ChemCo in Germany. Access at these two sites was ongoing and therefore my role as a researcher changed over time, which led me to experience different ethical challenges. These reflections were recorded in a field diary and contributed to the thematic analysis adopted to analyse the qualitative data. These findings are now presented in the following chapters.

5 Introducing PharmCo and ChemCo within their institutional contexts

This chapter focuses on the institutional environment of PharmCo and ChemCo, providing the context and foundation to answer the study's overarching research question:

How is apprenticeship organisation within the workplace changing in response to institutional and policy-led changes in England and Germany?

PharmCo in England and ChemCo in Germany provide the basis and lens for exploring the effects of changes within the macro environment on apprenticeship organisation at the micro level in both countries. Both companies are large multi-national chemical companies. PharmCo had a focus on pharmaceuticals and chemicals and manufactured and produced consumer health and prescription medicines for a range of different illnesses and therapeutic areas. The company has approximately 2,500 UK-based employees and 100,000 employees worldwide. The visited site was PharmCo's main research and development (R&D) facility in the UK, based in South East England, on a large research site, named here as Science Park. PharmCo had only set up R&D and manufacturing operations at their site in the early 1950s. Now the site has 700 employees and 40 apprentices as well as over 30 sponsored PhD programmes and 60 undergraduate "sandwich" placements. The site was based in a small town, which was known for its strong affiliation to PharmCo and where many of its workers lived in nearby towns and villages. PharmCo was the biggest employer in the area, with no other chemicals industries nearby, so employees established their lives around PharmCo. However, in the mid-2000s its manufacturing operations were closed down, which caused a dip in skilled labour and access to a pool of highly skilled technicians. PharmCo increasingly found they could not find the right type of skills within the labour market, which led them to develop an established apprenticeship programme.

ChemCo develops and manufactures over 4,000 different chemical products. This includes adhesives and sealants, biogas, coatings and additives, pharmaceutical products, composite materials, plastics, health and nutrition chemicals, consumer speciality chemicals, inorganic materials, and performance polymers. ChemCo has strong roots dating back to the beginnings of industrialisation in Germany in the nineteenth century. It originally started business operations in the area of precious metals but soon refocused interests towards speciality chemicals. ChemCo's headquarters are based in North Rhine-Westphalia but the company has several sites across Germany, as well as sites in 100 other countries, employing in total approximately 33,000 employees worldwide. The company had approximately 2000 apprentices, in 34

different apprentice occupations, at 16 different German sites. ChemCo's visited site was in the Frankfurt Rhine-Main area where the majority of staff lived in a small city or in villages nearby, much like PharmCo. The specific site visited dates back to the early 1900s and now has approximately 1500 employees and approximately 120 apprentices.

Now that the two companies have been introduced, this chapter will explore the institutional environments of both companies in more depth. Interviews with respondents from PharmCo are marked with (P) while respondents from ChemCo are indicated by (C). A table outlining respondents in both cases is in Appendix B. The changing training and skills strategies adopted will be initially explored, to provide context as to how and why apprenticeships were adopted and evolved as a central strategy by both firms over time. From here the institutional set-ups of each country's educational provision is discussed, highlighting the different actors involved and how VET is structured and how this has changed over time. A detailed description of both cases' educational contexts is then discussed, including the apprenticeship structure as well as development, assessment and recruitment processes. Finally, a detailed discussion, exploring how these changes can be understood with reference to the extant literature is outlined, pointing to some initial insights and arguments.

5.1 Training and skill strategies under pressure and change

5.1.1 Introduction

The socio-historical, institutional and industrial origins of the apprenticeship programmes at PharmCo and ChemCo reflect their different approaches to national education and training (Bosch and Charest, 2010). The types of training and skill strategies employed provided an indicator of what type of skill needs the companies required for the future and what impact this had on the apprentices' own outcomes. The introduction of degree apprenticeships in both countries posed the question as to whether more high-level skills were required in the sector. This could be to meet the demands of digitalisation or to match the complexity of knowledge required within the science sector, which was often traditionally academic in its staff profile. Indeed, the impact of VET training strategies, also undoubtedly had effects on other staff career development routes, namely graduates, PhD students and management. This in turn, led to the development of other training and skills strategies, such as career development routes as well as lower-level vocational paths, which are also duly explored in this section.

5.1.2 Responding to increasing demand for apprenticeships and skills

In PharmCo skills gaps have been exacerbated by the number of large-scale acquisitions the company has made between 2000 and 2010, leading to a reduction in staff and a

general lack of skills, knowledge and expertise. This mirrored the general trend in the pharmaceutical industry which experienced a 300,000 reduction in headcount between 2000 and 2010 (ABPI, 2015). In the early 2010s, 2000 jobs became at risk due to changing businesses interests, global competition, as well as major product lines coming off their patents with ultimately 800-900 jobs retained. Consequently, Science Park was sold off and now houses a number of SME's and businesses in the life sciences industries. Employees highlighted how company culture completely changed following the job cuts; some staff were later re-employed on a contractor basis, but morale was dramatically reduced. They also described their workplace as a ghost town.

PharmCo faced a key issue of having a largely ageing workforce, who were close to retirement. There was a deepening decline of technicians in the UK at levels three to five, with 50,000 technicians retiring every year and more than 700,000 more needed in the next decade (Gatsby, 2014). However, training for technicians at PharmCo had been somewhat fragmented and unstandardized through their informal technician programme which existed until 2014. The technicians would gain a Laboratory and Associated Technical Activities (LATA) NQV qualification through the local college, which was considered 'woefully inadequate' (Former head of apprenticeships-P). PharmCo also has a small but well-established engineering apprenticeship programme, which has been running for 20 years and typically recruited two apprentices per year. There was little communication between the engineering and chemicals divisions, with the engineering division described as being territorial over their own apprentices.

These factors prompted the development of an apprenticeship programme based in the chemical sciences, with apprentices undertaking a Business and Technology Education Council (BTEC) qualification at the local college. In 2013 the government's Trailblazer initiative, with its employer-led focus, became a key motivator for PharmCo to further expand its apprenticeship programme. PharmCo joined one of the first trailblazer groups in October 2013 in the life sciences and industrial sciences sector. The standards were created through a collaboration of different industry partners as well as academia, training providers and a mixture of small and large laboratories. These networks were also formalised in 2014 through the Government's competitive funding 'Employer Ownership of Skills Pilot' (DfBEIS, 2014) and, through this, became an official cross-collaborative employer-led partnership, known here as the 'Science Sector Skills Network' (SSSN).

Although the introduction of the apprenticeship levy in April 2017 was marketed as a key opportunity for employers to increase their apprenticeship intakes, PharmCo, as a levy-payer, found it a challenge to convince the company's US headquarters to buy into the concept of the levy:

“The levy was over £1 million. To be able to spend that much money, you need a significant amount of infrastructure in place to support the numbers of apprentices that are actually coming through.” Former head of apprenticeships-P

Managers highlighted that using the whole levy pot on new recruits might have destabilised the business. Equally, the challenge of being an international company had repercussions on apprenticeship delivery, administration and operations; payrolls were often held and managed abroad, which made it difficult to set up apprenticeship accounts with HMRC and the Educational and Skills Funding Agency (ESFA). Managers described how they found the levy process confusing and did not know how to access the Digital Apprenticeship Service (DAS) system. HR was not involved in the apprenticeship programme and the head of apprenticeships had recently left the company. Overall, this lack of infrastructure, coupled with PharmCo's MNE status, hindered meaningful uptake of the levy, which meant that it was regarded as a tax.

In line with the American influence over the site, employment was strictly operated on a stringent headcount-led philosophy, with many staff employed as contractors so that they were not included in the official headcount. This meant that recruiting apprentices or indeed extra HR staff to support the programme would have meant extra staff on the company's headcount. Therefore, the apprentices' employment was outsourced to ScienceSkills, an SSC, which had its own ATA that oversaw all of the HR services associated with the apprenticeship. Despite being a much smaller organisation, ScienceSkills was also a levy-payer, partly due to the fact that they had many apprentices employed on their payroll. ATAs were a relatively new phenomenon with 114 government-registered ATAs to date (ESFA, 2020). Launched in 2012, by the National Apprenticeship Service, they sourced, managed and hosted apprentices on behalf of employers. ScienceSkills noted that many companies had turned to them to swiftly take on apprentices and bypass the need to research the bureaucratic complexities and uncertainties of apprenticeship policy. ATAs also filled a gap in the market to MNEs, like PharmCo, which had no structure for apprenticeships in their global plans and also for SMEs with no HR department nor expertise to roll out apprenticeships.

PharmCo paid the ATA a monthly fee for their services as well as the cost of the apprentices' wages. Using an ATA therefore facilitated PharmCo to meet their skills needs, whilst maintaining their strict headcount-based employment philosophy. However, as a result of not being the apprentices' formal employer, PharmCo could not use their own levy funds. But this was not unusual in the life sciences sector; although 67 per cent of science employers paid the levy, only 48 per cent of all apprenticeships were actually funded by the levy, according to the SSSN's 2018 apprenticeship survey

(SiP, 2018: 23). A way of sidestepping the loss of levy funds was for PharmCo to co-invest and transfer 25% of their levy funds to ScienceSkills or an SME in their supply chain, which was planned from April 2018 onwards. However, despite the well-meaning intentions of the levy, PharmCo did not respond meaningfully towards it; they did not use levy funds to fund their own apprenticeships, despite their clear need for skilled labour and apprentices.

Unlike PharmCo, ChemCo had a strong historical tradition of offering apprenticeships dating back to more than 100 years. The company was known for its solid emphasis on education and training in a long-standing tradition of co-determination, which derived back from the company's former mining culture. ChemCo viewed apprenticeships as a social and educational obligation to train the next generation of young people. However, ChemCo also needed to train in order to stay competitive to meet the demands of its international growth and to adapt to technological change. Recruiting unskilled workers was not a viable option, due to the company's high-level production, development of quality products and strict health and safety regulations. For ChemCo an apprenticeship integrated the apprentice into the social norms and expectations of the company which provided them loyalty, return-on-investment and productivity. ChemCo had calculated that apprentices in their first year were 20 per cent profitable, 40 per cent in their second year, 60 per cent in their third year and 80 per cent in the last half year of their apprenticeship. The solid practice-orientated quality training was expensive at approximately 120,000 euros per apprentice but guaranteed the company full productivity after training.

The apprenticeship quota, the percentage of apprentices in relation to all employees, for the chemical sector, set by the union through a collective agreement, was 6.5 per cent, which ChemCo surpassed at 7.7 per cent. The set quota ensured that companies adopted a long-term approach to skill development, particularly in response to the pressures imposed by demographic change. ChemCo regularly surpassed the quota and had also traditionally over-trained the number of recruited apprentices. However, in 2015 a demand-orientated strategy to apprentice recruitment was introduced. This was negotiated by the union, which had bargained for a permanent take-on guarantee to end the practice of apprentices entering short-term contracts after their apprenticeship. The quota would be calculated by collating each departments' yearly forecast on the amount of apprenticeships needed. However, with the new demand-orientated model, the training centre would often not use its full capacity. ChemCo would typically cooperate with smaller businesses who would pay for ChemCo to provide training for two to four external apprentices per year. Small business often lacked the infrastructure, equipment and exposure to different learning environments to adequately train their own apprentices to a broad standard.

The apprenticeship quota also fluctuated depending on people leaving the company, often due to retirement or restructuring, which had become more commonplace. It was also announced that one of the company's plants was being sold off; this was set within the shadow of a more tightly regulated financial approach from a senior management. Many employees had worked for the company for several decades. They described experiencing the transition of the company from its small beginnings to a globally competitive undertaking:

"Back then it was a small company and you could already see that this culture has changed a lot. We grew bigger and bigger, then at some point we were taken over by another company and so on....The workshops are also more externally controlled, which used to be completely different. And today we also work across different sites...some of the site's superiors are based in a completely different sites. For some other departments, the supervisor sits somewhere in the USA." Technical Instructor-C

Despite this uncertainty, demand and competition for high-quality apprentices was growing within the context of demographic change and "academisation". Fewer people were applying for apprenticeships. Competition from neighbouring reputable and large firms made finding the right apprentices in certain areas more difficult. Although the high-quality training and good pay and conditions of the chemical sector was attractive amongst young people, the signs of demographic change and "academisation" were starting to show in less attractive occupations:

"Nowadays you don't get those positions filled quickly anymore. You get them filled. But they stretch themselves by now and you must also take applicants who would not have prevailed earlier." Union Representative 1-C

Demand for chemical technicians was particularly high due to the occupation's demanding working hours despite its high-pay bonuses:

"We can't get many of them from the market...you have to work in shifts. No friends, no peer group, because you're working from 6am to 2pm or from 2pm to 10pm or from 10pm to 6am." Head of Apprenticeships-C

Conversely, chemical laboratory assistant apprenticeship vacancies were particularly popular amongst applicants, with typically 250 applicants for twelve apprenticeship places.

ChemCo also adopted inclusive tracks to enter into the apprenticeship programme for refugees, the unemployed or those not in education as a central future-orientated strategy to attract talent. The six-month "Start in den Beruf" ("Start your career") programmes were designed to promote workplace integration and skills development,

potentially leading to entry on the apprenticeship programme. For refugees it was also a key aim was to access German language training. The programme was designed by the social partners, and in partnership with the local Bildungswerk educational agency and employment agencies. Trainees would attend vocational school and complete practical projects with dedicated instructors in different departments and receive 450 euros/month. The programme had high success rates, with the union reporting that 80 per cent would typically transition onto an apprenticeship programme afterwards. These programmes created alternative avenues for people to undertake an apprenticeship; this strategy helped to secure progression and fill apprenticeship places.

5.1.3 The race for higher-led skills?

At PharmCo it was not so much the case that certain areas were becoming more popular. Instead the company was pursuing a higher skills profile within its apprenticeship programme. Indeed, standards up to level seven soon started to flourish, particularly with the introduction of higher and degree apprenticeships in 2006 and 2015, respectively. Despite the decrease of apprenticeship starts by 30 per cent between August and October 2017, following the introduction of the levy, the number of higher apprenticeships increased, accounting for 10 per cent of all starts (Foley, 2020). In 2017/18 advanced apprenticeship starts increased to 44 per cent, an increase of four per cent from the following year, with higher apprenticeships increasing by six per cent to 13 per cent (Foley, 2020: 3). Conversely, apprenticeship starts at intermediate level decreased from 53 per cent in 2016/17 to 43 per cent in 2017/18 (Foley, 2020: 3). Hence, the uptake of advanced and higher apprenticeships at PharmCo was broadly reflective of national trends. Indeed, developing apprenticeships in the life sciences sector had historically been a challenge for employers. Degree apprenticeships were viewed as a route for science companies to develop their own staff to the standard and level they were really seeking:

“I think the catalyst probably was the development of higher apprenticeships....that was a way in for a lot of sort of pharma-based science companies being able to grow their own scientists.” Training provider 2-P

Apprenticeships were viewed as an attractive prospect for science companies that struggled to find the right kind of skills within the graduate labour market. Graduates typically had strong academic and theoretical knowledge but lacked practical and on-the-job skills and knowledge. Apprentices, on the other hand, were more mouldable; from day one they were taught what was expected of them and therefore did not need to be retrained. PharmCo drastically changed their VET offer with the introduction of Trailblazers, which prompted the introduction of degree apprenticeships. This move blurred the boundaries between apprenticeships, technicians, graduates and PhD

students. It was uncertain whether apprentices would take over the role of graduates and eventually PhD graduates, potentially leading to management-level positions, or whether they would remain at the technician-based level, a key skills gap for PharmCo and the industry in general. The impact of the apprenticeship programme on the graduate and PhD intakes was, of yet, unclear.

There was even speculation whether Masters and PhD apprenticeships at levels 7-8 could be a new development for the apprentices there. It was noted that this might include writing and publishing a scientific journal paper as part of the end-point-assessment criteria alongside a PhD-style viva examination. However, the apprenticeship programme held a strong academic ethos and philosophy; it was not deemed acceptable for apprentices to remain only at advanced level and therefore the apprenticeship was viewed as an initial platform to further progression within the company. This academic mentality was also embedded into the company culture, where many managers and scientists had acquired postgraduate qualifications. Degree apprenticeships had increased the brand awareness of apprenticeships for PharmCo but there was a concern that social mobility and diversity might be compromised due to the lack of science apprenticeships at levels two to four. It was noted that the IFATE Apprenticeships has been surprised by the influx of enquiries into Masters and Doctorate apprenticeship possibilities compared with the lack of interest in Level two to four apprenticeships. Indeed, PharmCo had steadily been decreasing the amount of advanced (level three) apprenticeships, opting to recruit more and more apprentices straight onto the degree apprenticeships. By recruiting graduates with good A-Level or BTEC grades, as well as those with some work experience, PharmCo could recruit apprentices who had the ambition to undertake a degree. There was a general trend towards higher-led skills through higher apprenticeship levels, which were not purely vocational but had an equal mix of vocational and academic education and training. However, the degree still held significant currency in the science labour market and was considered to be a ticket into the science industry:

“I think there’s very few people in a science sector who wouldn’t have degrees and are able to progress through the company structure without degrees. I think in science you’ve pretty much got to have one.” Training provider 1-P

There was also speculation as to whether the company should use the apprenticeship levy to invest in training for existing staff. Unlike the apprenticeship programme, which was managed through the ATA, workforce development apprenticeships could be funded through the apprenticeship levy. This was not currently a central strategy for PharmCo but was considered as an emerging opportunity for the company to utilise levy

funds and up-skill existing staff. However, there were managerial tensions as to whether the company could really afford for existing staff to take 20 per cent off their everyday work schedules for training. However, it was viewed as a less risky and more cost-effective choice for employers because they were developing their own staff rather than recruiting someone entirely new. So far, some existing staff were already undergoing apprenticeships. Leadership and management professional qualifications such as MBAs or accountancy qualifications, in addition to MA and PhD programmes, were noted as being potentially advantageous for developing existing staff and addressing key skill gaps. The training providers highlighted that the flexibility of a training, rather than an apprenticeship levy, was viewed as an attractive alternative for PharmCo and other client companies. Overall, the levy could potentially provide a buffer for PharmCo to train existing staff for a high-skill agenda, acting as a training, rather than an apprenticeship levy.

In contrast to PharmCo, there was a pressing need for traditional apprenticeships at ChemCo over high-skill dual-study apprenticeships. Although there was growing demand from young people interested in pursuing dual-study apprenticeships, there was limited demand of them from the different departments in the company. Only a few apprentices were typically recruited onto programmes in the engineering, natural sciences, IT and business occupations delivered at a local Duale Hochschule. Many apprentices explained they had unsuccessfully applied for the dual-study option but had instead been offered a place on a standard apprenticeship.

There was also an open question as to whether higher-led cognitive skills would be required to meet the demands of Industrie 4.0 in the German policy discourse through dual-study programmes. However, at ChemCo traditional dual apprenticeships with their focus on intermediate skills seemed to meet the company's transition of digitalisation more than dual-study programmes. At ChemCo, new plants were being built with enhanced technology and driverless transport systems, which increased labour productivity but required less workers. The company was also developing its use of big-data to inform production process and optimise efficiency. The classic assembly line approach, where traditional "Handwerk" based manual labour solved problems and actively produced products was being phased out. New equipment and facilities were a significant investment and, one that was a pre-requisite to financial and competitive success in the sector. ChemCo relied on training through the vessel of apprenticeships as a lever to optimise this new technology. Hence, although automation was eradicating certain job roles and responsibilities, apprenticeships were least affected and were seen as the forefront of integrating new technology into the workplace. Key occupations such as the chemical technician formed a core aspect of the traditional skills required at ChemCo with the rise of digitalisation. The occupation had recently been slightly altered

with the inclusion of an automation and digitalisation elective module. Overall, occupations and training strategies therefore remained constant at ChemCo. Despite this, managers highlighted that the expectations for apprentices were increasing in complexity, with increasing demand to operate complicated interlinked systems and production processes. Diversified quality production, with a newly focused emphasis on IT and programming over manual skills, was though still an enduring training strategy within the workplace:

“More and more automation is taking place, so that the production employee, who is then almost exclusively sitting at the computer, controls his system via the computer. Then he might go through the plant from time to time and have to take a sample for analysis. But it's getting more and more difficult - for the employee himself. He has to be incredibly versatile, too. He has to be able to measure, control and regulate everything.” Training Manager-C

A traditional apprenticeship provided the broad and practice-orientated curriculum, solid integration into the workplace and platform for more advanced training that the company needed. A Bachelor's degree did not carry significant currency within the internal labour market at ChemCo. This contrasted to PharmCo, where a much more academic-orientated strategy was adopted. It was therefore difficult for ChemCo to source suitable jobs for dual-study apprentices afterwards; jobs in the company did not particularly match their Bachelor's level of training. Equally, at ChemCo many managers had been educated under the Diplom qualification system before the Bachelor degree was introduced and therefore viewed a Bachelor as inferior. Additionally, typically those from an academic background required at least a Masters level education. Unlike PharmCo, there were no established routes to pursuing a Master level education whilst working at the company. Managers therefore preferred hiring Master students or upskilling existing apprentices to Techniker or Meister level than recruiting dual-study apprentices. Dual-study programmes were also expensive to run, with private tuition fees, company-funded semesters abroad and increased salary expectations, particularly after the training period. Departments and managers therefore adopted a “grow your own” recruitment and training approach.

The programme was also considered to be highly intellectually demanding and extremely time-intensive, which ran the risk of reducing the quality of training and also over-working the apprentice. Typically, a dual-studies apprentice would consecutively spend three months studying, followed by three months within the workplace working on practical projects individually and within a team. The union noted that some of the dual-study apprentices were not entirely satisfied with the training experience but were reluctant to join the union due to their aspirations for management-level jobs. Dual-study

programmes were not enshrined under the same principles of social partnership and was not collectively negotiated leading to differences in breadth and quality across programmes. Dual-studies programmes were accredited by unregulated committees at ministry level with the union, chambers of commerce, employers and universities involved. However, the lack of social partnership meant that dual-studies apprentices were not entitled to the same collective agreements, working time regulations, holiday allowances and pay tariffs. The union noted that companies often placed these apprentices on internship-style employment contracts to squeeze in all of the demands of the training. Hence, dual-study programmes left the VET system open to managerial discretion and a lack of transparency in terms of pay and working conditions, as apprentices were not protected by collective agreements. Overall, ChemCo did not strategically pursue dual-study programmes; this indicates the sector's increased Union influence against the proliferation of such programmes.

This approach was mirrored in the very limited uptake of two-year apprenticeship programmes at ChemCo, which were also actively opposed by unions. ChemCo viewed two-year apprenticeships requiring less training as a viable approach to accommodate job roles in some fringe occupations, which required less training. Apprentices on the standard dual apprenticeship could be downgraded to the easier, simpler and less robust two-year apprenticeship if they consistently did not meet targets and grades or responded well to practical work. Two-year apprenticeship programmes, were, however, regulated under the collective bargaining agreement, but were paid substantially less than the dual apprentices; in ChemCo's 13 level pay system, two-year apprentices were at level four whilst dual apprentices were at level six or seven. Two-year apprenticeships were less attractive to prospective employers and additionally restricted access to further training opportunities and promotions. In line with the move to digitalisation, where traditional dual apprenticeships were central to achieving success, two-year low-skill apprenticeships were therefore not prioritised much like the so-called high-skill dual-study programmes.

5.1.4 Concluding comments

Overall, approaches to education and training at PharmCo and ChemCo differed. The structure and development of the apprenticeship programme at PharmCo reflected the rapid change happening within the English policy context of the Trailblazers initiative and the apprenticeship levy. The company did not have the basis of an already established training or apprenticeship programme to support new policy developments and therefore the programme was still evolving. As a means to quickly responding to rapid policy changes, PharmCo instigated the use of an ATA to overcome the bureaucracy associated with the levy and the company's stringent headcount-based employment

policy. This contrasted to ChemCo's historically established and stable apprenticeship programme. Apprenticeships were entrenched in a supportive institutional network of both the works council and the chemical union, which had accumulated increased negotiating influence through the rise of demographic change as well as the increased need for skilled labour in the chemical sector. ChemCo's institutional network also led to the development of a number of programmes, aimed at the unemployed, unskilled or the migrant population. Yet, much like PharmCo, financial uncertainty through the announcement of job cuts had cast uncertainty over the future of parts of the apprenticeship programme.

PharmCo had adopted a high-level academically orientated strategy to apprenticeship training, which contrasted to ChemCo's vocationally- and intermediate skill-level led approach. PharmCo pioneered the use of degree apprenticeships, a new development for the company and for the English apprenticeship system in general. The move to degree apprenticeships, clashed with the traditional image of apprenticeships in the sector, which were typically orientated towards technician-level jobs. Now an apprenticeship was viewed as a stepping-stone to future progression to even a Master or PhD level apprenticeship. This, in turn, had potential to impact graduate and PhD recruitment although a formal training strategy had not been announced, which created uncertainty. PharmCo was also considering the use of career development apprenticeships, aimed at existing staff, to capitalise of their levy pot and to reskill and retrain their workforce. As a result of the colourful policy context of Trailblazers, the apprenticeship levy and the introduction of degree apprenticeships, there was a significant amount of change at PharmCo in terms of their training strategy. This contrasted to ChemCo, where their approach to apprenticeship training remained consistent and stable. Overall, take-up of both dual-study programmes and two-year apprenticeships at ChemCo was minimal, which was due to two central reasons. Firstly, there was no substantial business demand for both routes and equally no jobs post-training to match these apprentices' skill levels. Secondly, due to demographic change and the consistent demand for skilled labour in the chemical sector, unions had substantial influence and bargaining power to mitigate the risks of both dual-studies programmes and two-year apprenticeships. The former was not based on the principles of social partnership, which led to employer discretion on training, pay and benefits. The latter had limited job and pay progression opportunities and therefore put the apprentices at risk in times of business uncertainty. Diversified quality production and the demand for intermediate skills therefore remained as the key underlying rationale of ChemCo's training strategy.

5.2 The educational modernisation of apprenticeships

5.2.1 Introduction

The educational provision of apprenticeships in England and Germany was underpinned by different institutional set-ups. The education of apprentices was delivered outside the workplace and therefore different actors were involved in delivering this aspect of the apprenticeship. This institutional context shaped and influenced the way the modernisation process and policy change was affecting the educational component of apprenticeships and how this translated into the workplace. With this, some social actors and institutions become less prominent, new actors and institutions were emerging and others remained stable and rigid. This impacted the apprentices' experience of education in different ways. ChemCo and PharmCo also created different strategies to try and exercise agency over the educational provision of their apprentices.

5.2.2 Institutional erosion versus institutional rigidity

PharmCo wholly embraced the Trailblazer reforms as an opportunity to shape and influence the skills they needed as a firm. However, PharmCo complained about their lack of autonomy in the process. They did not feel like they were really in the driving seat of the apprenticeship delivery process and often had to overcome levels of bureaucracy from civil servants. Unions were also not allowed to be on the board of IATE, leading to an 'employer-led by exclusion' (Union representative-P) approach to the educational provision of apprenticeships. PharmCo noted that IFATE did not initially have the industry expertise to facilitate meaningful advice and delivery of standards. This had recently changed with the inclusion of industry experts on the approval panels. Hence, IFATE was 'less of a regulator' and more of an 'enabler' (Former head of apprenticeships-P) in driving through the system's employer-led methodology. Training providers and PharmCo felt that standards were too ambiguous, lacked standardisation and were open to interpretation. Equally, the entire delivery process was described as being uncertain, slow and unclear with no clear guidance from government and with standards typically taking between 18 to 24 months to be approved. The process was entirely reliant on the employers' own initiative to join, with employers needing to schedule time off work, which meant SMEs were less likely to participate. There was also a lack of standardisation in the Trailblazer groups, with no formal overarching structure that ensured that the interests of the industry were equally represented. Therefore, it was challenging to condense an entire standard in a way that encapsulated the demands of the industry. Indeed, standards were designed to be ambiguous enough so that employers could tailor them to their own needs. Although apprentices in different companies were completing the same standard, their competency and skills levels could

be entirely different in practice. Trailblazers therefore provided leeway for employers to adapt competencies within standards to meet their own demands.

This contrasted to the previous system where SSCs played the role of ‘the guardian, the librarian of the framework’ (Training provider 2-P) and could take a more objective and holistic role in overseeing frameworks (named standards now). SSCs now played a much less formal role in overseeing apprenticeship standards and could not sit on Trailblazer groups. In 2011 SSCs’ steady stream of government funding through UKCES was withdrawn, which led to a bid-based grant funding system. Within this, UKCES, was also closed down in 2017, a reflection of the system’s move to a more market-led structure. SSCs like ScienceSkills adapted by adopting different commercialisation strategies. Through this, ScienceSkills developed their own ATA, where they had 250 registered apprentices, as well as their own end-point-assessment organisation, Science End-Point-Assessment Company (SEPAC). ScienceSkills bridged a gap within the market within the context of growing confusion amongst employers towards the changing nature of apprenticeship policy. The industry expertise of ScienceSkills meant that they could provide relevant up-to-date advice whilst also facilitating employer-led networks such as the SSSN to coordinate the Trailblazers process. Therefore, they became a more invisible actor through the progression of the Trailblazer reforms, coordinating employers and working behind the scenes to meet employer-led and market demands.

Before Trailblazers, training providers also played a greater role in ensuring the standardisation of frameworks (or standards now); assessment would have been internally verified by the providers, externally verified by an exam board and a sample would be taken to ensure parity between different apprentices and companies. With Trailblazers, this system was removed, making the standards vulnerable to different interpretations. Apprentices had no guarantee that their certificate would translate into the demands of a different company, which inhibited a smooth transition to the labour market. Now, PharmCo could assert whether the apprentice was ready to complete their assessments:

“The employer actually has control over the apprenticeship. They can say, ‘Yes, my apprentice is ready for their end point assessment’. It gives them that power back whereas before it was all just down to the college or training provider.” Training provider 3-P

Competency was therefore led by employers, who themselves determined the competency of apprentices and the competencies within apprenticeship standards. The new reforms also introduced EPAs, which contrasted to the continuous assessments of the previous system. This meant that apprentices had to rely on sufficient feedback and learning opportunities from their employer in order to pass the EPA. The continuous

assessment model, on the other hand, gave a clearer expectation and indicator as to how the apprentice was really performing. There was also no need to include a formal qualification onto an apprenticeship, which PharmCo and their Trailblazer group lobbied against. Hence, Trailblazers afforded employers more freedom to shape the skills and futures of the apprentices.

Unlike the changing policy context surrounding PharmCo, which saw institutional erosion of key institutions and a move to a more employer-led ownership of skills, ChemCo's institutional environment remained rigid and resistant to change. In particular, the quality, funding and social standing of vocational schools had been an enduring concern for some time. Apprentices at ChemCo reported a large drop in the provision and quality of their education in comparison to their previous experiences of school. Apprentices attended a vocational school in walking distance from the site, which had approximately 2000 students, with 400 students in the chemistry department. Alongside the ChemCo apprentices, apprentices from other large employers as well as apprentices from SMEs attended. The local vocational school had become extremely run down with a lack of resources to renovate and re-invest in the infrastructure and facilities of the school:

"When it rains, it spills in. Recently we had an alarm because asbestos was dripping from the ventilation in one of the schools." Apprentice 11-C

On top of the poor facilities, apprentices also complained of lessons being cancelled due to teachers on long-term sick leave, a shortage of teachers and poor teaching. This often led apprentices having to teach themselves:

"Sometimes they only get sheets put down, there is no teacher, nobody explains it." Works Council Representative-C

Many of the apprentices highlighted that the teaching was not up to their expectations in terms of delivery, content and organisation of classes; only one or two teachers really surpassed the general poor teaching quality. The teaching experience was standardised and somewhat formulaic, with not much individual attention or meaningful interaction:

"We also had a teacher who simply projected the solutions onto the blackboard with the overhead projector and only let us copy them." Apprentice 13-C

This left the apprentices feeling unsure about their progress; they welcomed more individual feedback and opportunities to ask questions to really develop. The school curriculum was theory-driven, with little laboratory demonstrations. Apprentices felt that there was a general lack of experts teaching them and questioned the teachers' knowledge in the subject area. Managers, apprentices and unions argued that teachers should have a greater understanding of industry and practice to improve their teaching.

However, teachers viewed their role as educators, not as industry professionals. Vocational teaching was viewed as a semi-professional field and was not overly respected. This contributed to low social standing of the schools. Apprentices described the vocational school as chaotic, with the general governance of the school lacking structure with a new headmaster recently appointed. The local ministry did not adopt an interventionist approach in such situations, with only the minimum number of teachers hired. Overall, there was a lack of accountability and mismatch in responsibility between local actors about the lack of quality provision in vocational schools:

“If you go to the Ministry of Education here and tell them the school is not very good, they are in a desolate state, that's not their problem they say. ‘We are only responsible for the teachers. And the city is responsible for the schools.’” Head of Apprenticeships-C

All vocational schools received the same budget but overall the funding system was slow and bureaucratic. The state system of the vocational school was much slower than the privatised and financially rich industrial sector. Indeed, vocational schools did not have the same level of investment to meet the modernisation developments of industry. This was exemplified in ChemCo's recent distribution of iPads to its apprentice cohorts, to encourage learning through learning apps and video-based instruction. Apprentices could download teaching information, examination preparation, training instructions, English language learning courses, as well as information stored on QR codes around the different chemical plants. However, digital learning also did not translate into the environment of the vocational school, which had no internet access. Teachers also viewed the iPads as distractions from teaching with apprentices often just playing games instead of working. Vocational schools therefore did not have the infrastructure to facilitate innovative or digital means of education. Vocational teachers highlighted how funding was often purpose bound with funds being pre-determined as to where it would be spent. This provided stability and fairness in funding allocation, but it also hindered meaningful modernisation to digitalisation processes. It also meant schools were dependent on the state and had no agency to use their expertise to improve meaningful investment. Vocational schools were not a social actor of the system and therefore felt somewhat powerless and often not respected by employers. Institutional rigidity in the rules and regulations of the running of vocational schools impeded the vocational schools from taking any action themselves to negotiate and improve a better future of educational provision. Equally, the governance of the schools was outside the general social partnership model of the apprenticeship system, being governed by the individual federal states in Germany, which supplied the teachers and paid their salary.

5.2.3 Towards the marketization of apprenticeships?

Unlike the institutional rigidity of Germany, new emerging training providers in the HE sector were becoming more prominent in the English apprenticeship system, creating a sense of institutional flexibility. Degree apprenticeships were increasingly becoming ‘a valuable commodity in the marketplace’ (Training provider 2-P), particularly in the socio-cultural currency of the pharmaceutical sector. Universities therefore started competing within the dynamics of the market of the apprenticeship system by quickly re-designing courses to secure contracts with employers. Like SSCs, universities catered to the employer-led ethos of apprenticeship reforms by adapting courses to fit the needs of employers. However, in line with this, the voice and role of colleges were becoming increasingly squeezed out. Notably, the college only received very minimal government support in comparison to universities. PharmCo felt that colleges were outdated, adverse to change, out of touch with industry and not responding to employer needs. This matched the quality of vocational schools in Germany and their general lack of funding. Equally, many of the college teachers had little experience in industry. Indeed, the local college felt even more distanced from PharmCo since the introduction of Trailblazers, as they were now left out of the apprentice recruitment process and performance reviews. The college highlighted the need for equal voice between the apprentice, employer and training provider:

“It needs to be a partnership...putting something together where you’ve got regular meetings between all three people in the partnership – the apprentice, the employer, supervisor and the training provider.” Training provider 1-P

In this sense, the notion of any kind of partnership between the different actors involved was deteriorating in line with the increasing employer-led philosophy of government strategy. In comparison to colleges, universities had access to governmental funding through HEFCE and had the resources to recruit new staff to oversee the development of degree apprenticeships to market their degree apprenticeships to employers. With academic degree programmes, the customers were potential students and their parents, but with degree apprenticeships, the employer was now the customer. HE institutions, particularly the non-redbrick universities, were strained by a national decline of students and the introduction of increased student fees; in 2017 there was a five per cent drop in UK-based applications to HE courses (UCAS, 2017). One training provider commented that their chemistry degree course would not have survived without apprenticeship enrolments, which now had six full-time students and 19 apprentice students. A maximum of 10 students would be needed to keep the course running. Universities therefore became part of the market-led ecosystem of skill exchange and development

in the apprenticeship system within the context of growing economic pressures. The levy also enabled the rise of degree apprenticeships for large employers who had the opportunity to pick and choose degree programmes. Previously, employers typically only had access to the nearest training provider or local college. Now universities could offer blended and hybrid distance learning programmes; distance learning apprenticeships were not allowed. This included e-learning modules, block practical sessions and onsite teaching by visiting lecturers at the workplace. The HE sector had limited knowledge of creating vocationally orientated programmes and realised after the levy that they quickly needed to adapt or create new programmes to meet employer demands. One of PharmCo's HE training providers had experience working with industry through their previous provision of part-time degree programmes for industry workers; creating a degree apprenticeship was therefore a more organic process. Universities were flexible and tailored their academic offer depending on the needs of the employer:

"If you design something that's crap and that doesn't fit the bill that they want, there's no point in doing it because they're your customer, so it's got to be what they want, really, and what they need." ATA representative 2-P

The implication of this set-up meant that different universities were offering different courses to different employers, creating a heterogeneity, rather than a standardisation, of learning experience for apprentices. This approach produced a customised experience that met the needs of the individual employer. Some apprentices criticised this blended approach stating they would have preferred to be taught in a traditional on-site academic environment where they could ask questions, have continuous support and be integrated into the academic environment.

Unlike PharmCo, which had power in shaping the educational content from training providers, ChemCo had less agency in changing the educational provision of German vocational schools. Larger companies tended to have more bargaining power over the education of their apprentices than SMEs:

"The vocational school here is already dominantly between two companies and we must try to please both of them." Vocational Teacher 2-C

Overall, ChemCo compensated for the poor quality of vocational schooling through providing in-house top-up classes. The in-house teaching was much more intensive, driven, dynamically paced and interactive and apprentices felt they could ask questions and be taken seriously. Apprentices were prepped well in advance of examinations and had the potential to gain high grades as they could revisit topics and repeat areas, they felt less confident in. Apprentices and managers would have preferred if all educational schooling could be completed in-house and there was a general bias against the vocational schools. Teachers generally felt unappreciated but viewed their role as

essential to delivering the more theoretical side of the apprenticeship. Teachers argued that, if education was only delivered through in-house lessons in companies, apprentices would receive overly specialised and narrow training. Hence, vocational schools were a central contributor to creating broader, diversified and standardised training experiences:

“The big companies don't see the vocational school as a partner, but as a necessary evil...I believe that if the companies were allowed to decide, they would immediately say - immediately - that the apprentices only go to the company...The companies want small, specialised people who can be exchanged. And we make the broadly diversified, well-positioned one that can be placed anywhere.” Vocational Teacher 1-C

This broader approach therefore enhanced apprentices' future career mobility and competition on the labour market and contrasted to the narrower educational content of PharmCo's apprentices. Top-up classes were not typically provided to apprentices in SMEs who were therefore disadvantaged and therefore vocational schools played a role in providing vocational education to all. They also supported apprentices who had poor quality company training. For example, some apprentices highlighted that they sometimes did not receive enough support within the workplace:

“We are now practising for the final examination and notice many of the topics are simply still missing...we have to acquire it ourselves, because the interaction between the company and the school is not good...the instructors do not provide us the knowledge through practical trainings, because they themselves are busy.” Apprentice 12-C

Having another actor accountable for learning and education was therefore essential. Many of the apprentices argued that there should be better coordination between the schools and the instructors and line-managers within the company, to improve the quality of the apprenticeship. Others called for a more regulatory approach to ensure better coordination through 'an intermediate body, someone who is neither a company nor a school.' (Apprentice 12-C). Unions also argued that there should be more formalised exchange systems or roundtables between schools and companies to promote better cooperation. Vocational teachers highlighted that contact with instructors at the company was patchy. There was no formalised meeting system between the two although some departments were far more communicative and approachable than others. It was difficult to create formalised communication between the two parties. Indeed, the chemical union argued that wholesale change at the macro level was really needed, which could include a new amendment to the Vocational Training Act. The recent coalition agreement from the government outlined the need for significant federal investment into vocational schools to improve the social standing and quality of vocational schools. This would

change the funding dynamic and institutional content of the German VET system to a federal level, which currently only has investment into schools at a regional level.

5.2.4 Concluding comments

In summary, the educational provision of the English system, in which PharmCo was embedded, was characterised by a sense of both institutional deterioration and institutional flexibility. In this, PharmCo could exercise agency in shaping the educational provision of apprenticeships through their relationships with training providers. Trailblazers provided flexibility and control for PharmCo to arrange the apprenticeship around their own requirements, which led to a lack of standardisation in education and training. SSCs and training providers played less of a prominent role in defining apprenticeship standards and provision through the introduction of Trailblazers. To counteract this, SSCs had to adapt and reorganise themselves through adopting different commercialisation strategies in order to survive within the employer-led ethos of the apprenticeship system. Universities played a growing role in the educational provision of apprenticeships through degree apprenticeships. Conversely, colleges, with their lack of funding, were increasingly squeezed out of the system and were an example of institutional deterioration. This contrasted to Germany, where lack of investment into vocational schools created an enduring sense of institutional rigidity and stagnation. Schools carried a sense of low social standing, were underfunded and lacked quality teaching and resources to respond to modernisation and digitalisation. Employers could not change the dynamic of this set-up, but ChemCo, as a large employer could provide in-house top-up classes to make-up for these shortcomings. Despite this, vocational schools played a central role in developing a broad educational offer that contributed to the sense of diversified quality production for the apprentices at ChemCo. Vocational schools also offered a sense of standardisation and education for all apprentices; indeed, apprentices at SMEs could not benefit from top-up classes. A move to increase investment into vocational schools through cooperation with federal government could change the financial dynamics of the system. Within the context of demographic change and less people applying for apprenticeships, this move could increase the overall social standing and attractiveness of apprenticeships from a more macro-based perspective.

5.3 PharmCo and ChemCo: Apprenticeships programmes in comparison

5.3.1 Introduction

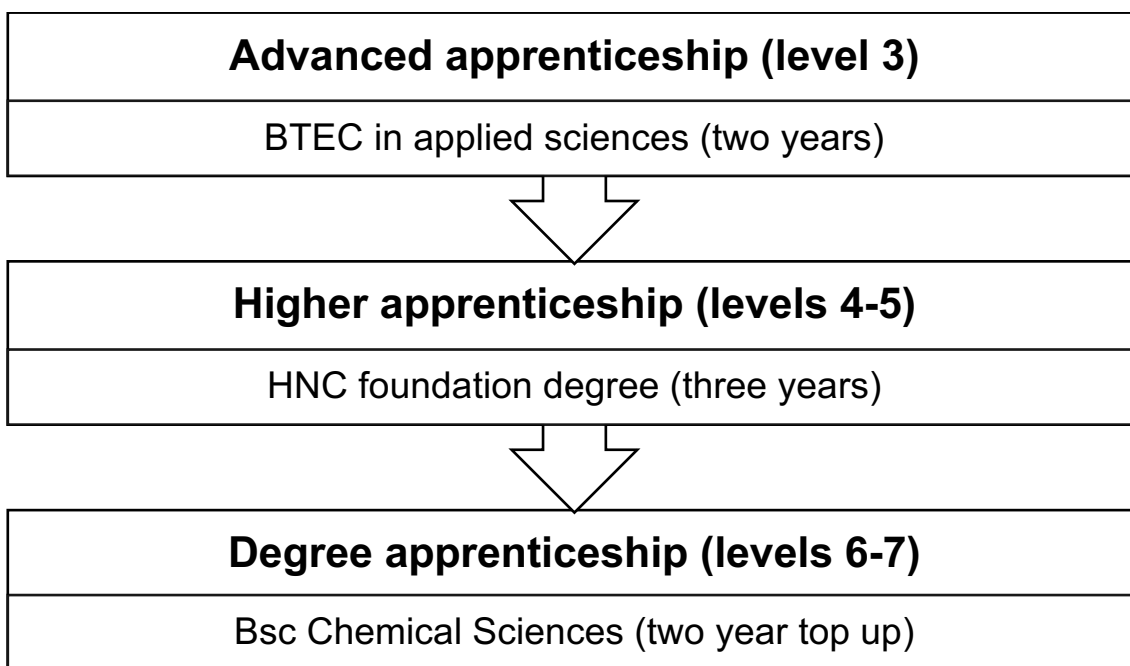
Now that the training and skills strategies as well as the changing institutional and educational context has been discussed in the socio-historical and political context, the actual structure of the apprenticeship is described here, with the differences between the two cases, compared and contrasted. In particular, the type of apprenticeship, including

its length, assessment process, associated qualification as well as the context it was delivered in is described, highlighting how this led to different educational and development experiences for the apprentices in the different countries. From here, the different selection practices and processes used to recruit apprentices are then discussed. The recruitment and selections strategies provide a basis for understanding how the two cases in their contrasting countries faced different challenges in the labour market in terms of the general awareness of apprenticeships within wider society.

5.3.2 Apprenticeship structure, development and assessment

The types of apprenticeship at PharmCo varied greatly in length, level and qualification. Apprentices would typically work towards a Laboratory Technician, Science Manufacturing Technician or Maintenance Technician standard between levels three and seven as demonstrated in Figure 13. The initial apprenticeship was the two-year advanced apprenticeship (level 3), offered to apprentices who either did not have A-Levels or BTECs or had not achieved the sufficient grades at this level. Typically, five GCSEs including English, Maths and Science were needed to apply. Apprentices attended their local college based at SciencePark one day/week for their BTEC in Applied Sciences, which was the equivalent of 2 A-Levels. They also completed extra certified training in first aid, health and safety and environmental health. Progression to the next level of the apprenticeship was not automatic and depended on good performance with a BTEC at distinction or merit level. Apprentices needed to compete against external applicants at an assessment day to get accepted onto the three-year higher apprenticeship (levels 4-5). Indeed, the majority of apprentices simply started on the higher apprenticeship, which led to a foundation degree and Higher National Certificate (HNC) qualification. Five GCSEs including English, Maths and Science and a minimum of 80 UCAS points, including A-Levels in Science and Maths or equivalent were required to apply. Higher apprentices would then transition to a two-year degree apprenticeship (levels 6-7) after three years, culminating in a BSc in Chemical Sciences. Some apprentices attended a day release course, once per week at a University near London. This course was more aligned to a typical university course set-up. However, the majority of apprentices were enrolled on a blended distance-learning course at a nearby university, which primarily included distance learning modules with pre-recorded lectures, study guides and assignments on an online learning platform and an online discussion area to ask questions to other students or lecturers. This would be complemented with a week-long laboratory-based summer school combined with onsite tutorials around the year from academic tutors. Overall, there was a 50/50 divide of coursework and exams and apprentices would also need to write a research-led 'work-based project', similar to a dissertation.

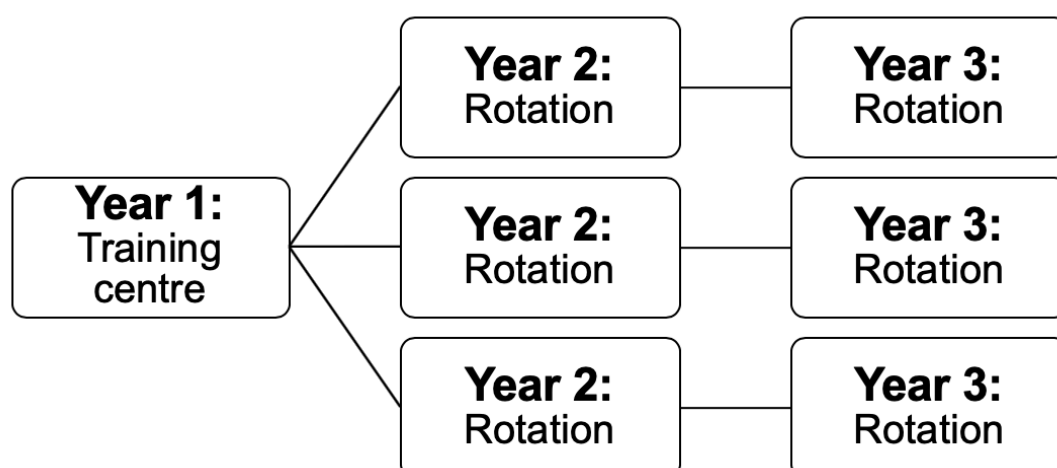
Figure 13: *Apprenticeship structure at PharmCo across the different levels.*



Apprentices from all apprenticeship programmes would typically be stationed in one department and therefore not complete any rotations. After an induction including health and safety training, they would start working in the department straight away under the supervision of a line-manager. In addition to their academic qualifications, apprentices would also work towards their apprenticeship standard. For this, apprentices needed to complete a competency evaluation book, known informally as the “blue book”, comprising of 95 competencies developed by the qualification organisation SEPAC. In order to get their apprenticeship certificate, apprentices needed to complete EPA, which included an interview, written case-study, presentation and experiment carried out through an external assessor from SEPAC. Apprentices could receive either a pass, merit or distinction grade; this differed to the previous system, where continuous assessment was used, and apprentices would either pass or fail.

The apprenticeship structure at ChemCo was very different. Only one training route was offered, with the apprenticeship lasting typically three years in length. The first year was broadly spent in a dedicated apprenticeship training building, supervised and taught by dedicated instructors. This was followed by rotations in different plants or departments within the business as highlighted in Figure 14. From the second year, apprentices would typically spend approximately three days per week working in the departments.

Figure 14: *The apprenticeship structure at ChemCo.*



Apprentices also attended vocational school and extra in-house training weekly to supplement their practice-based working knowledge. At the vocational school, apprentices had to attend classes in their core occupation but also attended classes in different 'learning fields' in the social and political sciences, English, religious studies and sports to broaden their education. Generally, apprentices would attend vocational school three days in two weeks, one day in one week, and two days in the following week and in-house top-up training for half a day a week. Sometimes classes would be organised into block learning sessions, where the apprentice would spend a week at school and a few weeks within the workplace. Overall, there was a 50 per cent split between in-house dedicated training and rotation-based on-the-job training, not including the vocational school. The apprentices would complete six rotations in total throughout their apprenticeship, three different rotations every year after their initial training in year one at the centre. The remaining months in each year would be spent back at the training centre to further develop skills, knowledge and preparing for exams. For example, in the second year, apprentices would use the remaining time outside of their rotations attending in-house training within the centre to revise for part one of their final examinations and the third year for part two. There was also the possibility for apprentices to take part in the company's mobility programme to complete a 1-month rotation at a different site in Germany or in a different country altogether.

Apprentice examinations were divided into two parts and comprised of both a written theoretically led exam and a practical test. The first part, the midterm exam, was taken in the second year and accounted for 40 per cent of the apprentices' final grade. Part two accounted for 60 per cent and was taken at the end of the apprenticeship, typically at three years from starting the apprenticeship as most apprentices had shortened the apprenticeship by six months. For the theoretical examination, apprentices would complete a written exam on their core occupation and ten per cent of the exam would

also focus on their additional learning fields. This would be taken at the Chamber of Commerce on a set day for all apprentices in each occupation. Apprentices would also receive an internationally recognised certificate in English from the school. The first part of the practical exam would take place at the local chambers of commerce and the second part within the company itself. Apprentices would typically practice within the company to prepare for the exam in advance.

5.3.3 Occupations, standards and departments

Although apprentices were undertaking either Laboratory Technician, Science Manufacturing Technician or Maintenance Technician standards, their learning experiences were not standardised. Instead, apprentices' learning experiences at PharmCo were shaped by which department they were placed within, which created an environment for specialising in a specific area of the pharmaceutical and chemical sector. The apprentices at PharmCo were recruited straight into different departments where they naturally experienced different work and learning experiences despite completing the same academic and vocational qualifications. The different departments reflected the lifecycle of the drug development process in the pharmaceutical industry from initial drug discovery and development, to clinical trials and, finally, the manufacturing process.

Many of the apprentices were in the chemical research and development (CRD) department, which sought to find the best synthetic route to making a medicine. This involved creating the safest and most efficient and sustainable new products possible, which were also robust, of high quality and financially competitive. CRD was responsible for determining a new medicine's composition, before it was scaled-up and tested at a pilot plant and eventually manufactured. The high throughput screening subgroup analysed the different conditions of chemical reactions in research and development. Reactions were carried out, often with solid-dosing robots, under different conditions to determine the best route to the medicine. The crystallisation team supported the design of the organic synthesis steps of drug development to help improve the purity of the product as the product was scaled-up for production. Apprentices learnt different techniques, such as x-ray diffraction analysis, to understand the crystallisation process. The final group was the process safety team, which tested cell stability of reaction compounds to ensure safety in the drug development process both within the laboratory and pilot plant.

Drug product design (DPD) was situated at the product testing stage to help design and improve formulations. Product formulations were only finalised after undergoing several tests at DPD to ensure its stability. The particle characterisation subgroup presented and mapped the different characteristics of drug formulations in detail through technology.

The active pharmaceutical ingredient (API) and drug product team analysed the API's stability against other components within the product and under different conditions to ensure they did not affect the drugs dynamic or kinetic stability, often using spectroscopy techniques. The good manufacturing practice (GMP) analytics team supported the pilot plant and CRD to produce methods for stability testing of the product. The product would be tested for stability and shelf life and storage.

The material characterisation department worked on products already on the market, assessing any problems in the product manufacturing process. Batches of issue and reference material would be analysed using different instruments and techniques to examine differences between batches, testing for any abnormalities, leading to recommendations for improvement. Other apprentices worked in the solid dose manufacturing (SDM) department in an engineering capacity. Their role was to understand, monitor and manage changes made to control systems, which automated machinery. Apprentices needed to program and keep equipment running operationally whilst also integrating new equipment to the requirements of the control systems. A couple of the administrative apprentices worked in the engineering department, documenting equipment on the company's data management site to easily identify equipment. Another business support apprentice worked in the worldwide safety and regulatory team, coordinating with the European Medicines Agency, as well as organising events, managing invoices, and general project management.

Unlike PharmCo, ChemCo apprentices were trained broadly in the technical, mechanical, electrical and chemical occupations and did not specialise on a department specific basis. Apprentices completed different rotations within the business, but this was a standardised experience; all apprentices received the same broad and occupationally based training.

The Chemical Laboratory apprentices carried out chemical reactions and analyses within a laboratory environment. In the first year they worked and studied in the apprenticeship training centre carrying out analytical tests and preparing substances to gain a broad understanding of the key skills and processes required for work on their different rotations. Broadly, their work would involve working with raw materials, analysing end product levels and operating experimental plants and equipment. In addition to this practical work, they were expected to create reports and analysis of test results.

The Chemical Technician apprentices worked between the realms of technology and chemistry and their work was mainly carried out in the chemical production plants and workshops. They carried out chemical reactions but also monitored production processes and equipment. This involved controlling, operating and measuring different values as well as performing different chemical tests in terms of quality control in the

plants. Sometimes smaller laboratory work was needed to complete quality analysis of smaller samples to ensure the customers' requirements were met. Chemical technicians also needed to oversee the preparation, cleaning, processing and shipping of products.

The Industrial Mechanic apprentices worked mainly with industrial machines and precision equipment within the chemical production plants. They oversaw the mechanical elements and were responsible for building, re-fitting, inspecting, maintaining and repairing production machinery. The first year was spent in the workshop to learn the basics of drilling, welding, milling and operating the machinery and different devices. They also worked on their own project, building a small device or machine. In the following year they completed rotations in different departments.

The Process Mechanic apprentices worked mainly with plastics and rubber technology of semi-finished products in the production plants. They learn how to process metallic materials and plastics and how to operate machines and equipment within the plants. They would typically perform repairs to plastic pipes, containers and equipment by bending and forming materials. They were also involved in the lamination process of key products, panels and pipes, observing the process and analysing material-specific parameters and composites. As part of this, they also oversaw type bonding and after treatment of plastic products with welding and heating equipment. They would also build, mill and produce mouldings, semi-finished products made from polymeric materials, which would be packed and sent off for distribution. The first year was spent in the centre learning about the processing of plastics and metal through learning key skills in drilling, milling, turning, metalworking and machine skills as well as technician drawing before going to different plant settings.

The Electronic Technician for Industrial Engineering apprentices worked with large electronic systems and automation technology processes within the production areas. They were responsible for keeping electrical systems and supply chains up and running, which involved setting machines, driving systems and hydraulic components, wiring switch systems and programming and configuring electronic systems. They would set-up, test and maintain systems within the production plants, measuring electrical and physical quantities, inspecting circuit and function diagrams and analysing functional relationships of individual components. The role involved problem-solving aptitude to repair and find solutions quickly to solve emerging technical problems. In the first year they would learn installation circuitry, soldering, control technology and electronics, before completing different rotations.

5.3.4 The recruitment process

PharmCo and ChemCo undertook similar apprentice recruitment campaigns. The PharmCo recruitment process was overseen and organised by ScienceSkills, who advertised opportunities, organised the assessment day and shortlisted candidates. Apprentices heard about vacancies via the government's national apprenticeship service website or other jobs websites, social media or newspapers but also through outreach events led by ScienceSkills at local schools. This process of advertising opportunities started from National Apprenticeship Week at the beginning of March with the aim to increase the popularity of apprenticeships in the UK. Applicants would apply online via ScienceSkills. They would initially screen applications to ensure the minimum required qualifications had been met. This would be followed up with an informal telephone interview, which would lead to a shortlist of applicants and an invitation to an assessment day. Managers at PharmCo were the main assessors, combined with support from ScienceSkills and training providers, who would assess whether the applicants ultimately had the academic and critical thinking capabilities for the apprenticeship. Job offers would be sent out to the successful applicants by ScienceSkills, which managed the on-boarding process of the apprentices.

The actual assessment day comprised of a site tour, introductory talk, and group task and interview. The observed group task focused on team-working skills and involved a problem-solving scenario with four to five other applicants. The interview took a speed-dating approach, with supervisors from different departments sitting at different tables, interviewing applicants who rotated every 15 minutes. Interviews focused on applicants' reason for applying, general career motivations, interests in science and extra-curricular activities. Applicants were also asked science-related questions, such as identifying simple chemical structures, e.g. paracetamol, which tested their ability to communicate complex ideas confidently. The interview was a matching process; apprentices nominated their favourite departments and supervisors also picked applicants that matched the demands of their departments. Apprentices were expected to be naturally curious, ask questions and show initiative, passion and drive:

"It is an attitude piece. Of course, there's an academic piece because that drives the capability, but it isn't all down to that academic side of things in my opinion because I think that everybody learns differently." Line manager 4-P

Overall, the assessment day concentrated on the applicants' work ethic, attitude, team-working and interpersonal skills over their skills, knowledge or qualifications, as most did not have the work experience of an experienced hire. From a managerial perspective, technical and practical skills were skills that could be taught on-the-job whilst soft skills were intrinsic and therefore essential to determine at the interview stage. Managers

highly regarded work experience, volunteering, or extra-curricular activities, which was seen as an indicator of maturity, a pro-active attitude to work and being able to work well with other people. Managers also noted that they took an open-minded and inclusive approach to recruiting people from different academic backgrounds. Indeed, some apprentices did not feel entirely confident in their academic grades but felt that their personal communication skills compensated for this. However, there were indications that the programme was getting more popular and competitive, with an increasing number of applicants with excellent A-Level grades. Hence, in a sense, the programme was becoming much more selective as the need for excellent personal skills combined with exemplary A-Level grades and work experience was driving up the standards of the programme.

Apprentices heard about ChemCo and its apprenticeship programmes through local recruitment and careers fairs. They also heard about the company through word-of-mouth as ChemCo was a large employer and many of the apprentices' friends and family worked for the company. This contrasted to the reality of PharmCo, where apprenticeships were not as commonplace, with many young people choosing the university route. ChemCo was also well known for its sponsorship of football, which also attracted and alerted apprentices to its brand. Many of the apprentices had dropped out of university and had also heard about ChemCo on campus, where the apprenticeship programme was being advertised to attract dropouts to apply. Apprentices applied online via the ChemCo recruitment website. Apprentices remarked that they received a much friendlier approach from ChemCo compared to competitor companies. The recruitment process was fast, informative and transparent, compared to other large companies who took a long time to get back to them and were more demanding in terms of the tasks placed on them during the recruitment process. ChemCo therefore presented themselves as a highly attractive employer to the apprentices.

The selection process was similar to PharmCo's approach. The application would be received by ChemCo and HR would initially select applicants based on their covering letter, CV and school grades. Most applicants would pass through this stage and would be invited to take a psychometric test online. If successful, applicants would be invited to ChemCo for a recruitment day. Apprentices also had to initially complete a written exam on a computer, which tested for mathematical, scientific and general knowledge as well as written skills as part of the interview process. The test also demonstrated the apprentices' capacity for written and general language skills. If successful they would be invited for the interview and further practical technical tests to see if they were technically skilled. Here they would be asked to complete some wire work or build a small work piece and the instructors would look to see if they were confident working with their hands. Grades and doing well on the tests were not the pre-requisite for getting a place

on the programme, much like PharmCo. Rather, the instructors looked for people who would work well in a team, had good communication skills, could work in a variety of different contexts and responded well to feedback:

“He may be a bit worse than someone else in terms of grades, but he fits better into this team.” Technical Instructor-C

Apprentices would also stay for lunch to network with current apprentices and instructors. In the interview, ChemCo would ask them about their interests and motivations for applying, their knowledge of the company, but also on areas such as news and politics to see if they had good general knowledge. If successful, apprentices were invited for an obligatory check-up with the company doctor before receiving their contract.

5.3.5 Concluding comments

In summary, the apprentice structure at PharmCo and ChemCo was very different. The former had different levels of aptitude and varied in length but eventually led to both a degree and an apprenticeship certificate whilst the latter was typically three years in length for all apprentices and led to an industry-recognised vocational qualification. Apprentices at PharmCo either attended college or university, which typically was distance-led blended learning, with apprentices typically completing their studies within the workplace. This contrasted to the apprentices at ChemCo, who attended vocational school one day/week. Examination at PharmCo was organised and facilitated by an EPA as well as their training provider for the academic qualifications. In Germany, examinations were regulated by the Chamber of Commerce, which oversaw the entire process and also distributed industry recognised certificates. The learning environments also differed greatly in the two companies with PharmCo adopting a specialised and narrow approach and ChemCo offering a broad and holistic approach to training. PharmCo adopted a department specific approach, with apprentices recruited straight into specific job-like learning stations, so that they would be trained in a highly specialised but somewhat narrow approach, with no exposure to other parts of the business through different rotations. This contrasted to the ChemCo apprentices who were trained in broad occupations, with a full year dedicated to training in their area, and a number of rotations in different departments within the business.

Overall, PharmCo and ChemCo adopted similar recruitment and selection approaches, with apprentices undergoing a very similar recruitment experience. PharmCo faced more challenges initially marketing its programme due to the lack of general knowledge of apprenticeship routes in England. It adopted a very broad and comprehensive approach, particularly through marketing the programme through outreach events at local schools. Recruitment was outsourced to the ATA, which oversaw the whole process. This

contrasted to ChemCo, where HR oversaw the initial selection and shortlisting of candidates before the apprentice instructors and managers managed and selected candidates at the actual assessment day. In both companies' apprentices were selected by their ability to work well in teams, their communication skills and their attitude and enthusiasm. Both companies emphasised these much softer skills over just academic competency. Although grades were important, they did not determine candidates' success in the process.

5.4 Discussion

5.4.1 Introduction

This chapter has provided context into how PharmCo and ChemCo's training strategies, chosen educational institutions and apprenticeship structures have changed over time. This provides the context for exploring how apprenticeship organisation in the two cases changed in response to institutional and policy-led changes. Previous literature has posited that England and Germany are converging, with England investing more into intermediate skills formation and Germany prioritising HE over VET (Bosch and Charest, 2010). Conversely, England's apprenticeship system is said to be too heterogeneous at present and lacking in identity with the wide variety of apprenticeships available (Hogarth et al., 2012) and a varying amount of employer engagement across different industries and sectors (Brockmann et al., 2010a). Equally, Germany's collective skill formation system is said to be breaking down (Thelen and Busemeyer, 2012) and becoming more diverse (Culpepper, 1999) with firms dropping out of the system (Bosch and Kalina, 2008) and/or adopting different training strategies away from intermediate skills and dual apprenticeships (Kirchner and Berger, 2014; Marsden, 2007). In this sense, the two systems can also be seen to following a similar trend of heterogeneity towards a general dismantling of each of their apprenticeship systems. Yet, how are these tensions and changes translating into the workplace? This discussion analyses how the two cases responded to changes within their macro environment, and the impact of these changes on the organisation of apprenticeships.

5.4.2 Comparing institutional contexts

PharmCo, in England, responded to the Trailblazer reforms by embracing degree apprenticeships as a key strategy. This contrasted to their past strategy of just offering level 3 apprenticeships and was also a relatively novel development within the English context. Despite the rise of degree apprenticeships, these kinds of apprenticeships still only make-up a minority of apprenticeships on offer in England (Foley, 2020). This strategy was indicative of PharmCo's high-skill setting within the chemical sector, which generally promoted a university background as prerequisite to progress within the

company. With the general low social standing of apprenticeships in England (Brockmann et al., 2010a) degree apprenticeships offered a new and more socially prestigious route (UniversitiesUK, 2019) for the company to respond to national policy that called for an increase in apprenticeship participation. The use of degree apprenticeships led to a new pedagogical fusion of VET and HE in line with general social attitudes in England which view degrees as superior to VET (Brockmann et al., 2010a). It also highlighted the continuing heterogeneous nature of the English apprenticeship system with apprenticeships varying widely in length, type, curriculum and assessment (Hogarth et al., 2012). The use of degree apprenticeship reinforced and conformed to a general upskilling philosophy (Brown et al., 2011), leading to individualisation and academisation of apprenticeships. Apprenticeships therefore catered to those with good A-Level grades or to those with work experience who were existing staff. In practice, this fusion also meant that it was not clear if apprentices were going to surpass the need for the company to recruit graduates and even PhD students in the future as apprentices themselves could go on to complete Masters- and PhD-level apprenticeships. This contrasted to the stereotypical notion of English employers not offering progression opportunities (Brockmann et al., 2010a). Apprenticeships were viewed as route to upskilling, which reflected the general perception that the levy was becoming a *training* levy in England, with apprenticeships and training are often used interchangeably (CIPD, 2019, emphasis own). The rise of career development apprenticeships for older and existing staff (McNally, 2018; Pullen and Clifton, 2016) were less prominent within the company, but were cited as an emerging opportunity for the company to pursue, especially in light with the pressure to use levy funds. The upskilling and retraining strategy at PharmCo muddled and obscured the meaning of apprenticeships further. Overall the organisation of apprenticeships at PharmCo was arguably a degree disguised as an apprenticeship. National apprenticeship policy through Trailblazers and the levy did indeed lead the company to reconsider their existing training and recruitment strategies. Degree apprenticeships and upskilling became the strategy for training in the company, which diverted away from the original and core meaning of apprenticeship to one that was much more academic rather than vocationally orientated.

Trailblazers also allowed the company to adopt a leading role to shape apprenticeship standards within a scientific community of other firms. However, the employer-led approach also allowed PharmCo to exercise agency in other new directions, namely by outsourcing the employment of their apprentices to an ATA. This was surprising, given that ATAs were originally designed for SMEs who did not have the infrastructure to support apprenticeships. However, PharmCo faced barriers from senior management overseas who did not authorise extra headcount at the site for recruiting apprentices or

HR personnel to support the infrastructure of the programme. The ATA became a means to recruit graduates and to respond to policy reforms quickly, surpassing any bureaucratic and managerial barriers. As a result of the use of the ATA, PharmCo could also not respond to the apprenticeship levy as levy funds could not be administered if the apprentices were not their own staff. The levy, as a result, was treated as a tax. Despite the much more interventionist structure of the levy, the levy did not lead to PharmCo investing in training themselves generally. Instead, ATA acted on behalf of PharmCo to invest in training for the apprentices at PharmCo. Therefore, the levy had the opposite effect for PharmCo – it did not lead to the company investing more in apprenticeships. This represents the reality in England where apprenticeship policy targets and initiatives often are in conflict with what employers can realistically offer (Brockmann et al., 2010a), leading to market failure (Finegold and Soskice, 1988). It is also indicative of the fact that the levy generally has failed to meet key expected targets (DfE, 2019b).

The apprenticeship reforms of the levy and Trailblazers led to the creation of a new apprenticeship programme at PharmCo and indeed wholesale change within the organisation of apprenticeships there in a number of different ways. Firstly, the use of an ATA allowed the company to essentially take less responsibility and accountability of apprentice employment, with no requirement to extend contracts therefore leading to poorer working conditions for apprentices. This reflects the reality of apprenticeship employment in England, where firms often will not extend apprentices' contracts to a permanent role or retain the apprentice (Brockmann et al., 2010a; Brockmann et al., 2008). Employing apprentices through the ATA was therefore a long and drawn out recruitment process for PharmCo, allowing the company to select some apprentices as permanent or indeed contractual employees after the apprenticeship had finished. Secondly, the reforms exacerbated the deterioration of existing institutions in the apprenticeship landscape (City and Guilds, 2014), with SSCs and training providers having less voice in the Trailblazers process. Colleges, with their lack of funding, also deteriorated as universities became more prominent as training providers. Indeed, thirdly, through the growing graveyard of deteriorating existing apprenticeship institutions (City and Guilds, 2014), the reforms also encouraged the emergence and development of new apprenticeship institutions and practices. ScienceSkills, an SSC changed its structure and aims, and adopted a much more commercialised and market-orientated strategy through its development of its ATA to meet the changing requirements of apprenticeship policy and implementation. Universities also responded to changing demands, tailoring specific degree apprenticeship programmes for PharmCo, who could now exert their own agency and control in this new buying market. In this case young people attending university were not the only consumers of HE (Lloyd and Payne, 2016)

with employers also having a buy-in. Indeed, this case also showed that the mass system of HE (Keep and Mayhew, 2010) not only housed HE students but also apprentices. PharmCo, as a consumer, could create an apprenticeship programme that could meet their own demands and requirements. This led to a much more firm-specific apprenticeship, and one where education and training was not essentially standardised to national or even industry benchmarks. Within the workplace, this meant that apprentices training was also not standardised, with apprentices training highly specialised to one department with no rotations, creating a much narrower training experience. As such, reforms exacerbated the sense of the marketization of VET in England (Lloyd and Payne, 2016) with VET becoming more of a for-profit business (Keep, 2012).

Despite the general trend of a growing demand in and popularity of dual-study apprenticeships in Germany (Protsch and Solga, 2015), ChemCo did not conform to this trend of academisation in contrast to PharmCo. However, higher-led cognitive skills were highly sought within the company to meet the growing demand for digitalisation but the traditional three-year apprenticeship was deemed as the most effective training route to meet these ambitions. Despite the pressures of the Bologna reforms and standardisation of HE qualifications, which had led to increased popularity to HE routes for young people (Bosch, 2010; Culpepper, 1999), managers at ChemCo did not respond favourably to Bachelor degrees, preferring the older Diplom system. Equally there was no room or demand within the organisation for academisation to take place with managers citing no real progression routes or suitable jobs for dual-study apprentices. Indeed, this was also one of the factors that hampered uptake of dual-study apprenticeships. Hence, although “academisation” was cited as a key threat to the German apprenticeship system (Bosch, 2010; Culpepper, 1999), it did not seem to permeate into the organisation of the apprenticeship programme at ChemCo. Equally, the use of two-year apprenticeships (Thelen and Busemeyer, 2012) was also a strategy broadly dismissed by the organisation, with only a small number of such two-year apprenticeships existing. This is in line with the general decline of two-year apprenticeships in Germany now despite their initial growth (BMBF, 2017). Therefore, unlike PharmCo, a strategy of upskilling through degree level apprenticeships was not pursued. Equally, a deskilling or the general degradation of apprenticeships through the two-year apprenticeships was also not promoted. ChemCo did not pursue firm-led and individualistic strategies that departed from the core notion of collective skill formation as some firms in Germany have (Graf, 2018; Casey, 2012; Thelen, 2007; Hassel, 2014). This reflected the manufacturing industries in Germany, which typically had comprehensive employment, pay and training structures and much higher retention rates (BMBF, 2017). Despite this, financial uncertainty was present at the site, with job cuts and redundancies announced, a

reflection of the mergers and acquisitions present within the sector and the growing internationalisation of the company itself. Overall, however, ChemCo did not respond to overarching institutional drivers and remained focused on their strategy of embracing intermediate skills and a strategy of DQP (Sorge and Streeck, 1987). This contrasts to recent debates which have highlighted firms moving towards more diverse and firm-led skill strategies away from a DQP approach (Kirchner and Berger, 2014) and to the reality that less firms are participating in the apprenticeship system (Bosch and Kalina, 2008; Thelen and Busemeyer, 2012), particularly small firms (BMBF, 2017). However larger firms, like ChemCo, in general benefit more from investing in the dual system than smaller firms (Busemeyer et al., 2012; Marsden, 2007) and also have fewer unfilled vacancies. Central to this was the union's increased negotiating influence over the site; demographic change and the subsequent increasing demand for apprentices available was driving up the working conditions and benefits of apprentices. This led to increased permanent contracts and take-on guarantees as well as better pay. In terms of the proliferation of non-standard employment practices in Germany (Graf, 2018; Thelen and Busemeyer, 2012; Busemeyer, 2012; Doellgast and Greer, 2007; Eichorst, 2015; Benassi, 2016), this was not present within the daily realities of apprentices at ChemCo. Unions were therefore actively responding to and driving away any threats, which sustained and strengthened the case for traditional dual three-year apprenticeships. This created a barrier to the proliferation of dual-study apprenticeships, which were not covered by basic principles of co-determination but more managerial discretion and were therefore a threat to the future of the dual system (Graf, 2018). It also mitigated the risk of two-year apprenticeships, and with it the reality of low pay, limited progression opportunities and job uncertainty that came with them. ChemCo also characterised a typical German firm in its sense of social obligation (Bosch, 2010), through the design of specific programmes targeted towards NEETS and the unemployed and migrants. The latter was a demonstration of ChemCo reacting to changing policy calls to include migrants within the VET system in an inclusive and progressive approach to mitigate the potential risks of social inequality (BMBF, 2017). It was also a reflection of codetermination between the social partners, namely through the chemical union and the site's works council.

Academisation was not affecting the core organisation of ChemCo's apprenticeship programme. Demographic change, educational expansion (Protsch and Solga, 2015) and the subsequent growing demand of skilled labour actually brought benefits to apprentices with the union now having increased bargaining power that increased working conditions. Instead, the organisation of apprenticeships at ChemCo was impacted by the low conditions of the vocational schooling, which seemed to lower the social standing of apprenticeships more so than demographic change and

academisation within this context. Unlike PharmCo, which was experiencing both institutional deterioration and institutional flexibility through the rise of new institutions and practices, in the case of ChemCo vocational schools were stagnating through their lack of funding with no meaningful movement towards any sense of change. Institutional rigidity maintained a broad and standardised curriculum that meant apprenticeships and apprenticeship assessment through chambers of commerce were also acknowledged at the same level across the country. However, lack of funding and undersupply of teaching staff inhibited any opportunity for modernisation, particularly in response to the country's move towards a more digitalised economy and society. As such, ChemCo expanded its own digitalisation offer by supplying apprentices with iPads and online learning and also accommodating apprentices' learning by offering extra top-classes. This created a divide between companies like ChemCo and other companies who might not be able to afford such interventions.

5.4.3 Concluding comments

Overall, PharmCo adopted an upskilling (Lloyd and Payne, 2016) and academically orientated strategy (Brockmann et al., 2010a) of degree apprenticeships, which contrasted to ChemCo's vocationally led model of DQP of dual apprenticeships (Sorge and Streeck, 1987). This contrasted to the notion that firms in Germany were becoming increasingly under pressure by academisation (Protsch and Solga, 2015; Bosch, 2010), adopting different kinds of training strategies (Kirchner and Berger, 2014) and that apprenticeships were becoming more heterogeneous (Culpepper, 1999). ChemCo was cocooned by the potential proliferation of dual-study apprenticeships (Thelen and Busemeyer, 2012) due to a number of factors: progression opportunities for them did not exist, managers did not value them, unions opposed their lack of social partnership and demand for dual apprenticeships were rising due to digitalisation needs. Similarly, two-year apprenticeships were not promoted due to their poorer pay and progression opportunities, a reality which was also actively opposed by the union. The only threat to ChemCo was the institutional rigidity and lack of modernisation of the vocational school, which led poor quality teaching and infrastructure conditions. However, as a large employer the effects of this could be warded off through extra in-house training. Ironically, PharmCo responded far more strongly to academisation than ChemCo, a reflection of the social dominance of HE in England (Brockmann et al., 2010a), leading to a fusion of HE and VET elements that confirmed the broad growing trend towards higher-level apprenticeships (Foley, 2020). Indeed, the apprenticeship levy and Trailblazers also led to the company re-designing their apprenticeship programme. The journey from an advanced to a degree apprenticeship meant that an apprentice could remain in the company for up to 8 years, highlighting substantial progression

opportunities. However, the outsourcing of the apprenticeship programme to an ATA highlighted the growing and intensifying marketization of the system (Lloyd and Payne, 2016; Keep, 2012). This impacted apprentice working conditions, exacerbated the institutional deterioration of SSCs and colleges and esteemed new actors who were institutionally flexible and actively bought into the commercialisations of apprenticeships, like universities and the ATA. Hence, although apprenticeships were departing from the stereotype of low-skill, low-level apprenticeships to a much higher-skilled incarnation, this case signalled an intensification of marketization within the system (Lloyd and Payne, 2016; Keep, 2012). This contrasted starkly to ChemCo; although the effects of demographic change on apprenticeships in Germany were viewed as a potential threat within the literature (Bosch, 2010; Thelen and Busemeyer, 2012) the increasing demand for skilled labour actually led to gains from the union on apprentices' employment conditions and pay at the site. Hence, although changes at the macro-level were key threats to ChemCo, the union and works council strengthened political agency through the employers' increasing demand for skilled labour. Conversely, although apprenticeship investment and participation increased at PharmCo in response to policy change, apprenticeships became much more marketized and apprentice employment conditions deteriorated. In this sense, in these two cases, conversion (Bosch and Charest, 2010) or general trend towards growing heterogeneity (Hogarth et al., 2012; Culpepper, 1999; Kirchner and Berger, 2014; Marsden, 2007) in both cases was not observed. However, in order to understand how these realities materialised, deeper analysis in the next section will analyse the apprentices' identities and sense of agency within this changing context as they transitioned into the two companies, highlighting how this might have also impacted and shaped change within the dynamics of the workplace.

6 Social biographies: Apprentice identities and backgrounds in context

The last chapter provided the context to show how PharmCo and ChemCo responded to the wider changes and external challenges affecting their apprenticeship programmes. Despite growing pressure from demographic change, educational expansion and the rising popularity of HE (Bosch, 2010), apprenticeship organisation seemed to have remained stable with employment conditions even increasing at ChemCo in Germany. This contrasts to PharmCo where apprenticeship policy reforms exacerbated the market-led nature of the system further, leading to a general deterioration of employment rights and conditions.

This section explores how these changes and conditions affected the apprentices' sense of agency at PharmCo and ChemCo, drawing on the apprentices' own perspectives. Indeed, although institutional structures and learning environments can shape apprenticeship organisation, apprentices' sense of agency and lived realities, as they transition into the workplace, they also play a central role in shaping outcomes (Fuller and Unwin, 2004). Agency is linked to apprentices' motivations, identities, attitudes and backgrounds, which this chapter explores to provide further insight into how such changes affected the dynamics of the workplace. Therefore, the chapter asks:

How are these macro changes affecting apprentices' sense of agency and identity within the context of their own backgrounds?

Firstly, the apprentices' educational and family backgrounds and identities are explored, highlighting how the apprentices wanted to escape the academic environment of secondary school for a work-based route in life. Secondly, the social standing of apprenticeships in England and Germany are then discussed, particularly in reference to the pull to undertake HE in both countries. Thirdly, apprentice lifestyles and plights to earn a living are discussed, drawing upon their desires to escape the trap of low-paid work and earn a reasonable salary in an age of labour market and career uncertainty for young people. Finally, this chapter concludes with a detailed discussion, drawing together the key outcomes of the chapter in an integrated manner with synthesis of the literature.

6.1 Apprentices' backgrounds and identities

6.1.1 Introduction

The apprentices at PharmCo and ChemCo came from different educational, work and family backgrounds and, overall, there no significant identification of a typical apprentice at both companies. This section analyses the apprentices' academic and social

backgrounds and, also, maps their transitions into the labour market before arriving at their subsequent apprenticeships.

6.1.2 The typical apprentice? School backgrounds and gender

Many of the PharmCo apprentices were academic achievers, achieving good A-levels at school and college. Equally others had achieved good BTEC's but noted the reluctance of some universities to consider them as equivalent to A-levels. The apprentices had studied a spread of different subjects, many leaning to more scientific subjects but also subjects like photography, politics, history, languages and even forensic science. The vast majority of PharmCo apprentices were of school leaving age. Some had joined the programme at 16 or 17 after finishing their GCSEs or A-Levels. Some had joined on the advanced apprenticeship after having completed A-Levels as they had not received good enough grades to advance to the higher and degree apprenticeships. Overall, most apprentices were in the age range of 17 to early twenties.

The majority of apprentices at ChemCo held a higher school leaving certificates such as an Abitur or the more general and practically orientated Fachabitur at the Fachhochschulreife, which includes an internship and only last two years unlike the three-year Abitur. The vast majority of those who were chemical laboratory assistants held Abitur qualifications and were therefore high academic achievers. Those in more technical areas were more likely to have lower school leaving certificates, such as a Realschulabschluss. Overall, a higher school leaving certificate was not essential to gain an apprenticeship position and anything lower was 'not a criterion for exclusion'. (Apprentice 5-C). Despite the overall lack of attention paid to grades and levels of schooling within the company, managers did note that there were less apprentices with Realschule backgrounds. Indeed, like the PharmCo apprentices, many of the ChemCo apprentices reflected that they did not have the best grades from school. Although most were good academic achievers and were clearly smart, many felt restricted and uninspired by the academic environment of school, thereby leading them not to aim for the very best higher grades. Some apprentices had attempted to complete an Abitur but had dropped out and instead had achieved their Fachabitur or remained at a Realschulabschluss level. Not achieving the Abitur was even more of an incentive and sign to them that an apprenticeship was a better option for them. None of the apprentices, however, had a Hauptschulabschluss (lower school leaving certificate). Some occupations might have considered a lower school leaving certificate, in more production-led roles, but even this was rare at ChemCo. Therefore, whilst a Hauptschulabschluss could perhaps be considered acceptable at a small business, it was not for a large company such as ChemCo.

Most ChemCo apprentices started their apprenticeship between 19 years old to their early twenties but there were also examples of people starting an apprenticeship in their late twenties and early thirties and even younger apprentices who were only 16 or 17. Age was also not a barrier to the apprenticeship and overall there was a wide variety of ages and ChemCo ensured there was a diverse mix of applicants in each cohort to enhance the learning environment. The diversity in the apprentice cohorts created different learning profiles in order to accommodate all the apprentices' backgrounds. Young apprentices required more coaching, pastoral support and study development. On the other hand, younger apprentices were often more committed and respectful to managers than their academic or older counterparts who had more life experience.

The stereotypical image of apprenticeships within the science industry was that of more of a male-dominated workforce in both England and Germany. However, at ChemCo, and along with the increasing age diversity and varying backgrounds of the apprentices, the industry in general was becoming less male-dominated with the chemical laboratory roles having a more equal gender balance. But in the more technical roles, it was rare to see a woman. Hence, it seemed to be difficult to attract women to such technically led roles, which had perhaps a stronger image of manual labour.

PharmCo's apprenticeship programme was similar overall with a 50/50 male/female split, except for the engineering department, which had no female apprentices. Equally just over half of the PharmCo's overall workforce was female. Pharmaceuticals, on the whole, was more gender equal than other STEM industries. Some of the apprentices had become STEM ambassadors and worked on the Women in Science and Engineering campaign and noted that they did not feel that they had experienced discrimination or prejudice:

"I'm fortunate to have not experienced that because I'm in pharmaceuticals and actually there's quite a lot of women here." Apprentice 8-P

However, they did though feel that there were general backward stereotypes surrounding women in science and that science was viewed generally as a man's job within society.

6.1.3 Apprentice motivations: Craftsmanship and practical learning

Indeed, the stereotypical image of science was indeed linked to the male image of manual labour. Many of the apprentices from both countries were attracted to doing an apprenticeship because of the more practical elements on offer. Many of the ChemCo apprentices subscribed to the image of manual labour and craftsmanship, when applying for the apprenticeships. They were also motivated to apply for an apprenticeship at ChemCo due to their family upbringing and home background. Craftsmanship and

technical work felt like second nature to them as their family members typically worked in technical professions and they had been brought up in a practical working philosophy:

"I come from a family that is rather technical. My grandpa used to be a brewer, my uncle a Meister car mechanic. And I was raised to be very focussed on craftsmanship." Apprentice 2-C

"I just want to do something manual. My father is a carpenter. And I'm not someone who can just sit at the PC all day and poke around. I need some exercise. And in any case the variety. I'm more interested in technical professions." Apprentice 13-C

Many of the apprentices were brought up on a handicraft ethos to life, helping around the house and fixing and making from scratch whilst others had worked in more rural areas on farms or car mechanics. This practical approach meant that the apprentices were well attuned to teaching themselves skills and tricks in the area of DIY to electronics and computers. Their aspiration to complete an apprenticeship, therefore reflected their family backgrounds, interests, hobbies and work experiences. Some of the apprentices' parents had their own family businesses in an engineering or technical field so they had spent time working for there, accumulating experience and developing a growing interest in technical craftsmanship. Some apprentices' parents, wider family and friends had also worked at ChemCo, which influenced them to apply. Some had been inspired by science teachers or were passionate about chemistry at school from a more practical perspective. Hence craftsmanship was central to many of the apprentices' identities.

The notion of craftsmanship was less embedded within the culture of the PharmCo apprentices. Their central motivation for applying for the apprenticeship was linked to their interests in science rather than craftsmanship. This was perhaps indicative of the fact that the notion of craftsmanship and practical skills were less culturally and academically imbued within the culture of England, and that technically led scientific skill were more central to the curriculum for apprentices. Some of the apprentices highlighted that their science teachers encouraged them to apply to the programme even in instances when they were not initially attracted to a career in science. Many of the apprentices came from the local area and hence their science teachers were well aware of the company. Many of the teachers within the area had worked at PharmCo previously and had transitioned into science teaching after the redundancies and job losses previously announced at PharmCo. Teachers therefore supported, encouraged and inspired them to take a scientific route and, also, consider apprenticeships within PharmCo specifically. This access to careers advice on apprenticeships was unusual in general, and the geographical location of the apprentices, who mainly came from the surrounding area, could have been indicative of this set-up. Indeed, a number of the

apprentices were also inspired to apply because parents had either worked at PharmCo or had come from a science background. It was not unusual for family and friends to work at PharmCo as it was one of the largest employers in the area. Many had also heard about the opportunity or the company through connections. Family, in general, were encouraging of apprentices pursuing apprenticeships at PharmCo due to the prestige and repute of the company and the fact that apprentices were completing degrees as part of their apprenticeship programmes. Some of the apprentices were also the first from their family to attend university and their parents were proud of their achievements.

The apprentices at PharmCo also preferred a more practical and learning-by-doing approach, much like the ChemCo apprentices. Many of the apprentices were passionate about science, also because science allowed them to learn more technical and practical skills. The BTEC, in particular, was a gateway to escaping the academic environment of A-levels where a more theory-laden teaching style and exam-driven culture of learning through just listening and rote learning was promoted with few practical sessions. Many apprentices reflected that they felt dissatisfied and bored at school, and perhaps as a result of not engaging and conforming to this environment they did not receive the highest grades nor their highest academic potential. The BTEC for some apprentices gave them exposure to what working in industry would be like, as the majority of the curriculum was taught in a lab-based and practically led environment, motivating them to apply for the apprenticeship:

“It was like 80% practicals and 20% written so I actually realised I relished being in the lab and that’s what made me think, ‘I want to go to industry.’”

Apprentice 8-P

As such, a strong theme of the PharmCo apprentices’ backgrounds was their inclination towards more practical-based learning, which led them to gravitate towards apprenticeships and work-placed experience over university education:

“I think the main part of it was the way I learn. I’ve never really been much of an academic”. Apprentice 10-P

Hence, although the PharmCo apprentices did not identify with the academic environment of school, they were nonetheless intellectually curious and as such were motivated by finding work that was both interesting and challenging in nature. The lure of an apprenticeship in the science field and its exposure to more practical on-the-job learning was therefore appealing to many of them to escape the mundane and academic environment of school. Despite this, they did not really conform to the stereotype of a low-achieving apprentice but instead wanted to experience challenging work and education from a more practical point of view. Instead, they could be considered to be

high achievers who did not fit the classic stereotype of those normally applying for university.

6.1.4 Rebelling against school and embracing work over school

The growing diversity and variation in the different backgrounds and ages at ChemCo reflected the general changing transitions into working life. Despite the general trend to hire more Abitur students, apprentices highlighted that although they had the Abitur, they felt less secure in their career paths and future in general. Apprentices noted that the transition from school to apprenticeship was less defined and automatic. However, the apprentices were also actively deterred from taking the stereotypical route laid out to them by parents and teachers. Instead they adopted a more nomadic approach in terms of finding out about their future by educating themselves either through higher level studies or through work experiences. Many apprentices decided to improve their school leaving certificates, with those originally having a Hauptschule school leaving certificate, opting to then take a Realschulabschluss or others choosing to go on and complete the Abitur. Others decided to completely retrain from their previous jobs. Hence, the transition to the apprenticeship programme could be delayed, with apprentices opting for more unconventional routes:

“Figuring out a typical apprentice? There are many who come from school, there are many who have already done something else before, studied, worked, or an apprenticeship.” Apprentice 3-C

Similarly, some of the PharmCo apprentices had had a similar disjointed path in life and had left school or college half-way through, either dropping out or pursuing other opportunities. Some completed their A-Levels but did not get the grades they wanted and either retook them, took a year out, worked or returned to college to pursue other courses. In this sense, many flitted and experimented between the various different paths and experiences before deciding on apprenticeship by going between school, college and different jobs. The apprentices did not particularly feel that they had a pre-determined plan for their life and kept an open mind regarding potential new experiences in order to keep their options open. Many had gained experience in the workplace before starting the apprenticeship. Many of the apprentices viewed work experience as either equally or more important as school education for their futures. They also saw working as an important step to developing their skills base, confidence and work ethic:

“I’ve always worked – always...I think when I was only about 10 I had a paper round. And then as soon as I got to 16 so I could actually get my – like an official job, I was waitressing, and that was so horrible. And then I worked in

*Sainsbury's for like three years while I did my college before I came here.
So, I've never not worked". Apprentice 8-P*

The willingness of PharmCo apprentices to enter the labour market and gain work experience was mirrored in the general work ethic and attitude. This attitude almost felt ingrained in their conscience and for the apprentice, was essential to being successful in the apprenticeship:

"I don't think it was too much of a transition, but I think that's kind of who I already was. I'm quite a hardworking person." Apprentice 2-P

Work also seemed part of their everyday reality whereas school and university were considered to be more of an indulgence and not part of the real world, for the apprentices. This ethos was reflected in their perseverance in terms of being successful in the labour market and through their pro-active attitude to work, with many of them holding down different part-time jobs.

However, some apprentices did struggle to find structured routes to entering work, with only their academic qualifications and perhaps limited volunteering experience; employers typically wanted more experience or someone with a degree. In this sense, the apprenticeship was considered to be a salvation from the reality of the labour market and the social need to be a graduate or high-academic achiever. The apprentices highlighted that it was difficult find high quality and high-skilled apprenticeship opportunities. When they did find out about the PharmCo apprenticeship, they highlighted that it seemed to offer more opportunities in terms of training and education than other apprenticeship employers. With PharmCo they had the chance to complete a high-skilled apprenticeship and learn from experts in their field. The prestige and reputation of the company, the excellent training prospects and the potential career it could offer and the international opportunities to go abroad were key selling points to the apprentices. As such, there was a strong overarching feeling from all the apprentices that they wanted to escape the typical academic environment and to experience the real world of work. Indeed, the apprenticeship was the only realistic and appealing option open to them to achieve this. Some of the apprentices equated university as the same as the school environment and therefore rejected this path:

*"I really didn't like the school environment, which is why I never went to uni and came to do an apprenticeship. So, I left school as soon as I could".
Apprentice 8-P*

Leaving school gave them ownership of their life and increased independence and responsibility. School life was burdened with a set of underlying rules and expectations,

which did not align to many of the apprentices' aspirations for more autonomy in their lives.

All ChemCo apprentices showcased a motivated and hard-working approach to life, whether it was through their academic grades or through their work experiences from voluntary jobs, internships and paid employment. Several apprentices had worked during their voluntary year for the ambulance service or care sector and some had completed permanent or temporary jobs or internships in the law, engineering, mechanical and office-based areas. Overall, the apprentices' substantial work experience not only eased their transition into the workplace but also reflected their dedicated approach to the workplace environment:

"I also went to work during school. I helped out in agriculture, worked from morning till night. I worked through three months between my Abitur and my apprenticeship because I wanted to buy my motorcycle. Some of the time I worked 13 hours a day. So it was relatively easy for me. I was always at work at seven o'clock and before that I always worked on Saturdays, Sundays or even after school." Apprentice 2-C

"I also knew this working life - from my father, because I often worked there - I already knew what it was like. And I also knew that you have to work a little longer, you don't have as many breaks as in school. If I had only come from school, it would be harder for me to imagine. To find my way into this working life, a little longer, physically strenuous work." Apprentice 7-C

The apprentices' work experiences gave them the impetus to both apply for an apprenticeship and escape the academic-driven school environment. Apprentices highlighted how they were not in a rush to make a decision on their futures after leaving school. Instead leaving the academic environment was a key motivator for the majority. Some apprentices also took time out between completing their school leaving certificate to reflect on their futures, with many starting work or a voluntary social year to experience the world of work. Working during their voluntary year gave apprentices experience of what it might be like to work and they realised that this was a much more meaningful route for them than attending university. Taking time out before starting the apprenticeship also allowed the apprentices to accumulate some independence and experience outside of the academic realm. This was more meaningful to them than just following the prescribed and expected route for them, such as attending university.

6.1.5 Concluding comments

In conclusion, and despite some natural differences between the two cases, there were some clear emerging similarities in the apprentices' backgrounds, attitudes to work and

learning styles. The typical PharmCo apprentice was a school-leaver, straight from a GCSE, BTEC or A-Level academic background and had good to excellent academic grades. The typical ChemCo apprentice was either a school leaver, at Abitur or Realschulabschluss level, or a university dropout. This had changed over time, with previously more apprentices coming from a Realschule background; now there were more university dropouts as well as those with high academic grades through the Abitur. Interestingly, this had led to a greater diversity in ages of the German apprentices. This was noticeable, particularly in comparison to the English case, where most PharmCo apprentices were typically aged between 17 and 20, yet where apprenticeships from a societal and policy context were typically more open to those from different ages and backgrounds. This contrasted to the stereotypical image of German apprenticeships being just for school leavers. As both programmes were of a high social prestige, offering excellent training opportunities, they attracted high achieving applicants and therefore employers had the freedom to choose from an attractive pool of talent. There was also generally an equal gender split amongst the apprentices in both England and Germany, particularly in the chemical laboratory roles. Engineering and technical positions, however, were generally male dominated. This linked into gender stereotypes in occupations and professions. Many of the ChemCo apprentices in Germany were attracted to the notion of an apprenticeship due to its associations with craftsmanship. They were typically interested in fixing things, cars, mechanics, computers and DIY, particularly those in the engineering and technical professions. Yet, many of the female, as well as the male, apprentices were attracted to the apprenticeship by the fact that they were learning in a practical way. This mirrored the experiences of the PharmCo apprentices, who were also very much interested in science at school, as it was the part of school that allowed them to explore more practice-based learning. The majority of apprentices in both countries did not enjoy the academic-ridden environment of school and preferred a practically based working environment, which was also intellectually challenging. Many of the apprentices in both countries had also adopted a nomadic approach to work and education, dabbling in different subjects, re-taking academic qualifications and encountering different work experiences. Apprentices at PharmCo and ChemCo were generally inquisitive and curious in nature and had received a good to even high level of academic achievement. However, they did not want to conform to social expectations to just streamline straight into university education without questioning their own motivations and aspirations in life. This was linked to their understanding of work. For apprentices, university education was seen as indulgent and not practically orientated or indeed useful, which clashed with their everyday realities and aspirations.

6.2 The social standing of apprenticeships

6.2.1 Introduction

Both cohorts of apprentices at ChemCo and PharmCo noted that the pressure to attend university existed in both England and Germany from parents, teachers, schools and society in general. This was also linked to the type of information and careers advice they received within the school environment and the type of outreach employers provided to prospective apprentices. The social standing of apprenticeships also had an impact on the apprentices' own morale and esteem of themselves and their place within society. This section addresses these themes in more detail.

6.2.2 The battle between HE and VET

Many of the PharmCo apprentices emphasised the parental pressure young people faced to attend university and to not consider any other routes in life. Particularly, with degree apprenticeships, parents, if their child was a high academic achiever, would tend to prefer them to go down the traditional university route. The pressure to go to university definitely existed for the apprentices, particularly because their friends typically went down this route. Most of the apprentices were the only ones out of their friendship group to decide to do an apprenticeship. Hence, there tended to be an underlying stigma towards apprenticeships from a societal perspective for the apprentices from within their social networks. Many apprentices commented that they thought that friends might think they had received bad grades and that that was the reason why they were pursuing an apprenticeship; not because they really wanted to. Despite the general low social standing of apprenticeships, apprentices highlighted that this stigma changed within their friendship groups and personal networks as people grew to recognise the benefits of completing an apprenticeship. This included lack of student debt, good career opportunities and the chance to earn a wage whilst studying. In particular, the backdrop of the burden of paying significant fees for a degree in the UK, made the degree apprenticeship at PharmCo a best of both worlds option for the apprentices. Apprentices could complete their degree alongside practical learning on-the-job, making them highly attractive within the jobs market whilst not incurring any student debt:

"The free university, I haven't got student debt. But I think, for me, the most important thing is the experience. I think so many people are coming out of university now trying to get a job and if you haven't got any relevant work experience, you're not going to be able to compete with those who do."

Apprentice 1-P

Apprentices were therefore aware that of their position within society and the fact that transitioning into the labour market from school was not as straightforward as it initially

might seem. The need for experience and qualifications was essential to progress. For many, having luck within the labour market felt like the lottery in terms of whether they would actually find a good job or not. The need to constantly better themselves from a work experience and qualifications-based view was constantly at the back of their minds. This was a core reason why the PharmCo apprenticeship programme appealed with its knowledge-based focus on science, gaining qualifications and experiencing a high-skill workplace environment. Indeed, the apprentices' friends and family were surprised that apprenticeships could be high-skilled and lead to a degree or a good job. This perception was mirrored within the school environment. One of the largest barriers both sets of apprentices had faced was the lack of information given by schools about apprenticeships. Many of the apprentices had heard about the PharmCo apprenticeships by chance and had not been informed about apprenticeships at school. The apprentices agreed that their schools or career advisors had little knowledge of apprenticeships. They also felt uninformed about career routes that did not involve university and were therefore unsure about their futures. There was a drive and pressure for the apprentices to apply to university. Although some schools were slowly changing their attitudes and expanding their knowledge on apprenticeships, there were still clear challenges in terms of increasing the social standing of apprenticeships within the school system. Some apprentices noted that their school, for example, now had a Head of Apprenticeships, to try and increase the number of students applying for apprenticeship positions. A key challenge previously lay in the fact that schools had previously been monitored and assessed by OFSTED on the number of pupils who attended university, which resulted in more financial rewards for schools. This, in turn, had impacted the strategy schools had taken in terms of encouraging young people to go to university over pursuing apprenticeships, other VET routes or indeed just straight into the workplace. Overall there was a resounding and underlying academic philosophy to careers advice and young people's futures within schools. High-performing schools, particularly those at the top of the league tables, were particularly resistant to the notion of apprenticeships, perhaps due to its low standing. PharmCo wanted to attract academic high achievers but faced the issue of finding suitable candidates as their target candidate usually prioritised a traditional university route. They typically recruited a grammar school-type candidate who did not really have a fixed idea of what they wanted to do in terms of the next stages after school. The fact that PharmCo offered a degree apprenticeship was a key motivation for them to apply for this specific apprenticeship in the first place over other apprenticeship opportunities, which typically only offered only college courses.

PharmCo were well known for promoting the programme to local schools, with apprentices, managers and ScienceSkills promoting apprenticeships regularly to local

schools. Many of the apprentices worked as STEM outreach ambassadors for the company, promoting apprenticeships to school students. Through their role as STEM ambassadors to schools, apprentices frequently had to try and convince students to consider apprenticeships as a viable career path, which was a challenge as most were not open to the idea. However, some of the current apprentices had heard about the apprenticeship programme through this strategy. Most of the apprentices came from the local area, particularly in the first cohorts of the programme, so awareness of the apprenticeship programme also came largely from word-of-mouth initially. Overall, the apprentices agreed, that in general, there needed to be more communication between schools and businesses to effectively increase awareness of apprenticeships. As awareness of the programme increased, more apprentices from different parts of the country were applying, particularly for the degree apprenticeships, which carried higher social prestige. This was a barrier for apprentices, who had to coordinate moving to a new place and organise travel and accommodation, compared to local apprentices but was a signifier that awareness of apprenticeships was increasing nationally.

Since most of the ChemCo apprentices came from an Abitur or a good Realschulabschluss level, they had experienced the pressures of the academic environment at school. Many of the apprentices highlighted how they felt burned out from completing their school leaving certificate at school and needed time to process what their future career path would look like:

“I already noticed in my Abitur that if I go straight to university, I’m going to burnout. I was in this school routine. That just wasn’t possible anymore.”
Apprentice 2-C

Overall many of the apprentices had felt uncertain of their futures and felt pulled in two different directions, i.e. between completing an apprenticeship or studying for a degree. This was underpinned by the take-for-granted rationale to attend university, which was supported by the endless expectation to continually improve qualification levels within the educational context. Overall this expectation was driven by a general philosophy that university education was more superior and better than an apprenticeship:

“It’s just that studying at university is better somehow. It’s kind of the consensus.” Apprentice 11-C

This pressure to attend university led young people to consider university even though they did not know what they wanted to study or if university was the best choice for them. The base line of education never seemed adequate enough within the apprentices’ educational environment and there was always pressure to improve grades and qualifications. Hence, the apprentices highlighted that the apprenticeship was not considered aspirational or “good enough” in the bigger picture of wider social and

professional expectations. This reflected the wider drive of educational expansion within Germany:

“School is always, you have to do your Abitur, you have to study, everybody pushes upwards. Even people where you would have said earlier, stay at a Realschule, do an apprenticeship. They are now brought up to university and then it's hard at university.” Vocational Teacher 1-C

Overall, the pressure to study came from family, friends and teachers. There was a sense that going straight to work or to an apprenticeship was viewed as not socially acceptable within the school environment. Apprentices were pushed by teachers to follow the academic route, whilst the working path was often disparaged. Some apprentices also reflected that their parents held the motivation for them to attend university because they never had this chance to themselves when they were younger. With the expansion of education and the increased inclusivity of HE, university was the expected route. However, apprentices also highlighted the fact that there was a lack of logic in attending university; with the influx of graduates on the market, there was talent missing within the vocational labour market, which they then were able to exploit.

Despite this, the majority of the apprentices explained that their families did view their apprenticeship in high regard and social standing. This was partly because of the chemical industries' high pay tariff and ChemCo's reputation as a high-quality employer in the area. Apprentices explained, for example, that an apprentice with a smaller employer with a lower ranking or pay rates would not be viewed so favourably. However, it was also often due to the fact that apprentices' family identities and backgrounds, rooted in craftsmanship, provided a stamp of approval for this line of work. This was linked to the general knowledge the apprenticeships in Germany, particularly in the manufacturing industries in large businesses like ChemCo, were of high quality. In general, families were proud that their children were following in the footsteps of craftsmanship and apprenticeship, this despite the growing popularity of HE in Germany. In fact, the philosophy of craftsmanship and apprenticeships seemed diametrically opposed to the notion of attending university. This was linked to a more class-based notion of work. Hence although there was a pull for many families to be proud for their children to be the first to attend university, as highlighted above, many of the apprentices' parents were equally proud that their children were maintaining family traditions and lines of work as it aligned with their own identities. The apprentices' family backgrounds within practically orientated environments were thus a significant factor in developing their sense of ambivalence to HE. Hence, and despite the rise of young people choosing a university path in Germany associated with the overall the pressure to increase educational levels, apprentices at ChemCo did not follow societal expectations to take

the academic route. Instead this pressure made them reassess their options and realise that an apprenticeship was actually for them. The apprentices were also savvy about the overall state of the labour market, realising that there was increasingly an over-supply of graduates in the jobs market; they wanted to bypass this competition. They therefore rebelled against current societal norms and took a more of what was considered to be outdated and old-fashioned route through choosing an apprenticeship.

The academic pressure of school and expectations of attending university was also clear in the career's guidance, apprentices experienced at school, particularly Gymnasiums, which were focused only on choosing the right academic subject rather than information on apprenticeships. Some apprentices highlighted that because they attended a Gymnasium, they were not given the formal option to complete a mandatory internship, unlike other school levels. Some thus organised internships by themselves and highlighted the added advantage provided by them, in terms of providing an insight to the world of work. The lack of awareness of apprenticeships and internships, particularly at Gymnasium level, disadvantaged people who were unsure of their future and many commented that it also added to the growing number of university dropouts.

6.2.3 Rejecting academia: Pursuing a vocational route in life

Many of the PharmCo apprentices very much rejected the notion of academia and a university education in general:

"It was always, 'You will go to university.' I stopped them and like, 'I don't actually want to go to university.' At the time, it wasn't right for me".

Apprentice 11-P

Many of the apprentices also reflected that they did not feel ready to go to university. Deciding to go to university, especially with the burden of having to pay significant fees, was a big decision to make and one they did not take lightly. Overall, they rejected the notion of going to university just for the sake of it despite feeling the social pressure from schoolteachers and friends. The apprentices viewed university education as advantageous only if it was an occupationally relevant degree that led them to a structured occupation. Therefore, studying a subject that they were overtly passionate about was not the biggest priority for them compared to getting a good job and wage. As such they did not rush into applying for a university course to later find out that it was not suitable for their career aspirations. They also did not feel the need to make quick decisions and to follow the stereotypical route of university. Some of the apprentices were unaware of the best routes to take to get into the science industry. The apprenticeship was therefore considered as a strategic route to "test the waters" of the industry environment and find out if it was right path for them. The apprentices were

open-minded that they might change their mind at a later date and could then even take advantage of applying for a student loan.

Some apprentices had though actually applied for university but did not gain the right grades to get into their chosen course or university. Also, some felt that universities were not even open to their qualifications. For example, many noted that that BTECs, which were equivalent to two A-Levels, were not considered as favourably by university entrance requirements than A-Levels and felt they were at a disadvantaged because of their college status. Hence, in general, apprentices felt there was a general inconsistency between the HE and VET routes in society. Apprentices understood the social prestige and hierarchy of the labour market and that a university degree did not necessarily grant them immediate access to a good job. Weighing up their options, an apprenticeship aligned better to their style of learning. Although many of the apprentices did not identify with the concept of going to university originally, they reasoned that the degree apprenticeship at PharmCo gave them an entirely different experience to a typical degree; exposure to industry and practical learning. The practical component of the apprenticeship provided them with the employability and earning capacity they were seeking whilst also offering the prestige of having a degree. Having a degree apprenticeship was therefore a win-win situation for the apprentices in terms of their future job prospects without the debt of going to university.

There were many ChemCo apprentices who had attended university but had dropped out later and then decided to pursue an apprenticeship. Indeed, ChemCo had an active strategy of recruiting university dropouts due to their academic potential but also because managers noted that they typically were more secure and mature in themselves after leaving university, in terms of their career aspirations. Many of the apprentices who had dropped out of university remarked that ChemCo was the only company which had responded to their application. Those who had dropped out of university had more life experience but had pursued less focused paths in life, dipping in and out of different options, dropping out of university and working in between before finally opting for an apprenticeship.

Apprentices highlighted that this nomadic style to their educational and career development was a discovery process for them in an emotional and professionally led way. In many ways this mirrored many of the PharmCo apprentices' experiences, who unlike the ChemCo apprentices had not attended university, but had adopted a similar nomadic approach, dabbling in different fields and work experiences before arriving at the apprenticeship. Going to university was a taken-for-granted route in life to many of the ChemCo apprentices, especially since most had their Abitur, where at the Gymnasium it was more expected to adopt an academic route:

“For me, all I ever wanted to do was go to university. I never thought about it any other way...But that didn't work at all for me...I said, no, I miss the practice, I need the practical learning...I pulled the emergency brake and said that I wanted to do an apprenticeship.” Apprentice 9-C

Hence, whilst they initially viewed university as the only way to progress in life, it was only when faced with the realities of university that they started to rethink their options. Most of the university dropouts had pursued engineering or science-related degrees such as chemistry, biology or food science. The hardworking academic mentality of these apprentices started to fracture during university, when they realised that their driven approach had been misdirected within the general expectation and pressure to attend university. Hence, despite being high academic achievers, the apprentices who had dropped out of university, identified as being more practical learners. The reliance on theory and individually led rote learning did not meet their own learning styles or ways of thinking. They preferred working practically, creatively and, with their hands rather than learning by memory. Studying at university could also mean committing to a specific degree programme, which might involve plunging into an unknown territory and subject that they had not really pursued so specifically at school. Equally, the pressure to attain good grades and finish degrees on time in Germany had become much stricter since the Bologna reforms. Hence university increasingly reflected the standardised and strict nature of school.

6.2.4 Expectations and social attitudes of apprenticeships

Most of the PharmCo apprentices initially believed that apprenticeships were focused towards more low-skill and vocational occupations. Equally other apprentices completely disregarded the idea of an apprenticeship when others suggested it to them, due to the low social perception of apprenticeships:

“When you said ‘apprenticeship’ to me, I was like, ‘Oh, that doesn’t sound good,’ or ‘That sounds like something that if you didn’t get into university,’... I was kind of very maybe a bit snobby about it because I just didn’t know enough about it.” Apprentice 2-P

This mirrored many of the ChemCo apprentices’ initial view of apprenticeships, particularly those who initially attended university and had never considered an apprenticeship. Despite this, apprenticeships in England did seem to carry a significantly lower social standing than German apprenticeships with their stronger sense of quality training opportunities. The low social standing of apprenticeships in England seemed to reflect on the PharmCo apprentices’ general esteem and confidence of their place within society and the labour market. Many of the apprentices seemed to under-estimate their

potential in even securing the position and as a result downplayed their chances. Apprenticeships were still not the established route to take for people their age and apprenticeships still carried an image of being less prestigious than going to university. Apprentices therefore took a somewhat blasé attitude, which was offset partly by a lack of confidence in their own abilities but was also combined with a more carefree and nonchalant approach. Apprentices at PharmCo carried a contradictory status for someone of their age. On one hand, they were academic high-achievers and smart, yet on the other hand, their lack of interest in university created a different identity for them as someone who was not pursuing the so-called “best” and high achieving route, which reflected the societal pressure to generally attend university. The low social standing of apprenticeships also impacted their general attitude to securing quality placements and working conditions. The apprentices seemed to just accept the precariousness of their future within the company and the fact that they were not even employed by PharmCo, even though they were clearly dissatisfied by this arrangement. They rationalised these realities by adopting a nonchalant attitude to the apprenticeship, justifying their situations by stating that they were keeping their options open rather than committing to a lengthy, fixed and stable position. For example, one of the apprentices chose her apprenticeship over another longer more stable apprenticeship, commenting that:

“I’m a bit of a commitment-phobe so I picked this one as it was shorter”

Apprentice 6-P

On the other hand, many of the apprentices had also applied for other vacancies and apprenticeships or were studying at college and therefore were less dependent on needing to get the apprenticeship. They took a more carefree approach and were not desperate to be recruited into the apprenticeship. The low social standing of apprenticeships also clouded the apprentices’ expectations of how the apprenticeship would actually play out in reality within the workplace. All the apprentices agreed that the apprenticeship was not what they expected it would be. Some of them did not really have any expectations whatsoever whilst others felt like there was no clear descriptions of what the apprenticeship actually entailed and what it involved. Many of them had the stereotypical image of apprentices making tea and doing photocopying. In general, they viewed the concept of an apprenticeship as perhaps menial or dogsbody work. The apprentices’ expectations of the apprenticeship mirror the general low esteem apprenticeships hold as a viable and high-quality career route in England. One of the apprentices had previously completed an apprenticeship in a different industry, where she had to make cups of tea for the whole office and do more general admin rather than carrying any more responsible tasks and, as a result, thought the apprenticeship at PharmCo would be rather similar. The apprentices therefore generally viewed their own apprenticeship as being a helper, assistant or shadowing role, completing very basic

tasks, but one with little autonomy or responsibility. In this sense, the apprenticeship scheme was viewed as a step on the ladder to industry and the workplace. Apprentices visualised their role almost as if they were a tiny cog, part of a wider machine or system of the company; they expected that they would only have a small role to play in the bigger picture of the company:

“I pictured that I would be on one floor prepping samples and they would be sent to scientists on the next floor and they would run them.” Apprentice 1-P

The reality of the role was much bigger than they expected. The stereotypical hierarchical depiction of the corporate world did not materialise into reality for the apprentices. Instead of being a helper or an assistant they soon realised that they needed to identify as aspiring to be a scientist and to actively and individually embrace different projects and responsibilities. The apprenticeship therefore exceeded the expectations of the apprentices.

The general low expectations of the apprenticeships for the PharmCo apprentices contrasted to the higher expectations of the ChemCo apprentices, who anticipated a structured high-quality experience with good employment benefits. This reflected the general oversupply of HE students and undersupply of apprentices in Germany, leading to increased agency and choice for young people within the apprenticeship market. Such demographic change has thus provided increased freedom for apprentices to realise their ambitions. Companies no longer had the same amount of control to pick and choose candidates; instead applicants now had increased access to a diverse range of opportunities. However, the increased agency imposed by demographic change was typically only exclusive to those with an Abitur, who had profited by the wave of educational expansion in Germany. The combined effects of educational expansion and demographic change had therefore created a situation where the ChemCo apprentices both had high expectations of ChemCo as an employer but also had increased confidence and self-esteem within the workplace. This contrasted to the situation at PharmCo, where the opposite was observed. Despite this, it was observed that Abitur students typically squeezed those with lesser qualifications out of the labour market. The expansion of education, with the increase of Abitur students, also led to a general pressure to constantly upskill within society, which in turn had a greater effect on lower-achieving students. Hence, although the social standing of apprenticeships in Germany has been declining in comparison to HE, higher qualified candidates were profiting from their superior position within the labour market. Lower schooling levels such as Realschule and Hauptschule levels were declining in social prestige, which was having a negative effect for those students in the apprenticeships market. The trade union representative also highlighted that large companies like ChemCo used to invest in

company-based individualised support teaching from dedicated instructors for less well qualified apprentices to help them catch up on their theory-based training within the vocational school. This had been reduced due to the expense of this additional training and also reflected the increasing supply of well-qualified applicants. The union representative highlighted greater need to return to this model, in line with the wider pressures imposed by demographic change.

Therefore, this sense of entitlement and confidence was typically only present with those with a higher schooling background. An Abitur provided increased bargaining, agency and control over career progression as well as increased opportunity and confidence within the workplace over those with lower school leaving certificates. Vocational school was considered to be relatively easy for apprentices within an Abitur as they had enhanced expertise in the subjects already, which gave them both more space to relax but also added potential to work harder within the workplace. The other added advantage of having an Abitur was that apprentices could shorten their apprenticeship from three and a half years to three years, which was a general expectation within the company. This process was called “moving up” and typically applied to 90 per cent of the apprentices, reflecting their general high standard and academic achievement. This depended on a good school leaving certificate, good performance during the apprenticeship and a recommendation from their training supervisor. There was also the option to shorten the apprenticeship even further, by one year. This was incredibly rare but could apply to those who had already completed a degree. Hence, overall, ChemCo apprentices with an Abitur had increased agency, not only within the labour market but also within the company in terms of their future career progression. Apprentices with an Abitur could exploit both the wider labour market and the internal labour market within the company due to the changing conditions imposed by demographic change.

6.2.5 Concluding comments

Apprentices in both England and Germany felt the constant underlying pressure and expectation for them to attend university over considering any other professional routes in life. In Germany, apprenticeships were not viewed as low quality or socially unfavourable, particularly at a company like ChemCo, but it was clear that their prestige was gradually decreasing compared to HE. An apprenticeship at ChemCo was considered the gold standard of apprenticeship training by the apprentices' social networks of family and friends. There was an overarching expectation for apprentices to attend university though and an apprenticeship at ChemCo was considered socially acceptable or the next best thing to university. The social standing of apprenticeships in Germany contrasted to England, where apprenticeships generally had a much lower social prestige and awareness, which was reflected in the lack of awareness of

apprenticeships in schools as well as the apprentices' own initial expectations of the apprenticeship. Apprenticeships were quite clearly not considered to be as prestigious as university education, which impacted on the apprentices' general identity, experiences and expectations of their careers within society. Although an apprenticeship was not advocated as being the mainstream route in life, ChemCo apprentices were not overly influenced by societal pressures and instead noticed the advantage of the opportunities made available to them via the apprenticeship market. This was mirrored even by those apprentices who had previously dropped out of university and who quickly noticed that a degree was not particularly advantageous to them. University studies were considered indulgent and privileged compared to working and this attitude reflected the apprentices' family and class backgrounds, where working for a living was the preferred way of life. Equally apprentices at PharmCo also rebelled against the notion of going to university, which was even more of a departure from the norm given that apprenticeships were less defined as a credible route in England. Apprentices in both countries were savvy and aware of the pressures of the labour market in this way and viewed the apprenticeship as an escape route out of the challenging nature of the youth labour market. Despite this, apprentices at ChemCo in Germany seemed more confident in nature compared to their English contemporaries at PharmCo. This was indicative of the emerging picture of demographic change and educational expansion in Germany, which had increased the agency and bargaining capacity of high-performing students with the Abitur within the labour market. The opposite was observed at PharmCo in England, where apprentices accepted their more precarious realities within the workplace and adopted a more blasé and less focused approach to their careers; this reflected the overall low social standing of apprenticeships in England.

6.3 The apprenticeships as a route to securing agency

6.3.1 Introduction

Earning a salary and working was a core aspect of most of the apprentices' identities as well as their general motivation in life. This contrasted to the more indulgent and academic notion of attending university, which they actively rebelled against. Instead they embraced the notion of being "grown up" and gaining independence financially and professionally, and through this, surpassing the pressures of their respective labour markets.

6.3.2 Standing on your own feet: The route to financial independence

A key motivation amongst the PharmCo apprentices for doing an apprenticeship was the access to a salary and the freedom it brought. Rather than having to depend on parents or carers, the apprenticeship brought them some financial independence. Earning

money rather than going to university or college was a key draw for the apprentices who prioritised earning a wage over academic education. The latter would mean they would need to work part-time or weekend jobs to support their educational choices; an apprenticeship surpassed this challenge. Having financial independence also bought with it a more “grown-up” lifestyle for the apprentices. Unlike other young people their age, they could start to save up for deposits, buy houses and move out of home:

“So, you can kind of maybe give yourself a good start in life. So, there’s not many 20-year olds that are looking to buy a house...it kind of gives you a good start in life.” Apprentice 4-P

Some of the apprentices stayed at home with their parents and did not have any noteworthy responsibilities; this allowed them to save up for deposits. Others viewed their salary as an extra bonus whilst they remained living with their parents. The apprenticeship was therefore financially advantageous for them. Earning a wage, however, did facilitate the apprentices to achieve more freedom in life, which in turn led to added responsibilities. Although they had less freedom in terms of what they could do day-to-day in a personal capacity as their university-attending friends, since they needed to work regular hours, earning a salary gave them more control over their lives. Learning to drive, living away from home and everyday responsibilities meant that they slowly became more independent over time. This new more grown up lifestyle brought the apprentices more structure and responsibility. They now felt like they had a sense of stability and routine in their lives, compared to before where they were on a more uncertain route in terms of their future career plans. Working on-the-job, meeting deadlines and getting into the routine of working every day was also an intense learning curve. This increased the apprentices’ confidence with working with different groups of people and overall increased their inter-personal and organisational skills, which also translated into their everyday lives. Many of the apprentices had also grown up in the surrounding town or villages around PharmCo and felt like the apprenticeship was a route out of this lifestyle, where everyone knew each other, and everyday life stayed the same. Doing the apprenticeship gave them the opportunity to escape this reality, exposing them to a different aspect of working life and new grown independence. Growing up in the area and having friends and family who worked at PharmCo was also an advantage, in terms of integrating into the culture and the way of doing things at the company as well as having established pre-existing networks:

“My step-mum works here. My mum works here. My dad used to work here...So, I knew other people on site as well from family friends and stuff, so it’s been really easy to sort of slot in.” Apprentice 6-P

However, despite the exciting aspects of independence, parts of the everyday life of the apprenticeship were unglamorous, like commuting long distances to work, waking up early and embracing the everyday realities of going to work every day. The apprenticeship was also a journey for the apprentices in becoming more mature and independent in their personal lives. This contrasted to their previous experiences at school, which they felt had a more spoon-fed culture and pre-planned approach to it.

“School you have a timetable set out for your day. You don’t really have to prioritise your own time, it’s already laid out for you...it’s quite a rigid structure. Whereas here, you have to make sure you prioritise everything yourself...I quite enjoyed like the independence and quite enjoyed the freedom to be able to be like, ‘Here’s my work, I’m just going to do it and get on with it.’ ...I feel like I was quite mature already.” Apprentice 2-P

There was also a sense though that for many of the apprentices, they had always felt mature and that going to work was a natural progression for them. Maturity was almost part of their ingrained nature and attitude to life and the apprenticeship, unlike school, allowed them to express this side of their personality.

The key motivation for applying for an apprenticeship for the ChemCo apprentices was to train in a practical occupation, combined with good working conditions, progression and pay opportunities. Hence, earning a good wage was also a central driver in their pursuit to undertake an apprenticeship, much like the PharmCo apprentices. ChemCo was not necessarily their first choice in terms of employment opportunities; some wanted to go in completing different directions such as the police. Others were ambivalent so long as they were working in a technical field. However, the other side of completing an apprenticeship was the increased daily responsibilities and expectations of the workplace. Apprentices needed to adjust to working life and the transition from school to work was fairly substantial. Apprentices were expected to work from 7am to approximately 3-4pm and some apprentices lived outside of the nearby area, meaning they had to get up in the mornings as early as 5am. Work was also often organised around different shift patterns involving early morning starts, which was both physically and mentally demanding. However, apprentices equated the workplace with responsibility and apprentices were motivated to meet these expectations as they saw this transition as pivotal for their futures. Indeed, the apprentices explained that they viewed the apprenticeship as a mandatory stage they had to complete in order to ensure secure pay progression in the future, particularly within the German context where the minimum wage was not really enough for them to live on:

“It is quite difficult to get a well-paid job without an apprenticeship, at least here in Germany. So, you get jobs, but we have the minimum wage

here... You can make ends meet with that, but you can never afford anything. You have a car, but not a nice one. You have an apartment, but not a nice one. So, you never really get anywhere. That's why you need an apprenticeship here." Apprentice 3-C

An apprenticeship was therefore essential to ensure a good enough pay for the future for the apprentices. Some apprentices had previous experience working in poorly paid sectors and professions, particularly the social care sectors which, has provided them with a reality check in terms of their future career and choices. Some argued that the proliferation of low-paid jobs, had imposed more pressure on young people to upskill and consider university over choosing a more work-based route. They felt motivated to escape a low-pay cycle in their future careers:

"I think that if you do a job, you have to have enough money to be able to afford something. I don't go to work to live at the subsistence level. For that we have Hartz IV." Apprentice 8-C

With the introduction of the minimum wage in Germany in 2015, there was concern that young people might be initially deterred from completing an apprenticeship, with the appeal of higher wages, less responsibility in terms of investing time in training and increased flexibility in the service sectors as the minimum wage was not applied to apprenticeship wages. However, the apprentices took a more long-term view of their career. Money was a central motivator for the apprentices not from a materialistic point of view, but in order to secure a good future for themselves. Apprentices highlighted the fact that there was a wider social pressure and general feeling of angst and uncertainty about their future earning potential. From a societal perspective an apprenticeship was not considered enough to secure a good standard of living. Many of the apprentices had no motivation or passion to study and just wanted to be "normal" workers and earn a comfortable salary. Gaining an apprenticeship at ChemCo was rationalised by the apprentices by the fact that it was a good quality training environment in a well-paid occupation, which would hopefully get them out of the pay predicament in Germany:

"When you have finished your apprenticeship, you can't really make a living anymore, everything becomes more expensive, apartment and such things and the earnings are so suboptimal. That's why many people want to study, they always think, we have to study so that we can earn a lot later. That in itself is right to think so, but it is also sad, in my opinion, when you are a normal Geselle - you need normal workers." Apprentice 2-C

Therefore, completing an apprenticeship was a necessary prerequisite to a good quality of work and life. Apprentices viewed the ability to earn a good wage as essential, and,

equally a central part of their identity and background, where being financially independent was important:

“My dad also had an apprenticeship and so does my brother...we are just, I say, a working-class family. And then they said, yes, when you study, you don't earn any money...And that's why I never wanted to be a burden on my parents, so I earn my own money. That's how it is at home.” Apprentice 8-C

The apprenticeship therefore provided the apprentices a route to financial independence so they could stand on their own feet and not be dependent on their parents. Studying would mean drawing down upon family resources more, which for many apprentices, was an unrealistic prospect. Others highlighted that they decided against studying as this would mean they would need to find part-time jobs to finance their studies. From a time, perspective, university studies meant a three-year degree, often followed on with a Masters degree, equating to five to six years without earning. Hence an apprenticeship, for them, made more logical sense from both a financial and career point of view. Despite this, all German university students have the opportunity to apply for state funding (Bafög) to support their living costs at University, which would need to be repaid later. Apprentices highlighted however, that they viewed the Bafög as insufficient, with extra parental support realistically needed and certainly not as much as their apprentice wages.

Apprentices were also resistant to asking for extra financial support during their apprenticeship or were simply unaware that it existed. This again, mirrored, their underlying drive to be independent in life and stand on their own feet. There was apprenticeship aid available for apprentices who needed extra resources for moving location or if they did not have access from parental support or resources. Apprentices were also entitled to child benefit if needed. However, most of the apprentices were from the nearby area and many lived at home, much like the PharmCo apprentices, so had the financial security of not needing to pay rent, for example. Others had moved for the job or were moving into their own apartments or flat share arrangements but none of the apprentices interviewed had any caring responsibilities.

6.3.3 Stability, control and certainty: Being proud to earn a living

Some ChemCo apprentices also highlighted that the prospect of going to university led them to feeling even more uncertain about their futures. Friends and family with degrees typically had trouble finding good quality employment. Having the apprenticeship on their CVs made them feel more stable and in control over their future path, much like the PharmCo apprentices. A degree carried a level of uncertainty and was not clearly enough aligned to a particular job in the labour market. The dual nature of the apprenticeship

provided the assurance that the skills they were learning were directly applicable to the labour market. Gaining real on-the-job experience amounted to more for the apprentices than theoretical knowledge. Apprentices reflected that they were happy they realised that they choose a route in life that they actually enjoyed and one that they felt like they had some agency over, away from the environment from school where they felt like they had little agency.

Hence an overall theme for both countries was the sense of control the apprentices sought out in their daily lives and professional aspirations. The PharmCo apprentices' outlooks contrasted to the stereotypical aspirations for someone their age. Unlike many of their friends, they did not aspire to the whole social culture and going out experience of university, which did not particularly appeal to them:

"I mean, it's weird like hearing about friends that I had at secondary school and they're all at university and they're going out in the evenings and like I don't do that. That's not really the sort of thing I wanted to do anyway, which was probably part of the reason I went for an apprenticeship...I prefer this environment. People aren't so petty." Apprentice 3-P

Getting a job and earning a wage was more important to many of them than experiencing the social set-up of university. Some did feel like they might be sacrificing the social aspect of university life but also felt that they could recreate the university experience within their apprenticeship. For example, they had their own social network of apprentices where they regularly socialised. Apprentices rationalised their experiences by the fact that they were earning money. Their earning potential, compared to their friends who had gone down the university route, bought them capital and independence in their opinion. It also differentiated them to their peers at university, which helped create their own unique identity as a worker. There was a somewhat nostalgic undertone to this assertion, however, by the fact that they very much had to adhere to the rules and regulations of the workplace and adult life.

"It does mean we can't go out on Wednesday nights or anything like that, but it's never really appealed to me. I guess I'm boring...I've had so many people from school say that to me. They're like, 'But you miss out on the uni lifestyle and all that.' ...and they're like, 'Well, I've got no money.' And they're like, 'Where do you get your money?' 'I work full time.'" Apprentice 8-P

Bypassing the traditional route of university almost strengthened the apprentices' identities as more practical learners and workers. They fully embraced this identity, which, in turn, led them to embrace the apprenticeship at PharmCo.

The apprenticeship route, to ChemCo apprentices, and their families, provided the ability to earn whilst learning, and to make a decent living. An apprenticeship also linked to their family background, in terms of class and of their own parents' professional backgrounds. Some apprentices therefore viewed studying as a burden on their family and had also been brought up to be proud to earn a living. HE was viewed as excessive and unrealistic to the demands of everyday life and the underlying need to earn a wage as a family expectation and central identity part of their upbringing. Indeed, apprentices argued that university education was not a guarantee for a high paid job. Instead, they viewed their apprenticeships as stepping-stones to financial independence, which was a central motivator for them. They also saw themselves as being a step ahead of graduates, who would only start earning a salary much later in life. The apprenticeship secured the apprentices a route to a good education and job prospects. This combined with the prospect of working more practically and not just at a desk, led apprentices to apply for an apprenticeship. Most of the apprentices explained that they viewed themselves as practical, not theoretical learners:

"I'm not really interested in theory and I like to work with my hands. Developing and constructing something myself is my thing. And since this is rather rare during your degree, it was clear from the very beginning."
Apprentice 11-C

This leaning towards craftsmanship heavily influenced their career aspirations, and, as such, deterred them from the prospect of university studies. The apprenticeship offered them freedom and ease in learning in the way they preferred, and in turn, enhanced stability in everyday life. Despite being part of a work environment, apprentices had not abandoned the school environment entirely though; they regularly attended the local vocational school. Not only did they have the security of a good training environment and paid employment, they could also escape the pressure of school and take a more relaxed approach to education. Apprentices equated the workplace to generally having more freedom and autonomy in everyday life whereas school was associated with a stricter and more restricted approach.

6.3.4 Concluding comments

Overall, the apprentices in both countries viewed money as an enabler for independence and the key motivator for completing an apprenticeship, compared to the dependence associated with pursuing a degree and relying on parents to finance lifestyle choices. Apprentices were also motivated to forge stability in their lives in terms of job security but also in their personal lives. Apprentices took a long-term and strategic approach to their education, training and future careers. Earning a wage gave apprentices in PharmCo particularly a sense of differentiation to their peers at university; they could

start living away from home, saving for deposits, learn to drive and have a sense of stability and structure through their professional pursuits. Working also gave them a new sense of confidence, in terms of their interpersonal skills. Overall, they embraced this new sense of maturity and an overly hard-working ethos as their identity, which contrasted to their friends' carefree and perhaps immature approach to their lives at university. Unlike the PharmCo apprentices, apprentices at ChemCo took a more pragmatic approach to completing their apprenticeship. An apprenticeship was viewed as essential within the German labour market to avoid the pitfalls of low-wage work. Therefore, they viewed their need to show responsibility and maturity as mandatory to secure their future lives and careers. Craftsmanship and practical skills were a means of pursuing these ambitions, and reflected the apprentices' family backgrounds, identities and previous working experiences. Again, by building up their own portfolio of skills, they could become financially independent, rather than expending resources through attending university and learning more theoretical skills; an apprenticeship was therefore a route to life and work. Overall, apprentices in both countries sought out opportunities to increase the sense of stability and control in their lives and an apprenticeship was a route to achieving that.

6.4 Discussion

6.4.1 Introduction

This chapter has analysed the PharmCo and ChemCo apprentices' socio-economic and cultural backgrounds and identities, investigated the social standing of apprenticeships in their countries and explored their lifestyle and career choices. Chapter 5 highlighted how apprenticeship policy changes contributed to the ongoing marketization of the system (Lloyd and Payne, 2016; Keep, 2012) and leading to a fragmentation of apprenticeship organisation at PharmCo, impacting apprentices' employment rights and conditions. It also showed how apprenticeship organisation at ChemCo strengthened through pressures of demographic change and educational expansion. However, how the apprentices negotiated their own identities and sense of agency within this changing context and how this shaped apprenticeship organisation (Fuller and Unwin, 2004) is unaccounted for in the last chapter. This chapter explores how macro changes are affecting apprentices' sense of agency and identity within the context of their own backgrounds.

Understanding their identities and backgrounds is essential to understand their experiences of transitioning into the workplace and what impact this might have on their development within the workplace (Brockmann, 2012). Indeed, background and sense of identity can influence agency and resistance (Willis, 1977; Dolby and Dimitriadis,

2004) to changing expectations within the workplace or educational realms. Understanding the interplay between national context and institutional norms with apprentices' own identities (Brockmann, 2012; Evans, 2002) can provide insight into how apprentices negotiate and translate their backgrounds within the realities of the workplace. The two cases will be analysed in parallel to observations in the literature, reflecting on how apprentices in PharmCo and ChemCo respond differently to these changes. This will be followed up with some concluding remarks, outlining the arguments of the chapter.

6.4.2 Comparing apprentice identities and backgrounds

Apprentices at both PharmCo and ChemCo rebelled against societal expectations, defying the rule-bound institutions of school and university, much like the lads in Willis' (1977) *Learning to Labour*. They had not enjoyed the theory-based and rote learning-based environment that school encouraged, preferring practical learning instead. This led them to adopt a somewhat nomadic approach to education and work, by retaking qualifications, changing courses, completing practical work experiences and building general life experience outside of education. The apprentices emphasised that life experience was their preferred method to "learning to labour" (Willis, 1977) and therefore a route to work; life experience for them was an apprenticeship to life. This approach differentiated the apprentices from their peers, and, as such, led to them leading entirely different lives away from the traditional realm of education. Education was viewed as indulgent and privileged and was as a space which did not exist within the 'real' world for the apprentices. This is similar to the lads' rejection of mental labour within school in favour of manual work at work in Willis' (1977) study. Despite this, the majority of them were academic achievers, gaining good grades and were intellectually curious. They used their good grades to subvert established routes to life, taking on counter-lifestyles enabled through work that rejected what they viewed as privileged space of education. This contrasts to the stereotypical notion of apprentices being anti-learners or non-academic, highlighting the need to view apprentices as individuals with their own choices and agency in life (Brockmann, 2012). Indeed, work through an apprenticeship, was an escape from education and the competition of the labour market for the apprentices to the hope of a practical, stable and useful career route as well as independence and financial security.

Work also allowed the apprentices to embody their own individual class identities and personal interests (Brockmann, 2012). PharmCo apprentices were interested in science and technology which they had developed through school as one of the only subjects where they could learn more practically. ChemCo apprentices embodied the German notion and culture of craftsmanship in their hobbies and interests. This followed in the

footsteps of family members, who also had interests or careers associated with craftsmanship. Therefore, the apprenticeship, with its strong association towards craftsmanship, was very much set within the context of their upbringing and everyday life. Both sets of apprentices' appetites for practical learning motivated them to apply for an apprenticeship in the first place, to escape the academic environment of school as well as the general expectation to attend university. This was true of both male and female apprentices and in general there was an equal gender split in the majority of the apprenticeships (chemical laboratory apprentices). However, the much more technical or engineering fields were dominated by men in both countries. Practical learning through an apprenticeship led to a sense of freedom for both sets of apprentices; it allowed them to differentiate from their peers, learn in a field and a practical way that they found interesting and earn a living. Practical learning to the apprentices gave them agency to create their own countercultures (Willis, 1977) and counter-lifestyles outside of the academic realms of school and the expectations to attending university. Through embodying the identity of a practical learner, apprentices could carry their own sense of socio-cultural autonomy and identity. This mirrored Willis' (1977) study where the lads exerted agency by defying expectations and structures by culturally reproducing their working-class identities into their own future trajectories. Manual work allowed them to embody their identities but work in the 'prison of the workshop', much like their experience of school, also entrapped them (Willis, 1977: 4). However, did the workplace entrap the apprentices at ChemCo and PharmCo?

The countercultures and counter-lifestyles materialised in different ways for the PharmCo and ChemCo in their respective countries. In England apprenticeships were not considered a typical or well-known route and therefore PharmCo apprentices rebelled against social expectations much more than their German counterparts. Most of the apprentices were school-leavers and although had gathered experience through various part-time or weekend jobs had not experienced full-time work before. The age of apprentices in England was generally increasing to those in their twenties and thirties (Foley, 2020), so the fact that PharmCo recruited school leavers was more unusual. Apprenticeships also carried a low social standing where apprentices are often deemed to be less academic than university students in society (Brockmann et al., 2010a; Brockmann, 2012). As such, the PharmCo apprentices generally had lower expectations of the apprenticeship, particularly as they were also new to the world of work, leading them to more readily accept more uncertain futures (Evans, 2002) and precarious ways of working at the firm. This mirrors Willis' (1977) notion of partial penetration, where like the lads in his study, the apprentices' cultural reproduction of their own backgrounds leads them to cut through the ideological norms of the individualism espoused by school and university. However, their counterculture only partial penetrates existing norms and

power relations (Willis, 1977) and the apprentices find themselves in face of the irreversible effects of their cultural reproduction. Indeed, some apprentices even chose less-stable apprenticeships with non-permanent contracts to enable their nomadic approach to work and education. The low social awareness of apprenticeships within society (Brockmann, 2012) was constraining and enabling; the apprenticeship set them free from school and social expectations, but the low social standing of apprenticeships led them to a reality of poor working conditions. The apprentices accepted their reality within the workplace rather than resisting it, much like the workers in Burawoy's (1979) study. Unlike the lads in Willis' (1977) study, the PharmCo apprentices were much more obedient to enacting the expectations of the workplace in their everyday lives. However, this obedience and sense of dedication was a reflection and expression of their identities in reaction to the institutional norms, work culture, managerial expectations and general struggles they faced (Brockmann, 2012). Apprentices adopted an entrepreneurial, motivated but dedicated hard-working persona towards their daily experiences at the firm, which contrasted to the attitude of their friends at university. This collective persona (Burawoy, 1979; Willis, 1977) highlights a sense of individual agency and embodiment of their identities that departs away from the image of apprentices as purely passive (Brockmann, 2012). By personifying and living this persona, the apprentices could have access to a different kind of counter-lifestyle, where earning a wage led them to their counter-lifestyle of buying houses and cars, going on holidays, saving money and being independent (rather than dependent) away from family ties.

In Germany there was growing pressure to attend university, particularly for those with the Abitur, as the prestige of apprenticeships was decreasing. However, despite this, good quality apprenticeships in large companies were still considered socially acceptable, a reflection of their social standing within society (Brockmann, 2012). ChemCo apprentices had a sense of agency within the labour market, particularly within the context of demographic change and the increasing demand for apprentices. Indeed, many of the apprentices had Abitur qualifications with less coming from a Realschul-background, which revealed general education expansion in Germany (Bosch, 2010). ChemCo recruited a mixture of mainly school leavers and university dropouts but also career-changers looking to retrain. Therefore, many of the apprentices had much more life experience and confidence than the PharmCo apprentices who were primarily school-leavers. This growing age diversity in apprentices at ChemCo was also a diversion from the stereotypical German school leaver apprentice (Jacob and Solga, 2015) but reflected on-going demographic change (Bosch, 2010) and the increase of young people dropping out of university (Graf, 2018). ChemCo apprentices therefore felt confident, pragmatic and in control of their futures (Brockmann, 2012; Evans, 2002) than the PharmCo apprentices. They exploited the advantages of the apprenticeship labour market where

apprentices were in demand, particularly those with good grades, and where there was a clearly structured route for them to follow (Evans, 2002). They also had the knowledge that the apprenticeship would protect them from low-wage work in Germany, for example. This was aided by their sense of class identity and family backgrounds (Brockmann, 2012), which advocated for working for a living over attending university as a tried-and-tested route in life. Earning a living was central aspect to their identity and backgrounds. They aspired to be just a “normal” worker or “Geselle” (skilled journeyman/supervisor) and did not aspire to the uncertain and high-skilled individualised race (Brown et al., 2011) that HE promoted. Much like the lads in Willis’ (1977) study they did not see the value in qualifications like degrees and believed the level of conformity required to get a degree would mirror the conditions they had experienced at school. However, the workplace allowed the apprentices to wholly embody and play out their identities and backgrounds and did not entrap them in contrast to the lads in Willis’ (1977) study. Although they rebelled from school, the workplace and the apprenticeship welcomed their identities as practical learners, their interests in craftsmanship and their class backgrounds. Their sense of rebellion and counterculture that they had enacted in reaction against school (Willis, 1977) did not follow through to the workplace as their identities were readily accepted there. They did not comply and conform (Burawoy, 1979) to managerial expectations but also felt no sense of needing to outwardly rebel as they could confidently exert agency and negotiate their future within the company, in line with the increased confidence they found in their privileged position within the wider labour market.

6.4.3 Concluding comments

The apprentices at both PharmCo and ChemCo rebelled against established expectations within school to attend university, preferring to take a practical-orientated approach to learning that also valued general life experience. Education was viewed as privileged whilst the world of work was a route for them to follow their interests, gain financial independence and lifestyles they wanted. However, their sense of identities within the workplace materialised in different ways in the two companies.

At PharmCo the apprentices’ collective counter-culture culture (Burawoy, 1979; Willis, 1977) was a reflection of their own biographical identities in interplay with the norms of the workplace and the national context of the apprenticeship programme (Brockmann, 2012). They felt less in control of their futures (Evans, 2002) in the low social standing of the English VET system (Brockmann, 2012). However, the apprentices embraced this uncertain reality as part of their wider struggle and journey within the labour market, which mirrored the conditions they conformed to (Burawoy, 1979). These conditions were shaped by the marketization (Keep, 2012) of PharmCo’s upskilling (Lloyd and

Payne, 2016) approach to apprenticeship organisation. The apprentices' journey was also part of their rebellion and agency against the individualised nature of HE (Brown et al., 2011), a rebellion which carried through to their subsequent experiences within the labour market and in the workplace (Willis, 1977). At PharmCo, apprenticeship policy reforms, such as Trailblazers and the levy, had exacerbated market-led conditions in the organisation of apprenticeships at PharmCo, which led to a lack of institutional structures to support apprentices' employment rights and conditions. This reality contrasted to the ChemCo apprentices, who although rebelled against expectations from school and HE in society, did not need to rebel within the workplace anymore. Indeed, at ChemCo the apprentices' collective counterculture against the individualised nature of HE and school (Willis, 1977) led them to an apprenticeship at ChemCo and was a reflection of their own class identities, interest and family backgrounds (Brockmann, 2012). They could freely and authentically express and cement these biographical identities at ChemCo (Brockmann, 2012) within the realm of a skills strategy of DQP (Sorge and Streeck, 1987) and felt like they were in control of their futures (Evans, 2002) which meant they did not need to comply (Burawoy, 1979) to unfair or exploitative workplace demands. This reflected their growing agency within the labour market due to demographic change, educational expansion and the growing demand for skilled labour (Bosch, 2010), which had created a flourishing environment for decent employment conditions at ChemCo.

Overall, the apprentices' experiences of transitioning into the workplace in both countries was broadly reflective of the realities and changes happening at a broader national context (Evans, 2002) in interplay with their own biographical identities (Brockmann, 2012). How their identity within the workplace effects their learning and skill development as well as the politics they face in the workplace, in terms of their voice, progression and job security is unclear. The latter will be analysed in the next chapter in order to understand how their identities played out with key challenges they faced in their daily realities on the apprenticeship.

7 The politics of skill: Apprentice voice, progression and job security

Chapter 6 highlighted how apprentices' identities and backgrounds shaped their sense of agency and transition into the workplace. At PharmCo and ChemCo, apprentices rebelled against the individualised skills race (Brown et al., 2011) that promoted education, dismissing school and the expectation to attend university, despite gaining good grades.

However, at PharmCo apprentices experienced much more uncertain futures (Evans, 2002) and had lower expectations of the apprenticeship due to the English system's low social standing (Brockmann, 2012). However, the apprentices embraced the precarious nature of work (Burawoy, 1979) as part of their nomadic approach to life, a persona they embraced as a counterculture (Willis, 1977) to their peers at university. The precarious nature of apprenticeships at PharmCo had been greatly exacerbated by apprenticeship policy reforms that had contributed to a general marketization of the system and deterioration of apprentice employment rights.

The ChemCo apprentices were much more confident and pragmatic in their position in life, which reflected the more structured and transparent VET routes available to them in Germany (Evans, 2002). Although they also diverged away from societal expectations (Willis, 1977), in the workplace they could express their own authentic identities, interests and backgrounds (Brockmann, 2012) within ChemCo's stable DQP model (Sorge and Streeck, 1987) for skill development. This also reflected the growing agency and control they experienced in the labour market in Germany within the context of demographic change and educational expansion (Bosch, 2010), where employment conditions were improving at ChemCo. In both these cases, the apprentices' sense of agency in transitioning into the workplace was shaped by the social standing of VET as well as through the changes taking place in their national contexts (Evans, 2002; Brockmann, 2012).

However, so far in this study, the political agency and power relations of different actors (Lloyd and Payne, 2016) in interplay with national structures of workplace democracy and labour market institutions that mediate the employment relationship (Doellgast, 2012), has not yet been considered holistically. This chapter therefore explores the voices of apprentices, managers, labour market institutions and other relevant actors to understand how these different actors negotiated and/or resisted change and political pressures in the organisation of apprenticeships at PharmCo and ChemCo. This chapter therefore explores the politics of skill formation within the workplace within the context of policy reforms and institutional changes, asking:

How are these macro changes affecting managerial strategies and apprentices' working conditions, job security and sense of voice?

This chapter goes beyond the apprentices' initial transition into the workplace, to understand the political pressures and struggles they faced within the workplace and how this impacted upon their overall skill development. Firstly, the employment relationship and apprentice voice are investigated in the two companies, examining what impact they had on apprentice pay, working conditions and rights. Secondly, the potential career progression routes are discussed in reference to the apprentices' futures within the two companies before, finally, an analysis of the apprentices' job security is presented.

7.1 The apprentice-employment relationship: Voice, pay, working conditions and rights

7.1.1 Introduction

The apprentices' pay, conditions and general working rights very much provided an insight into the nature of the employment relationship in their respective workplaces. Pay, in comparison to competitor employers as well as the minimum wage was an indicator, as well as the projection of pay increases over the years to match apprentice progression. Pay satisfaction was also related to where apprentices lived and whether they had sufficient resources for living costs. Working hours, conditions and general rights also influenced the nature of the employment relationship. The access to support structures, in terms of formalised pastoral support systems, communication avenues with different apprentice stakeholders, or access to union or works council structures, was also emblematic of the level of equality in the employment relationship at the two companies.

7.1.2 Apprentice pay and benefits

The apprentices were paid the same salary depending on the level of their apprenticeship and what year of the apprenticeship they were in. For a level 3 advanced apprenticeship, which lasted two years, apprentices would be paid a fixed rate of £11,000/annum over both years. Upon completion, apprentices would start the level 4-5 higher apprenticeship, which led to a foundation degree and lasted three years. For this apprenticeship the apprentices would earn £15,000/annum, with an increase of £3,000/annum for each consecutive year of the apprenticeship. This yearly increment seemed to follow onto the final two years of the apprenticeship at levels 6-7, which was a top-up that led to the degree apprenticeship. Their pay was situated well above the apprenticeship minimum wage at £3.70/hour, which would roughly equate to

approximately just over £7,000/annum on a standard 37-hour week contract. The £3.70/hour apprentice minimum wage applied to all apprentices under the age of 19 and those aged 19 or over in the first year of their apprenticeship. Thereafter, the normal minimum wage would apply to those aged 19 and above after their first year of the apprenticeship (this would be £5.90/hour, then £7.38/hour for those aged 21-24 years, and £7.83/hour for those aged 25 and over). PharmCo wanted to attract high-achieving candidates who would show loyalty and stay with the company, and their attractive pay rates reflected this.

Apprentices at PharmCo were aware of the apprentice minimum wage and were generally very satisfied with their salaries, particularly since their university fees were paid for. Some had friends who were completing apprenticeships at much lower rates, which they would not have considered. Earning a full-time salary was somewhat of a novelty for the apprentices for someone their age, particularly as many lived at home with parents. This allowed them to save up for house deposits and other future plans such as paying for cars, travel and social lives. None of the apprentices interviewed had caring responsibilities so did not need to use their salary to support others but those who rented their own property had struggled more with living costs:

“There’s a lot of apprentices that live at home, they don’t pay any rent and, yeah, it’s brilliant. Save up for the houses and everything else. But I think, yeah, it’s a good wage for that. But if you’re living on your own, excuse me, no it’s not. It’s not a good wage really. It takes time, but I think once you get onto the higher apprenticeship, it’s a lot better.” Apprentice 4-P

Indeed, it was noted that there was a lack of government support for apprentices on low wages. There was government, council and college bursaries available for young people at Level 3, for example, but as the local college noted it was not clear if these opportunities were still operating. Although some of the apprentices felt a sense of insecurity at Level 3 in terms of their wages, this changed as they transitioned onto the higher and degree programmes.

Unlike PharmCo, apprentice pay at ChemCo was governed under a collective agreement and chemical tariff (see Appendix D), negotiated through the union. The chemical tariff had 13 different pay groups, which were categorised due to different roles, responsibility and qualification levels. Collective agreements also provided for holiday, Christmas bonuses, profit-sharing schemes, termination periods, allowances for manual shift work and company pensions. There was also a demographic collective agreement, where a pre-determined amount of money for each employee would be used for key issues on workforce planning, equality and diversity issues or active labour market programmes, collectively decided by the workers council and company management. Apprentices

would receive a fixed salary, which would increase every year due to inflation and union-negotiated increases. Typically, apprentices would have a starting salary of approximately 800-900 euros/month, which would rise to 1150 euros/month in their fourth year depending on the apprentice occupation. This is fully outlined in the enclosed pay tariff table (see Appendix D). This had changed quite substantially over the years, with some of the older apprentices who were in the final years, reporting that their starting salary was nearer to 650 euros/month and with a current salary of 850/month. Apprentices earned approximately 200-400 euros/month more than other apprentices at their school who were in SMEs and who did not benefit from the chemical tariff. The majority of the apprentices were very happy with their pay and benefits package, particularly since they also received bonuses, profit-sharing arrangements as well as added extras such as iPads and work uniforms; indeed, they were the highest paid apprentices at their vocational school. There were also excellent arrangements for parental leave and childcare options on-site including summer care programmes for kids as well as shared facilities like on-site the swimming pool and gym.

7.1.3 The employment relationship: Unions, employment conditions and support structures

The pressures of increased demographic change at ChemCo had afforded the union with significantly increased strength in collective bargaining and influence over employers in terms of pay and conditions. This was set in the context of growing uncertainty for apprentices' financial and housing security. The city where the site was based was particularly expensive and over-subscribed in terms of housing options. Often apprentices did not have much choice over where they lived due to housing restrictions for shorter-term contracts or had the little power to take out loans. Like PharmCo, many apprentices lived at home so had more of a disposable income. But equally there were also apprentices who rented and had scarce funds to finance their lifestyle. The chemical industry overall was, though, performing well and this provided good pay and conditions.

Unlike the union involvement of ChemCo, apprentices at PharmCo received somewhat less structured or collectively organised conditions of employment. Overall unions did not play a significant role and the apprentices were not unionised. Indeed, the voice and involvement of unions on apprenticeships had decreased. Previously the ScienceSkills board had two union representatives but this had decreased to just one. The Trade Unions Congress also tried to get a representative on the IFATE board but only employers were selected. A lack of union voice indicated a lack of representation of the apprentices themselves and their employment rights. Indeed, the employment relationship between apprentices and PharmCo and the ATA was more asymmetrical. The apprentice would typically be placed on a fixed-term contract by ScienceSkills, for

the duration for each apprenticeship level. Apprentices were initially placed on a six-month probationary period, which was carried out by ScienceSkills. This could be extended for two to three months for reasons such as performance, attendance, behaviour and attitude or not completing mandatory training like health and safety. Although it was not a common occurrence, typically one or two apprentices would not successfully pass their probation period. Any decision to end the apprentice contract would be relayed to the ATA, who would ensure that the apprentice would be informed and who would also support the apprentice in terms finding a different position in another company. Indeed, ScienceSkills managed all HR services, including recruitment, pay, performance reviews, sickness monitoring, disciplinary procedures, benefits, training and development as well as holiday leave. The ATA acted as the 'middleman' (Former head of apprenticeships-P) in the employment relationship, managing communications between PharmCo managers, training providers, the SSC, apprentices and the end-point-assessment organisation. This standardised the apprenticeship programme but decreased communication and shared decision-making between the different stakeholders. Although communication was streamlined for management, apprentices, on the other hand, had to manage receiving communication from a whole range of different sources day-to-day. As contractors, they would have preferred to be directly employed by PharmCo to create a much more transparent and efficient set-up. In particular, they highlighted the poor communication they received from their ATAs, which they strongly felt needed to improve:

"I think they're just useless personally. I've not had a good experience with ScienceSkills...So slow to respond. But then I hear that a lot – because we are technically contractors...ScienceSkills pretty much leave us be. 'As long as your line manager's happy, we're happy.'" Apprentice 6-P

In this sense, the ATA took direction from PharmCo as the company was essentially their customer. The employment relationship was therefore demarcated on PharmCo's managerial discretion. Yet, the overall responsibility for the employment laid with the ATA, which created more distance between the apprentice and PharmCo. If an apprentice was not successful in gaining employment at PharmCo, PharmCo would not have to take any accountability. Hence, responsibility for employment was actually directed onto the apprentices who constantly had to work hard and prove themselves on-the-job. Detailed accountability in the employment relationship was very much a grey and ambiguous area, which was also reflected in the communications between the ATA and the apprentice. As PharmCo line-managers were often present at the quarterly reviews with the ATA, it was difficult for the apprentice to openly discuss any issues or concerns confidentially. There were no formal, impartial or clear structures for apprentices to express any issues and if they did, it was uncertain how that information

might be used and/or how it might impact on their future. The apprentices also felt disconnected from the ATA as there had been a high turnover of ATA representatives. Apprentices did not have much involvement with the ATA and were unaware of what the ATA was actually responsible for. Some felt as if their ATA representative was invisible to them as they did not have the scientific expertise to really understand and advise them. There was a lack of formal support structures at a local level too, particularly since the PharmCo head of apprenticeships had recently left. The apprentices felt that a dedicated programme manager, with a knowledge of science, was needed to support their development together with improvement in their communication with the ATA.

The apprenticeship itself could be a lonely experience, particularly as the company was not accustomed to having apprentices. Yet the apprentices felt that the social culture was the complete opposite of their initial fears of working in an older working environment. Apprentices organised their own social committee, the PharmCo Apprentice Meetings (PAM) or sometimes known as the “out of work life” network. This involved organising regular socials, end of year events, talks with internal or external speakers, introductory events for new apprentices and study meet-ups. This created a social culture and support structure that was led by the apprentices themselves, which allowed them to differentiate themselves to other workers. This was important because it was not clear if they were perceived as contractors, employees, apprentices or workers:

“We’re half treated as contractors and half not. I think it’s a bit of how long some of us have been here and such and how much we are treated as a colleague. We’re expected to be as a normal colleague.” Apprentice 9-P

Although they were officially contractors, apprentices were expected to fit into the company culture and to act loyal and committed just like a permanent employee. However, they did not receive the same benefits and privileges, which made them feel alienated. When the company held town hall meetings or celebrations, it was not company policy to invite contractors. This created a cultural divide between contractors and permanent employees, with the former feeling as if their loyalty and work ethic was not always rewarded. Being a contractor within the company was not uncommon. After the 2011 redundancies many permanent employees lost their jobs but came back to the company as contractors. Contractors typically received a higher hourly wage but did not receive the same benefits as a permanent employee. These benefits included healthcare, life insurance, an attractive pension, share plan option, enhanced holiday allowances and formal personal development plan with training opportunities. Indeed, the apprentices’ annual holiday allowance was 27 days including bank holidays, which brought it down to 19 days. This contrasted to PharmCo’s allowance of 25 days not

including bank holidays. Apprentices had 37-hour flexi-hour contracts, which meant that apprentices could adjust their working hours to meet their own schedules. Generally, apprentices would work to the same hours as permanent employees. On Friday everyone on the site would leave work earlier, at around 3pm and many started work early, from around 7am or chose to skip their lunch break to go home earlier, which gave them a sense of autonomy.

Unlike the PharmCo apprentices who were stuck in a complex web of the employment relationship with no clear way out, apprentices at ChemCo did have a range of supportive and formalised support structures. Linked to this, apprentices very much remarked that collective agreements provided them with a sense of equal treatment within the workplace, which aided their development. Many were also union members, and believed in the value of unions:

"I myself belong to the union because I think it's very important to support that. Because employers get together and form a lobby, so to speak, why shouldn't employees do the same and so should apprentices. The trade union also does a lot for apprentices through the collective agreement. They make sure that there are good conditions for the apprentices. If something goes wrong, you can always go to them." Apprentice 4-C

By being a member of the union, apprentices felt they had some sense of control over their futures within the company, particularly with the unpredictable and tumultuous context of the chemical industry. They also benefited from the additional access to more training opportunities, accident insurance and legal protection. Apprentices could also seek out impartial and independent advice from the union if they did face any problems or issues within the workplace. Approximately half of the apprentices interviewed were members of the union and 40 per cent of workers on the particular site were union members. Support was also provided by the Works Council presence on-site who had a close relationships and cooperation with the union. As the works council was not part of the Vocational Training Act and social partnership arrangement, union influence over works council arrangements was strong to reinforce collective workers agreements and standards. Works council and unions are not formally linked by law, which states works councils should be politically neutral. However, there was a clear overlap in both parties' officials with the majority of the works council chairpersons and members being union members.

Apprentices also played an active role in running and voicing opinions on how to improve the apprenticeship programme on the youth division of the works council, known as the "Jugendauszubildendenvertretung" (JAV). The JAV was open to all apprentices or workers up to the age of 25. The JAV would have regular monthly meetings where they

would collect feedback from the apprentice cohorts and represent these to the workers council. Seven apprentices were on the committee and voted on key issues on the workers council if any changes were instigated. Currently the JAV was working on improving the feedback and performance management system for apprentices and also creating a separate feedback system run by the apprentices themselves, reviewing the different departments that apprentices visited as part of their different rotations. There was also initiative to improve communication between apprentices and instructors and improve the facilities of the apprentice staff room. The JAV also organised social events and yearly excursions away camping or visiting amusement parks as well as an apprentice football tournament against apprentices from different ChemCo sites. This also created a sense of inclusion and a community spirit outside of the workplace. Equally, if apprentices had any immediate issues such as personal issues, they did not feel they could communicate with their supervisors, they could contact the workers council or JAV for support confidentially. If there was conflict with a department supervisor or instructor, the works council could act as a mediator to support the apprentice:

“Some just don't dare to talk directly to the instructor. Then we are actually the contact person. I am also an apprentice and then you have a like-minded person opposite you and not one who stands above you. That's actually what it's meant for.” Apprentice 6-C

Having an apprentice as a contact person created a sense of equality for the apprentices in the employment relationship if they did face any issues. However, apprentice JAV representatives highlighted that this could be improved and that they were hoping to encourage more apprentices to join to create a more collective sense of trust amongst the community. Indeed, some of the apprentices highlighted that they felt less inclined to join. Although the works council provided access to connections and extra training opportunities it also made some apprentices feel like management would not view them as active team players if they did attend. They mentioned colleagues were often noticed being away from the workplace due to attending meetings or trainings associated with the works council:

“You have more connections. You know more people. That also has its advantages. But you are then less at your workplace partly. And that's a bit the problem. If you have your work, but have to go to the workers' council and your colleagues always see then, he is more gone than that he is here...we also have a lot of courses and seminars...That's why I don't want to do that. I want to be with my team then.” Apprentice 13-C

Apprentices also remarked how their status as an apprentice was unique, in the sense they were not “normal” workers. Apprentices’ work was structured differently, with different training demands and working hours and hence having a forum such as the JAV allowed them to differentiate themselves and represent their own interests, similarly to the PharmCo apprentices social committee. The works council representative also took an active role in introducing apprentices to the idea of being a union or works council member and having an opinion on how pay and conditions could be improved. They encouraged them to have their own demands and opinions about how workplace pay, and conditions could be improved. Apprentices were made aware of pay structures by the works council representatives and were also always informed of what pay structure they would transition on to after their apprenticeship; pay was communicated in a transparent way. Equally, the works council approved all the apprentice takeovers post apprenticeship and overseeing the transitions of the apprentices to jobs after their training. They also had the right to oversee disciplinary action. The instructors worked closely and communicated with the works council representative to mitigate the risk of any problems arising in terms of the apprentices’ development. Indeed, the works council played a key role in the pastoral support of the apprentices in terms of their own development. They oversaw all of the apprenticeship report records, which the apprentices needed to update every week regarding their progress. This also mitigated the risk of any issues persisting.

7.1.4 Concluding comments

In summary, apprentices at PharmCo experienced an asymmetrical employment relationship, which contrasted to the coordinated, collective and equal employment relationship apprentices felt at ChemCo. At PharmCo, apprentices experienced the implications of the “middleman” employment relationship between PharmCo and the ATA; they did not feel part of the general culture PharmCo, had little access to support structures to voice concerns, and missed out on key employment benefits. As the apprentices were on fixed-term contracts and were also contractors, they did not have a clear path to employment post the apprenticeship. Equally, no one was accountable for their development or progression, which meant that the accountability of their futures was ultimately placed on the apprentices themselves. Ultimately PharmCo had more power over the employment relationship than apprentices. Although they created distance to the apprentices themselves, with the apprentices being employed by the ATA, managerial discretion directed by PharmCo underscored all decisions and communications. Apprentices did create and lead their own apprenticeship social network, which create a sense of collegiality and community. Yet the network itself had no leverage to change working conditions and overall apprentices did not have voice

mechanisms to instigate any change. This differed to the culture at ChemCo, where apprentices believed that employment relations were fair and transparent and that they had voice in negotiating a better outcome and future in terms of improving the apprenticeship programme at ChemCo. Some apprentices felt less inclined to join the workers council and union, but overall agreed in the principles and advantages of their presence on site in terms of advancing pay and working conditions. Some apprentices did not want to join due to the fact that they might be more absent from the workplace, where the ethos of showing your face was essential to gain good feedback from management. Overall the works council added another level of pastoral support to the apprentices and oversaw any key decisions like job takeovers or disciplinary meetings. Hence, apprentices were not at risk of purely management-led discretion over key decisions and had an extra support within the workplace should they need confidential advice. Apprentices welcomed the fact that they had a platform to voice their own separate interests as apprentices through the JAV. Formal support structures through collective agreements created the infrastructure for fairness within the workplace. Therefore, apprentices benefited from these structures, whilst also having the ability to exert their own agency in negotiating better outcomes and improvements on the programme.

7.2 Career progression: Lifelong learning paths

7.2.1 Introduction

Access to different levels of training and education were pivotal for apprentices in both countries in order to establish a solid foundation for their future careers. Having the option to complete further VET or to go on to more academic studies was part of this journey. Equally it was important for the companies to provide clear and transparent advice to the apprentices in terms of their futures. The different company environments in England and Germany offered different strategies in terms of facilitating this, which consequentially led to different future apprentice outcomes.

7.2.2 Future aspirations

The aspirations of the PharmCo apprentices encompassed staying on at the company, with most apprentices eager to progress, or to complete further training or education and a minority happy to stay at their current level. Managers agreed that the paths apprentices took after their apprenticeships was a 'mixed bag' (Line manager 3-P), reflecting the number of different options available within the company. For example, level 3 was equivalent to a research technician role, a level 5 would be comparable to a lab technician or slightly higher and a level 6 was at a graduate level would lead to a scientist role. Many of the PharmCo apprentices were very academically minded and

were keen to develop their skills and expertise through postgraduate education. However, the company's expectations for career development was somewhat unclear. Rumours of a Masters and even a PhD apprenticeship did offer hope for the apprentices. Even if these options did not materialise, many apprentices were drawn to completing postgraduate qualifications outside of the company, particularly since many of their colleagues at PharmCo already held PhDs. Studying alongside working was, though, a considerable commitment. It was a struggle to find out for apprentices if a Masters or PhD qualification would even be needed after five years' experience already on-the-job. The future was a grey area; there was little information on company expectations and strategies to progress within the company. Apprentices emphasised the need for a more long-term strategy for their career. This clashed with the reality of the company's short-term and unpredictable job situation. As the apprenticeship programme at PharmCo was relatively new and no cohort had yet completed the entire apprenticeship, it was difficult to predict what their futures might look like. This was particularly the case given that previous VET programmes within the company had been directed towards more technician-level jobs that had less emphasis on progression to management roles. With the expansion of apprenticeships up to PhD level, this meant new career routes were being established within the workplace, which at present remained ambiguous.

It was unclear if the apprenticeship programme would overtake and affect the number of graduates or indeed PhD students recruited in the future. It seemed that some senior management advocated for the degree apprenticeship over hiring PhD graduates:

"The director of this department is like, 'We don't want to lose you. We want to all get you up to that level where we can, instead of having to – when we put out job applications, instead of having to get a PhD student.'" Apprentice 2-P

In one sense apprenticeships could be a more inclusive but also a more cost-effective strategy for PharmCo as PhD graduates typically earned higher salaries. The lack of formal consensus on a talent and recruitment strategy kept the apprentices in a continual position of uncertainty and conflict for their future progression.

The ambitions of apprentices at ChemCo varied, with many having aspirations to complete further training there or to leave and go to university. Unlike the PharmCo apprentices, ChemCo apprentices had not already completed a degree as part of their apprenticeship. Typically, 10 to 15 per cent would leave to study for a degree. Many would remain in the city and attend the local university to complete their Bachelors before returning to the company. Less of the technically orientated apprentices would be motivated to study for degree, with university attracting the chemical laboratory apprentices more. All apprentices stated that they wanted to progress, have more job

variety and autonomy and therefore not stay on the same level of responsibility for their whole career:

“Logically working a little higher...I couldn't just sit in the office eight hours a day. Or if I would at least come out as an outside representative or something. Of course, that would be a lot of theory, but at least you get out, you drive to customers...But in any case, something diversified.” Apprentice 2-C

This reality contrasted with the PharmCo apprentices, who already typically conducted more specialised high-level tasks and were given more responsibility. The more manual or shift-based work of the apprenticeship drove apprentices to either upskill through CVET or academic education. They viewed the apprenticeship as the first initial step onto the career ladder, and one that did not just stop at the apprenticeship in terms of development. Apprentices also sought out security and a healthy and structured approach to employment that they could combine with their personal life ambitions. They therefore wanted to escape the prospect of working shifts for the rest of their careers, so upskilling was a central motivation to achieve better working hours.

7.2.3 Dealing with uncertainty and questioning the future

Completing an apprenticeship, followed by a degree, was generally deemed as a very favourable career move for high achievers; completing a degree before an apprenticeship was not viewed in the same light. By completing a degree afterwards, apprentices could apply their practical experience from the apprenticeship to further develop their theoretical knowledge. Some of the apprentices also mentioned the prospect of completing a degree alongside working at ChemCo on a flexi-time basis or during semester break. Apprentices could apply for scholarships to apply for company-sponsored degree programme. These opportunities were competitive, however, and also with a lengthy application process, meaning that most apprentices were not necessarily successful. This left many apprentices with the decision to just leave the company and complete their studies independently. However, progressing up the academic ladder was not considered easy in Germany, with many people dropping out of chemistry degrees. A Bachelor's degree did not hold much currency in the chemical sector and there was no point just getting a Bachelor's without further progression. A Master's degree was preferable, but a PhD was particularly competitive to secure a management-led job. On top of this there was no guarantee of a job afterwards, similar to the company's predicament to dual-studies programmes. With increased demand for more higher-led cognitive jobs, there was an open question if companies could really accommodate and create matching jobs for the increased pool of highly skilled applicants. Many of the apprentices realised the risks of following the academic route but this did not deter them;

they were motivated to increase their skill levels and access to jobs with more variety and autonomy.

Much like the lack of certainty of the academic route in Germany, apprentices at PharmCo faced a confusing path ahead of them in terms of their future careers. This lack of a clearly defined career route at PharmCo was reflected in managers' perspective of viewing apprenticeships as more of a launch pad, springboard or initial starting point career-wise. This was difficult in the sense that the PharmCo apprentices became highly specialised in one area and meant that they might not be qualified enough to move to different areas in the pharmaceutical industry. Many of the apprentices embraced the process of specialisation and actively tried to fill a niche within the internal labour market of PharmCo to strategically secure a position in key areas of business demand. This contrasted to the ChemCo apprentices, who experienced a much more comprehensive training environment, priming them with a whole array of portable skills. Specialisation therefore characterised a rather short-term strategy for apprentices to get ahead and prove themselves on-the-job to their supervisors. Yet this approach had contradictory outcomes. For example, one apprentice noted that they felt just as valuable as a contractor, educated to PhD level, without realising that their lack of theoretical knowledge and qualifications compared to the contractor, could make them vulnerable within the labour market. This created a contradictory career progression set up where specialisation could lead to future employment at PharmCo but have less favourable outcomes for their job mobility. The notion that an apprenticeship at PharmCo was just as initial platform therefore had implications on the apprentices' futures. Apprentices were unsure what their qualifications and degree meant for them and their future. Instead they had to become entrepreneurial and try and actively "launch" their career in order to make sense of their situations to feel some sense of agency. Their agency was illusory in many ways. For example, apprentices were unsure how to broach the topic of job promotion with their supervisors. As such they also felt like they could not have open and honest discussion about their career aspirations as supervisors might sense that they would go to competitors and not consider them for jobs within PharmCo. Overall, this general reality of constant uncertainty led to an overarching lack of agency and direction within the apprentices' outlooks. Equally on a more structural level, there was no clearly defined routes for progression for apprentices and university graduates, which created a grey area and lack of progression for both groups.

7.2.4 Remaining in industry and further training

Apprentices had access to the same recruitment systems as PharmCo colleagues to apply for jobs internally. Many did apply or others transferred onto a contractor type contract. Some apprentices reflected on how they had become accustomed to the daily

routine of going to work and earning a wage, which impacted their thoughts on returning back to university:

“Now I’m in industry, I fear leaving industry. So, it’s a case of, if I wanted to do a PhD, I’d have to go back to – I’d have to – not back to because I’ve never really been there – I’d have to go to academia... I guess if you’ve always been in academia, you’re preparing yourself that the reason you’re in academia is to advance to industry. So that transition almost seems a bit more natural. Whereas it seems a bit odd going the other direction”.

Apprentice 8-P

Going to university for postgraduate studies after their apprenticeship meant that they would not have a salary to support themselves. They were stuck in a catch 22 situation, where they did not want to give up their well-paid and interesting job to the more precarious situation of being a student again and not earning a wage. Yet, equally, they felt they needed to complete further education to improve their chances of progression. Other apprentices felt intimidated by the prospect of completing a PhD in terms of the intensity of the workload and time it would take; many already felt like the work required for the degree apprenticeship was enough for them and that they just wanted a break afterwards.

Many of the ChemCo apprentices also felt no desire to leave the comforts of their well-paid job, which was a key disincentive for completing a degree. This is why many apprentices chose study part-time for their Meister or Techniker qualification as they could remain working at ChemCo. The working time of apprentices’ who studied part-time would also be duly reduced through a flexi-time contract, but they would receive the same salary package. Evening school would typically be three times a week. This would involve completing either a four-year Techniker or a two-year Meister qualification part-time, which were equivalent to a Bachelor’s degree in the EQF. Approximately half of the apprentices each year would go on to complete this further training, to gain much deeper and specialised technical knowledge. There was an overall company ethos of lifelong learning at the site. For a newly graduated apprentice there was an underlying expectation from managers for them to upskill to progress and secure job security. It was generally perceived that it was difficult to progress without any kind of further training.

There were also other options for employees to study for something that was not necessarily linked to their job. This would not be paid for by the company, but the company would support the employee in providing a flexi-time contract to facilitate their interests. Additionally, access to seminars and training courses via the union were also offered, who had also established links with a key university to encourage people without an Abitur to study for a degree. The union was particularly keen to encourage CVET for

all workers as a preventative measure in line with the issues faced by demographic change, digitalisation and automation and the consequential risk of unemployment. The union campaigned to ensure all workers would have access to training resources through the unemployment insurance system. The system itself was a key debate in Germany, in which unions and the Social Democratic Party were arguing for it to be re-labelled as ‘employment insurance’, to ensure employment through lifelong learning.

Further training would typically provide apprentices with more responsibilities on the shop-floor, including supervision and leadership responsibilities within a department or plant. However, much like those with academic degrees, there was not always the jobs available to meet workers’ increased skill sets. This contributed to the apprentices feeling that they needed to find a niche or upskill to the highest possible level to increase their attractiveness in the internal and external labour market. Many people completed the Meister qualification and some of the apprentices wanted to differentiate themselves from the market by pursuing the Techniker, which was more demanding:

“There are so many who do a Meister. And somehow you always have to set yourself apart from the crowd in order to get ahead.” Apprentice 6-C

Racing to get the best qualifications and the highest skills mitigated the risk of falling through the cracks for promotion and general job mobility within the company. Apprentices in production, for example, could foresee that automation posed a significant impact to their job security. Some apprentices highlighted that their options were already diminishing, with departments disappearing, restricting their training options. Hence, they employed the strategy of upskilling to counteract the risk of being left behind. Despite this, promotion could take a long time because there was a large pool of overqualified workers:

“They are overqualified. They work as chemical workers, but they don’t have a higher salary, they don’t get promotion.” Vocational Teacher 1-C

Hence, further training or education did not necessarily guarantee an increase in salary, seniority or benefits. Some apprentices took alternative routes and planned on eventually leaving ChemCo after completing a Meister qualification, to join a smaller or their own family-run businesses. Another apprentice wanted to change fields to a more IT-based role whilst another eventually wanted to become an apprenticeship instructor. Others highlighted if that was not possible to be promoted at ChemCo, then they would move onto another company.

7.2.5 Concluding comments

In summary, apprentices at PharmCo and ChemCo all had aspirations to progress from a skill point-of-view but adopted different paths in order to meet their ambitions, with

some hoping to complete university studies and others wanting to remain working for the company. At PharmCo, most of the apprentices were clearly interested in completing a Masters or even PhD apprenticeship but had no certainty as to whether such an opportunity, on indeed any kind of job, would materialise. The apprenticeship at PharmCo was considered to be a more of a springboard albeit the future directions, options and paths for apprentices to take for their career development were often unclear with no clear expectations from the company outlined. This created a grey area for the apprentices in terms of exploring their future aspirations and career options. At ChemCo, a minority opted to undertake an academic path and the majority CVET. However, it was unclear, from a company perspective, if there were jobs that matched the upskilling aspirations of the apprentices. However, from a union perspective, lifelong learning was essential to ensure employment under technological and demographic change. It was an open question for those apprentices with high career aspirations if there really were opportunities at ChemCo for them to progress and get promoted to their aspired level long-term. Apprentices realised that staying within one company and following a job-for-life mentality was perhaps not realistic in this sense and had the aspirations to look further afar to meet their ambitions. They felt the pressure to reach the highest level of qualification or technical skill to differentiate themselves from competition. Overall, despite not feeling like they had complete control over their career progression within ChemCo, they did feel like they had agency to navigate the external labour market. This same attitude was mirrored by the PharmCo apprentices, who realised that they needed to adopt a more entrepreneurial approach to the jobs market and look further afar. Unfortunately, their much more narrowed skills base, compared to the broad and comprehensive curriculum of ChemCo, hindered their future job mobility and ultimately their overall agency over their careers in general.

7.3 Job security and the future: Recruitment and selection strategies

7.3.1 Introduction

The types of succession planning strategies adopted by PharmCo and ChemCo certainly shaped the sense of job security the apprentices felt for their future careers. Clear information and transparent advice on how an apprentice could progress and develop was essential in maintaining a sense of job security and meaningful career progression. The practices and processes of the recruitment of apprentices post-training also shaped the fairness of selection and its effect on the apprentices' future mobility. Job mobility and progression was determined by what kind of future job prospects the company offered in terms of more long-term progression opportunities. Yet external factors, too, such as plant closures and risks of job losses, had a deep psychological impact of the

psyche of employees and could affect an apprentice's perception of the workplace and their future there.

7.3.2 The road to a permanent job after the apprenticeship

Many of the apprentices were confused about their career trajectory within the company and the options to gain employment after the apprenticeship. PharmCo had no obligation to hire the apprentices. Apprentices did not fully understand why PharmCo would not want to retain them, when they had already invested so much:

"There's so many courses that they've paid hundreds and hundreds of pounds for to help us develop that you'd think they'd want to keep us".

Apprentice 8-P

Overall the prospects of apprentices getting a permanent job was very unpredictable and relied on changing company resources, priorities and projects. Financial budgets seemed to overrule any decisions that apprentices would be hired and judged on merit if, for example, they were performing well on-the-job and exceeding expectations. This exacerbated the apprentices' uncertainty within the company, which was also overshadowed by the economic situation of the PharmCo site, which had previously undergone significant job losses:

"We'll see what happens. The site might not be here in sort of five/ten years."

Apprentice 11-P

This dampened the hopes of job security even further. Although management stated that that they were keen to retain the apprentices they could never guarantee a job post the apprenticeship due to changing financial and economic pressures:

"I've always been very careful around managing expectations...Our responsibility is to develop you, give you new skills, which ideally we would want to try and retain within the company, but if not, then you become more employable, wherever it is you go." Line manager 2-P

The responsibility of PharmCo from a managerial point of view was to build and develop new skills, not to provide security for the future. The inability to promise future employment was rationalised by the fact that flexibility and fluid career mobility within the industry was considered to be the norm by managers. The apprenticeship could last up to 7-8 years and therefore the spell they spent within PharmCo mirrored that of a typical stint within one company for the average scientist. It was normal to move companies and oscillate between different roles in different companies. However, managers did share their frustration about the changing and short-term financial model of recruitment that was dominantly reliant on business need; they did not feel like they had much autonomy

of the situation. Managers tried to plan ahead in terms of their own apprentices, but they had no control if someone left the department and suddenly there was an open vacancy. This meant that apprentices might lose out on key opportunities if they had not finished their qualifications in time. Timing was therefore a central issue in determining the future job roles of apprentices as the company has a strict headcount-based policy:

“You have to time someone leaving and headcount availability. That’s always a challenge because a company doesn’t like creating headcount.” Line manager 1-P

One apprentice, who was from the first apprenticeship cohort and was considered to be a high achiever, had though been offered a full-time job within the company even before his apprenticeship had actually finished. A role had become available and there were resources there to facilitate his employment, but this kind of situation was certainly not guaranteed.

Unlike PharmCo where taking on apprentices was somewhat down to luck and timing, employment at ChemCo was much more pre-planned and structured well in advance of the apprenticeship even starting. Apprentices were only recruited and trained if certain departments within the company specifically needed their skills. Yearly demand figures from each department determined the recruitment of apprentices in a system where ‘the demand decides.’ (Apprentice 3-C). This demand-orientated approach had only been implemented in 2015 and those apprentices also received an unlimited “take-on” job guarantee. Apprentices recruited before 2015 did not hold the same job rights. In previous years, before the demand-led strategy, the company had typically over-trained more than its requirements. Despite over-training, it was general company culture to take on all apprentices after their apprenticeship. The demand-led approach had been negotiated by the union to ensure apprentices have increased job security after the apprenticeship and not just short-term contracts, which had previously been more commonplace. Indeed, demographic change had afforded greater negotiating power for unions. Less apprentices were taken on through this approach, but greater job security had been afforded.

In terms of being taken-on, apprentices would receive a formal take-on recommendation after their final examinations from their instructor if their academic and on-the-job performance was adequate. Even for those with a formal take-on agreement, had to meet certain requirements, milestones and progression to ensure their job security. Certain issues in terms of punctuality, respect for others, safety awareness, absenteeism and reporting sick-leave properly, diligence in completing work and training records were a key area of concern. Not respecting these areas could affect the decision for the company to take an apprentice on. Grades were not considered to be the be-all-and-

end-all of the apprentices' progression and overall the apprentices' general attitude, maturity and ability to respect and get along with others determined their future more. Hence, even if apprentices did not produce good grades, their contracts would not be automatically terminated. Indeed, if this did happen, support would be provided by the department to ensure the apprentice would be sufficiently supported and developed to do better next time by retaking a year or by being given extra supervision or counselling:

"I also know that people were not taken, even if they had 1.0 or 1.5. But if these people always arrive too late or something then you are not taken on...I also had a good conversation with my instructor and he also told me, for all those who make an effort and keep on it, they are not just kicked out. There is no such thing as saying, finished, you need to leave, we don't want you anymore. Solutions are sought. You get a lot there." Apprentice 1-C

In cases where these requirements had not been sufficient, a formal non-takeover would be declared; the apprentice would not receive a contract and would need to look for opportunities externally. The vast majority of apprentices would be taken-on afterwards, typically 90 per cent. Some apprentices would also voluntarily leave to go to university or pursue other career paths so the remaining 10 per cent were not necessarily made up of non-takeover apprentices. If the apprentices had met all these requirements, then a vacancy would need to be found and negotiated with one of the departments. A formal recruitment process was still instigated for the apprentices and they would also typically have a relaxed trial period. The apprentice evaluations, grades as well as school grades were stored on an online database, which created a picture to managers about the apprentices' abilities. The apprentices would be ranked depending on their scores and those with the best feedback and grades would be given priority.

The PharmCo apprentices' jobs situation was reviewed on a case-by-case situation by managers; there were no obvious formal structure to assess who would receive a contract and who would not, unlike ChemCo. This approach allowed PharmCo to personally select those apprentices deemed appropriate for the company. The apprenticeship was a recruitment process to select the best performers and the ATA was used as a mechanism to achieve this:

"They're using the ATA as their pipeline of talent, of young talent and then as positions become available within PharmCo, they're filling them from the ATA." Training provider 2-P

However, there was an open question as to whether there would be a continual conveyor belt-type strategy of recruitment, with new apprentices coming through the programme all the time but little or no FTE contracts being offered afterwards. Alternatively, another strategy would be to monitor the flow of apprentices, recruit less and monitor demand

more closely, offering contracts to those if there was a position available. Overall, PharmCo had taken the policy of overtraining their apprenticeship intakes, taking on more apprentices than they were likely to employ, yet it was unclear if this would carry forward in subsequent intakes. Overtraining created more job competition for the apprentices, with newer cohorts always starting. There was a sense that apprentices needed to work harder than ever to prove themselves on the job. In the context of overtraining, managers viewed themselves as making a societal contribution to the lack of STEM and technician-level skills in the UK economy and the science industry in general. They reasoned unsuccessful apprentices could use their training and skills to gain good-quality employment outside. Yet, this was also, perhaps, a rationalisation for the lack of a job guarantee for apprentices.

7.3.3 Exploring alternative avenues

PharmCo was located within a large Science Park, which comprised a number of other science and biomedical SMEs. This provided ample opportunities for networking and employment for the apprentices, who adopted an entrepreneurial and open-minded approach. Apprentices realised that the apprenticeship would not necessarily lead them to a potential job for life and were well aware of the clear lack of a job guarantee. One apprentice highlighted that the lack of a job guarantee even attracted them to the role in the first place. Apprenticeships in other companies secured apprentices into a contract that obliged them to stay within the company afterwards and carried binding repercussions in terms of making the apprentice pay back the cost of training if they left. They aimed to use their agency to extract as much experience and exposure to learning as possible to maximise their chances but, equally, to also explore if they actually wanted to stay with the company. However, they were also constrained by more overarching realities about their future prospects there and felt that there was a lack of equality in the employment relationship. The power of deciding their fates were in the hands of the employer. Yet apprentices accepted the precarity of their positions as a means to an end in the bigger picture of their future trajectories; this reflected their societal realities, where it was difficult for young people to enter the labour market successfully. An example of this precarity was exemplified in the fact that some apprentices were employed as contractors by PharmCo if they were not successful in getting to the next apprenticeship level; apprentices transitioning from an advanced to a higher apprenticeship had to compete with other people to get to the next level of the apprenticeship. Hence PharmCo were reluctant to let go of apprentices they had invested into but were also reluctant to offer full-time contracts, which reflected their headcount-based recruitment strategy. Many of PharmCo's staff were on contractor contracts, particularly after the job losses

the company had faced earlier. Therefore, employees and apprentices were constantly in limbo with their job statuses.

In ChemCo, even though apprentices would be offered a take-on recommendation and job in the company, they would not always be offered a job they particularly wanted, in terms of the actual contract, department, location or role. Apprentices would compete for jobs listed on the online portal so would not always get their first choice and could be posted somewhere else, even in a different city or country. Hence, although they had job security through their job guarantee, location could be a deterrent for accepting a job offer. Apprentices without a permanent take-on guarantee had to face the fact that they might only be hired initially on a short-term contract. However, this approach was in the process of being phased out with the introduction of a more demand-orientated employment model. Typically, apprentices who were offered a fixed-term contract for 6 months or a year would be offered a permanent contract eventually. But overall, a short-term contract sometimes deterred apprentices who might instead leave the company for another role externally. Equally some apprentices highlighted that their job offer might not provide the progression they really wanted for their career, particularly since many apprentices were adamant that they wanted to escape shift work. Therefore, the job hiring process, although secure, left them feeling uncertain and not in control of their career aspirations. Apprentices typically only discovered whether they had received a formal job offer around the time of their final apprenticeship examinations, meaning that they were left in a sense of uncertainty up until then. Apprentices and managers believed that there should be greater transparency around the job hiring process. So, although demand was decisive and provided job security, it did not always necessarily match up to apprentices' actual career aspirations.

Another emerging level of uncertainty in the hiring process arose out of recent news of job losses at the site, which entailed the splitting up of the company's operations, with a key manufacturing plant being potentially sold off. This particularly impacted the process and industrial mechanic apprentices and it was unclear whether apprentices would retain their jobs. There was an atmosphere of unrest, shock and uncertainty, particularly since the division itself had been at the site since its very beginnings. There was a general feeling that senior management was promoting a more managerial and market-led approach amongst staff, which in turn heavily affected company morale. Apprentices felt that management had already made key decisions on selling the plant and knew more than they were telling staff. This top-down approach contrasted to the general feeling of inclusivity, respect and friendliness within the different departments:

"It's supportive if you don't necessarily look at the top...There is a lack of communication from above, but at the sites themselves it is always quite friendly." Apprentice 11-C

The announcement of the split made some apprentices be more apathetic about their future within the company:

"Why do you have to split it off when it's still going well? That is so purely profit-oriented. That is why I am no longer 100% of the opinion that they are completely socially oriented. But every company is actually profit-oriented. But in itself. You get support from all sides. If you need help, you can ask anyone. Everyone is ready to help." Apprentice 6-C

Apprentices questioned the company's general social ethos, which they felt no longer aligned to their own personal values, and, in turn, also prompted them to think of alternative career options outside.

7.3.4 Concluding comments

In conclusion, although PharmCo did invest in training, and sought to retain staff if appropriate, apprentices were only retained on the company's own terms. Some apprentices would go on to gain a full-time permanent job within the company, a decision which was dependent on departmental budgets and good performance, whilst others might just retain their contractor-based status. Overall, the PharmCo apprentices were confused about their status as an apprentice and felt a sense of uncertainty and inequality in the decision-making process; there were no clearly defined rules or pathways to reaching the ultimate goal of a permanent job there. Succession planning adopted a more short-term approach that reflected the company's headcount-based employment model and created a sense of uncertainty for the apprentices. This was exacerbated by the strategy of over-training PharmCo employed, which intensified competition amongst apprentices to contend for jobs. ChemCo's recruitment strategy, on the other hand, was directed towards an entirely demand-led approach, brought in to safeguard apprentices from short-term contracts and instigate permanent contracts through union pressure. Apprentices would typically be scored on their on-the-job performance and examination grades and this would determine their preference for particular jobs. This contrasted somewhat to PharmCo, where apprentices would be taken on depending on luck and timing of departmental budgets before considering performances and grades; equally there was no formal process behind taking an apprentice on, unlike ChemCo. However, despite having job stability, apprentices at ChemCo did not overly feel in control of their futures. In particular, there was no security over what job role, department, location and employment contract they would be offered

post training. In general, apprentices felt that the job hiring process could be improved post-apprenticeship, to provide greater transparency. The job hiring process was too ambiguous and did not always match up to the apprentices' overall aspirations and career motivations. This uncertainty was exacerbated by the recent announcement of a key plant being sold, affecting not just the jobs of workers but also those of the apprentices. This financial uncertainty was mirrored at PharmCo where there had been previous job losses at the site and a constant sense of unease that it might happen again. Interestingly although the two companies adopted very different recruitment strategies post-training, both sets of apprentices faced an element of uncertainty and future angst for their job security due to job cuts. Apprentices at ChemCo undoubtedly carried a greater sense of job security whilst apprentices at PharmCo had no inclination whatsoever if they were going to be taken on. Both sets of apprentices were aware that they did not have a job-for-life and adopted an entrepreneurial and flexible approach to their future job search and careers.

7.4 Discussion

7.4.1 Introduction

This chapter has investigated how the dynamics of the apprentice-employment relationship at PharmCo and ChemCo affected apprentices' sense of voice, career progression and overall job security within the workplace. The chapter adds to the analysis in the previous chapters which highlighted how apprentices' identities and backgrounds shaped their agency. Both sets of apprentices rebelled against the notions of school and HE (Willis, 1977) but faced different challenges as they transitioned into employment that were fundamentally shaped by wider changes unfolding at a national level as well as the general social standing of apprenticeships (Brockmann, 2012; Evans, 2002). For example, in England, PharmCo apprentices were in a much more precarious position, a reflection of the system's low social standing (Brockmann, 2012), intensifying marketization and the company's upskilling (Lloyd and Payne, 2016) strategy. By contrast, in Germany, ChemCo apprentices felt more in control of their futures due to the clear VET routes available to them (Evans, 2002), the company's structured DQP skill model (Sorge and Streeck, 1987) and the apprentices' increased agency within the labour market through demographic change (Bosch, 2010). PharmCo apprentices embraced a counterculture (Willis, 1977) that distinguished them from their academic peers and expressed their nomadic and precarious positions, leading them to conform to workplace demands (Burawoy, 1979). ChemCo apprentices also rebelled from the societal expectations that differentiated them from their peers (Willis, 1977) but as they entered the workplace these differences evaporated as their identities, backgrounds and interests (Brockmann, 2012) were wholly encouraged by the company. However, how

the apprentices as well as other important actors negotiated and responded to ongoing institutional and policy change within the social (Lloyd and Payne, 2016), political and cultural context (Vidal and Hauptmeier, 2016) of the employment relationship was not articulated. Therefore, this chapter asked how macro changes were affecting managerial strategies and apprentices' working conditions, job security and sense of voice.

Understanding the deeper dynamics and politics of the workplace is critical to understanding the struggles and barriers apprentices faced not just in their transition into the workplace but also within it. Perspectives of the political agencies and relations (Lloyd and Payne, 2016) of not just apprentices, but also between managers, labour market institutions and other key actors, provide a much more holistic perspective of the barriers and structures inherent within the workplace context in response to broader changes. Indeed, structures of voice and organised labour can also contribute to change processes within the workplace (Doellgast, 2012; Lloyd and Payne, 2016), not just identity and agency. Understanding the diversity of experiences and struggles at the workplace level between different actors is critical in understanding how these actors respond and react in their national context (Vidal and Hauptmeier, 2016). This approach also has the potential to expose key differences or anomalies in experiences to the supposed national structure of relations at the macro level, including diversity within different sectors, industries, work organisation and employment relations (Deeg and Jackson, 2007; Katz and Darbshire, 2000; Lane and Wood, 2009; Crouch et al., 2009; Wailes et al., 2016). As such, this discussion analyses how the different actors within PharmCo's and ChemCo's apprenticeship programmes negotiated change and how this impacted the politics of the workplace and skill development. This analysis concludes with some final remarks, highlighting the key arguments from the chapter.

7.4.2 Comparing the politics of skill development and progression

In navigating the politics of the workplace, both sets of apprentices faced levels of uncertainty in terms of their skill development and did not feel like they had the real possibility of a "job for life" (Evans, 2002). Both companies faced similar pressures to cut costs at the workplace level (Doellgast, 2012). PharmCo had been blighted by job cuts in the past, a reality which was always in its employees' subconscious and ChemCo had recently announced job cuts in a key manufacturing plant. Overall, this financial uncertainty led to feelings of unease and anxiety amongst employees, which was mirrored in the uncertainty that many of the apprentices faced in assessing their futures at the two companies. In England, the reality of restructuring and job cuts was not unusual set within the context of its much more market-dominated economy (Crouch et al., 1999; Hall and Soskice, 2001; Finegold and Soskice, 1988). However, in Germany the pressure to cut costs could signal a general liberalisation and marketization of its

system, asking the question whether ChemCo was moving towards the profile of a 'vertically disintegrated German firm' (Doellgast, 2012: 214).

The two companies therefore adopted different succession strategies. PharmCo over-trained, by employing more apprentices than they would take-on afterwards. This increased competition amongst apprentices to fight for jobs, with the potential for many not to be retained (Brockmann et al., 2010a; Brockmann et al., 2008). Management viewed apprenticeships as a "springboard" for the apprentices rather than a pipeline for the company's internal labour market. Indeed, strict headcount targets hampered meaningful skill development, meaning the company relied on buying-in labour when needed rather than meaningfully and sustainably investing in skills (Finegold and Soskice, 1988), recruiting a minority of apprentices if conducive to company demand at the time. However, the majority of apprentices at PharmCo were eager to continually upskill, hoping to undertake a Masters or even PhD apprenticeship, a plan which was in progress by the company. However, it was unclear if they would be offered a job there post-training or even have the option of continuing training there as there was no transparent and formalised recruitment strategy. The lack of formal progression structures hampered skill development and retention (Finegold and Soskice, 1988). Successfully getting a job at PharmCo post-apprenticeship was determined initially by short-term market-led factors (Crouch et al, 1999; Finegold and Soskice, 1988) through fluctuating departmental budgets and the company's current headcount numbers and *then* by good performance and grades. Even then, some apprentices might only be employed as a contractor, not through PharmCo itself, leading to frustration and confusion from the apprentices, who felt that the process was unfair and vague. Overall, a lack of national institutional supports and power resources within the workplace (Lloyd and Payne, 2016) led to a lack of structured employment conditions and progression opportunities for apprentices. PharmCo apprentices who had no job security or concrete access to further training and were therefore very much in charge of their own destiny, with minimal access to institutional or pastoral support structures to progress their careers. The lack of support was reflected through their fixed-term contractor status. As apprentices were not employed by PharmCo, but were outsourced to the ATA, there was an ambiguity in terms of which parties were accountable for supporting the apprentices. Overall, managerial discretion on PharmCo's side mediated the employment relationship, with key decisions delegated to the ATA. This vertical disintegration (Doellgast, 2012) exacerbated poor employment conditions for the apprentices, leading to an increased sense of marketization (Lloyd and Payne, 2016) in the organisation of apprenticeships there. The "middleman" employment relationship between PharmCo and the ATA created a sense of inequality, distance and individualisation in the apprentices, who as a result were not included in the company's culture, events and

general benefits. The apprentices' social network created a counterbalance of collegiality to this individualised culture but without structures in place the apprentices could not exercise agency to surmount this lack of equality in the employment relationship. PharmCo's firm-specific, narrow and academically-orientated upskilling (Brown et al., 2011) skills strategy set within its market-led context (Finegold and Soskice, 1988) promoted individualisation and also hindered apprentices' sense of job mobility both within PharmCo (to get a job or to move to other departments) and externally.

In contrast to PharmCo, ChemCo employed apprentices through a new demand-led perspective. The majority of apprentices would be taken-on by the company's formal permanent job guarantee scheme leading them to typically undertake CVET and with a minority leaving to study at university. Job security was therefore high. In general, jobs would be allocated based on the apprentice's performance and grades. However, apprentices felt unsure as to whether jobs *really* existed within the company to meet their aspirations to progress and be promoted in the long-term. Some apprentices felt they had little voice in which department, role, and location they would be allocated to, with job offers often not matching their career aspirations. CVET was a way for apprentices to increase their employability to managers and upskill to higher qualifications, increasing their chances of beating competition (Brown et al., 2011). However, CVET did not necessarily guarantee them more senior positions within the company straight away, with some commenting there was a pool of overqualified workers (Lloyd and Payne, 2016) with CVET. Although job quality was maintained at the apprenticeship level, job progression waned further up the career ladder within the company, where the supply of workers outstripped demand, leading to over-qualification (Lloyd and Payne, 2016) and a sense of individualisation (Brown et al., 2011). Whilst the demand of apprenticeships was increasing due to the demands imposed by demographic change and technological advancement existing workers felt the after-effects of change and were more vulnerable to job cuts and lack of advancement. With the dual system remaining protected by the coordination between its social partners at ChemCo, this level of protection did not safeguard those transitioning out into jobs after completing the apprenticeship. This could reflect the fact that unions do not play as strong a role in the CVET system as they do in the dual apprenticeship system (Trappmann, 2010), leading to suboptimal outcomes of potential skills wastage and over-qualification (Lloyd and Payne, 2016) as workers try and progress up into management structures. Hence, although ChemCo was situated in a quality-led product market with highly structured institutional supports (Lloyd and Payne, 2016) the company arguably did not have adequate power resources and structures in place on the ground to ensure meaningful progression for staff later on in their careers. Despite this, apprentices felt much more agency in the external labour market overall due to their job security and clear access to CVET. This stability was

structured by the union and works council, who had campaigned for collective agreements, permanent job guarantees and uptake of CVET to protect against precarious contracts and technological change. The works council also protected apprentices' interests through providing pastoral support and employment advice and overseeing job take-overs and disciplinaries. The apprentice's own network, the JAV, also provided an avenue for apprentices to voice concerns, gain confidential support and exercise agency in terms of negotiating better futures for themselves. Hence, labour market institutions mediated the employment relationship, leading to much better outcomes for apprentices and clear paths for apprentices to voice concerns (Doellgast, 2012). The stable, equal and collectively negotiated employment relationship progressed employment conditions, including pay and training. Additionally, ChemCo's broad and comprehensive DQP collective model of skills formation (Sorge and Streeck, 1987) ultimately ensured a ticket to employment either within the company or in the external labour market for apprentices. Those with CVET also had the protection and foundation to pursue promoted opportunities, even if direct promotion was not necessarily available at ChemCo itself.

7.4.3 Concluding comments

Both companies faced converging and parallel pressures to cut costs, reduce investment into staff and cut jobs at the workplace level (Doellgast, 2012). This was projected into the general uncertain psyche of apprentices at PharmCo and ChemCo, who were unsure of their futures (Evans, 2002) after the apprenticeship had concluded. However, a sense of convergence at national level was not observed in reflection to the changes and strategies unfolding and materialising within both workplaces (Lloyd and Payne, 2016; Doellgast, 2012). Instead the companies experienced diverging pressures in line with their different national institutional contexts.

The vertical disintegration (Doellgast, 2012) apparent at PharmCo, where employment of the apprentices was outsourced to another company, led to an unequal and asymmetrical employment relationship. This distanced further apprentices from any kind of access to additional training opportunities or pastoral and institutional support structures. Ongoing marketization of apprenticeships (Lloyd and Payne, 2016) was experienced on the shop floor, where a culture of individualism and competition (Brown et al., 2011) was promoted in the plight for employment post-apprenticeship. Apprenticeships did not directly feed into PharmCo's internal labour market due to the company's headcount-based targets which fluctuated due to changing budgets. Overall, these factors, combined with the lack of a formal recruitment strategy for apprentices impacted organic skill development and job progression (Finegold and Soskice, 1988). As such there was no formal recruitment strategy for further training or employment after

the apprenticeship. There were rumours of a Masters and PhD apprenticeship in the making, which apprentices were keen to be part of in order to upskill. A minority of apprentices so far had been employed on a permanent contract or as contractors but overall there was no job security. This contrasted to ChemCo where despite facing similar pressures as PharmCo to cut costs and reduce investments into staff (Doellgast, 2012), strong bargaining coordination from the union and the works council mitigated this impact on the organisation of apprenticeships at ChemCo. Although elements of vertical disintegration were taking place with the buying and merging of plants and divisions within this business, training of apprenticeships were protected through labour market institutional structures (Doellgast, 2012). Unions and works councils protected apprentices through collective agreements and pastoral support structures, leading to an equal and fair employment relationship. This also included the development of the JAV where apprentices themselves could negotiate change at the workplace level. Indeed, apprentices had a formal job guarantee that led them to a permanent contract and the offer and expectation to complete CVET in the company. Despite this, apprentices did not have much autonomy or control over the jobs allocation process and there was a general feeling that CVET did not necessarily lead them to the management roles that many of them sought. Apprentices were pragmatic about undertaking CVET, viewing it as an essential step in their education to increase the likelihood of promotion. However, there was a general over-supply of workers educated at this level (Lloyd and Payne, 2016), with reduced options for promotion for the majority. This contrasted to the increasing demand of apprenticeships; the options for higher qualified skilled workers was not as prominent and these workers were also more vulnerable to job cuts. This highlighted the institutional strength underpinning the organisation of apprenticeships at ChemCo, a strength which was not mirrored in the power resources (Lloyd and Payne, 2016) and general organisation of CVET (Trappmann, 2010). This could potentially signal collective distrust and tensions (Willis, 1977) as the apprentices became workers. However, apprentices did have the foundation of a permanent job and access to CVET to ultimately progress in the external labour market, where skilled labour was in demand due to demographic change and education expansion (Bosch, 2012). This led them to much more structured employment outcomes compared to their counterparts at PharmCo (Brockmann, 2012; Evans, 2002), reflecting the company's collective model of skill formation (Sorge and Streeck, 1987) which accepted their identities and backgrounds (Brockmann, 2012). Job mobility at PharmCo was hindered by lack of institutional structures and power resources (Lloyd and Payne, 2016) to support apprenticeship organisation. This was a reflection of its much more narrow and market-led skills strategy (Finegold and Soskice, 1988), leading the apprentices to a precarious existence that mirrored their initial transitions into the company (Brockmann, 2012;

Evans, 2002) and daily realities of their lives (Willis, 1977) within the marketization of the VET system (Lloyd and Payne, 2016).

8 Learner cultures: The social language of the workplace

The last chapter analysed how the politics of the workplace impacted skill development and progression. It found that despite PharmCo and ChemCo facing converging and similar market demands to cut costs (Doellgast, 2012), changes within the workplace at the two firms did not reflect convergence at a national level (Lloyd and Payne, 2016). Both sets of apprentices felt uncertainty in terms of assessing their futures (Evans, 2002), with PharmCo apprentices having no job stability and ChemCo apprentices having high job security and clear access to CVET but little choice over the direction of their careers. Institutional support structures established through the union and works councils at ChemCo established an equal employment relationship, which provided the foundation for skill development and further training (Doellgast, 2012) and reflected the apprentices backgrounds, interests and identities (Brockman, 2012). Although apprentices faced uncertainty over their progression, the foundation of their apprenticeship, CVET and job stability gave them confidence and the prestige to move companies if they chose to, particularly as skilled labour was in demand due to demographic change (Bosch, 2010).

Conversely, at PharmCo, apprentices' precarious futures were a reflection of unequal employment relationship, which outsourced apprentices' employment to another company (Doellgast, 2012). Their much narrower, specialised and academic skills base did not automatically provide access to the external labour market, particularly within the context of the low social standing of apprenticeships in England (Brockmann, 2012). This uncertainty was mirrored in their initial transition into the company (Brockmann, 2012; Evans, 2002) and general nomadic counterculture (Willis, 1977), which was intensified by the general marketization of apprenticeships in England (Lloyd and Payne, 2016).

The last section analysed how the employment relationship and apprentices' sense of voice impacted skill formation and progression; but how apprentices *actually* learned within the workplace has yet to be discussed. Workplace cultures and the CoPs (Lave and Wenger, 1991) that operate within them can function to both enable and constrain the learning environment for apprentices (Fuller and Unwin, 2003; 2004). This chapter charts how the structure of the apprenticeship programme as well as the social environments of PharmCo and ChemCo shaped the apprentices' experiences of learning. Hence, in relation to policy reforms and institutional changes, this chapter asks:

How are these macro changes affecting apprentices' learning and skill development within their learning environments?

Initially, the apprentices' learning environments and training structures will be analysed. Secondly, the social relations of the learning experience will be explored, taking into account how social hierarchy, managerial discretion and workplace culture impacted

apprentices' social agency in negotiating progression, support and feedback. Finally, the pace and intensity of work demands places on the apprentices will be evaluated, highlighting how the apprentices made sense of their work/life balance, particularly in relation to the educational demands of the apprenticeship.

8.1 Training and the training environment

8.1.1 Introduction

The various training structures – the types of training, level of supervision, exposure to social networks, training approaches and the general training environment – could have a significant impact on the apprentices learning. Training structures could also affect the kind of CoP offered to the apprentices, in terms of whether they were more collective or individualised in nature. This, in turn, would also impact the type and breadth of skills apprentices learnt as well as the levels of trust and responsibility in the workplace they were given.

8.1.2 The training environment, training actors and learning support structures

At PharmCo, all on-the-job training took place within the apprentices' assigned department, under the supervision of their line-manager. During the apprenticeship, there were neither rotations nor a standardised training experience. Initially apprentices needed to complete desk-based on-line training for the first two to four weeks. This included health and safety training, company protocols and specialised equipment training. Afterwards they were exposed to working in the laboratory straightaway. Apprentices learnt on-the-job from completing practical work tasks with their supervisors; the apprentice observed the supervisor, mimicking their techniques. Their level of learning was indicative of the high level of trust, responsibility and independence they were given from their supervisors to carry out tasks. Making mistakes was central to this iterative learning process. However, it was daunting for them to suddenly be expected to work automatically after the brief induction period. Learning was frustrating at times, particularly when they first started the apprenticeship; apprentices need to be resourceful and show initiative despite their evident lack of knowledge in some areas. They felt like they could not complete tasks adequately level and it took time for them to understand the depth of their actual roles. This improved over time as the apprentices gained more experience, but the lack of comprehensive training meant that apprentices needed to use their own initiative to build knowledge within the workplace.

Although the apprentices were completing the same apprenticeship standards, the actual work-tasks they were completing day-to-day were very different, as one apprentice commented:

"My job versus Olivia's job is completely different; you couldn't just swap us over for a day". Apprentice 1-P

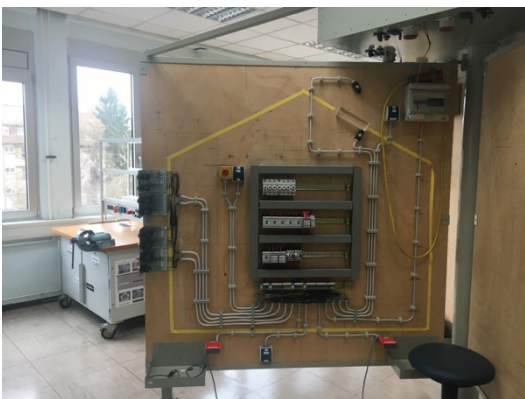
There was a lack of standardisation in the apprenticeship training and this was a reflection of the reality that apprentices were stationed within just one department for the entirety of their apprenticeship. This led them to become highly specialised in one area and lacking a broader knowledge of other departments, operations, techniques and skills. On-the-job training was shaped by the needs and skills required of the department:

"I guess it makes sense, doesn't it, because you train them exactly how you want them. It makes us sound like robots." Apprentice 8-P

Apprentices lamented the lack of options available to them to develop their skills for the future; the training benefitted the employer, over the apprentice. Managers and the local college noted that creating a standardised apprenticeship experience was challenging, where priorities often changed last minute, due to business demand, leading to less time to train the apprentices. One supervisor described how they had actively tried to broaden their apprentices' skill sets, away from the overly specialised skills training that the company promoted, by introducing their apprentices to different departments, people and projects. This was not commonplace, however. As such, training ran the risk of becoming individualised and specialised to the different expectations and interpretations of the different supervisors; apprentices were let loose after the induction process with no monitoring to check if they were being treated consistently compared to other apprentices. Managers acknowledged and agreed that this needed to improve in the future to ensure every apprentice was receiving the same type of opportunities.

The training environment of ChemCo was very different. On-the-job training was structured around two different environments at ChemCo; the training centre and the different departments, where apprentices would complete rotations. The first year of the apprenticeship was spent entirely in the specialised apprenticeship training centre, illustrated in Figure 15.

Figure 15: Images of the ChemCo training centre.





Typically, one instructor would be allocated to 15 apprentices in this period. Apprentices highlighted that they received a lot of help and support from their instructors and the environment was not overly stressful or pressurised. So long as they produced high quality work and showed initiative to learn and work with others, they felt like they could progress within the workplace. Apprentices viewed their instructors as experts in their area with a sense of admiration and respect. The instructors also led in-house theory

lessons and practical instructions for the apprentices to achieve their key learning goals. They were described by the apprentices as experts in their area, technically multi-skilled in solving problems, and very supportive in terms of pastoral support:

“He is one of the best instructors. I can already say that. He's like a father to all of us. He is such a multi-talent. He can do anything, he can teach you and he also has fun with things. That's the most important thing. He is always in a good mood despite being at work from six to five.” Apprentice 13-C

The first year would be followed by assigned rotations in different departments to allow the apprentices to develop their knowledge into a more practice-based environment. This approach integrated the apprentices into the workplace, providing them with a common set of rules, clear expectations and practices to navigate the workplace in order to progress and perform well on-the-job. Understanding and respecting this culture depended on their support network established through the relationship between their supervisors, instructors and vocational schoolteachers. When apprentices moved to their departmental rotations, dedicated apprenticeship officers, appointed by the instructors, were responsible for their development. This would involve an initial induction, tour of the specific plant and outline of specific health and safety instructions. Apprentices would typically be assigned to a specific station within the plant and have other skilled superiors, known as Gesellen who had completed their apprenticeship training, assigned to them to work with them on a daily basis.

Hence learning was structured in a multi-layered CoP. Apprentices would work daily with the various Gesellen within the departments, who would expose them to different stations and learning experiences. The apprenticeship officer oversaw the whole learning experience. Finally, a plant manager would manage the entire department; apprentices would have little interaction with them, but they would direct the key outputs and strategies of the department. This expansive CoP provided a solid ecosystem of support for the apprentices. In general, the apprentices felt that they were thoroughly supported in their work on the departments. They were not undermined for asking questions or not understanding certain processes or concepts. Instead, workers on the department viewed the apprenticeship as a broad educational journey of skill development. Apprentices could draw upon a wide range of people for support if they needed it and this was actively encouraged by their supervisors. Hence these support structures clearly facilitated the overall development of the apprentices within the workplace.

8.1.3 Responsibility in the workplace: Apprenticeships as work or education?

PharmCo apprentices had less far-reaching support structures within the workplace and also carried much more responsibility in their work tasks. They were expected to meet the constantly changing demands of the business cycle within their departments. Once apprentices had learnt a key task, they typically would receive full responsibility to carry out the task in the workplace. This exposed them to a sense of variety and they therefore were not stuck in a mundane work routine. Increased responsibilities might involve taking ownership of an entire project themselves, including carrying out data analysis, assimilating measurements, or being trained to use another piece of equipment. Apprentices noted that as their responsibilities increased, they became a 'much more dependable person for the team.' (Apprentice 9-P). Learning became less about the educational notion of learning and more concerned with taking on extra responsibilities and meeting changing business demands. Learning and becoming dependable was also a route for apprentices to show managers their worth, with the aim to secure future employment with the company. Taking on extra-curricular activities was also an essential ingredient to portray and embody showing interest, commitment and aptitude for progression. This could involve becoming a safety representative, training new recruits, engaging in outreach STEM or Royal Society of Chemistry events, being responsible for a piece of equipment, public speaking at Toastmasters events, coordinating visitors to the site or standing for the apprentice social committee. Apprentices' responsibilities increased significantly as the apprenticeship developed as they started to take sole ownership of tasks. Responsibility proved their usefulness and return-on-investment back to the company, but it also blurred the boundaries between being an apprentice and being a worker.

The apprenticeship therefore was a transition process for the apprentice in becoming a fully responsible and accountable worker within the business:

"Now I'm running the processes by myself and starting to interpret the data and contract it out to the guys over in America....I was appointed the global contact for explosivity screening." Apprentice 12-P

This transition from apprentice to worker was also facilitated by the apprentices becoming more competent, confident and independent in a certain area. As this competency developed, they became less dependent on their supervisor, who consequentially trusted them more to take ownership of tasks. However, trust from supervisors was a double-edged sword for the apprentices. In one sense, it allowed apprentices freedom and flexibility to learn at their own pace within the work environment. On the other hand, apprentices were accountable for the work tasks they

completed and there were managerial expectations to complete tasks correctly and within certain time frames:

“She generally lets me get on with managing my own time because she trusts me to do it right.” Apprentice 1-P

There was therefore an expectation to complete tasks the “right” way whilst also having to manage their own time as apprentices. This contrasted to the situation at ChemCo where managers were accountable for the apprentices’ actions. At PharmCo, accountability lay with the apprentices and task expectations and managing time were therefore mutually intertwined. Hence although apprentices had apparent freedom, they were constantly constrained by work pressures which impacted their learning on-the-job.

PharmCo apprentices were treated as colleagues within the workplace and their responsibility was to slot into the department and make the most of their role within the team. One apprentice, for example, noted that when they first started, their team was severely overworked and overloaded and that therefore she was initially treated more as a team member rather than an apprentice. Some management also considered apprenticeships as a useful strategy to free up labour within the department. In terms of freeing up labour, the apprenticeship programme provided space for existing staff to utilise their time more effectively, with excess work being transferred over to apprentices to complete and an opportunity to learn new skills:

“I’ve encouraged my team to say, ‘Look, you use the apprentice to take away some activities that either you feel are kind of getting in the way of you doing something more interesting or to do things that you just haven’t had time and effort to be able to get to,’ but it’s not the photocopying. It is meaningful – it is always meaningful work.” Line manager 2-P

There was a grey area between the expectations of the apprenticeship from both an educational and management perspective of meeting everyday job demands. This grey area was rationalised through a discourse of apprentices becoming “dependable”. Being dependable did not necessarily equate to becoming more skilled from an educational perspective; instead it was more attached to the notion of fulfilling a job role and meeting business demands. Hence intensity acted as a barrier to the educational component of the apprenticeship. This was also a key reason why apprentices could not undertake rotations to broaden their knowledge:

“We talked about secondments and my manager basically said – ‘For you and the other apprentices, there wouldn’t really be the option to do a secondment because you’re required as part of the team.’ If I left for two months, who’s going to do the scanning electron microscopy? Who’s going

to do the customer complaints that I always deal with? So, she said, for us, because we're such a dynamic team she's like, 'You're built into the workload.'" Apprentice 1-P

Apprentices were 'built into' the demands of the 'workload' (Apprentice 1-P) and could not afford to take time off for future progression or training. Many apprentices highlighted that they would not be able to meet all their expected 95 competencies to meet qualification of their apprenticeship standard within just one department. Apprentices were completing different tasks in different departments and therefore learnt very different competencies day-to-day from one another despite completing the same standards. This meant the apprenticeship lacked a standardised and holistic approach through the apprenticeships lack of rotations and overly department-specific approach. Indeed, apprentices noted that a secondment to a different department could also impact their progression within the company; starting in a different department was impractical as it was like starting from square one in terms of getting proficient in one area. Additionally, orchestrating shadowing, and let alone a secondment, was also a lengthy and arduous process in terms of completing strict health and safety requirements, additional bureaucratic processes and equipment training. Apprentices were therefore pressurised by work demands and did not have the time to broaden their training. The nature of the work at PharmCo was often project- and deadline-based and dependent on the manufacturing process. It was also fairly unpredictable as to when new projects would start; work therefore oscillated between intense project deadlines to more quiet working environments. The pace of PharmCo's working environment somewhat clashed with the learning processes of apprentices:

"So suddenly you've got a massive package of work to do and then you've got to quickly rush through it...our supervisor's quite good at saying no because of how we are, we're not as skilled so, 'No, work at your own pace,'... I would say in general it's quite a tough job, intensive job sometimes." Apprentice 9-P

In this sense, the apprentices at PharmCo were viewed as resources or workers, required to be on call to constantly respond the changing demands of a high-intensity work environment. There was mention of some of the new cohort of apprentices completing different ten-month rotations; but none of the interviewed apprentices completed a formal rotation. The apprenticeship was always in conflict with the requirements of staying up to date with on-the-job expectations. This blurred the boundaries of the apprenticeship and raised the question if the apprenticeship was really an apprenticeship or more of an actual job. Before the apprenticeship programme was redesigned, the vocational programme at PharmCo, though less structured than the new

scheme, was more rotation based. Thus, the approach with the new Trailblazers and employer-led programme created an apprenticeship that was more specialised and narrow rather than broad and varied. The local college reflected that they felt that apprentices became too specialised in one area and that, in general, a more holistic educational approach was needed.

There was a clear hierarchy of knowledge within ChemCo, which reflected the multi-layered and collective approach of the CoP within the workplace. It also set the boundaries of what apprentices were responsible for and for what they were not. Although there was an inclusive and approachable culture of learning, apprentices had not yet earned the responsibility to actually carry out tasks or operate machinery by themselves:

“During the apprenticeship, you always report to someone. You get assigned tasks and then you have to be responsible that you don't break anything and that it will be of high quality. But you don't have any direct responsibility during the apprenticeship.” Apprentice 6-C

The apprentices' key responsibilities were therefore to produce high quality work directed under the guidance of their supervisors and demonstrate an aptitude to learn. They were not expected to carry out any concrete high-level tasks within the plant like lead or manage a certain piece of machinery or be responsible for anybody else. These kinds of responsibilities were only earned after the apprentice certificate has been awarded and successful promotion had been granted:

“We are officially not allowed to do anything as apprentices. We are actually only allowed to follow the Gesellen and see what they do.” Apprentice 11-C

On-the-job training was situated in a strong educational tradition, which viewed apprenticeships as a learning process and was facilitated by learning through watching, shadowing and perfecting skills under the supervision of a more senior colleague. Therefore, the apprentices' level of responsibility of key tasks did not change throughout the three years of the apprenticeship. The apprenticeship was not considered to be just a job, but a learning process that required dedication to eventually meet the base-level requirements of a job in the company after the apprenticeship. Knowledge and learning were therefore respected, and, developing aptitude in an occupation was considered to be an iterative and gradual process that took time and dedication to master. It was company culture to realise that apprentices and supervisors or plant managers were on different levels of knowledge and that this was something that should be respected:

“You don't actually get any responsibilities in the company or in the plants. You are an apprentice. You don't have the same knowledge as someone

who has already completed their apprenticeship...As an apprentice, you can't pay attention to everything that someone who has already finished might be able to pay attention to." Apprentice 4-C

Experience and knowledge were therefore highly respected. There was no expectation for the apprentices to complete tasks that they were not qualified for. Equally, exceeding work expectations by over-working and working under pressure was not welcomed. Showing initiative and completing tasks based on their level of knowledge and experience was looked at favourably. This sometimes meant completing more menial tasks that their superiors would not do:

"Of course, as an apprentice you still have to clean up the dirt. That's how it is. But if you do the right thing, get along well with people, they will show you something." Apprentice 13-C

Apprentices did though have access to learning opportunities, which meant they had the path to progress to eventually move advanced tasks. In some instances, responsibility was provided if the apprentice had established a good relationship with their supervisor and the task was not considered dangerous. Hence responsibility depended on the department, situation and supervisory relationship. Apprentices were always in reaching distance to support and supervision and were not expected or allowed to work entirely by themselves. Hence working within a wider CoP and actively engaging within that support structure was essential to gain trust, respect and knowledge. As the apprentices did not carry specific responsibilities themselves, their supervisors were accountable for the apprentices and their actions:

"That's still the case when I screw up or do something wrong - of course it's my fault somehow, but the Geselle who's responsible for me has to stand up for it...if I still break something and he doesn't pay attention, I can stand up and say you didn't look. They can't do anything to me unless I'm grossly negligent." Apprentice 2-C

Therefore, health and safety underpinned all actions within the workplace and was a key part of the company culture:

"We attach great importance to this. That we can get in here healthy in the morning and then get out just as healthy at noon." Chemicals Instructor-C

Many of the apprentices worked in laboratories on a daily basis and were using chemicals which produced fumes, where it was important to adhere to strict safety rules and work in a tidy and diligent way. Apprentices received extensive training in occupational safety rules and regulations and also completed first aid training as part of their apprenticeship. Health and safety was a central mechanism within CoP within the

company for the apprentice. Supervisors were accountable for all the apprentices' actions and was communicated down from senior management to all workers:

"Safety is very important to us. So that we don't have accidents at work and so on. This is communicated from top to bottom. From top boss to bottom boss." Apprentice 13-C

This created an objective, transparent and fair environment to work in where clear boundaries on what was acceptable or not were communicated to all, forming a core characteristic of the working environment and culture:

"From the very first day you're told what to watch out for...you are really told clearly, if something happens, to which person it is forwarded and what consequences it will have later, not only for yourself but also perhaps for the department in which you are currently working. And how important it is when you notice something to say it and not to keep it to yourself." Apprentice 4-C

Hence responsibility within the workplace was not an individualised matter but a collective responsibility upon everyone to ensure health and safety for all colleagues. This culture underpinned all the relationships within the workplace across all levels of seniority, creating a common language of understanding and respect within the workplace. It also impacted the general morale and social culture of the company, where people took time and effort to respect others. In general, apprentices and managers described the social culture to be very friendly and open, which also contributed to a productive, socially inclusive and team-based learning environment where autonomy within the workplace was also widely welcomed:

"It's a very good culture here. It is also very open. You can talk to everyone, including our bosses... We can also organise our work more or less freely. There is nobody there who constantly looks and says, here you have to do this and that now." Training Manager-C

Hence although responsibility was not necessarily granted to apprentices, apprentices did not feel restricted within their everyday working patterns. Instead a collective culture of accountability and shared responsibility fostered an autonomous approach to working, health and safety and skill development.

8.1.4 Concluding comments

Overall, there was a clear differentiation in the learning culture and training structures in place within the two cases. PharmCo adopted a much more individualised and narrow approach, whereby apprentices learnt from the guidance of their individual supervisors, and departmental colleagues, but only remained within one department for the entirety

of the apprenticeship. This led to the apprentices gaining a highly specialised but somewhat narrow skills base, as the apprentices had no exposure to rotations or secondments in other departments. This set-up contrasted to the collective and multi-layered CoP present within ChemCo. Apprentices therefore accumulated a broad variety of skills from a multitude of different sources and learning experiences. The work apprentices carried out was set with the context of a hierarchy of responsibility of work tasks. Apprentices were not given high-level responsibilities at all since they worked under the supervision and mentorship of superiors, who were accountable for the apprentices' actions. Responsibility would only be granted to the apprentice after they had finished their apprenticeship. The only tangible responsibility that apprentices had within the workplace was to adhere to the strict health and safety regulations of the workplace. Hence apprenticeships were viewed by managers and colleagues as an education, and they actively fostered an environment to ensure this was achieved. Training at PharmCo, on the other hand, was tailored and shaped by the constantly fluctuating nature of business demand within the company. Apprentices were given a number of high-level responsibilities and work tasks. Taking on responsibility, showing dependability on-the-job and becoming indispensable to their managers and colleagues typified the learning experience at PharmCo. As a result, apprentices did not always have the space and time to focus on broadening their knowledge and the apprenticeship was therefore considered to be more of a job.

8.2 The social dynamics of learning: Negotiating progression, support and feedback

8.2.1 Introduction

Despite the clear differences at ChemCo and PharmCo in the structure and format of on-the-job training, the social dynamics of the learning environment of both companies also had an additional role to play in facilitating the quality of learning on-the-job for apprentices. The social relations of the workplace in England and Germany, particularly the level or individualisation of managerial discretion, impacted the level of the apprentices' agency in different ways affecting their progression and training within the workplace.

8.2.2 Gaining access to the learning environment

At PharmCo, the supervisor very much acted as the gatekeeper to other networks within the company, leading to new learning experiences and opportunities. Some supervisors took a particularly active role in introducing their apprentices to other departments so they could learn from other specialists; hence this process relied on the discretion of the individual supervisor. Apprentices did also start to work in a more team-based

environment and learnt from departmental colleagues including other scientists, managers, PhD students, graduates and sandwich-placement students. PhD graduates, in particular, offered tutorials to the apprentices, helping them with their degree studies. Apprentices therefore created more informal relationships to facilitate their learning. Through this, they also noticed the hierarchy of work tasks within the department:

“Where there’s stuff which isn’t so interesting but needs to get done and I see that as like a really good learning opportunity for me.” Apprentice 7-P

Apprentices were assigned more menial tasks to become skilled before gaining responsibility. Apprentices seemed accepting of their low-skill level within the company and actively differentiated themselves from the more high-skill and academically driven PhD graduates. Although this reflected the natural knowledge hierarchy of the workplace it was also indicative of the apprentices’ own perception of themselves in society and of their identity as non-academics. They were also exposed to the thinking and attitude of the scientists within the company through active group-based organic chemistry problem-solving sessions. This instilled in the apprentices an understanding of what kind of social skills were expected of them in the company. However, apprentices did not have much agency in negotiating further access to new learning experiences. For example, apprentices did not know in advance what they would be specially trained on and new training arose on a more *ad hoc* basis and unpredictable basis, often determined by their line-manager:

“The only reason I got trained in scanning electron microscopy and at the moment I do particulate matter projects – I wouldn’t have been trained in those automatically, it’s because of my behaviour in the lab. My manager thought, ‘She’d be good at that,’ and that’s the reason I’ve ended up doing the things I am now. So, there was no way of even predicting what I’d end up doing because it was a result of what my manager thought”. Apprentice 1-P

Apprentices’ social behaviour and natural ability played a key role in securing further on-the-job training opportunities from line-managers. Overall, the apprenticeship itself did not determine the type of on-the-job training offered but, rather, their manager did. This ran the risk of favouritism in the workplace but also to the apprentice not learning the skills needed to be proficient in their area, leading to a narrower skills portfolio.

Despite the ChemCo apprentices’ access to supportive structures and comprehensive training within the workplace, they also had a role to play in their own personal development. This depended on their own general behaviour and performance within the department. Apprentices relied on the social environment within the apprenticeship training centre to get the most out of the learning experience. They had to capitalise on

these wider social networks to get the most out of the learning experience and to progress within the company. The apprentices therefore needed to employ their own agency to negotiate the multi-level nature of the CoP to determine their future employment within the company. Establishing good relationships with their peers was essential for the apprentices to initially gain good access to the learning environment and develop their skills and knowledge. Apprentices emphasised that it was important to make friends within the apprenticeship cohort and how this provided extra confidence within the workplace. By being in a rich social network of other apprentices, apprentices also had the opportunity to learn and draw support from one another. The first year of the apprenticeship training also started with an induction process, which reinforced the company culture and the expectation to work well within a team and be engaged with others.

Working in teams was also essential to progressing within the company. Although having strong technical competencies was an important pre-requisite to gaining a place on the apprenticeship programme, more emphasis was actually placed on the social and team-working competencies of the apprentices. Hence having a pro-active personality and attitude was essential to fitting in but also being part of the learning community. Apprentices were encouraged to communicate all steps of their learning, both by recording it in their weekly training reports but also every-day with their supervisors, updating them on their work and asking for advice and support. The latter depended on the apprentices being communicative and open to others around them. The general learning and training approach had changed at ChemCo over the years to accommodate the emphasis on social skills. Before the approach was for the instructor to lecture and take a more authoritative role in the training process with apprentices working closely under their specific step-by-step guidance on a more individual basis. Today apprentices are expected to work more independently, ingeniously but also collectively, drawing upon others in the team for help and guidance where needed. Supervisors, today, are labelled more as an 'apprenticeship companion' than a lecturer.

This team-based approach was mirrored within the different departments. Here training was not just determined by individual supervisor discretion but by a whole team of different levels of superiority that could support and guide the apprentices learning. The level of support varied from department to department, with some apprentices reporting variable experiences where some apprenticeship officers took a more hands-on and supportive approach than others, which were less available. Hence having a larger support network at the workplace counteracted any negative or less inclusive behaviour from certain managers. Access to the CoP within the department partly depended on luck but also on the apprentice developing good working relationships with superiors, which could facilitate access to more learning experiences. This contrasted to PharmCo,

where apprentices, themselves, had less agency to negotiate future learning opportunities. At ChemCo, the initiative, curiosity and engagement of the apprentice affected their ability to navigate the working environment successfully:

“You can actually choose who you want to go with. You can go there for a day or a week. That's actually relatively flexible. If you ever feel like seeing something else, you can say ‘I can go with you, I'd like to see that.’ Then they will take you with them. You get to know new plants.” Apprentice 7-C

Gaining access to further learning opportunities also relied on tact and respect. In general, people warmly greeted each other in the mornings, even if they did not know each other or were at a different level of seniority. Demonstrating personal motivation and being accountable for oneself but also for others in the company's highly regulated health and safety environment was also essential. This also involved being punctual, diligent, respectful and engaging with colleagues to ensure they were completing tasks adequately and safely. This social, friendly and respectful approach was emphasised in the induction and training in year one of the apprenticeship. Some apprentices noticed that senior management did not always reciprocate this approach. The social nature of the production plants had a strong working culture where people worked on shifts together and established solid working relationships. The apprentices noticed a division in the social culture between the manual workers and managers:

“Where production is located, it is much more familial...Here, I say, are the suits. When they see you're wearing work trousers, some of them don't greet you.” Apprentice 13-C

Hence different levels of seniority of workers sometimes led to barriers to being integrated fully into the company culture. The majority of the apprentices were also in their late teens or early twenties, which often meant working with an older working population. Respecting boundaries and language was important to fit into the general working culture of respect for those with more knowledge and experience. Other apprentices highlighted that also faced barriers from the older generation who were cautious about engaging apprentices in key tasks due to paranoia of losing their jobs:

“If I teach him that now, they think, then the company will throw me out and he will get my job. That's how some people think.” Apprentice 13-C

Apprentices were typically younger than the average worker at PharmCo as well. Integrating 18-year olds or those in their early twenties into a very mature working culture of typically 35-45-year olds was a challenge socially in terms of the apprentices' learning environment on-the-job. Apprentices sometimes found it difficult to negotiate the boundaries between working in a professional environment and their own social lives

outside of work, such as going out with friends and drinking. The sense of a flatter hierarchical work structure allowed apprentices to integrate into the work culture and learn and communicate with colleagues from different backgrounds and managerial statuses. There was a hot-desking policy so apprentices could sit where they wanted. This created less formalised and hierarchical structures, which contrasted to ChemCo's more hierarchical and collective web of responsibility. As part of this more flat and informal work structure, apprentices soon realised they needed to exude a sense of loving their job to demonstrate their commitment and hardworking attitude:

"Everyone shares the common factor that they're willing to work hard. I think you've got to be, otherwise you wouldn't last". Apprentice 1-P

A pro-active behaviour was considered to be an essential pre-requisite to gain employment within the company:

"If you come across as someone who's driven, then I think they're more likely to pick you". Apprentice 3-P

This approach contrasted to the social language of ChemCo, where there was an emphasis on dignity, respect, safety and accountability. By contrast, at PharmCo, apprentices enacted the role of the company's ideal employee, an approach, which was reinforced by managers:

"I was told to make myself an asset to the company...I've basically been told to just keep wanting to learn as much as I can...to the point where they basically couldn't let me go." Apprentice 12-P

Apprentices needed to continually increase their knowledge and skills so that if they left, the department would face a skills gap and would therefore retain them. Supervisors played a central role in governing this state of affairs, guiding the apprentice in a social narrative that emphasised the need to constantly improve their skills base by taking on more responsibility:

"They want our skills to be like as good as they can possibly be to try and make us as indispensable as possible." Apprentice 2-P

Becoming 'indispensable' was, however, a never-ending journey with no fixed endpoint. It was also a culture that was reinforced so that apprentices took on more responsibility. The flatter hierarchical structure, with less tangible supportive structures in place, generated a sense of informality and more casual social relations, creating the façade of a more easy-going culture. In turn, this façade, actually led to increased managerial discretion over apprentices' productivity, but also heightened work intensity, stress and career uncertainty for the apprentices.

8.2.3 Gaining feedback and support

The laidback culture of support was also mirrored in the apprentices' experiences of feedback. Overall, supervisors took a supportive, rather than an overly managerial, role in their development as apprentices. Apprentices worked in close vicinity to their supervisors and the laidback culture of communication with managers allowed apprentices to integrate but, on the other hand, also created more of a grey area for apprentices to receive structured feedback and progression. Some of the apprentices viewed their managers as friends, which then made it difficult for them to objectively broach topics such as progression and extra training. The supervisor-apprentice relationship also depended on the degree of the supervisors' experience, level of competency and knowledge as well as the time and level of commitment invested. Indeed, many of the supervisors adopted a more lecturing role, which was helpful in explaining the science behind many of the task's apprentices completed on the job. One apprentice noted that:

"It can make or break an apprenticeship...I think your supervisor is very important really and who they've picked and their level of competency."

Apprentice 9-P

The majority of the apprentices reported positive experiences of their supervisor relationships. However, others highlighted how their supervisors did not view apprentices favourably or understand their level of learning, which impacted their integration into the department and quality of learning:

"Unfortunately, I had a bit of a sticky start at the beginning. My manager – like I said, she has two degrees and a PhD so she's exceptionally bright and I think she was quite shocked at my academic level being so low. I don't think – she's not very familiar with the apprenticeship scheme anyway...But, no, she's kind of settled in a lot more and I think she understands that obviously I'm not half as bright as she is, so she cuts me a little bit of slack."

4-P

On top of this, apprentices did not have a formalised training record or receive formalised feedback. They could seek support from their supervisors on work-related issues in informal one-to-one meetings. Apprentices would typically meet up informally with their supervisors weekly, fortnightly or monthly depending on their arrangement with their supervisor. This varied depending on the supervisor and therefore was not standardised across the apprenticeship cohort, with different apprentices receiving different levels of support. Some apprentices had taken the initiative to organise a formal personal development plans (PDPs) with their line-managers, whilst others had not heard of this process. PDPs were typically exclusive to permanent employees although senior

management were in talks to create formalised PDP for apprentices. As the apprentices were contractors, they did not receive the same formal development opportunities as permanent employees. This created a grey area for the apprentices in terms of where they should go for both pastoral support as well as progression opportunities.

On top of their PharmCo supervisor, apprentices could also speak to their ATA representative who dealt with apprenticeship-related issues and also carried out regular quarterly reviews. The apprentices generally felt that the ATA was unapproachable in terms of pastoral support needs and unknowledgeable since their managers from the ATA did not come from a science background. Previously the local college had also been involved in the reviews, but this was phased out to cut costs and therefore ties with the college were weakened. Apprentices could speak individually to their academic personal tutors from their training provider. Yet overall there was a lack of cohesion and partnership in the feedback process for apprentices, which meant that they were stuck between PharmCo, the ATA and the training provider for support. It was difficult for the apprentices to work out who they were actually accountable to and, also, who was formally accountable for their development and support. Apprentices were stuck in limbo between the lack of support from the ATA and the lack of a formal system at PharmCo.

This lack of formalisation and standardisation of feedback and support was also mirrored in the apprentices' experiences of gaining their apprenticeship standard qualification. Apprentices relied on their supervisors' feedback for their "blue books", which involved collating a portfolio of competencies to meet the requirements of the standard. Supervisors were responsible for signing off each of the competencies and, then, cross marking these with the other supervisors' marks to ensure uniformity in assessment. Despite this, competencies were signed off on the supervisor's personal discretion and interpretation:

"One supervisor might sign off a certain level of competence...but somebody else could interpret that differently in a different department." Training provider 1-P

Equally, on a wider national scale there was no way of guaranteeing fairness of marks, between different supervisors, companies, sectors and industries, which also contributed to a general lack of standardisation in feedback and assessment. Assessment and feedback were therefore also indicative of a wider issue in the English apprenticeship system, and not just PharmCo's own culture and policy towards it. This was also reflected in the apprentices' end-point-assessment. Apprentices complained that the interview felt too pre-meditated and scripted but also bureaucratic and more of a tick box exercise. Even if the apprentice could not answer the assessor's questions, the assessor made allowances for the apprentice enabling them to pass the assessment interview. The

assessor would typically ask the apprentices for specific examples from the apprentices' 'blue books' as evidence of their proficiency in the different competencies. The end-point assessment, with its lack of continuous assessment, did therefore not meaningfully capture how the apprentice had improved over time or what indeed that had learnt. This lack of formal and structured continuous assessment and feedback devalued the apprenticeship and the standard qualification.

The collective social environment of ChemCo created a much more formalised support and feedback system. Apprentices were expected to keep a formal online record of their training every day to keep a documentation of their training progression. Throughout the apprenticeship apprentices would also receive formalised feedback to enable their development. Apprentices would meet with their instructors yearly to discuss their academic and practical development. This would be complemented with specific on-the-job based feedback. Feedback was communicated on-the job by the apprentice officers face-to-face through assessment talks. This was followed up by a formal evaluation interview, at the end of each rotation by the responsible apprenticeship officer. The apprentice would be assessed on how they performed practically, socially and theoretically on-the-job. The apprentice would also be asked to reflect on their experiences of the job and what they learned whilst also providing any personal feedback. The evaluation interview graded apprentices if they exceeded expectations, fulfilled expectations, performed satisfactorily, or if there was room for improvement.

Apprentices were generally happy with the frequency and quality of the feedback process. However, others highlighted how informal feedback should be more honest and transparent so that when it came to the assessment interviews, there should not be any unexpected surprises. It was not just constructive criticism that the apprentices felt could be improved, but also recognition of good work and practice on-the-job. Some apprentices highlighted the fact that they did not receive any approval or praise from their rotation-based supervisors, making them feel unsure and uncertain about their general performance. Hence there was sometimes variable outcomes in terms of the apprentices' feedback from their different rotations and it very much depended on their allotted manager. Good evaluations led to future job opportunities and creating a good impression was central to progression within the company; the apprenticeship itself was viewed as a recruitment process. In response to the claims of lack of on-the-job feedback the youth works council society had created their own feedback system to assess and share apprentices' own experiences of working in different departments. This created greater transparency and increased equality in the feedback system for apprentices.

8.2.4 Concluding comments

In summary, the social relations of PharmCo exuded a sense of informality and an overall friendly culture between apprentices and managers. PharmCo had a flat hierarchical structure and had less levels of formal support structures in place than ChemCo. The ChemCo apprentices had access to a broad and supportive CoP, which provided a cushion of support and access to developmental opportunities, securing the quality of their training. Most apprentices believed that the support they received on-the-job exceeded their expectations. Therefore, structures were in place to ensure their skill development and there was a formalised feedback system, which contrasted to the experience of the PharmCo apprentices who had much more *ad hoc* meetings with supervisors and less standardised and much more fragmented access to formalised feedback, assessment and support. Despite this, ChemCo apprentices had to use their own agency within their rotations to secure their future job mobility. They needed to use their own social influence and capital to negotiate their future within the company and create a good impression with their colleagues. In response to any negative experiences, they could either draw on wider CoP as a support mechanism or take an active role through the youth works council to improve working conditions and development. This contrasted to the PharmCo apprentices who very much relied on their supervisor to aid further progression; they had less agency or ability to gain access to further training or experiences by themselves compared to the ChemCo apprentices. This was problematic as managerial discretion dictated access to more development opportunities, which did not always materialise. Apprentices often did not know what their training would involve, and new training was instigated more spontaneously with little prior notice and depended much more on the social rather than educational behaviour of the apprentices. The underlying culture and expectations promoted by PharmCo was for apprentices to show how much they loved their job whilst also demonstrating a hard-working attitude. This contrasted to ChemCo, which had much more of an emphasis of dignity, respect and accountability within the hierarchy of the workplace. The flatter hierarchy of PharmCo therefore created a grey space, where there was no clear accountability for the apprentices' learning, which tended to be subordinated to meeting work demands and increased work intensity.

8.3 Juggling every-day life with work and academic demands

8.3.1 Introduction

As well as navigating the workplace and training on-the-job, apprentices also needed to complete their off-the-job education, either at college or university in England or at the vocational school in Germany. Despite the fact that the educational components were

typically carried out offsite, the learning culture and approach within the workplace was instrumental in facilitating a healthy attitude to and uptake of education. Work and education also had the potential to coincide with the apprentices' personal lives outside of work. The apprentice as both a worker and a student was a unique situation for both the employer and the apprentice. The former needed to facilitate sufficient time for learning and education offsite, which coincided with on-the-job work tasks. The latter was typically younger in age and was still growing up and wanting to experience their own lives outside of the workplace; education and work sometimes clashed with this reality.

8.3.2 Balancing education, work and personal lives

The PharmCo apprentices had to juggle the demands of the apprenticeship with college and university work and their private and social lives. Apprentices had one day per week dedicated to their degree or college course. This was negotiable with their line-managers and their study time had to be completed on-site. Support for college or university studies was typically facilitated by college teachers or university lecturers. Supervisors within the workplace and fellow colleagues often also provided support and informal academic tutorials but this was not a standardised or structured experience for all apprentices. Apprentices, overall, needed to manage their time to fit in college or university work, which with balancing constantly fluctuating daily work demands, often meant completing academic work at home in their spare time. Some apprentices found it difficult to complete their weekly one day per week for university work due to work demands. Either the nature of the job did not allow to take one full day off because of work deadlines or they simply did not have enough time:

“Things need to be sampled at certain times, so taking a full day out doesn’t really work with my job. I tend to take like two half days or just tend to spread it throughout the week.” Apprentice 2-P

This made it difficult to complete their university work as the demands of the job took over. The universities agreed, highlighting that a degree apprenticeship was much harder than a normal academic degree, not from an academic perspective but from a time and workload perspective. Apprentices had more on their plates in terms of completing assignments, as well as their apprenticeship competency work log and preparing for their end-point-assessment, whilst balancing this in line with a full-time job. Also, because the apprentices were not in the social environment of university, they could not take advantage of the social and learning environment with other peers that most students had. Apprentices had to juggle the demands of their courses in a professional environment, which was constantly in flux with changing business demands. This blurred the boundaries between university work and their role at PharmCo and ran

the risk of their job not only overtaking their social life but also their university commitments. It was difficult to detach from the office environment, particularly for apprentices enrolled on online courses, with colleagues asking questions during apprentices' study time. Apprentices had to hide their stress about completing their university studies within a high-pressure work environment. The role was also emotionally demanding, which took its strain on the apprentices' lives and left them exhausted; apprentices constantly had to demonstrate initiative and enthusiasm:

"A lot of your free time is taken up from assignments and we tend to stay late at work as well. It's not just your bog-standard 37 hours. But you want to make an impression and you want to do well. If you want to go far then you put the effort in." Apprentice 4-P

Making a good impression at work and going the extra mile completing work tasks with motivation and drive was considered essential to succeed. The apprentices had to lose their personal lives to become more accountable to their own destinies within the company. Apprentices needed to be invested in the process to succeed. Indeed, it was noted that some apprentices had left PharmCo after the advanced apprenticeship because they could not fathom the workload of a degree. Many of the apprentices acknowledged that the apprenticeship was hard work but embraced this reality wholeheartedly:

"It does stretch you quite thin...It's quite hard work but it's achievable."
Apprentice 10-P

Working hard and bypassing their private lives was essential to maintaining their job status as an apprentice and to further their progression. Therefore, the aspect of organising their lives around academic and work commitments was one of the biggest challenges the apprentices faced. Despite this, apprentices viewed the apprenticeship as a worthwhile and logical investment to them; getting paid to gain work experience as well as a free university education was central to this reasoning. This impacted their work/life balance but was considered by many as sacrifice worth taking for their futures:

"I think that's the price you pay, right – for having a free degree pretty much and all the work experience and the pay". Apprentice 7-P

Finding a good work life balance was a challenge for the apprentices and their social life struggled with their increased work and university demands. The apprenticeship took over every aspect of their lives; they no longer had free time and had to spend weekends and weekday evenings working on university coursework whilst also working full-time. Working to deadlines and exams was particularly stressful, with some apprentices noting that they even found it difficult to find time to sleep. Overall apprentices felt like fitting in

the degree in these time points were unrealistic. No extra allowances would typically be made in these scenarios, unless apprentices' supervisors allowed for it, which was not standard practice. Again, this was dependent on the level of manager discretion, with some supervisors being more forgiving than others, creating a mismatch in experiences for apprentices:

"There's so much to do workwise and then it's like, when on earth do I squeeze in all my uni work as well? But I think – well, my boss has always said to me, 'Remember your degree is the priority.'...But I can imagine there's other bosses that don't think like that...Because there's no outlines that say, 'You can't do this, you can't do that,' it all just says, 'It's up to your supervisor's discretion.'" Apprentice 8-P

Apprentices also needed to complete their apprenticeship standard on top of their academic qualification. It was the apprentices' responsibility to provide two to three examples of scenarios as evidence in their competency evaluation books or 'blue books', demonstrating how they met each competency. Apprentices had to be self-motivated to collate a portfolio of competencies over the timespan of the apprenticeship. They often worked in groups of other apprentices to share knowledge as it was easy to lose track of the work required. However, this was challenging as many of the competencies were ambiguous and vague and therefore difficult to fill out. Managers also felt unsure as to how to advise the apprentices, which caused even more confusion and time for the apprentices, whilst juggling other academic and work responsibilities. This, too, added to the many responsibilities and tasks apprentices needed to manage.

Very much in contrast to the high-pressure reality of the apprentices at PharmCo, apprentices at ChemCo were certainly not under pressure to exceed productivity expectations:

"You don't work yourself to death here" Apprentice 13-C

The apprentices did not need to work extra hours or exceed task expectations. They were, however, expected to be responsible for themselves and for driving their own development, in terms of getting good grades:

"You are responsible for yourself. You're not told you have to do it like this or in any other way, but you have to find out for yourself how you can study best." Apprentice 4-C

On top of this, they had the space and support to develop and learn at their own pace away from business demands and pressures. Apprentices stated that they did not feel an overriding pressure to perform or produce results when they did not understand certain processes. Instead they had the time to understand, test and experiment key

techniques before they felt more at ease with them. The culture was relatively relaxed, which provided a fruitful learning environment for the apprentices where they were encouraged to ask for advice when they needed extra support. Despite this inclusive culture of the workplace, apprentices did, over time, feel pressure to perform well, show ambition, and get good grades. This intense focus was sometimes exhausting and there was a feeling that apprentices could not take their foot off the accelerator over the three and a half years of the apprenticeship. Particularly as ChemCo was a large company, the expectations for apprentices were higher than other companies and the general level of talent was also much higher:

“If you compare us with the people at vocational school...I would say that we are the elite.” Apprentice 6-C

Apprentices diligently sought out to meet the same grades as others around them and there was a general social expectation and initiative to meet a certain level. Indeed, being in a group of high achievers, also accelerated their learning; they could draw upon other peers in the class for support. Some of the apprentices highlighted that they worked from home at times to revise for upcoming exams but generally most apprentices completed homework within the workplace. Apprentices' were also provided with extra time at work to revise for exams. This was complemented with top-up classes once a week for half a day, which overlapped with much of the content of the vocational school but allowed apprentices to revisit key material for their exams. Mock exams at the vocational school were also undertaken in preparation. The extra support from the company meant that the apprentices' learning rarely coincided with their life outside of the workplace, which contrasted with the reality of the PharmCo apprentices. The expectation for the apprentices to take ownership of their own grades was mirrored in their instructors' somewhat indifferent attitude to homework; instructors felt that it was the apprentices' own responsibility:

“We think and hope that our apprentices will then be so independent and adult - we don't monitor them or anything.” Chemicals Instructor-C

Hence, apprentices were expected to be independent in terms of driving and developing their own their knowledge and completing school tasks. This contrasted to the more spoon-fed and monitoring culture of school for apprentices. Apprentices were monitored more by managers for their everyday approach and attitude to the apprenticeship and learning in general. However, if an apprentice did not pass their key examinations, their managers would take notice. Apprentices had the chance to retake the exam six months after if they had failed. If they failed again, they would have one more chance to pass. However, the likelihood of this happening at ChemCo was very low due to the high level of academic achievement in the apprentice cohort. According to the vocational teachers,

a typical ChemCo apprentice would graduate with a grade of 1 or 2, whilst apprentices from smaller companies would have grades between 4 and 5. Apprentices had to gain a mark of 3 or better, with 1 being the highest grade, to ensure their progression but, overall, there was no significant pressure to necessarily get a grade 1. A mark of 4 or worse would alert their supervisors to the situation, who would then speak with the apprentice personally. Sometimes apprentices might have a personal issue that was impacting their learning in which case they would be given extra pastoral support and access to counselling and on-site psychologists. Other apprentices simply found the content too difficult and would therefore be offered extra coaching. Some apprentices were less academically inclined or motivated, and needed to be persuaded and pushed to take a more focused approach to their studies. The apprentices were not just supported by their instructors but also the works council who also oversaw the grades and development of the apprentices. Therefore, the approach to monitoring grades was supportive and not reprimanding in nature. In other words, apprentices were supported if they did receive bad grades in order to improve. They would not be disciplined and removed from the programme.

Like the PharmCo apprentices, the ChemCo apprentices also needed to juggle working on-the-job with working different shifts and working hours, which was at times stressful. Up to 80 per cent of the apprentices working in the chemical and technical occupations worked shift hours:

“We mainly work shifts, early shifts, late shifts, night shifts...We earn a lot with shift work, but that's not so good for your health, I think personally. And not for your social life either - if you want to see a girlfriend, wife, something, friends more often.” Apprentice 13-C

Working shifts did impact their social lives; their personal lives were often out of sync with that of their family and friends' daily routines during these periods. Equally working shifts was also stressful. In contrast to PharmCo however, the time in the workplace was formally structured with set working times and hours outlined in their contract in a transparent way so apprentices would never work over-time. Apprentices also received higher pay for working shifts. Apprentices therefore did not feel like there were any hidden expectations within the workplace. Many of the apprentices started work early in the morning, at 7am. Although this was an early start, they welcomed the fact that they could finish work early afternoon, so they had time for themselves and their lives outside work. Earlier working times and clear expectations of working hours, therefore gave the apprentices some sense of control over their personal lives outside of work.

8.3.3 Concluding comments

The learning environments at PharmCo and ChemCo were clearly different. At PharmCo, the apprentices' work and educational demands infiltrated their private and social lives outside of the workplace. Although 20 per cent of their working week was dedicated towards completing their college or university studies, apprentices reported often working at home over the weekends to catch up with work as business demands had taken over. Apprentices rationalised this blurred reality between their work, educational and private lives by putting their free degrees and access to high-quality work experience on a pedestal; a route that they justified within the context of their general economic uncertainty and angst for their futures and the pressure and hope to secure a good job. The experience at ChemCo was much more structured and transparent. Apprentices knew their working hours or shifts and were never expected to work overtime. This meant that they typically did not need to complete homework or any other academic demands outside of the workplace. They were also provided with top-up classes within the workplace, to supplement their vocational schooling. This contrasted with the more informal support structures at PharmCo, where managers or colleagues would often provide ad hoc academic support, but in a much less standardised, structured and comprehensive approach. Apprentices at ChemCo were encouraged to take an independent approach to learning and education and were not closely monitored by managers but there was an underlying and social pressure to get good grades. Apprentices at PharmCo did not report being monitored by managers on their grades or their apprenticeship standard qualification either but were overloaded with work demands, which drowned out the educational component of their apprenticeship. Overall, the boundaries between work, education and the apprentices' private and social lives was blurred at PharmCo, in a context of increasing work intensity. They had less time for friends, family and relationships with the demands of the apprenticeship and studying at weekends. On the contrary, apprentices at ChemCo were provided with clearly defined expectations and regulations as well as transparent boundaries to their working hours, educational demands and private lives. This, combined with a supportive and educational working environment, allowed the apprentices to sow the seeds for their future development.

8.4 Discussion

8.4.1 Introduction

This chapter has analysed how the workplace cultures and learning environments of PharmCo and ChemCo were shaped by the social dynamics of managers, trainers, educators and other staff. This chapter builds upon the previous chapters, which have

highlighted how apprenticeship policy and institutional changes have impacted the apprentices' experience of the workplace. At PharmCo, apprentices embraced a nomadic counterculture (Willis, 1977) that rejected societal convention and dovetailed with the precarious realities of their lives. This precarious lifestyle was reproduced at PharmCo where their employment was outsourced (Doellgast, 2012) and was also reflected in the low social standing of apprenticeships in England (Brockmann, 2012) as well as in the growing marketization of the apprenticeship system (Lloyd and Payne, 2016). As such, the apprentices faced an uncertain future (Evans, 2002), where they were unsure if they would gain employment within or outside of the firm, with their much narrower and academic training. At ChemCo, apprentices rebelled against their peers by not going to university (Willis, 1977) but, unlike the school environment ChemCo wholly accepted their interests, backgrounds and identities (Brockmann, 2012). The equal nature of the apprentice-employment relationship, where the union, works council and JAV all played a role in bargaining better outcomes (Doellgast, 2012) ensured apprentices had a permanent job and access to CVET. Apprentices overall had strong agency in the labour market (Evans, 2002), as other employers recognised the value of their high-quality and broad qualifications (Brockmann, 2012) and skilled labour was in demand, particularly due to demographic change and educational expansion (Bosch, 2010). This discussion extends these observations, by examining the learning, training and skill development process contexts of the two firms. Within the context of policy reform and institutional changes, it explores the way these changes affect apprentices' learning and skill development.

It looks beyond just the political actors analysed in the last chapter, looking at how apprentices' CoPs (Lave and Wenger, 1991) as well as wider barriers and enablers in their learning environments shaped their learning and education (Fuller and Unwin, 2003; 2004). Indeed, it is not only the political agency, or the identities and backgrounds, of apprentices themselves that are determinates of apprentices' education and training, but also the people and structures embedded within the apprenticeship programme that provided support for their learning. The learning process is embedded within the social and cultural relations and "language" of the workplace; becoming fully immersed within the learning process relies on becoming a fully legitimate peripheral participant (Lave and Wenger, 1991). However, power relations, structural barriers and hierarchies also shape the socio-cultural context of the workplace (Fuller and Unwin, 2003; 2004), and the CoPs within it (Lave and Wenger, 1991), and this also impacts apprentices' learning experiences.

8.4.2 Comparing the socio-cultural relations of the learning environment

The apprenticeship programmes at ChemCo and PharmCo were highly different in structure and organisation. At PharmCo apprentices learnt the core competencies required from their apprenticeship through the mentorship of their supervisors and colleagues within a department where they were stationed for the whole of apprenticeship. Overall, this led them to a deep and narrow specialisation in one role but did not expose them to the broader aspects of the occupation they were training in. They were isolated from other social and cultural realms in the organisation and could not cross institutional boundaries to access other opportunities for learning and CoPs (Lave and Wenger, 1991; Fuller and Unwin, 2003; 2004). The work culture was friendly and informal, with hot-desking and a general flat hierarchical structure. However, there was a lack of regular and formalised support to encourage, foster and integrate the apprentices into the CoP (Lave and Wenger, 1991) as well as support their learning and education towards their qualification within the workplace (Fuller and Unwin, 2003; 2004). This was partly reflective of the lack of 'participative memory' (Fuller and Unwin, 2003: 411) and shared tradition within PharmCo's relatively new apprenticeship programme, which lacked established support structures because managers were often not aware or trained in working with apprentices. Apprentices often had informal meetings with supervisors but this, alongside general feedback and access to other training and support was not standardised with apprentices having different experiences. Some apprentices would train on one instrument or technique, whilst others would not have access to it, leading to narrow and restrictive learning environment (Fuller and Unwin, 2003; 2004). This meant they did not always learn the whole range of tasks available to them or observe all of the members and old-timers within the CoP (Lave and Wenger, 1991). Apprentices learnt on-the-job and this lack of standardisation coincided with work demands and pressures that often meant they had to react to tasks in which they did not have adequate training. Apprentices therefore learnt in a much more individualised and narrower CoP (Lave and Wenger, 1991) where they were soon solely accountable and responsible for a number of different work tasks, responsibilities and extra-curricular activities to meet organisational needs (Fuller and Unwin, 2003; 2004). However, this "fast" transition into the workplace (Fuller and Unwin, 2003; 2004) where the apprentices took on more profit-making tasks led them to become increasingly separated from the core learning ethos of the apprenticeship (Lave and Wenger, 1991). Participation in PharmCo's individualised approach and culture was essential for the apprentices to gain the recognition and approval of managers within the cultural life of the CoP (Lave and Wenger, 1991). In order to achieve this, apprentices described how they became indispensable to all aspects of the job by working hard and staying on top of constantly changing working demands. Apprentices had to personify a positive can-

do and hard-working attitude to gain access to the social relations governing the CoP (Lave and Wenger, 1991). This gave them hope that they might gain access to further training opportunities and/or be considered for a job in the company post-apprenticeship, although this was uncertain with no clear trajectory for progression (Fuller and Unwin, 2003; 2004). However, individual managerial discretion determined this and overall there was no certainty that apprentices would progress. As such apprentices had little agency in negotiating further training or gaining more experience within different departments within the company. They therefore did not become full active legitimate peripheral participants as they were not integrated into all aspects of the organisation's learning environment (Lave and Wenger, 1991). As there was no job stability for the PharmCo apprentices, the CoPs there became fragmented and individualised, with new timers in the CoP not being replenishing and replacing old-timers (Lave and Wenger, 1991). The CoP was therefore never fully realised, with a lack of fully integrated legitimate peripheral participants (Lave and Wenger, 1991), leading to deepening skills gaps within the organisation and a general training failure (Finegold and Soskice, 1988). As such, the lack of accountability for apprentices' learning meant that apprentices soon became considered workers in the CoP and not apprentices as work demands intensified and took over. The CoP was mediated by hierarchical managerial tensions and conflicts, which inhibited full legitimate peripheral participation (Lave and Wenger, 1991) for the apprentices who increasingly had to work to increasing and fluctuating work demands and expectations. This meant that the educational component of their apprenticeship was often lost in the process, with apprentices needing to catch up on their degree studies at home. As the degree was essentially an added bonus to the apprentices who did not have to pay tuition fees, the pressure to keep on demands was even more justified in their daily realities. Indeed, gaining the degree and the apprenticeship certificate highlighted the one expansive factor that PharmCo promoted in Fuller and Unwin's (2003; 2004) expansive/restrictive continuum. Despite this, not enough adequate time for learning and reflection (Fuller and Unwin, 2003; 2004) was given to the apprentices to manage the learning demands of their degree within their work tasks. Some apprentices could cross boundaries to other CoPs (Lave and Wenger, 1991) outside of the firm to their day-release university or college courses but many were restricted to learning one day per week within the firm leading to a restrictive learning environment overall (Fuller and Unwin, 2003; 2004). Indeed, it was not just their education that was taken over by work, but also their personal lives and the time they spent with family and friends. The apprentices could not become fully integrated legitimate peripheral participants of PharmCo's learning environment and culture (Lave and Wenger, 1991). Overall, within their narrow and individualised learning environment,

the intensity of work enveloped their educational, vocational and private identities (Fuller and Unwin, 2003; 2004).

At ChemCo, apprentices spent the whole of their first-year training within the company's apprentice training centre, working under the supervision of "old-timers" (Lave and Wenger, 1991) in the company who were dedicated company trainers who specialised in apprentice education (Fuller and Unwin, 2003; 2004). ChemCo had a long history of providing apprenticeships and therefore there was a strong and established 'participative memory' (Fuller and Unwin, 2003: 411) and general cultural tradition of apprenticeships within the workplace. This provided them with the concrete training and skills as well the socio-cultural expectations and language to operate successfully within the company (Lave and Wenger, 1991). Trainers shared stories and tips on how to navigate the social context of the workplace to gain membership and a sense of shared identity (Lave and Wenger, 1991). The following two years led to six different rotations within different departments or plants, working within a multi-layered and collective CoPs (Lave and Wenger, 1991), where apprentices learnt from their superiors and other colleagues. This gave them exposure to different departments, production processes, ways of working, techniques and machines so they learnt all the tasks available to them and developed a broad portfolio of skills (Lave and Wenger, 1991; Fuller and Unwin, 2003; 2004). It also allowed them cross boundaries to different CoPs and develop and foster new and rich social networks and identities to aid their learning (Fuller and Unwin, 2003; 2004; Lave and Wenger, 1991). Indeed, apprentices had agency to gain access to further training opportunities by liaising and networking with colleagues on their rotations. This was essential also to make a good first impression, a move which might help them gain a job in a department of their choice post-apprenticeship. This agency, alongside the standardised training and the formal feedback they received as well as the pastoral support from the works council and JAV, highlighted the clear structures in place to aid their development (Fuller and Unwin, 2003; 2004). Indeed, apprentices were always clear on their working hours and were not expected to work overtime, which provided structure and transparency to their daily routines (Fuller and Unwin, 2003; 2004). Through this, apprentices moved closer and closer to gaining membership to the CoP and becoming full and active legitimate peripheral participants within it (Lave and Wenger, 1991). ChemCo therefore promoted the notion of situated learning (Lave and Wenger, 1991) that was set within an expansive learning environment (Fuller and Unwin, 2003; 2004) in which apprentices were immersed within its rich social-cultural context. As apprentices gradually became a fully legitimate peripheral participants in the CoP, they eventually replaced old-timers and developed new ways of working within its existing culture (Lave and Wenger, 1991; Fuller and Unwin, 2003; 2004). The formal and standardised structure of their apprenticeship provided them with a broad and an all-

encompassing education, preparing them for the future. This collective ethos was mirrored in the company's shared sense of accountability and trust towards health and safety, which underpinned the work culture. Embracing and owning this culture as an apprentice was an essential prerequisite for becoming part of the CoP (Lave and Wenger, 1991) there. Levels of education and training informed the hierarchy of responsibility within the workplace, with those with the highest qualifications overseeing the CoP. As such apprentices were not given technical responsibilities or profit-making tasks (Lave and Wenger, 1991) and supervising colleagues were accountable for their education and actions on the shop floor. This allowed apprentices to observe and learn without working under pressurised workplace demands. Apprentices also attended vocational school, which allowed them to boundary cross to other communities outside of work (Fuller and Unwin, 2003; 2004). They were also provided with structured top-up lessons dedicated entirely to education that encouraged independent learning and reflection and also gave them time to complete homework or preparation for assessments (Fuller and Unwin, 2003; 2004). This meant there was a clear differentiation between work, education and the apprentices' private lives. Their qualification was well-known amongst employers and comprised of knowledge-based theory and practical elements (Fuller and Unwin, 2003; 2004), providing them with the education and foundation to advance their careers. Apprentices were also provided with iPads, protective clothing and other educational materials to support their learning, which reified the notion of the apprenticeship in their experience of the workplace (Fuller and Unwin, 2003; 2004). All these factors determined ChemCo's apprenticeship programme as conforming to Fuller and Unwin's (2003; 2004) notion of an expansive learning environment. At ChemCo, the apprenticeship was therefore viewed as a platform for education and learning (Fuller and Unwin, 2003; 2004) by others in the CoP, which fostered and encouraged apprentices' learning (Lave and Wenger, 1991).

8.4.3 Concluding comments

PharmCo and ChemCo's apprenticeship programmes were on opposite sides of Fuller and Unwin's (2003; 2004) expansive-restrictive continuum and had contrasting levels of legitimate peripheral participation (Lave and Wenger, 1991). PharmCo's restrictive learning environment (Fuller and Unwin, 2003; 2004) inhibited the potential for legitimate peripheral participation (Lave and Wenger, 1991) and lead to apprenticeships being considered solely as a means for work. This contrasted to ChemCo's expansive learning culture (Fuller and Unwin, 2003; 2004), which encouraged full legitimate peripheral participation (Lave and Wenger, 1991) and stimulated a work culture that viewed apprenticeships as means to education and learning.

At PharmCo, the lack of exposure apprentices had to other CoPs within the business and the general expectation for them to work to business demand in profit-making and highly specialised tasks hindered meaningful development and expansive learning (Fuller and Unwin, 2003; 2004). Training was not standardised or formalised and experiences varied widely amongst the apprentices. This was reflected by the lack of institutional support structures in the workplace (Doellgast, 2012) and the general marketization (Lloyd and Payne, 2016) of the programme in reaction to policy reforms. As apprentices were stationed in one department for the entirety of their apprenticeship, their exposure to other training opportunities was limited and only determined by managerial discretion. CoPs within the company were fragmented and individualised (Brown et al., 2011) with the dynamics of departmental CoPs, which were shaped and determined by business demand (Lave and Wenger, 1991; Fuller and Unwin, 2003; 2004). As such, there was no formal succession planning for newcomers to learn from and eventually replace old-timers (Lave and Wenger, 1991) leading to skills gaps, training failure (Finegold and Soskice, 1988) and uncertain futures for the apprentices (Evans, 2002). This mimicked the nomadic and precarious realities and identities of the apprentices (Willis, 1977). However, apprentices no longer felt free in their counterculture identities (Willis, 1977) as work enveloped them and the demands of their degrees meant they had to complete work regularly at home at the weekends or evenings. Apprentices became overloaded by PharmCo's business-led work culture, which they had to continually embody, re-enact and personify in the social relations of the workplace. Therefore, work demands not only took over their training and education, but also their personalities, relationships and personal lives. On the contrary, apprentices at ChemCo completed one-year of core training as well as rotations, which allowed them to cross boundaries to other CoPs where they could observe, practise and learn the breadth of tasks required for their profession (Fuller and Unwin, 2003; 2004). Set within the context of a supportive and institutionally structured (Doellgast, 2012) learning environment with formalised feedback and progression systems (Fuller and Unwin, 2003; 2004), apprentices gradually became fully-legitimate peripheral participants (Lave and Wenger, 1991) leading to increased agency and confidence within the labour market (Evans, 2002). Apprentice trainers and supervisors were accountable for apprentices learning on-the-job, which meant that the apprenticeship was dedicated to learning outside the immediate realms of business demand (Lave and Wenger, 1991). Adherence to health and safety was the central expectation of apprentices and this underpinned ChemCo's culture of professionalism. Hence, CoPs were collective in nature with multi-layered support structures and hierarchies made up of diverse set of skilled members (Lave and Wenger, 1991). This provided a rich social tapestry with which apprentices could engage and in which they found acceptance of their identities (Brockmann, 2012),

allowing apprentices to seek out new training opportunities (Fuller and Unwin, 2003; 2004). Apprentices also crossed boundaries for their dedicated learning periods both onsite in their top-up classes and offsite at the vocational school (Fuller and Unwin, 2003; 2004). This meant that education was segregated from on-the-job training and work and also ensured apprentices did not need to work from home, providing space for their private lives.

9 Conclusions

The study set out to examine the socio-cultural-political economy of apprenticeships in two firms in England and Germany. Its central aim was to explore how the organisation of apprenticeships at workplace level in England and Germany were changing in response to key institutional and policy-led change.

The empirical data have illuminated a number of key issues and findings in regard to ongoing debates in the study of apprenticeships. The concluding chapter starts by initially detailing the core findings and arguments presented of the study. The research implications and broader contributions of the study are then elucidated. The study highlights the benefits of a multi-level, comparative analysis of apprenticeships. Notably, it argues that the study of apprenticeships is enriched by a conceptual schema that goes beyond one-dimensional analyses to explore the dynamics of apprenticeship from an integrated socio-cultural-political perspective. Future research directions are then discussed to stimulate academic thinking in this field. The chapter concludes with some reflections on apprenticeship policy.

9.1 Overview of the study's findings

9.1.1 Introduction

Apprentices at PharmCo and ChemCo left school with similar uninspired sentiments; they wanted to escape and rebel against the expectation of an academic-centred trajectory to HE (Willis, 1977), and instead sought to work, learn and earn. Education was viewed as a sheltered and privileged route, while practical work was viewed as a means to gain independence and life experience. Despite leaving school with similar aspirations and motivations, their journeys into work led them to very different realities. They entered similar companies, which both faced converging pressures to cut costs and downsize (Doellgast, 2012), leading to unanimous feelings of uncertainty in terms of their future paths (Evans, 2002). Yet these pressures, changes and insecurities were channelled in different ways at PharmCo and ChemCo.

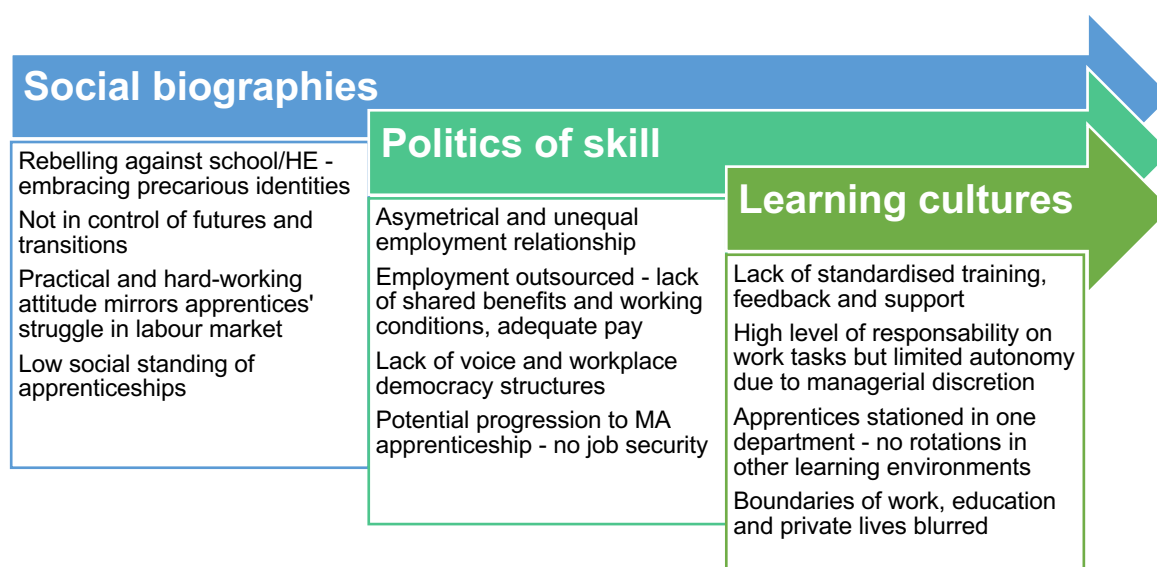
9.1.2 PharmCo

New apprenticeship policy reforms in England led to the complete re-design of PharmCo's apprenticeship programme towards an upskilled approach through prestigious degree apprenticeships, which mirrored the growing popularity of higher-level apprenticeships (Foley, 2020). However, changes in policy also led to the growing marketization of PharmCo's programme. Vertical disintegration (Doellgast, 2012), combined with the market-led pressures PharmCo was facing, negatively impacted its apprentices' employment conditions as apprentice employment was outsourced. This

precarious and unequal reality highlighted the general lack of control apprentices had over their futures (Evans, 2002). The marketization unfolding at PharmCo was mirrored in the general institutional decay of SSCs and colleges and the growing commercialisation and flexibility of ATAs and universities under the new reforms. The lack of power resources (Lloyd and Payne, 2016) due to the low social standing (Brockmann, 2012) and institutional fragility of England's apprenticeship system weakened apprentices' support structures and skill development, progression, job security and job mobility. The lack of standardised and formalised training, feedback, supervision and post-apprenticeship recruitment structures meant that such decisions were often dependent on managerial discretion and fluctuating budgets.

This market-led approach had the potential to lead to skills gaps and training failure as it had done in the past at PharmCo. Indeed, apprentices remained in one department for the entirety of the apprenticeship with no access to other CoPs (Lave and Wenger, 1991) and experienced limited learning opportunities. This led to a learning culture of individualism, competition and uncertainty. Apprentices accepted these conditions and embodied a hard-working persona to conform to the social relations and expectations of the workplace. Increasing work intensity and the demands of their degree apprenticeships overtook the apprentices' time towards training, education and their personal lives. Hence, despite growing investment and participation into high-level apprenticeships, the lack of institutional support structures and power resources (Lloyd and Payne, 2016) within the workplace, combined with changing policy directions, led to growing marketization and individualism. These findings are summarised in Figure 16.

Figure 16: *The socio-cultural-political economy of apprenticeships at PharmCo.*

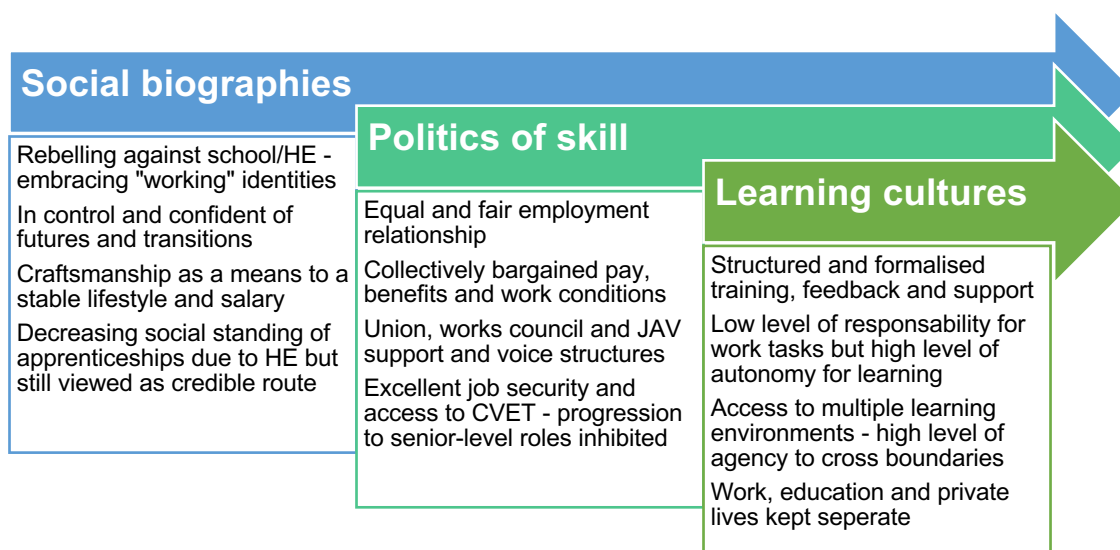


9.1.3 ChemCo

The trajectories unfolding at PharmCo contrasted greatly to the outcomes at ChemCo. Germany's collective model of skill formation and its strong industrial relations institutions, along with ongoing institutional change and growing digitalisation demands, led to more structured and secure trajectories for the apprentices. Indeed, labour market institutional support structures, and an entrenched internal labour market at ChemCo inhibited the proliferation of heterogeneous training approaches. As such, dual-study or two-year apprenticeships (Thelen and Busemeyer, 2012) were opposed by managers and unions alike. The stable model of DQP (Sorge and Streeck, 1987) encouraged an equal employment relationship, and one where apprentices' identities, interests and backgrounds were accepted. Apprentices received extensive training and had the opportunity to cross boundaries to different rotations and CoPs. Transparent feedback and progression systems as well as clear working hours, with dedicated time for education and training, ensured that apprentices were not consumed by work tasks. Apprentices were also not affected by the run-down and out-dated nature of German vocational schools, as in-house, top-up classes kept apprentices up to date with developments.

However, apprentices had little choice as to where they would be allocated post-apprenticeship, and promotion to senior roles after completing CVET was ambiguous due to an oversupply of skilled workers in this area. This signalled the institutional strength of the dual system, a strength which did not carry through as the apprentices transitioned out of the apprenticeship into employment. This uncertainty frustrated the apprentices. However, overall, apprentices had options to either progress gradually at ChemCo or to accelerate their progression through the external labour market, where demand was high. Paradoxically, despite the apparent risks imposed by the growing popularity of HE, demographic change and educational expansion actually increased union bargaining and political agency in the context of the growing demand for intermediate skills. Accordingly, apprentice employment conditions and pay increased and apprentices' agency in the labour market flourished. These findings are summarised in Figure 17.

Figure 17: *The socio-political-economy of apprenticeships at ChemCo.*



9.1.4 Concluding comments

Although both companies faced converging market-led pressures and a shared sense of identity at the outset amongst its apprentices, unfolding changes at the workplace level did not reflect any sense of convergence at a national level. Instead, apprentices at PharmCo and ChemCo faced diverging pressures, experiences and outcomes in the workplace due to national differences in the organisation of apprenticeships and employment relations, as well as the intensifying impact of wider institutional changes and apprenticeship policy reforms. At PharmCo, England's narrow, market-led approach and the company's approach to upskilling led to restrictive, competitive, fragmented and individualised learning environments where apprenticeships were viewed as work. Apprentices did not become legitimate peripheral participants (Lave and Wenger, 1991), which hindered future job mobility and progression. At ChemCo, in contrast, apprentices trained under a model of DQP in expansive, multi-layered and collective CoPs, that viewed apprenticeships as an educational journey. This led the apprentices to become full legitimate peripheral participants (Lave and Wenger, 1991) which gave them agency and options to progress. These material trajectories mirrored the identities of the apprentices as they had initially transitioned into the workplace. At PharmCo apprentices embodied the nomadic but hard-working counterculture they embraced to rebel against education, which foreshadowed their uncertain futures (Willis, 1977). Conversely, the ChemCo apprentices' much more pragmatic, confident but non-conforming approach to education and training reflected their much more stable future trajectories (Evans, 2002).

9.2 Research implications: Themes, issues and reflections

9.2.1 Introduction

The findings of this study point to three key contributions to the study of apprenticeships, in terms of the conceptual, empirical and comparative approach employed. These are detailed below, followed by suggested areas for future research and a final, reflective note on apprenticeship policy.

9.2.2 Conceptual integration

The study argues for the conceptual integration of apprenticeship research, which has been traditionally segregated into three different fields of study. These three fields encompass the study of apprenticeship systems within their macro institutional contexts (the political perspective); the effect of apprentice identities and agency on their transition into work (the social perspective); and, the apprentice learning process within the context of the learning environment (the cultural perspective). All three fields have key strengths, but, studied on their own, present only partial realities of the study of apprenticeships. In order to provide a more systematic and integrated analysis of apprenticeship, this study has, therefore, attempted to integrate the insights of these different approaches into a novel socio-cultural-political framework.

Studies of apprenticeship have been heavily influenced by frameworks that draw on comparative political economy or analyses of policy formation. These political perspectives usefully detail the institutional architecture that can shape particular systems of skill formation and apprenticeship, yet at their crudest can present an overly macro-focused and technocratic analysis, in which the theorising of change can become highly functionalistic (Deeg and Jackson, 2007; Hauptmeier and Morgan, 2014; Streeck, 2016). This can lead to an over-simplified and generalised vision of capitalist diversity (Wailles et al., 2016). Under such an approach, the macro-context is divorced from its relationship to the meso- and micro-level forces that also contribute to shaping change. In contrast, this study has sought to explore the necessary interplay between the macro and micro (Burawoy, 1998; 2009).

PharmCo in England and ChemCo in Germany faced similar pressures within their macro contexts to downsize (Doellgast, 2012), an indicator *prima facie* that processes of convergence could be unfolding (Bosch and Charest, 2010). Apprentices at ChemCo had structured voice mechanisms through the JAV, works council and union that protected them from these pressures while demographic change actually increased their bargaining powers. This contrasts to observations in the extant literature, where demographic change has typically been presented as a threat to the quality and working conditions of apprenticeship organisation (Culpepper, 1999; Thelen and Busemeyer,

2012; Bosch and Kalina, 2008; Kirchner and Berger, 2014). Conversely, apprentices at PharmCo had minimal support structures as their employment was outsourced and apprenticeship policy-led changes only increased the marketization of apprenticeships at the workplace level. Changes unfolding at the workplace level clearly did not indicate any convergence at the national level (Lloyd and Payne, 2016; Doellgast, 2012). Instead, national differences in the organisation of apprenticeships and employment relations, as well as the impact of institutional and policy-led changes, led to contrasting experiences and outcomes for apprentices in the two cases (Evans, 2002; Brockmann, 2012). Hence, although convergence was observed on the macro-level, divergence was experienced at the micro-level (Doellgast, 2012) and in both cases this divergence was amplified by ongoing policy-led and institutional changes.

A purely macro-driven, institutional lens does not adequately explain the processes of change unfolding within the two cases. Indeed, the integration of the social, political and cultural relations of the workplace was required to understand core processes of change and/or continuity. In this sense, the study departs from the notion that England and Germany's apprenticeship systems are fixed, ideal types (Hall and Soskice, 2001; Finegold and Soskice, 1988), highlighting important drivers of within-country variation (Deeg and Jackson, 2007; Katz and Darbishire, 2000; Lane and Wood, 2009) and the diversification of employment practices (Wailes et al., 2016; Doellgast, 2012). For example, ChemCo faced international pressures to downsize and was in the process of announcing imminent job cuts, a move which had never been experienced at the site before. This problematises the conceptualisation of the Germany dual apprenticeship system as a static, ideal type (Hall and Soskice, 2001), revealing it, instead, to be dynamic. At PharmCo, employment relations became even more diversified, through the outsourcing of the apprentices' employment, a signal that changes were accelerating the process of marketisation. Crucially, then, the two systems were not fixed, stationary or existing in a vacuum. Institutional and policy-led changes impacted and intensified change in the two cases and this change was also impacted by clear national institutional differences in the organisation of apprenticeship and employment relations at the micro-level. The macro-institutional approach, by definition, does not delve beneath the surface of the ideal type exteriors of the English and German apprenticeship systems.

The second school of thought, the social perspective, draws upon the effect of apprentice identities and agency on their transition into work. Under this approach, apprentices are studied as individuals (Brockmann, 2012), and as core actors within apprenticeship systems who can exert agency and contribute to change (Willis, 1977). Studies of the effect of apprentice identities and backgrounds on their transition and agency into the workplace plays a key role in understanding how apprentices' sense of self impacts outcomes within the workplace (Evans, 2002). For example, both sets of apprentices

rebelled against socially expected routes to go to university, using their own class identities, interests and agency to override institutional expectations and structures (Willis, 1977). Apprentices prioritised a counterculture and desire for an alternative lifestyle over that of the expectations of peers, teachers and society (Willis, 1977). However, this collective sense of agency was also shaped by changes happening at a broader national context (Evans, 2002). Crucial differences in the national organisation of apprenticeships and employment practices shaped their own individual experiences as they transitioned into the workplace (Evans, 2002; Brockmann, 2012). PharmCo apprentices embraced the precarious, uncertain and nomadic realities they faced, within the context of the marketized nature (Keep, 2012; Lloyd and Payne, 2016) and low social standing of the English system. ChemCo apprentices were more pragmatic and certain of their futures (Evans, 2002), which reflected the high-quality, structured and stable trajectory the dual system continued to offer (Sorge and Streeck, 1987). Hence, the study has highlighted that there is a clear interplay between apprentices' identities and apprentices' institutional environments. However, the social perspective abruptly concludes as the apprentices' transition into work and therefore does not follow the apprentices through their experiences and processes of learning within the workplace. The social perspective, in isolation, therefore, fails to study the apprentices' actual learning process as well as the institutional structures and power resources shaping the learning context.

The third school of thought, the cultural perspective, draws upon the learning process within learning cultures in detail. It draws heavily upon Lave and Wenger's (1991) situated learning theory, which situates apprentices' process of learning within the socio-cultural context of the workplace. It argues that CoPs shape the learning experience and outcomes and that the social world and learning process is integrated and inseparable (Lave and Wenger, 1991). Both elements of these elements are therefore required for LPP, the process through which the apprentice gradually builds knowledge through integration into the CoP (Lave and Wenger, 1991). However, Lave and Wenger's (1991) approach neglects broader institutional structures surrounding the learning environment and culture (Fuller and Unwin, 2003; 2004). This includes training providers and other CoPs, aspects of which were integrated into Fuller and Unwin's (2003; 2004) notion of a continuum of expansive and restrictive learning environments. Despite this, labour market institutions and other actors (such as SSCs or ATAs) are side-lined in Fuller and Unwin's (2003; 2004) analysis.

This study highlights the clear interplay between power resources and voice structures (Lloyd and Payne, 2016; Doellgast, 2012), or lack thereof, within the specific workplace where apprentices' skill development, progression and learning takes place. At PharmCo, the lack of formal institutional support structures (Doellgast, 2012) led to

individualised (Brown et al., 2011) and restrictive learning environments (Fuller and Unwin, 2003; 2004), which inhibited learning (Lave and Wenger, 1991) and future job mobility (Evans, 2002). At ChemCo, formalised power resources (Lloyd and Payne, 2016; Doellgast, 2012) through the union, works council and JAV supported and developed apprentices' learning. Apprentices learnt in expansive (Fuller and Unwin, 2003; 2004) and collective CoPs (Lave and Wenger, 1991), which accelerated their learning potential and future job mobility (Evans, 2002). These developments clearly highlight the linkages between the cultural and political perspectives. Equally, the cultural perspective has also somewhat overlooked the learners' own voices and agency in negotiating better outcomes. At ChemCo this was achieved through the apprentices' involvement in the JAV, where their interests, backgrounds and identities were represented and accepted. However, at PharmCo, no formalised structures existed, which hindered the apprentices' development; apprentices conformed to their precarious situations, which reflected the insecure transitions and nomadic identities they embraced. Apprentices' learning cultures were therefore not just shaped by the pressures outlined in political perspective but also factors emphasised in the social perspective. The study thus demonstrates the interplay between social-cultural-political perspectives.

In summary, the political perspective did not delve beneath the surface of the apprenticeship system and elided important socio-cultural aspects of apprenticeships. The social perspective builds on the political perspective by highlighting the importance of studying apprenticeship identities within their institutional context, but this perspective abruptly stops as the apprentice enters the cultural context of the workplace. The cultural perspective starts where the social perspective ended, providing the context of the learning process and environment. For the cultural perspective to flourish, the political and social aspects need to be integrated into its analysis to fully study the nature of apprenticeships. The study's inter-related socio-cultural-political economy approach unites together these three schools of thought, integrating structure, culture and agency (Archer, 1995).

9.2.3 Empirical integration

This study is not just an investigation of apprenticeship systems and/or apprenticeship policy. Instead, the study is a multi-level, empirical study of the people and actors involved in the organisation of apprenticeships and how they negotiate and react to institutional and policy-led changes. In integrating the socio-cultural-political economy perspective, the study forces the researcher to examine both different actors and different levels of analysis within the organisation of apprenticeships, exploring how the actors interact with each other across these different levels. The socio-cultural-political

economy perspective therefore necessitates an integrated and multi-level analysis into how macro changes are impacting apprenticeship organisation.

The study engaged with a number of actors, including apprentices, managers, training providers, labour market institutions and other key associated actors across workplace, educational, sectoral and national levels. This multi-level and multi-actor approach departs from previous studies, which have prioritised certain actors over others. Apprentices have been studied in isolation (Brockmann, 2012; Evans, 2002) with no insights from managers, training providers or labour market institutions at different levels (Fuller and Unwin, 2003; 2004). On the other hand, the views of apprentices or workers have also often not been acknowledged at all, with macro- or meso-level institutional actors privileged instead (Thelen and Bussemeyer, 2012; Lloyd and Payne, 2016). Hence, emphasis has either been typically focused on the educational context of the apprenticeship with interviews with apprentices (Evans, 2002; Brockmann, 2012; Fuller and Unwin, 2003; 2004) or at the national level, through interviews with policymakers (Thelen and Bussemeyer, 2012; Lloyd and Payne, 2016). Hence, the study of apprenticeships has hitherto been separated from its broader societal and institutional context, highlighting the clear need for studying apprenticeships through the lens of the employment relationship (Edwards, 1995). This study argues that work organisation and the employment relationship must be at the heart of the analysis and study of apprenticeships. Such an approach encourages empirical integration in apprenticeship research, allowing the voices, power struggles and diverse perspectives of all apprenticeship actors to be considered within their socio-cultural-political contexts. In this study, this was achieved through Burawoy's (1998; 2009) extended case method, which follows a reflexive model of science that allows the researcher to "extend out" from the social, to the cultural, and to the political perspectives and contexts of the actors. It involves moving from the micro to the macro level (Burawoy, 1998; 2009) and observing the interplay between biography and history (Mills, 1959).

Through "extending out" (Burawoy, 1998; 2009) in this multi-level approach new actors and levels emerged (Clarke et al., 2008; Doellgast, 2012) in the study. For example, the extant literature on apprenticeships does not mention ATAs or their impact. ATAs depart from the notion of the traditional apprenticeship actor but the role was central to the organisation of apprenticeships at PharmCo. The daily realities, skill development, progression and sense of agency of the PharmCo apprentices all changed under the influence of the ATA. The use of the ATA at the workplace-level also highlighted critical changes in the institutional make-up of England's apprenticeship system. The study uncovered how the former sector-orientated role of the SSC diminished as it transformed into an ATA and pursued a much more business orientated strategy, which no longer met sector demands but instead facilitated employer demands. While new actors were

not identified at ChemCo, the nature of existing relationships uncovered new insights under the multi-level empirical integration of the study. For example, the study highlighted the tensions between ChemCo and the vocational school; the latter were constrained by lack of funding, which inhibited modernisation and adversely impacted the quality of teaching. This new empirical insight reveals underlying tensions in the German system and also emphasises how large companies like ChemCo could overcome these challenges, by providing in-house top-up classes.

The multi-level empirical analysis also teased out other surprising empirical insights. At ChemCo, apprentices were clearly supported by the collective foundations of skill development throughout the dual system, and were then offered CVET, but after this stage progression within the company was inhibited. The supply of workers with CVET outstripped demand for more senior roles matching this level of qualification, leading to a culture of individualisation (Brown et al., 2011). This finding challenges the argument that large firms rely on apprentices to supply their internal labour markets (Busemeyer et al., 2012; Marsden, 2007), highlighting complex tensions, skills wastage and over-qualification (Lloyd and Payne, 2016) at the workplace level and a potential lack of union regulation over CVET (Trappmann, 2010). Hence, although the quality of apprenticeships remained high at ChemCo, a lack of power resources and institutional structures, inhibited apprentices' future progression within the workplace. At PharmCo, new insights were also provided into the nature of apprentices' progression. The multi-level perspective highlighted how PharmCo was responding to policy reforms by designing MA and PhD-level apprenticeships, but that this strategy was used as a vehicle for employing the apprentices on short-term contracts without offering future long-term job security within the company. Keeping the apprentices on these apprentices allowed the managers access to flexible skilled labour without investing in long-term employment. These findings highlight how policy reforms exacerbated poor employment conditions for apprentices. Therefore, the study's use of empirical multi-level integration provided important nuance and complexity that would not have been uncovered through a more targeted sample that privileged certain actors or levels of analysis over another. Studying apprenticeships under the multi-level socio-cultural-political lens of the employment relationship, supports empirical integration by ensuring that the perspectives of all apprenticeship actors are acknowledged, leading to new perspectives and insights across different levels.

9.2.4 Comparative research

The study's conceptual integration of socio-cultural-political perspectives and its multi-level empirical integration of different apprenticeship actors enriches our comparative understanding of apprenticeships. The conceptual and empirical contributions ensure

that complexity and change are embraced and captured in the study's comparative analysis (Deeg and Jackson, 2007; Katz and Darbishire, 2000; Lane and Wood, 2009; Crouch et al., 2009; Wailes et al., 2016) while also recognising important institutional differences across the two cases. By selecting country cases based on their institutional differences and uniting them through the investigation of a single process (Locke and Thelen, 1995; Kessler and Bach, 2014) the institutional diversity of the two cases can be illuminated. This comparative approach recognises key differences in the organisation of apprenticeships across countries, where qualifications, occupations, structures and institutions are often different (Lloyd and Payne, 2016; Hauptmeier and Morgan, 2016). As such, the institutional differences in the two countries mediate the effect of external pressures on the two systems, leading to emerging findings that reflect these differences in line with processes of change (Kessler and Bach, 2014; Ackroyd and Karlsson, 2014). Such an approach mitigates the risk of deductive reasoning, leading to the oversimplification and generalisation of change processes (Locke and Thelen, 1995). The study therefore departs from the notion of the English and German apprenticeship systems as fixed and stationary ideal types (Hall and Soskice, 2001) by highlighting underlying tensions that have not hitherto been identified.

Similarities occurred in the two cases. For example, both sets of apprentices faced related societal expectations and pressures, rebelled against school and university and shared similar identities and backgrounds. Equally, both countries faced similar market-led pressures to cut costs and operated in high-product market sectors. However, the study's comparative research approach demonstrated that institutional differences as well as policy-led and institutional changes in both cases markedly transformed the trajectories of the apprentices as well as the companies' skill strategies. The study has shown that apprenticeship organisation in high-quality product market strategy sectors (Finegold and Soskice, 1988), like the chemical sectors, does not necessarily lead to high-involvement employment practices and outcomes for apprentices. As has become evident in this study, low-road employment practices can permeate into even the so-called high-skill sectors, highlighting important within-country differences that depart from generalisations in the literature on national skill systems (Finegold and Soskice, 1988; Hall and Soskice, 2001). This was demonstrated in the comparative analysis of apprentices' training arrangements. The PharmCo apprenticeship could be up to eight years long and led to a degree while ChemCo's programme was typically only three years long and led to a vocational certificate. Despite the difference in the programmes' length and focus, contrasting institutional structures shaped and moulded apprentices' learning experiences, leading to diverging outcomes for the two sets of apprentices. The fact that apprentices at PharmCo only trained in one department, which contrasted to previous arrangements where rotations were more commonplace, highlighted the impact

of policy reforms, which handed employers increased discretion over apprenticeship arrangements. The ongoing marketisation of the English apprenticeship system exacerbated the individualisation of apprentice training arrangements, reflecting an intensification of England's more market-led and narrow approach. Apprentices' learning was restricted, while work intensity increased through the company's use of degree apprenticeships, which signalled a general move to an upskilling and retraining approach to apprenticeships. This contrasted to the reality at ChemCo where apprentices were protected by external pressures through formalised workplace structures and institutional supports that created expansive and collective learning environments, a reflection of Germany's model of DQP (Sorge and Streeck, 1987). Here, change was observed at PharmCo but not at ChemCo due to key differences in their institutional contexts and the impact of macro changes, which only in the case of PharmCo permeated into the organisation. The study's conceptual framework and multi-level empirical integration therefore assists the comparative approach of the research to foreground change and difference, rather than simplifying or generalising change across cases (Hauptmeier and Morgan, 2016).

9.2.5 Future research directions

In developing the socio-cultural-political economy of apprenticeships there are number of potential avenues for further research. Firstly, other sectors could be explored. The study has focused on the more high-skill chemical industries as a "best practice" example of apprenticeship organisation. However, sectors with more fundamental problems in terms of their employment practices, such as health and social care, hospitality and retail, might expose different insights, changes and implications for policy. For example, study of these lower-paid sectors could highlight that demographic change in Germany has led to the intensification of precarious employment practices rather than increased political agency and bargaining as demonstrated at ChemCo where union presence was strong.

Secondly, it would also be interesting to implement the study's socio-cultural-political economy conceptual framing across a wider comparative geographical scope, taking more countries into account. This study focused on studying the archetypal apprenticeship systems of England and Germany. However, studying institutional and policy-led changes in apprenticeship systems in countries such as the United States, Australia, Canada, Singapore, Denmark or France has the potential to depart away from just researching classic "ideal-type" apprenticeship systems, uncovering different processes of change.

Thirdly, the socio-cultural-political economy framing of this study could also be further developed by the adoption of more ethnographic methods. This would allow the researcher to "extend out" temporally (Burawoy, 1998; 2009), becoming immersed in

patterns of change and difference over a longer time period. This would give the potential provide new and novel insights into the longer-term effects of change and provide the opportunity of follow the future trajectories of the apprentices.

Finally, the socio-cultural-political economy framing of this study could be extended to other groups of workers, not just apprentices, transitioning into the workplace and undergoing on-the-job training or education. This could include young workers, interns, migrant workers, “precarious” workers or other kinds of worker. Such an approach would offer new insights into how different kinds of workers negotiate the training and learning experience within the workplace.

9.2.6 Policy reflections

Apprenticeships have immense value within society. If apprenticeships did not exist someone would eventually need to invent them. They give the potential for people who do not want to follow the academic trajectory in life to follow a different but equally valuable vocational route. As this study has shown, the English apprenticeship system struggles to fully support apprentices due to the limited regulation in its employer- and market-led system (Crouch et al., 1999). Continuous policy reform has led to a persevering sense of instability and change, which has destabilised and weakened the apprenticeship over time, leading to a lack of stable transitions, low quality training and unstructured outcomes for apprentices. Moreover, the apprenticeship levy has failed to gain traction and the target of three million apprenticeships by 2020 is a long way to being met. The study has demonstrated that despite the well-meaning intentions of the levy, many firms have viewed it as a bureaucratic burden, writing it off as a tax instead of as a social responsibility to collectively participate in apprenticeship development. The intrinsically market-led nature has suffocated its collective potential, deterring employers from actually investing in apprenticeships. The preoccupation with high-skill and supply-focused apprenticeship policy initiatives has continually failed to encourage general demand in skills (Keep and Mayhew, 2010) leading to overqualification (Lloyd and Payne, 2016). Apprenticeship standards continue to fragment (Bosch and Charest, 2010) and do not foster the broad and comprehensive and portable skills (Streeck, 1989) that the dual system in Germany continues to promote.

Germany’s robust apprenticeship system continues to offer high-quality and structured training, leading to further employment in the external labour market. However, as this study has demonstrated, Germany’s dual system faces key challenges. Vocational schools need modernising and lack the resources to deliver ambitious digitalisation plans. Within the context of demographic change and the decreasing popularity of apprenticeships, the continued lack of national investment into vocational schools could have devastating effects, further lowering the popularity of apprenticeships for young

people and employers alike. Digitalisation brings risks to apprentices and workers and this study has highlighted how CVET did not necessarily accelerate or protect workers' progression and job security. There is therefore an open question as to how Germany will actually provide options for workers in line with the growing digitalisation demands. Growing internationalisation and pressures for businesses to downsize and cut costs also haunt meaningful skill development, as this study reveals. While the dual system seems to protect apprentices' training arrangements, external pressures could continue to relentlessly chip away at Germany's collective model of skill formation.

We thus need to continue to delve deeper to understand the impact of these critical challenges. We need to ask why England's enduring supply-side approach continues to produce suboptimal results and why the popularity of apprenticeships in Germany is deflating, undermining its future prospects. We need to ask what skills and work we really value in society today. We need to look at how policy is actually being implemented within the workplace. We also need to be more inclusive and consider the actual people who use apprenticeships – apprentices themselves – uncovering their experiences and realities to gain insights into how apprenticeships can be improved within society. But understanding the implications of policy cannot be achieved by researching apprenticeships in a vacuum, instead apprenticeships need to be researched within their socio-cultural-political context.

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Appendix A

Policymaker interviews

Table 6: *Scoping interviews.*

Number	Respondent role	Organisation	Country	Interview length
1	Policy officer for apprenticeships	Department for Education	England	90 mins
2	Senior policy officer for education and skills	TUC	England	80 mins
3	Deputy director	IFATE	England	53 mins
4	Director of research	Association for Employment and Learning Providers	England	72 mins
5	Head of VET research	BIBB	Germany	71 mins
6	Head of VET policy	German Trade Union Confederation	Germany	86 mins
7	Head of VET policy	Federal Ministry for Education and Research	Germany	44 mins
8	Head of VET	Confederation of German Employers Federation	Germany	56 mins

Appendix B

PharmCo interviews

Table 7: Interviews from the PharmCo case study in England.

Number	Respondent role	Place of work	Interview length
1	Apprentice 1-P	PharmCo	44 mins
2	Apprentice 2-P	PharmCo	66 mins
3	Apprentice 3-P	PharmCo	37 mins
4	Apprentice 4-P	PharmCo	30 mins
5	Apprentice 5-P	PharmCo	37 mins
6	Apprentice 6-P	PharmCo	40 mins
7	Apprentice 7-P	PharmCo	52 mins
8	Apprentice 8-P	PharmCo	56 mins
9	Apprentice 9-P	PharmCo	52 mins
10	Apprentice 10-P	PharmCo	32 mins
11	Apprentice 11-P	PharmCo	34 mins
12	Apprentice 12-P	PharmCo	39 mins
13	Line manager 1-P	PharmCo	34 mins
14	Line manager 2-P	PharmCo	40 mins
15	Line manager 3-P	PharmCo	51 mins
16	Line manager 4-P	PharmCo	28 mins
17	Former head of apprenticeships-P	Self-employed - now left PharmCo	72 mins
18	ATA representative 1-P	SSC	53 mins
19	ATA representative 2-P	SSC	47 mins
20	Training provider 1-P	College	58 mins
21	Training provider 2-P	University	47 mins
22	Training provider 3-P	University	55 mins
23	Union representative-P	Union	35 mins

ChemCo interviews

Table 8: Interviews from the ChemCo case study in Germany.

Number	Respondent role	Place of work	Interview length
1	Apprentice 1-C	ChemCo	27 mins
2	Apprentice 2-C	ChemCo	43 mins
3	Apprentice 3-C	ChemCo	32 mins
4	Apprentice 4-C	ChemCo	31 mins
5	Apprentice 5-C	ChemCo	33 mins
6	Apprentice 6-C	ChemCo	41 mins
7	Apprentice 7-C	ChemCo	27 mins
8	Apprentice 8-C	ChemCo	25 mins
9	Apprentice 9-C	ChemCo	17 mins.
10	Apprentice 10-C	ChemCo	27 mins
11	Apprentice 11-C	ChemCo	19 mins
12	Apprentice 12-C	ChemCo	25 mins
13	Apprentice 13-C	ChemCo	41 mins
14	Technical instructor-C	ChemCo	29 mins
15	Chemical instructor-C	ChemCo	32 mins
16	Training manager-C	ChemCo	30 mins
17	Head of apprenticeships-C	ChemCo	62 mins
18	Works council representative-C	ChemCo	51 mins
19	Vocational teacher 1-C	Vocational school	46 mins
20	Vocational teacher 2-C	Vocational school	42 mins
21	Union representative 1-C	Union	62 mins
22	Union representative 2-C	Union	43 mins

Appendix C

Interview guide for apprentices

Background/context questions

1. How long have you been working as the apprentice here?
2. What were you doing beforehand?
 - **Prompts:** School background; Qualifications; Work experience
3. What kind of apprenticeship are you undertaking?
 - **Prompts:** Type of apprenticeship (occupation/standard); Length of apprenticeship; Department based in

Perceptions of apprenticeship

4. What is an apprenticeship in your opinion?
5. What are the positives of completing an apprenticeship?
6. What led you to apply for an apprenticeship? Was it always your plan to go down the apprenticeship route?
 - **Prompts:** Career motivations; Motivation to go into science/engineering
 - Did you consider going to university?
7. What were your perceptions of the job market at the time you started to search for apprenticeship opportunities or employment?
 - Is the labour market competitive for young people? Is there opportunities out there for young people?
8. How did you learn about apprenticeship opportunities?
 - **Prompts:** School; Online; Media; Word-of-mouth; Government campaigns
9. How do you think others (friends/family/media) view apprenticeships? How did friends and family react when you started applying for apprenticeships?

Recruitment process

10. What was it like applying for apprenticeship vacancies?
 - How did you hear about vacancies and when did you apply?
 - Did you apply for many apprenticeships? What was the process like?
11. What was the recruitment process like?
12. What skills do you think are needed to secure an apprenticeship?
 - **Prompts:** Soft/technical skills; School grades
13. Is there any barriers young people face applying for apprenticeships?
 - **Prompts:** Social background; Social mobility; Pay; Social standing of apprenticeships; Equality/diversity issues
14. Why did you apply to PharmCo/ChemCo?
15. Describe the typical PharmCo/ChemCo recruit
 - **Prompts:** Qualifications; Skills; Attitude; Interests; Career motivations; Typical age; Gender

The apprenticeship in the learning/training environment

16. What do you do day-to-day as an apprentice?
17. How is the learning and training structured and delivered?
 - **Prompts:** Time off for learning/college/education; In-house or external training or both?; Line management approach; On-the-job training; Extra mentoring or pastoral support
18. What has been your experiences of learning on-the-job?
 - Do you work under the supervision of a line-manager or in teams with other colleagues or apprentices?
 - What is the work culture like? Is it supportive and inclusive?
 - Do you get feedback?

19. Where do you think the apprenticeship lead you? What kind of skills will the apprenticeship give you? What have you learnt so far?
20. What kind of responsibilities do you have? Has your level responsibility changed at all since starting the apprenticeship?
21. What impact has the rise of technology had on the apprenticeship scheme?
22. How is your progress monitored throughout your apprenticeship here? Do you need to go through performance management process? Do you get feedback?
23. Do you feel like pay/salary is sufficient?
 - **Prompts:** Travel costs; Do they still live at home?
24. Are you a union member? Why/why not?
25. Are you a member of any professional associations?

Challenges and the future of apprenticeships

26. Is the apprenticeship what you expected prior to starting work? How is it different?
27. What are the main challenges you face as an apprentice on the job?
28. What's your ambition after you have finished the apprenticeship?
 - Stay in the company?
 - More training? Or does this stop after apprenticeship?
29. Will things change after you have completed your apprenticeship? How? What choices do you have?
30. How could the apprenticeship scheme here be improved?

Interview guide for managers

Background/context questions

1. Please tell me about your background in terms of working in the area of apprenticeships?
2. What are your current responsibilities/role? How long have you worked here?
3. Please tell me a bit about the organisation and also, specifically, its background, history and involvement with offering apprenticeships
4. How long has the organisation been recruiting apprentices?
5. What types of apprenticeships do you offer? How long do apprenticeships last?
 - **Germany:** occupation
 - **England:** Standard, level of qualification and other qualifications gained

Motivation

6. Why is your company motivated to offer apprenticeships?
7. Are apprenticeships part of your wider business and skills strategy?
8. Do you feel there is a general social and economic obligation for your organisation to offer apprenticeships?
9. What are the positives of apprenticeships for your organisation?
10. What are the main challenges the company faces in terms of apprenticeships?
 - **Prompts:** Financial pressures; Social standing of apprenticeships; Talent poaching; HR issues (apprentice recruitment, training and development); Ensuring better social mobility, equality and diversity; Policy changes: Apprenticeship curriculum and qualifications, etc.
11. What do apprenticeships offer that other forms of training (e.g. on the job training or external training) or others forms of recruitment (e.g. graduate recruits or experienced hires) do not?
12. How many apprentices do you typically recruit per year?
13. What factors affect your recruitment intake? Has your yearly apprentice recruitment intake significantly increased or decreased over the years?

Approach

14. Describe your typical apprentice recruit (this might vary if you offer different types of apprenticeships)
 - **Prompts:** school qualifications; skills; interests; background; attitude; career motivations; typical age; gender
15. What recruitment techniques do you use to recruit apprentices? Do you work with schools to recruit?
16. How is the apprenticeship programme structured and how are apprenticeships generally delivered within the organisation?
 - **Prompts:** Types of training (in-house, external - college/university); Line management; On-the-job training; Extra mentoring; Pastoral support
17. Do you think your apprentices are sufficiently skilled and “work-ready” after their apprenticeships?
18. What is the typical career trajectory and outcomes for apprentices here?
19. Do apprentices typically stay within the organisation or do they find work elsewhere? If so, how many?
20. How do you feel about apprentices leaving the organisation after having been trained by the company? Does this happen?
21. How much are apprentices paid and how is this determined?
22. Has your general approach to apprenticeships within the organisation changed at all since the scheme started?

The effect of the changing policy and institutional environment

23. How has changes in policy changed your approach to apprenticeships within the firm and what impact have they had?

- **Prompts - England:** 3 million 2020 target; Apprenticeship levy; Institute of apprenticeships and technical education; Trailblazers initiative
 - **Prompts - Germany:** Haartz reforms; Bologna reforms; Apprenticeship policy change – staged apprenticeships/decrease of apprenticeship duration; training pacts; VET transitional system etc
24. Have external events such as the financial crisis or the recent referendum for the UK to leave the EU affected apprenticeships within the firm?
 25. Do you think policy is in line with your current needs for apprenticeships?
 26. Do you think there could be more/less employer involvement in shaping apprenticeship policy?
 27. Management of apprenticeship programme with external partners
 28. Does the firm solely manage apprenticeships or are other external partners also involved? If so, how involved are they and what impact do you think they have?
 - **Prompts:** Chambers of commerce; Trade unions; Employer or industry organisations; Government bodies: Vocational schools/training providers; Sector skills councils; Consultancies; ATAs
 29. Has your relationship with institutional or external partners changed over the years? If so how and why have these relationships increased or diminished?
 30. Do you feel that you have enough state and wider institutional support for your apprenticeship program?

The future of apprenticeships

31. Do the skills offered through apprenticeships fit your firm's business needs?
32. Do you think that the apprenticeship programme in your organisation needs to be improved or developed in any way? If so, how?
33. How do you think the English/German apprenticeship system can be improved?
 - **Prompts:** Change in government policy; Increased support and incentives from the state, better connections to schools and careers services, better connections to other business and bodies such as professional associations, trade unions, chambers of commerce.

Interview guide for policymakers

England

Context and background questions

1. Please tell me about your background and your current role/responsibilities?
2. What are the main aims and objectives of your organisation in terms of apprenticeships?

Change and policy reform in the English apprenticeship system

3. What do you consider are the positives of the apprenticeship system?
4. What do you think have been the key changes/direction of travel with apprenticeships over the past three decades?
5. What are the main challenges the English apprenticeship system faces?
 - **Prompts:** Poor quality training; Low pay; Employer-led system; Fragmented qualifications system; Low social standing; Low participation; Lack of employer understanding of apprenticeships; Rise of service sector; Poor progression; Rise of non-standard/flexible employment contracts
6. England is investing heavily in apprenticeships at the moment. What is the driver behind this increased investment? Do you think it's paying off?
7. What is your view on the following current apprenticeship policy reforms and changes? What impact do you feel the reforms will have on the system?
 - **Prompts:** Trailblazers initiative and the recommendations from the Richard review; Target to reach 3 million apprenticeships by 2020; Apprenticeship levy; Institute of apprenticeships and technical education
8. Does current apprenticeship policy differ to previous policy initiatives? E.g. the Modern Apprenticeship scheme
9. Do apprenticeships equip apprentices for employment and what employment prospects do apprentices have after training?
10. Are there any barriers to young people entering into apprenticeships?
 - **Prompts:** Threshold qualifications for entry; Traineeships
11. What role do apprenticeships play for NEETS?

The management of the English apprenticeship system

12. What do you think is the best way to organise and manage apprenticeships in England?
13. The current system places the responsibility of apprenticeships into employer's hands. What do you think are the positives and negatives of this set-up?
14. Apprenticeships lack independent regulation in England, what are the implications of this set-up?
15. How do you think we can achieve quality and quantity in the English apprenticeship system?

The future for the English apprenticeship system

16. Will Brexit affect apprenticeships at all?
17. Are apprenticeships a solution to England's skills shortages and lack of intermediate skills? If so, why?
18. Did the recession impact apprenticeships? Does England have the economic strength to make apprenticeships a central component of its industrial strategy?
19. What impact does technology/digitalisation have on the apprenticeship system?
20. How do you think we can improve apprenticeships and apprenticeship policy-making in England?

Germany

Context and background questions

1. Please tell me about your background and your current role/responsibilities?
2. What are the main aims and objectives of your organisation in terms of apprenticeships?

Change and policy reform in the German apprenticeship system

3. What are the positives of the German apprenticeship system?
4. What do you think have been the key changes/direction of travel with apprenticeships over the past three decades?
5. What are the main challenges the German apprenticeship system faces?
 - **Prompts:** Shortening of some apprenticeships to 2 years; Lack of training places; Rise of service sector and less high-quality apprenticeships; Reduction in social standing (due to rise of HE)
6. What impact has the rise of and investment into HE and general education had on the apprenticeship system? What do you think is causing this increased investment into HE/GE?
 - **Prompts:** Hybridisation of HE and apprenticeships through dual study programs and combined HE/VET universities
7. Did the Haartz reforms have any impact on apprenticeships?
 - **Prompts:** Rise of non-standard and flexible working practices; Change in employer behaviour?
8. Are there any barriers to young people entering into apprenticeships?
9. How does the EU inform apprenticeship policy-making and design?
 - **Prompts:** EU said to drive the standardisation and modularisation of skills; Mention change in political environment with BREXIT, etc

The management of the apprenticeship system

10. Has your position (i.e. as a union/employer association, etc) in the management and regulation of Germany's apprenticeship system changed over time at all?
 - Which of the social partners have either gained more or less influence?
11. Unions have traditionally played a significant role in the regulation and collective bargaining of apprenticeships. Is this still the case today? Has this changed?
12. It is often described that employers have a 'social obligation' to invest in apprenticeships in Germany. Is this still the case today?
 - Are employers still committed into investing into and participating in the apprenticeship system?
13. What do you think is the best way to organise and manage apprenticeships in Germany? Does anything need to change?

The future for the apprenticeship system

14. Are apprenticeships and the development of intermediate skills still a central component of Germany's economic and industrial strategy?
15. What impact has technology/digitalisation had on the apprenticeship system?
16. Germany's labour market and apprenticeship system seem to have been largely unscathed by the 2008 recession. How can this be explained?
17. Previous (but unsuccessful) attempts have been directed towards introducing an apprenticeship levy is this a viable policy option going forwards?
18. How do you think we can improve apprenticeships and apprenticeship policy-making in Germany?
19. Within the EU does the German apprenticeship system still stand out? Why?
 - Some reports or academic argue that the dual system is under threat. Is this claim over exaggerated?

Appendix D

Pay tariffs

Table 9: Pay tariff at ChemCo (Hessen tariff)

Monatssätze								
Stand 26. Juli 2016								
Tarifgebiet Geltungsdauer von bis	E 1* €	E 2* €	E 3* €	E 4 €	E 5** €	E 6** €	E 7** €	E 8** €
Baden-Württemberg 01.10.2017 31.08.2018	2.607	2.754	2.814	2.872	2.971	3.064	3.182	3.296
Bayern 01.10.2017 31.08.2018	2.536	2.649	2.709	2.768	2.835	2.899	3.008	3.113
Berlin [West] 01.10.2017 31.08.2018	2.547	2.674	2.751	2.802	2.853	2.955	3.056	3.158
Berlin [Ost] 01.11.2017 30.09.2018	2.522	2.648	2.724	2.774	2.825	2.926	3.026	3.127
Bremen 01.10.2017 31.08.2018	2.550	2.679	2.737	2.786	2.851	2.917	3.019	3.121
Hamburg 01.10.2017 31.08.2018	2.592	2.786	2.836	2.886	2.956	3.030	3.122	3.211
Hessen 01.09.2017 31.07.2018	2.563	2.678	2.734	2.769	2.849	2.923	3.029	3.133
Niedersachsen 01.10.2017 31.08.2018	2.539	2.678	2.737	2.790	2.853	2.917	3.019	3.121
Nordrhein 01.09.2017 31.07.2018	2.567	2.717	2.786	2.865	2.936	3.007	3.099	3.186
Ost 01.11.2017 30.09.2018	2.522	2.648	2.724	2.774	2.825	2.926	3.026	3.127
Rheinland-Pfalz 01.09.2017 31.07.2018	2.577	2.693	2.753	2.814	2.875	2.943	3.049	3.155
Saarland 01.11.2017 30.09.2018	2.577	2.693	2.753	2.814	2.875	2.943	3.049	3.155
Schleswig-Holstein 01.10.2017 31.08.2018	2.548	2.734	2.783	2.827	2.902	2.973	3.062	3.152
Westfalen 01.10.2017 31.08.2018	2.584	2.719	2.797	2.880	2.945	3.007	3.094	3.171

*) E1 bis E 3 höchste Altersstufe

**) E5 bis E8 Anfangssatz

Appendix E

Consent form

Participant Consent Form

Title of Research Project: The socio-cultural-political economy of apprenticeships in England and Germany

Please **initial the box** if you agree with the statement to the left

1	I confirm that I have read and understand the above research project and I have had the opportunity to ask questions about the project.	☐
2	I understand that my participation is voluntary and that I am free to withdraw from the study up to 3 months from the interview date without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline.	☐
3	I understand that my responses will be anonymised; whilst direct quotes may be used my name will not be linked with the research materials, and I will not be identified or identifiable in the report, reports or articles that result from the research unless I give explicit permission for this.	☐
4	I agree for the data collected from me to be used in future research	☐
5	I agree to take part in the above research project and will inform the researcher should my contact details change.	☐

_____ Name of participant	_____ Date	_____ Signature

Maisie Roberts Lead researcher	_____ Date	_____ Signature

To be signed and dated in presence of the participant

After the form has been signed you will receive a copy of the consent form along with a copy of the information sheet and any other written information required in advance of the initial interview.

Participant Information Sheet

1. What is the title of the research project?

The socio-cultural-political economy of apprenticeships: Case studies from the chemical industries

2. What should I know before I take part in the research?

You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please let me know if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

3. What is the project's purpose?

The aim of the study is to understand the impact of policy reforms and institutional changes on the national apprenticeship systems of England and Germany and the subsequent impact of these *reforms and changes on firms, business and apprentices*. Both systems face change, yet the underlying causes and future implications of recent developments remain unclear. The research will interview policymakers and national industrial and training experts as well as conduct case-studies of specific firms in *the chemical industries*. As yet there has been little research that looks into the effect of apprenticeship policymaking *within the workplace*. Therefore, this study aims to provide empirical evidence into the academic field and from this develop theory, exploring as well how policy can be developed and improved in both counties.

4. Why have I been chosen?

You have been chosen because you are either:

A policymaker or industrial or training expert involved in apprenticeship delivery, regulation, research, policy and implementation at national level in England or in Germany. You have been identified as a potential interview respondent through online research or from personal suggestions from others within the area.

OR an apprentice or involved in a role in apprenticeship delivery and implementation within an organisation. You have been suggested as a potential interview respondent by your organisation.

5. Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep (and be asked to sign a consent form). You can withdraw at any time until 3 months after the interview has taken place. You do not have to give a reason.

6. What will happen to me if I take part?

You will be asked to participate in an interview lasting approximately 30-60 minutes. The interview will be organised in advance of us meeting via email/phone communication. The interview will be scheduled at a time most convenient to you. You do not need to prepare anything for the interview. However, if it is helpful, a list of themes that the interview might cover can be sent to you in advance of our meeting. The interviews will include questions surrounding your professional background/experience of apprenticeships, your understanding of the national apprenticeship system, your opinions about recent policy changes and/or shifting institutional and societal changes affecting the system and your potential insights into the future of the apprenticeship system. Interviews within the company case-studies will also reflect on themes of the business case for apprenticeships, HR policies for apprenticeships and company perception of apprenticeships as well the experiences of apprentices in the workplace. It may be the case that you may not be able to answer all of the questions; please do not

worry about this. It is anticipated that interviews would take place at your workplace in a suitable room. If this is not possible, I will sort out any alternative arrangements.

7. What do I have to do?

In essence answer the questions posed as best you can. The interviews will remain confidential and results will be anonymised when published (unless you have given explicit permission for me to publish your name).

8. What are the possible disadvantages and risks of taking part?

The main disadvantage is the time factor. It is anticipated that the time taken for the interviews will be about 30-60 minutes.

Your identity will be anonymised so there will be no risks to your professional identity. In some instances, however, it may be difficult to completely anonymise your identity if you are an easily identifiable and/or high-profile individual or organisation, e.g. Prime minister or CEO/head of an organisation, etc. If this is that case, I will discuss this fully with you before you take part in the research. In such an instance it will be advised to disclose your identity to ensure ethical compliance with the study.

9. What are the possible benefits of taking part?

You will be given a copy of the research findings and an opportunity to discuss the findings. It is also hoped that this work will help to develop a better understanding of how the English and German apprenticeships are changing and the subsequent effect of this on firms, business and apprentices. The anonymised data analysis will provide insights into the implications of policy reforms and institutional changes, potentially contributing to the development of national and firm-level work and training policies.

10. What happens if the research study stops earlier than expected?

If the research activity stops earlier than anticipated for some unforeseen reason(s) each participant will be notified and an explanation provided.

11. Will my taking part in this project be kept confidential?

All the information that I collect during the course of the research will be kept strictly confidential. You will not be able to be identified in any reports or publications (unless you have given explicit permission for me to publish your name).

12. What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?

The research will compile and then analyse the responses of each person who is interviewed. Based on what is said I will draft a narrative/transcript which you may check if you wish. When all the results are collected, I will then compare the responses from England and Germany to develop an understanding of how both systems are changing and how this is affecting firms.

13. What will happen to the results of the research project?

The results of the research will appear in researcher's thesis scheduled for completion in February 2020. Before and after this date the researcher may use the results, which will be anonymous, to write papers for academic journals, other publications or for presentations to conferences.

15. Who is organising and funding the research?

The researcher is undertaking this doctoral research at the University of Leeds as part of an Economic and Social Research Council scholarship.

16. Will I be recorded, and if so, how will the recorded media be used?

Yes, using a digital recorder with inbuilt encryption. The audio or/and video recordings of your activities made during this research will be used only for analysis and for illustration in conference presentations and lectures. No other use will be made of them

without your written permission, and only the researcher will be able to access the original recordings.

17. How will my data be stored?

All recordings, notes and transcriptions will be encrypted and stored on a password protected computer in a secure room at the University of Leeds.

18. The project team consists of the following people.

Researcher	Lead Supervisor	Supervisor
Maisie Roberts +44 (0)7976363388 JI08mfr@leeds.ac.uk	Professor. Mark Stuart +44 (0)113 343 6851 ms@lubs.leeds.ac.uk	Dr Vera Trappmann +44 (0)113 343 1119 V.Trappmann@leeds.ac.uk
Contact Address - Leeds University Business School, Maurice Keyworth Building, Leeds LS2 9JT		

You will be given a copy of this information sheet and a signed consent form to keep.

If you have any further questions, please contact Maisie Roberts.