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International Trailblazers: Work-Based Higher Education in Selected Higher Education Institutions in the US, England and Denmark

Results of an International Case Study Research Project

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Acknowledgements

Executive Summary

The Thematic Report presents the findings of an international case study research project on avant-garde higher educational programmes designed better to prepare learners for the workforce by effectively integrating academic theory and classroom-based learning with professional practice and experiential learning in the workplace. The Report maps five trailblazers' diverse approaches to work-based learning in higher education (HE) across the US, England and Denmark using a case study approach and deploying data triangulation from national and institutional perspectives.

The Report explores the various designs, purposes, pedagogies, curricular activities, conceptualisations of *knowledge* and partnership arrangements of the five selected approaches to work-based learning, with a particular emphasis on surfacing the ways in which the interlinking of theory and practice are being realised. The cases differ widely, not least because each country's diverse institutions frame and shape the HE learning providers' spaces for action in distinct ways.

Nonetheless, the following factors emerge as pertinent for opening universities and easing access for lifelong learners in Germany: productive partnerships between universities, employers, industry, vocationally-oriented learning providers, and other non-traditional stakeholders; a purposeful division of staff roles involving teaching staff, employer-facing staff, student-facing staff and professional services personnel; formalised links to ensure a pedagogy that systematically integrates theoretical, experiential and peer-based learning; a willingness and capacity of the HE learning provider for structural, institutional, operational and cultural changes; permeability between HE and professional training routes; re-conceptualising *knowledge* including the recognition of prior learning; deliberate but flexible government policies and funding incentives; and an impetus for change.

1. Introduction: Good practice in work-based HE

1.1 A new urgency

The concept of work-based higher education (HE), which encapsulates the interlinking of traditional academic teaching and classroom-based learning in HE with professional practice and experiential learning in the workplace, is becoming increasingly inevitable in tertiary education. Ongoing debates and discourses highlight various compelling imperatives for integrating academic scholarship with professional practice: Economists emphasise the pertinence of spurring economic growth and national productivity by aligning formal HE with the needs of contemporary labour markets, developing human capital with relevant knowledge and sought-after skills, and forging closer relationships between academia, employers, industry and other professional sectors (Becker, 1994; Miller & Slocombe, 2012; Osborne, Carpenter, Brunett, Rolheiser, & Korpan, 2014; Pellegrino & Hilton, 2012; Schultz, 1963). Educationalists stress the importance of creating competitive knowledge economies by modernising universities' educational practices, shifting from teacher-centred models to learner centred, discipline-centred and employer-centred models of education, and prioritising continuous professional development and lifelong learning (Billett, 2010; Gibbs & Costley, 2006; Lester & Costley, 2010; Nottingham, 2017; Talbot, 2019; Zegwaard & Ford, 2018). And policy-makers and governmental leaders call to mind the Bologna process, and the commitment of national HE systems to implement far-reaching changes that respond to the societal, technological and environmental developments of the 21st century (Gaebel & Zhang, 2018; OECD, 2009, 2015).

1.2 The unwanted outsider

However, the concept of work-based HE is not easily realised in tertiary institutions because traditionally, universities have delivered HE by providing 'didactic instruction in a formal discipline', that is to convey predominantly theoretical knowledge, relating to a well-defined field of study in academia, by means of an instructor-centred method of teaching (Talbot 2019, pp. xvii). In contrast, the novel, pluralistic approach of work-based HE includes all the teaching and learning of traditional academia, but in addition embraces the more distributed, informal, incidental and transdisciplinary knowledge that is socially constructed and shared between members of a particular community of practice, and aimed at the purposes of situated application in the workplace (Billett, 2010; Dadze-Arthur & Raine, 2017; Dall'Alba & Barnacle, 2008; Nagle, Lannon & McMahon, 2018; Nicolescu, 2001; Lave & Wenger, 1991).

Although no consensus has yet been reached regarding the terminologies to describe the integration of academic studies with forms of work-based learning, the ever-growing body of literature clearly indicates the emergence of a distinct field of practice and study (Billett, 2001, 2002, 2014; Gibbs & Costley, 2006; Raelin, 2007, 2008). Despite such development, it is still struggling for legitimacy as a recognised academic field, and is being viewed as something of an outsider in the scholarly world (Interview, 2018i; 2019ii). Its slightly unwanted position in academia is attributed to its transdisciplinary nature, its epistemology of practice, its unorthodox ontology, and its work-based context (Billett; 2001, 2002, 2014; Costley, 2011; Gibbs & Costley, 2006; Raelin, 2007, 2008). That notwithstanding, the budding scholarship on work-based HE has effectively theorised different approaches, and advanced relevant pedagogic and curricular concepts over the last thirty years (Gibbs & Costley, 2006; Lester & Costely, 2010; Nottingham, 2017).

1.3 No one size fits all

At the level of implementation, translating the theories and approaches of work-based HE, and their underpinning pedagogical concepts, into curricular, let alone more far-reaching structural and institutional[1] changes, poses considerable challenges. For many HE providers worldwide integrating academic studies with forms of experiential learning in professional real-world settings constitutes novel and unexplored terrain, for which most are neither structurally, financially, pedagogically or institutionally equipped– the majority of German HE institutions is no exception (Schmid, Maschwitz, Wilkesmann, Nickel, Elsholz, & Cendon, 2019). In addition to each university being a distinct universe of its own, disciplinary idiosyncrasies require individual faculties within an HE institute to design and deliver work-based HE in unique ways. An engineering department, for example, would need to tackle the interlinking of academic studies with workplace-based learning in a different manner than a department of fine arts would. Furthermore, adding to the challenge, each university operates within regional and country-specific educational contexts, and according to particular structures and institutions (Dadze-Arthur & Cendon, forthcoming; Saar, Ure & Desjardins, 2013).

To sum up, there is no single, one-size-fits-all blueprint that universities are able to follow in joining-up HE with forms of experiential learning in professional practice. The implication is that all HE provider, and their constituent faculties, have to make the most of their respective spaces for action. In other words, the onus lies with individual universities, if not faculties and departments, to develop their very own, tailored approaches to adapting work-based HE -a process that hinges not only on a university's internal structures, institutions and its opportunities for agency, but also on external factors, such as legal frameworks, national and regional policies, local economies, regional labour market demands, employer needs, industry standards, and so forth.

1.4 Aims of the Thematic Report

Recognising the need for building and managing knowledge about realising work-based HE in Germany, the Federal Ministry of Research and Education (BMBF) teamed up with its regional Länder governments in launching the initiative "Advancement through Education: Open Universities" (Aufstieg durch Bildung: Offene Hochschulen), which runs from 2011 to 2020, and is funded with a total of 250 million euros. As part of this major initiative, the BMBF commissioned the Department of University Continuing Education & Teaching and Learning at the FernUniversität in Hagen (University of Hagen) to undertake an international case study research project.

Aware of the many diverse ways in which work-based HE is being approached worldwide (see e.g. Talbot, 2019 or Zegwaard & Ford, 2018), the international case study research project had the goal of capturing an illustrative snapshot of the considerable variety that comes from letting a thousand flowers bloom. Accordingly, the overall aim of the research inquiry was to identify and examine a small yet diverse assortment of international good practice approaches to work-based HE, and surface in what ways, and under what conditions, respective HE providers in other countries have designed and delivered successful models of integrating academic scholarship with learning at the work-place. The results of the international case study research project are presented in this Thematic Report.

1.5 Contributions of the Thematic Report

Far from viewing good practice as prescriptive or expecting German HE institutes to copy existing approaches, the research inquiry locates the value of good practice examples in their powerful role as catalysts for creatively thinking about one's own context. Studying and analysing good practice examples can make the factors that

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[1] In the context of this Thematic Report, the notion of 'institutions' is employed in it sociological sense as 'integrated systems of rules that structure social interactions' (Hodgson, 2015, p. 501). Institutions can manifest both formally, such as a nation's policy on work-based HE, or informally, such as a nation's tradition of work-based HE.

create positive results and drive transformation explicit. The Thematic Report, by doing so, contributes to raising the bar and expanding conceptions of what is possible.

In order to help with extrapolating the factors that render the selected cases good practice, the Thematic Report draws on the relevant existing published literature, internal documents produced by respective case study institutions, and in-person interviews with the stakeholders of each case study. On this basis, the Thematic Report presents and discusses five cases of good-practice in work-based HE from across the US, UK and Denmark. The criteria for selecting the five cases of good practice are further illuminated in section 2.2.

1.6 Structure of the Thematic Report

The introductory chapter sought to situate the concept of work-based HE within contemporary debates and developments, as well as provide details about the inception, aims and contributions of the BMBF-funded international case study research project, which forms the basis of this Thematic Report. Chapter 2 sets out the research methodology, while Chapters 3 to 5 present and discuss the five selected good practice cases of work-based HE. These chapters first situate and contextualise each case within its respective national educational landscape, highlighting the relevant institutional conditions that create and shape spaces for action in terms of work-based HE. Subsequently, Chapters 3 to 5 also present in detail each model of work-based HE - a process informed by relevant published literature, stakeholder interviews, and departmental documents of the HE providers featured in the case studies. In the final Chapter 6, the report offers some concluding reflections within the context of Germany's efforts to build and manage knowledge on realising work-based HE, highlights the study's contributions and limitations, and draws attention to possible future opportunities.

2. Methodology

2.1 Designing the study

Given the research project's overall aim of identifying and exploring in-depth an anecdotal variety of international good practice approaches to work-based HE, the inquiry employed a case study design. Adopting a case study design as both the methodology and method for this research project allowed for a holistic and situated understanding of each approach to practice-based HE as it relates to its own unique context (Bryman, 2001).

For the purposes of this research project, a good practice case was defined as *any successful approach to work-based HE at university level, programme level, course level or module level, leading to either a graduate or postgraduate degree, diploma, or certificate from an accredited university*. Keeping in mind the study's objective to capture each case in its intricate details, we first reviewed the country-specific peer-reviewed published literature as well as case-specific documents that programme and course leaders kindly made available to us, before undertaking qualitative, semi-structured, in-person interviews with relevant strategic, operational and educational stakeholders. The combination of these methods enabled us to surface not only explicit and widely shared views and interpretations, but also nuanced, tacit and informal knowledge.

2.2 Selecting cases of good practice

In line with the aim of this study to shine the light on a small but diverse range of individual good practice cases, concerns regarding representativeness or generalisability were not featured. Accordingly, the sampling strategy relied on a non-probability snowball sampling technique, whereby we enlisted the help of international experts on work-based HE, whom we had met at network meetings, conferences and other events and activities relating to the integration of academic studies with professional practice. Following discussions with these experts, we recruited for our study the following five pioneering cases of work-based HE:

Table 1: Selected cases of good practice

Country	University	Approach to work-based HE
US	Drexel University	Cooperative education as a university-wide model
US	University of Pennsylvania	Workforce development certificate course LPS (Liberal and Professional Studies) Coding Boot Camp
England	Middlesex University	BSc (Hons) Professional Practice in Business to Business Sales
England	University of Birmingham	MSc Public Management & Leadership Executive Degree Apprenticeship Level 7
Denmark	Aarhus University	Module *Experimental Management Practice*

2.3 Conducting the fieldwork

We subsequently contacted the respective department, programme, course or module leaders of our selected good practice cases by email and phone, and provided them, in the first instance, with a project information sheet that introduced the project and the researcher team, detailed data collection and analysis procedures, outlined planned outputs, and provided information about confidentiality, participant rights, and other ethical issues (see Appendix A). Following the stakeholders' agreement to take part in our study, the researcher team carried out interviews, where possible, on site. While we were able to conduct face-to-face interviews with stakeholders in Denmark and England, we had to resort to web conferencing tools, such as Adobe Connect, or video chat applications, such as Skype, to speak with stakeholders in the US.

The interviews were undertaken in a semi-formal style, with the researchers raising key issues on the basis of loosely following a topic guide that probed into the organisational set-up of the work-based educational provision, its pedagogical approach, institutional embeddedness, governance arrangements and wider policy contexts, lessons learned, and issues around equality and diversity (see Appendix B). Each interview lasted on average about 60 minutes.

For each case study, we sought to cover a range of stakeholder perspectives, and therefore asked to interview, where applicable, staff members in the following roles:

Setting up and directing:

- Department, programme, course or module director(s);
- Strategic leadership that initiated, and led on, the bidding/setting-up process for the work-based HE provision;
- Person in charge of finances and budgets;
- Person who secured academic accreditation of the work-based HE provision;
- Any representative of professional support services who aided in setting up the work-based HE provision;
- Representative of relevant (if any) standard-setting professional association who was involved in ensuring that the work-based HE provision meets professional standards.

Delivery and assessment:

- Staff member in charge of coordinating and supporting the work-based HE provision;
- Instructors and tutors;

- ▪ Authors of the learning material;
- ▪ Academic assessors;
- ▪ Representative of participating employer organisation;
- ▪ Workplace supervisors;
- ▪ Learners.

Others:

- ▪ Representative of relevant regulatory body, industry body, and/or umbrella organisation;
- ▪ Representative of advocacy group and/or policy organisation campaigning for and/or against work-based HE;
- ▪ Representative of any other pertinent organisation.

2.4 Interpreting and analysing the results

All interviews were recorded, transcribed and analysed using thematic analysis. The insights gained from the stakeholder interviews were contextualised based on, and complemented with, the information derived from the literature review and case-specific documents. It enabled an interpretive process whereby the knowledge thus attained could be relayed in form of a *thick description* for each approach to work-based HE that is situated, integrative of various accounts and perspectives, and meaningful to outsiders also (Geertz, 2000).

2.5 Ensuring quality results

Although one of the key strengths of a case study design is its analytical validity (Blaikie, 2007), we triangulated our findings from the interviews by conducting literature reviews and document analyses throughout the research process. Far from falling into the trap of believing that the subjective self can be discarded in the writing up of a research project, we sought to minimise any distortions of the research accounts by having strategies in place to diagnose deficiencies in our representations of *the other* (Pillay, 2005). We achieved this by presenting the insights gained back to the research participants, inviting them to confirm that the interpretative accounts were indeed reflective, authentic, and undistorted.

3. Work-based HE in the US

3.1 Educational context: a bottom-up approach to work-based HE

Historically, continuing education and lifelong learning has played a central role in the capitalist knowledge economy of the US, which is underpinned by Jeffersonian principles of minimal government, free markets, and social mobility (Tate, Klein-Collins, & Steinberg, 2011). The centrality of continuing education and lifelong learning is due to the fact that it has always been seen as providing an avenue for all citizens and immigrants alike in realising the 'American dream of success and prosperity' (Tate et al., 2011, p. 1), which has contributed to cementing a national doctrine of 'college for all' (Graf, 2017, p. 89). Accordingly, the tertiary sector in the US boasts an extraordinary diversity of HE providers, although tuition fees are considerable and constantly rising (Schreiterer, 2008).

Career and technical training

In contemporary US society, the *college for all* doctrine makes a sharp distinction between academic, classroom-based four-year college degrees and post-secondary vocational education, which is termed career and technical training (CTE). The large and robust, if highly decentralised and fragmented, CTE sector is populated by a plethora of educational providers, such as community colleges and for-profit colleges, offering a range of *applied* or *occupational* degrees, such as associate degrees and certificates (McCarthy, 2015; Spees, 2018). These career education programmes sit just below bachelor degrees and involve one or two years of studies that equip students with the practical skills and training needed for a specific job (McCarthy, 2015). In addition, educational

providers in the CTE sector offer increasingly popular tech-prep programmes, which lead to post-secondary non-degree certificates and diplomas that enable graduates to find jobs in notoriously underserved segments of the labour market (Spees, 2018). In particular low-income adults and first generation students, who are unable to delay earning a family-sustaining wage for four or more years, are attracted to CTE programmes (ibid.). The challenge is, however, that most CTE pathways enable students to access entry-level positions but fail to prepare students to advance further without additional education and training (McCarthy, 2015). Additionally, although most CTE options allow students to transfer some credits toward a bachelor degree, there are many restrictions that act as barriers for those, who are keen to top up their associate degrees or certificates to attain bachelor degrees (McCarthy, 2015; Spees, 2018). The implication is that CTE pathways are effectively 'educational cul-de-sacs' with weak linkages to further educational opportunities and career advancement (McCarthy, 2015, p. 3).

Traditional academic HE

In contrast, the prestigious four-year college degrees facilitate career progression, access to a much larger pool of quality jobs with higher earning potential, as well as a wide array of postgraduate career training opportunities (McCarthy, 2015). The implication is that wealthier students, who can afford to spend four years or more at college before starting their careers, are systematically favoured by the US HE system (Deresiewicz, 2015). Having said this, paradoxically, there is mounting evidence from employers that indicates that recent university graduates, who have spent time and money on an academic four year programme of study, tend to be ill-prepared for entry into the labour market and are often not ready to join the workforce (Interview, 2019i; 2019iii; 2018i; Spees, 2018). According to US employers, many university graduates are unemployable because they lack vital practical skills and relevant experience, notwithstanding the crippling amount of debts that they have incurred while attaining their academic degrees (Interview, 2019i; 2019iii, 2018i; Spees, 2018). This situation is particularly alarming considering the US economy's ever rising demand for a higher skilled workforce and its expected shortage of 10 million skilled labourers by 2020 (McCarthy, 2015; Spees, 2018; Tate et al., 2011).

US governance and steering measures

Given these developments, the notion of career education has gained some traction in the US government over the last three decades. Accordingly, US policy makers have created initiatives to incentivise the provision and uptake of career education programmes in an effort to address the economic woes associated with the skill gaps and the shortage of proficient manpower. The governance and steering measures have mainly involved making funding available for post-secondary vocational education programmes that sit just below bachelor degrees. Prominent initiatives include the Higher Education Act (HEA) with its associated Pell grants and students loans, totalling about USD $20 billion each year (McCarthy, 2015), the Obama administration's allocation of USD $100 million to apprenticeship programmes in high-growth industries in 2014, and Donald Trump's 2017 executive order to promote paid work-based learning opportunities and effective workforce development programmes (Fortwengel & Jackson, 2016; Spees, 2018). Against this background, it is not surprising that currently CTE represents the fastest growing segment of US post-secondary education, with the rate of growth outpacing that of bachelor degree programmes (McCarthy, 2015). Surprisingly, however, the measures by which the US federal policy apparatus ring-fences and directs investments in postsecondary vocational education are fragmented, weak and underdeveloped, and notably ineffective in ensuring that CTE programmes connect to further educational opportunities at the bachelor and master level (McCarthy, 2015). As a consequence, a standardised, integrated and permeable system that usefully integrates HE at bachelor and master level with professional training and experiential learning at the work place will continue to remain elusive in the US education sector until a more fundamental cultural shift occurs (Raelin, 2010; Spees, 2018).

A bottom-up drive for excellence

With the HE sector's work-based programmes not being firmly driven at the federal level, the agency of institutional actors on the ground becomes all-important in fostering bottom-up collaborations between

employers and providers of traditional academic, classroom-based HE (Graf, 2017; Raelin, 2010; Weihrich, Seidenfuß, & Goebel, 1996). It is thus to the credit of the initiative of individual colleges and universities as well as employing organisations that the US has built a reputation of excellence in relating academic HE to learning at the workplace (Graf, 2017; Raelin, 2010; Thelen, 2004). In this context, bodies such as the World Association of Cooperative Education (WACE) or the Cooperative Education and Internship Association (CEIA) have played an important role in nationally and internationally advocating for the interests of work-based education in the US HE system.

3.2 A durable model of work-based HE: cooperative education

3.2.1 The US cooperative education model

In the US, advanced approaches to systematically coalescing HE with professional learning at the workplace take shape most prominently in the form of cooperative programmes (coops), which alternate periods of classroom-based learning at a traditional university with periods of practical, hands-on experience that is usually gained in a job, but could also involve research- or project-based opportunities. In the literature, the coop model is often classed as work-integrated learning (WIL) (Nulton & Hoekje, 2018). In the US, cooperative education was first introduced in 1906 by Herman Schneider at the University of Cincinnati, initially with a view of equipping students in engineering with both theoretical and practical expertise (Reilly, 2006; Tanaka, 2014). Over time, the concept of coops was adopted by other American universities and tailored to different academic disciplines, including business administration, media and design, healthcare sciences, natural sciences, computer science, law, and human and social sciences (Wilson, 2014).

Evolving to represent the high-quality end of the spectrum of work-based training programmes in HE, nowadays, there are over 900 universities offering coop programmes in almost all academic subjects and delivering them to more than 170,000 undergraduate learners and over 4000 graduate students (Wilson, 2014). Some universities, such as the University of Cincinnati, Northeastern University, Drexel University and Kettering University, look back on a tradition of 100 years or more of offering coop programmes. These HE institutes have adopted cooperative education as the standard study model across the university, thus institutionalising a work-based approach to teaching and learning that shapes the construction, sequencing, delivery, and assessment of educational components, such as curricula development, teaching technique, instructional design, classroom management, content development, examination and knowledge appraisal.

3.2.2 Integrating classroom-based learning and professional practice in cooperative education

Coop programmes normally lead to bachelor or master degrees that equip *student-employees* for positions in middle management by combining learning sites in universities and employing organisations. Coop education is distinct from other approaches to work-based HE in that students complete a university-based phase, which could be one or more semesters, and subsequently, for a fixed period of time, take up a full-time position in a company or other organisation that is relevant to their respective degrees and counts towards their credits (Crow, 1997; Wilson, 2014). Following the completion of each work placement, the student's learning-on-the-job is consolidated, usually retrospectively, by doing exercises that encourage summative reflection. Interestingly, this process is often managed and overseen neither by the university lecturers nor work supervisors, but by purposely trained facilitators or staff members of the university (Interview, 2019i, 2019ii; van Gyn, 1996). In most coop models, the cycle of alternating university-based education with workplace-based learning is repeated several times, thereby extending a four-year bachelor's degree by a year or more. By the time coop students graduate, they have worked with several companies and gained relevant work experience, in addition to having earned a degree from a renowned university.

3.2.3 Connecting with employers in cooperative education

Typically, the university assists students in selecting suitable employers to apply to from a list of organisations that have entered into partnership agreements with the HE institute. Partnering employers commit to advertising available positions with the university, which then enables coop students to choose from a database of job opportunities (Interview, 2019i). Importantly, students are not guaranteed a job or matched to an opening. They must apply for these jobs like anyone else in the open labour market, and attend an interview if they succeed in being shortlisted. If a partnering employer posts a job with the university, the employer usually tags all the study programmes (so-called *majors*) that are deemed relevant to the vacancy, thereby indicating which disciplinary backgrounds are considered effective in adequately equipping applicants. For example, a finance company would tag the obvious finance study programme and also include economics, business, and perhaps even accounting and mathematics, depending on the role that the company seeks to fill (ibid.).

As there are no national policies or guidelines that regulate coop work placements, some employers opt to pay students a salary while others do not, depending on the industry sector and job position (Graf, 2017). It is rare for employers to come together to form social or regional partnerships that collectively organise coop placements with universities. Consequently, there is little decentralised cooperation between employers, and companies compete with each other for the best students and graduates (ibid.).

A notable implication is that the quality of coop work placements as well as the scope and breadth of participating employers depend heavily on the enterprise of individual staff members in employer relations teams at relevant university departments. Effectively, it is up to these individuals to identify, negotiate with, and bring on board prestigious companies and organisations that are willing to offer relevant and well-paid job opportunities to student-employees and facilitate rich and varied professional learning experiences.

3.2.4 The benefits and pitfalls of cooperative education

Opportunities

Studies have found that coop programmes deliver significant benefits to students, including increased motivation, clarity of career aspirations, enhanced employability, in addition to technical and discipline-specific skills, and broader interpersonal and intrapersonal, or relational competencies that assist learners with succeeding in the labour market (Grubb & Villeneuve, 1995; Nulton & Hoekje, 2018; Stern, Finkelstein, Urquiola, & Cagampang, 1997; van Gyn, 1996). Companies that participate in coop programmes also stand to gain because providing work experience opportunities for student-employees enables employers to acquire and recruit new talent. In addition, with the help of structured feedback loops, employers are able to communicate to the university the ways in which coop placements have or have not added value, as well as provided the basic skills and competencies that they expect their coop workers to be taught before commencing placements (Interview, 2019i). Thus, employers get to influence the curricula und shape the skill formation of future manpower based on their respective requirements (ibid.).

Challenges

Critics, however, such as Crow (1997) and Schaafsma (1996), highlight that cooperative education is often perceived as being insufficiently academic, due to its *vocational* training element and the considerable amount of time that students spend away from the academic learning environment - a criticism that is built on a refusal to recognise work as a means and context for academically relevant learning. Moreover, coop education is also denounced for its emphasis on administration, logistics, placements, and procedures (Wilson, 2014).

3.3 A case in point: Drexel University's cooperative education model

3.3.1 A stalwart of cooperative education

One of the largest and oldest American provider of cooperative education is the private, comprehensive research institute Drexel University, which is located in Philadelphia, Pennsylvania, the fifth largest city in the US. Founded in 1919, Drexel's cooperative education programme was one of the first of its kind, and continues to be among the largest and most renowned in the nation. Out of the 24,190 total number of students enrolled at Drexel, 15,498 are undergraduate students, 8,692 are graduate and professional students, and 4,669 are online students.[2]

While pursuing an undergraduate degree at Drexel, students choose from more than 80 programmes of study (so-called *majors*), for most of which cooperative education is a degree requirement. Typically, students combine traditional academic study with a six-month cooperative education work period. Drexel offers two types of coop programmes: a five-year programme with three coop experiences and a four year programme with one coop experience. Drexel coop students are able to choose from a vast database of partnering employers, including over 1650 business, industrial, governmental, and other institutions in 31 states and 38 countries, which *cooperate* with Drexel in offering students the opportunity to acquire practical experience in employment. As most of Drexel's coop student-employees are entrusted with projects vital to the day-to-day functioning of the workplace, the majority of employed learners are paid a salary that averages USD $18,000 for a six months work placement. As a result of having gained real-world know-how and professional skills from their coop experiences, Drexel graduates are likely to find employment much more quickly than other graduates do, and tend to be hired at a salary level that is 18.5 percent above the national average.[3]

3.3.2 Drexel University's designated centre for cooperative education services

Steinbright Career Development Centre

Although cooperative education is a university-wide model, Drexel University delegates all activities related to governing, managing and delivering cooperative education services to its Steinbright Career Development Centre.[4]

Steinbright's large team includes a total of 48 employees, and is composed of faculty and professional staff specializing in career-focused services (Interview, 2019i). Specifically, the team includes three assistant directors, 22 coop advisers, three staff members who work in employer relations, five faculty member who teach coop classes, a team of administrators, and a seven-person strong team of career counsellors (comprising a professional law counsellor and a specialised health counsellor), and an event manager who is in charge of coordinating larger scale events, such as the three annual career fairs (ibid.). Steinbright plays a central role in the lives of all Drexel students, given that members of the Steinbright team begin working with newly enrolled students (freshmen) as soon as they are registered at the university, and still support alumni long after they have graduated and are advancing through their respective careers (ibid.).

Steinbright's coop faculty members

Steinbright's work rests on three pillars: cooperative education, career services, and employer connections. Specifically, Steinbright's coop faculty members deliver COOP 101, a 10-week course designed to prepare students for coop and develop career planning and job search skills, as part of their regular class schedule. Successful completion of COOP 101 is a requirement for participation in the Drexel coop programme, and students are automatically registered for the course in the term most appropriate for their designated coop

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[2] See https://drexel.edu/difference/coop/
[3] See https://drexel.edu/difference/coop/
[4] See https://drexel.edu/scdc/about/about-steinbright/what-we-do/

experience. COOP 101 faculty discuss the following topics throughout the course: identification of career goals, curriculum vitae writing, effective job search strategies, interview skills, contemporary workplace issues, and professional communication.

Steinbright's coop advisers

Steinbright's coop advisers are paired with Drexel students and Drexel coop employers to ensure that the various work experience placements during the students' time at the university are positive and adding value. Students are assigned to their coop advisers at the end of the summer prior to starting at Drexel, and begin meeting with their coop advisers already before applying for coop positions. During regular one-on-one meetings, coop advisers help students assess coop goals, develop job search strategies, communicate effectively with employers, and understand coop policies. They assist students, for example, in exploring options around different majors, and identifying and reflecting on which aspects of a coop job experience worked for them and which did not, and the reasons for that (Interview, 2019i). If a student is experiencing performance issues at work, the situation is referred to the coop adviser, who subsequently confers with the student's assigned career counsellor (see below), and sets up tri-partite meetings that are attended by the student, the employer and the coop adviser him- or herself with a view to mediate and identify a constructive way forward (ibid.).

Coop advisers also undertake a considerable amount of employer-facing work, which may involve logistical support with, for instance, advertising employment opportunities to students or assisting employers with navigating the university's technology and systems. Where necessary, coop advisers help companies to understand the reasons for not receiving the expected quantity or quality of applications from students with the desired skill sets, or why students are turning down job offers. In these instances, coop advisers support employers by developing better strategies for building up a reputation or brand on campus, so that students start recognising the companies and are more likely to apply for the vacancies advertised (Interview, 2019i). The workload of Steinbright's coop advisers is considerable, with a team of seven advisers looking after approximately 2,000 coop students in six different colleges and schools per year (ibid.).

Steinbright's dedicated team of career counsellors

Steinbright's dedicated team of career counsellors provide students with one-on-one guidance and counselling sessions to ensure they are on the path to achieving their longer-term career goals. These sessions offer personalized attention to clarify interests regarding majors and career choices, and they regularly involve broadening the learners' initially linear views on career progression (Interview, 2019i). The career counsellors seek to engage students in professional development right from the beginning of their collegiate career, and continue to assist learners during their time at Drexel with relevant counselling and personality assessments for guidance toward a career path. The career counsellors also offer specific services for students, who are about to graduate (seniors), and aid recent alumni by developing job search strategies to land the best position.

Steinbright's employer relations team

Additionally, Steinbright employs three full-time staff members to concentrate on the employer-facing work, which includes analysing labour markets and trends vis-à-vis the professional requirements of Drexel's students, and on that basis, continually growing the network of partner employers and industry leaders across the globe. This division of Steinbright also provides the initial point of contact for coop and full-time employers, and assists participating companies and organisations in hiring coop students, new graduates, and alumni. Strategies that the Steinbright employer relations team has found particularly successful involve encouraging existing employers to consider taking on coop students in other areas of work, and approaching Drexel alumni about creating coop opportunities for the new generation of students in their respective work contexts (Interview, 2019i).

3.3.3 Drexel University's approach to interlinking academic theory with professional practice

Methods, tools and strategies for integration

Following each coop experience, students are required to reflect on their workplace-based learning in order to earn credits (Interview, 2019i). They are invited to complete an employment summary and planner (ESP) online, which involves two parts. The first part asks students to reflect on logistical and process-oriented aspects, such as their commute to work, their hours worked, their line manager etc. The second part of the ESP invites student-employees to describe in a 400-word essay the ways in which their academic knowledge enabled them to make sense of their professional experience, addressing questions such as what academic course turned out to be most relevant to their performance at work, what academic courses they are looking forward to taking after going through their coop experience, and what suggestions for improvements do they have for their respective academic departments or schools to ensure that learners are prepared for the real world as best as possible (ibid.).

The coop advisers review every single ESP with a twofold purpose. First, on the basis of the information in the ESP, they are able to develop a tailored progression plan for each student. Second, coop advisers extract relevant data from the ESP for the purpose of aggregating and analysing the information across departments. This information is complemented with feedback that employers provide about their experience with coop placements, including, for instance, their perspectives on the students' strengths and weaknesses. Subsequently, the combined data is being passed on to the relevant academic departments, in an effort to encourage academic faculty members to take the input on board in designing academic curricula that interlink more effectively with employer needs, and thus better prepare students for the world of work (Interview, 2019i; Nulton & Hoekje, 2018).

At a more strategic level, senior coop advisers play a pertinent role in ensuring the interlinking of academic teaching with professional learning. They work with the faculty advisory committee, which is composed of a group of full-time faculty members, in identifying strategies and activities to advance the integration of academic and professional learning. In the past, this has led to, for instance, the development of a communication plan for both students and employers, which is aimed at maximizing the mutual value of their engagement (Interview, 2019i). Accordingly, the engagement plan guides employers on relevant issues, such as effective approaches to advising students or retaining talent, but also offers pointers to students, such as suggestions on how to network while in the job, or what to do when reaching the end of a placement (ibid.).

Remaining challenges

The biggest challenge for Drexel University's 100-year-old programme is that the majority of academic faculty members view Steinbright's work as a separate bolt-on to the classroom-based education that they deliver (Interview, 2019i). There is a widespread perception that academic staff do not need to get involved in the integration of academic learning with professional practice. As it is, faculty members are under enough pressure to sustain their academic careers by attracting funding, conducting research studies, and continually publishing material, in addition to meeting the responsibilities of their teaching and marking loads (Interview, 2019i). With Steinbright being mandated to deal with all issues relating to professional education, only few lecturers understand the importance of using the ESP and other data to inform the development of academic curricula, and more generally, take the critical role academics have in joining up theory with practice seriously (Nulton & Hoekje, 2018). The minority of faculty members who recognise their pivotal role actively encourage students to reflect on their placements within the context of academic exercises, and for instance, purposefully integrate the world of work into academic assignments.

Championing work-based pedagogy

A particularly inspiring example of an academic faculty member championing a work-based pedagogy is found in Drexel's Department of English and Philosophy. Karen Nulton, Director of Writing Assessment and Professor of English, recognised the centrality of reflection within HE, which is a key focus in experiential learning (Bandaranaike & Willison, 2017; Harvey, Coulson, & McMaugh, 2016). Together with Barbara Hoekje, Karen Nulton analysed Steinbright's coop evaluation surveys of 721 students from 20 majors across Drexel, and they found that communication, interpersonal, intrapersonal, and relational skills were the factors that proved most relevant in a job, and also the ones that employers valued in particular (Nulton & Hoekje, 2018). In an effort to put the insights gained to empirical use, Karen developed and delivered a one-credit online course to encourage students to reflect on their behaviours and attitudes in relation to specific, real-time work experiences. The course sought to foster both awareness of, and ease with, the relational work skills identified as a result of the research project. Following completion of the course, students self-reported that it helped them to pay attention to their workplace environment as well as their own emotions and sense of self while learning in ways that they would not have done without the course (ibid.).

3.4 A niche in work-based HE: workforce development

3.4.1 Workforce development as a means to reform higher education and address labour shortages

A blind spot

More often than not, discussions on work-based HE are biased towards traditional higher educational trajectories that culminate into standard academic qualifications at the bachelor and master level. The debates regularly ignore shorter educational options, such as tech-prep programmes or micro credentials, which impart competencies in discrete, field-specific areas of knowledge, and lead to post-secondary non-degree certificates and diplomas that are awarded by HE institutions (McCarthy, 2015). These types of relatively affordable post-secondary short courses allow students to rapidly obtain relevant, sought-after skills that are urgently required by employers, and thus enable them to fill jobs that have remained vacant, such as the 350,000 digitally oriented jobs in the US manufacturing sector (Spees, 2018). Excluding these so-called workforce development courses from the debate on work-based HE constitutes a crucial oversight as, in the US, they are not only gaining in popularity among learners and employers alike, but also form an explicit component of president Donald J. Trump's policy agenda in reforming the increasingly unaffordable HE system, developing a workforce that meets the contemporary and future needs of rapidly growing industries, and addressing the national economy's shortage of skilled manpower in certain segments of the labour market.[5]

The implications of providing workforce development

Workforce development programmes remain peripheral in debates on work-based HE not least because they do not fit into the classic self-concept of academic institutes. Most traditional universities define themselves through their purpose of teaching, conducting research, and generating general knowledge that is broadly relevant to government, society and industry and more widely contributes to meeting the nation's welfare objectives (Fedeli & Bierema, 2020; Olsen, 2005). Including workforce development in their educational mandate would require that universities closely align their educational offers with the knowledge economy and national industrial strategies, develop market-driven HE provisions in partnerships with employers, and proactively carve out a role in the upskilling of very specific segments of the labour pool (Hordern, 2014). It would also involve developing technically oriented instead of academically aligned curricula based on the very specific needs of certain organisations, industries, and communities, and delivering a mixture of classroom-based and work-based

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[5] See Presidential Executive Order Expanding Apprenticeships in America, issued on 15 June 2017.

learning opportunities to an increasingly diverse body of students (Graf, 2017; Hordern, 2014; Jacobs & Worth, 2019).

Community Colleges as main hubs for workforce development

Recognising the potential of including workforce development courses in their educational portfolios a decade ago, US community colleges saw the opportunity, and since then, have emerged as main hubs for workforce development in the US as part of a bigger transformation that sees them evolving and re-defining their educational mandate (Graf, 2017; Spees, 2018). Until recently, US community colleges often failed to attract the best students because their reputation was marred by high numbers of dropouts and early leavers, even though evidence indicates that community colleges, in fact, tend to perform well in terms of their graduates finding jobs and earning salaries above average (Graf, 2017). However, by becoming a major resource for the nation's workforce development requirements, US community colleges are not only managing to stay relevant, but have reinvented themselves as major innovators in post-secondary work-based education (ibid.).

3.4.2 Integrating classroom-based learning and professional practice in HE workforce development

While workforce development may not necessarily involve learning solely at the work site, as potentially students can attend courses on a university campus, it almost invariably uses workplace experience as the central focus of the educational process (Hordern, 2014; Interview, 2019iii). Workforce development courses, and their emphasis on attaining professional skills and competencies, require shifting much of the curricula development and learning assessment, and in some cases, instruction and student management, from HE institutions to specialised learning providers that have very particular technical, vocational, or occupation-specific expertise and are closely aligned with relevant industry or sector bodies (Interview, 2019vi, 2019vii). The implication is that these specialised learning providers are assigned leading roles and responsibilities in educational processes, which inevitably results into relationship dynamics between HE institutions, specialised learning providers, and employee-students that challenge established traditions and require all parties to think and act in new ways (Hordern, 2014). Of course, the level of influence that specialised learning providers bring to bear over the character of the educational provision and the nature of learning outcomes depends on the occupation and sector, as well as on the collaborative arrangements underpinning the governance of the particular educational offer. That relationship notwithstanding, HE institutions have to be flexible and adaptable in order to facilitate the precedence of vocational-technical skill development over academic education, and strategically commit to processes and relationships that are considerably different from standard academic practices (ibid.).

3.4.3 Connecting with employers in HE workforce development

Workforce development is a necessity for businesses and other employing organisations in order to remain relevant and competitive, particularly in licensed professions and information technology sectors, where the skills needed change so rapidly that continuing education is inevitable to stay abreast of current trends (Hordern, 2014; Interview, 2019iii, 2019ivii). Employer involvement in workforce development courses can take shape in a variety of ways, ranging from commissioning bespoke, company-specific courses that take place at the employing organisation to employers assessing participants of certificate programmes that are delivered at colleges or specialised learning institutions, trade union offices, non-profit and for-profit organisations, or federal, state or local government venues (de Weert, 2017; Hordern, 2014; Interview, 2019v, 2019x). In some cases, workforce development courses are sponsored by employers, while in other instances students cover tuition fees themselves or receive funding from governmental or other bodies (Interview, 2019vii; McCarthy, 2015). Most workforce development programmes do not require a full-time commitment and can be completed during time off work or alongside full-time or part-time employment (Hordern, 2014).

3.4.4 The benefits and pitfalls of HE workforce development

Opportunities

Effective workforce development programmes are considered productive in improving labour market outcomes and enabling US citizens, including non-traditional learners, to obtain relevant skills and well-paid jobs in high-growth industries (McCarthy, 2015). Given that workforce development courses are focused on imparting immediately actionable skills rather than degree acquisition, not only jobseekers but also employers stand to benefit in a variety of ways (de Weert, 2017; Hordern, 2014; Interview, 2019v, 2019vii). In addition to producing workers who can fill skill gaps and perform required tasks efficiently and effectively, work development courses also build employee confidence and contribute to increasing staff productivity and morale, thereby positively impacting on a company's bottom line. Moreover, they can function as avenues for recruiting new employees, as well as reducing turnover and increasing retention among existing staff members (McCarthy, 2015.).

Challenges

Critics, however, question the quality of workforce development courses in comparison with *traditional* HE, and worry that employers' interests in the education of their staff is primarily instrumental, rather than developmental (Hordern, 2014). Some sceptics highlight the potential for students in workforce development programmes to be exploited by their employers, and call attention to the learning providers' *duty of care* to those studying in this way (ibid.). Others argue that the promotion of employer engagement is driven by governmental efforts to re-orient HE to serve commercial interests, to the detriment of academic staff, students and communities. Here, the underlying rationale is that a skills policy that prioritises employer-led education and training is both ineffective and unsustainable in increasing economic productivity and national competitiveness in the long term (de Weert, 2017; Hordern, 2014).

More broadly, there is an on-going discussion about whether workforce development programmes challenge HE institutions as the prime arbiter of valuable knowledge, thereby putting in question the quality and validity of the types of knowledge produced in the workplace (Olsen, 2005). An additional challenge lies in both the practicalities and viability of delivering workforce development HE at scale (Interview, 2019iii). This, perhaps, also relates to a reluctance to change time-honoured traditions of HE culture and practice, difficulties with adjusting processes within institutions, or the pressure of other demands on academic and administrative staff (ibid.).

3.5 A case in point: University of Pennsylvania's LPS Coding Boot Camp

3.5.1 An unusual suspect in workforce development

A particularly interesting example of workforce development can be found not at a community college but at one of the country's most prestigious Ivy League universities, namely the University of Pennsylvania (Penn). Also located in the city of Philadelphia, Penn is a private, research-intensive elite university in the State of Pennsylvania. Ranked as the eighth best university in the US in 2019 (U.S. News & World Report, 2019), only 7.44 percent of the undergraduate applications for 2023 fulfilled the demanding requirements for admission to Penn.

Penn's Professional and Organizational Development (POD) team, part of the Liberal and Professional Studies Division (LPS) in the School of Arts and Sciences, is responsible for developing and managing the university's offers around workforce development. [6]

LPS provides continuing education along the lifespan with POD focusing on the non-credit bearing programmes. For a long time, POD was viewed as peripheral to the *real academic* or *credit-bearing* programmes, not least because it focuses on working professionals and does not offer academic credentials. Over time, however,

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[6] See https://pod.sas.upenn.edu/

working on workforce development programmes considerably contributed to POD establishing a strong value proposition inside LPS and Penn, and helped legitimise the unit's work (Interview, 2019iii).

Recognising that HE is geared toward faculty research interests as opposed to the competencies necessary to be job-ready, LPS has made huge strides in creating both credit and non-credit courses that are highly applied, market-driven and relevant to today's global workforce. In the case of POD, they have created programmes targeting career professionals and their organisations. The menu of revenue-generating non-credit offerings are carefully selected to ensure that they are in line with the School of Arts and Sciences' philosophy and mission, and no risk to the university's reputation as a brand (Interview, 2019iii). Accordingly, POD offers customised programmes for organisations on a variety of topics, including, for example, company culture, diversity and inclusion, positive psychology, resilience, and behavioural economics (Interview, 2019iii, 2019iv). All of the POD programmes are delivered or overseen by Penn's renowned faculty, and can take place on Penn's campus, the client's corporate location, online or through a combination of all three.

3.5.2 Penn's partnership with Trilogy Education Services

Trilogy Education Services

In 2017, POD initiated Penn's partnership with the private sector learning provider, Trilogy Education Services (Trilogy), in order to be able to offer non-degree certificates on front- and back-end coding as part of its workforce development options. Trilogy was founded in 2015 for the purpose of bringing labour market-driven training programmes to universities, employers, and working adults around the world. The business was acquired in 2019 by education technology company 2U, Inc., based in Lanham, Maryland. The company defines itself as a workforce accelerator that empowers the world's leading universities to prepare professionals for high-growth careers in the digital economy by offering unaccredited, non-credited certificate programmes, colloquially known as boot camps. Trilogy's intensive, skills-based training programmes, which are developed under the oversight of partnering universities, bridge regional hiring gaps in coding, data analytics, UX/UI, and cybersecurity in more than 50 cities around the globe. Today, Trilogy Education Services is considered a leading workforce accelerator and one of the largest players in the rapidly growing skills-based education market.

Accelerating workforce development in the digital economy

Trilogy's particular focus on addressing the nation's digital skills gap is based on statistical evidence, such as those published by the World Economic Forum (2019), which indicate that 60 percent of US-based companies report that local labour pools lack digitally trained workers, who can be tasked with implementing new technologies. In 2018, the US labour market counted more than 525,000 open computing jobs, but only 49,000 computer science students who graduated into the workforce (ibid.). Effectively, technology is now a critical part of every industry, powering double-digit growth in jobs requiring tech skills. However, the problem of finding digitally skilled manpower is expected to worsen further, with McKinsey Global Institute (2017) predicting that the need for advanced IT and programming skills will grow by 90 percent in the next decade, while automation and artificial intelligence are expected to displace up to 73 million workers in the US By powering educational programmes that help working adults retrain and learn the most in-demand skills for the high-growth tech jobs in their communities, Trilogy is an important stakeholder in filling the tech industry's well-paid vacancies. A partnership with Trilogy gives universities the speed and scale to meet the exploding demand for adult retraining in tech fields, and in so doing, has helped over 2,000 companies, including Google, Microsoft, and Bank of America, find the technically skilled workers needed to execute their business plans.

Finding the right partner for an Ivy League university

POD opted for Trilogy as its partner in delivering non-degree certificates on front- and back-end coding for a variety of reasons (Interview, 2019iii, 2019iv). For one, Trilogy's education services are continually informed by a comprehensive data analytics system, which collects real-time data on labour market trends, student

performance, learning processes, and course participants' experiences in order to ensure relevant, customised and intelligible learning content, consistent teaching quality, high levels of student satisfaction, and the agility promptly to respond to any issues that might occur (Interview, 2019v). Another reason for choosing Trilogy was the company's extensive student support, provided by the student success manager, instructors, teaching assistants, and online tutors, as well as the company's career service staff members, who assist those who successfully complete the programme in identifying and contacting prospective employers and adequately preparing for job interviews (Interview, 2019iii, 2019iv). Additional factors that convinced POD of Trilogy being the right partner were the company's collaborative approach to partnerships as well as its business strategy, based on which Trilogy solely partners with one university within a particular geographic radius, and leverages the university's strengths and interests.

Lobbying Penn

Despite Trilogy's convincing profile, POD had to overcome considerable resistance internally at Penn (Interview, 2019iii, 2019iv). Initially, Penn's academic and administrative stakeholders harboured grave concerns about the implications of a partnership with Trilogy, particularly in regard to the academic rigour of the company's programmes, and the risk of cheapening the university brand. In response, POD undertook a considerable amount of negotiating and influencing in order to convince Penn's decision-makers of the high quality of Trilogy's course, and the benefits that a partnership with Trilogy could bring (Interview, 2019iii). Key arguments in persuading Penn's academic and administrative stakeholders included the opportunity for generating revenues for the School, extending Penn's reach to new audiences, and boosting economic development in the region. Furthermore, Penn's president has a strong commitment to the local community, which benefits from workforce development efforts. In addition, the partnership reflected Penn's reputation as an innovator and supporter of novel ideas (ibid.).

A success story

Following six months of negotiations, Penn's leadership finally gave POD the green light to collaborate with Trilogy to deliver the certificate programme on front- and back-end coding, called the LPS Coding Boot Camp (Interview, 2019iii, 2019iv). The process required POD to work closely with Penn's legal team in agreeing to terms and conditions, but also heavily engaged physics and computer science faculty staff members in designing the curriculum and setting quality standards. Today, almost three years into the partnership between Penn and Trilogy, the relationship is thriving with over 350 coders completing certificates, a new Cybersecurity Boot Camp recently launched (here the School of Arts and Sciences partners with the School of Applied Engineering and Science to deliver the programme), several new content areas in development including Data Engineering, IT Project Management and FinTech, and an impressive calibre of participants. The programmes generate good revenue and are being praised by employers for efficacy in equipping individuals for the digital marketplace (Interview, 2019iv).

3.5.3 The LPS Coding Boot Camp

Overview

By partnering up with Trilogy, the University of Pennsylvania was able offer a workforce development programme that is carefully calibrated to current labour market demands. The programme imparts on participants the knowledge and skills to build dynamic careers in the digital workplace. Upon successful completion of the programme, participants receive a certificate of completion from Penn. This does not imply that they are alumni of the university.

The course is presented as a Penn programme, which is delivered in collaboration with Trilogy. In order to meet the entry requirements for the various Boot Camps learners must be at least 18 years of age, in possession of a high school diploma, and have passed aptitude tests. According to Trilogy's data analytics, the median age of

course participants is 32, more than 30 percent are female, and most of them are non-traditional students. Penn officially welcomes each new student cohort on its campus, provides the facilities for classroom-based activities, and oversees the curricula and instruction, while Trilogy executes the delivery (Interview, 2019iii).

A comprehensive support package

The LPS Coding Boot Camp is taught by industry professionals with at least 3 years of experience, who are pre-screened and shortlisted by Trilogy, with Penn making the final decisions on hiring candidates (Interview, 2019iv). The programme offers considerable support to students through in-person and virtual office hours, as well as a dedicated slack channel where learners can get assistance from instructors, teaching assistants, online tutors and peers. All work is done via Github, so students can create issues directly on their own projects for instructors to assist them in an asynchronous fashion. In addition to the academic support and guidance provided by instructors, teaching assistants and online tutors, Trilogy's student success managers play a vital role in monitoring the performance of individual course participants, troubleshooting issues before they turn into problems, and offering tailored support and student welfare services where necessary (Interview, 2019v). The student success manager also analyses the vast amounts of data collected and makes suggestions for improvements (ibid.). Importantly, those that complete the course also have access to Trilogy's career services and job preparedness assistance, which include personalised career-planning services, support with applications and interview preparations, portfolio reviews, and employer events, such as tech talks and project demo days at which industry professionals and recruiters meet the new crop of graduates (ibid.).

Quality control

Every two weeks, Trilogy's Vice President meets up with the directors of POD to review the company's data analytics and, on that basis, discusses class performance, refinements to the curricula and teaching methods, student feedback, programme adjustments, new ideas and products, and any other issues relevant to continually meeting Penn's Ivy League standards (Interview, 2019iv). For instance, where the data analytics indicate a major dip in student performance during a particular exercise in one week, Trilogy might suggest revising and adjusting the lesson plan for the following week, so that learners receive the extra support needed in order to be able to grasp the seemingly difficult concept (Interview, 2019iv). Penn's faculty are involved in these discussions and offer guidance based on their years of experience in the classroom.

Costs

Such data-driven, learner-centred, high quality educational service does not come cheap, although it is still, by far, more affordable than a four-year college degree. Students can opt to attend the LPS Coding Boot Camp full-time over the course of 12 weeks at a price of USD $13,995, or part-time over the course of 24 weeks at a cost of USD $11,995. They receive a discount of USD $1,000 if they pay a minimum of USD $2,500 upfront at the time of registration and the rest before commencing the course.

3.5.4 The LPS Coding Boot Camp's approach to interlinking academic theory with professional practice

The LPS Coding Boot Camp is a rigorous and fast-paced programme that covers both the theory and application of web development and digital concepts. Delivered in multiple formats that include evening and weekend classes as well as online classes, the LPS Coding Boot Camp's curricula begin with an in-depth exploration of the basics of coding and data structure. Students attend lectures on Penn campus, but also take part in a variety of individual and team exercises, working independently and in groups, in the classroom and at home. Guided by the latest research on the human brain's attention span, lectures last a maximum of 15 minutes at a time, before students are invited to participate in an activity and apply theory to practice (Interview, 2019v). Homework assignments provide additional opportunities to apply what has been learned in class and build on it.

The programme is modelled after real world corporate environments in order to provide course participants with a comprehensive learning experience that gives them true insight into *a day in the life* of a full-stack developer.

As students progress up the learning curve, the curricula teach them how to put what they have learned to work on actual portfolio projects, ranging from simple HTML and CSS code samples to sophisticated Single Page Applications with backend databases. In other words, as learners gain proficiency, they use what they learn on real projects under the guidance of local employers. These opportunities for hands-on involvement in outside projects are very important, as they contribute to building each students' Professional Portfolio, which are showcased to potential employers toward the end of the course.

3.6 Concluding reflections on work-based HE in the US

The bottom line

Although considerably different in terms of their concepts, designs and purposes, the two case studies on Drexel University's cooperative education model and Penn's LPS Coding Boot Camp offer valuable insight into the essence of successful work-based HE within the context of the US. Accordingly, sustainable, state of the art approaches to work-based HE in the US emanate from productive collaborations with non-traditional partners on the ground, who are willing to allow for the refashioning of education based on employer needs and labour market requirements. With the pedagogic emphasis placed heavily on knowledge acquisition that is relevant to communities of professional practice, the reflexivity engendered by US work-based HE models promotes students' learning of technical competencies and transferable behavioural skills in parallel to theoretical knowledge. Arguably, in the case of Drexel's coop model, there might be room for integrating theory and practice more closely in the future, although the success of a parallel approach is evident particularly with regard to practical outcomes. Those who graduate from effective work-based HE programmes in the US are well prepared for entering the labour market and contributing to achieving the country's national and international economic agendas.

Undeniably, much inspiration can be drawn from the US approaches to work-based learning that are presented above. The ways in which stakeholders in both case studies have managed to overcome cultural differences between HE institutes, employers, and educational stakeholders in the private sector, and developed new approaches to course content, student learning experiences, and conceptions of *knowledge* is particularly impressive - and certainly a critical factor in achieving the successful integration of academic theory and professional practice in HE. The challenge is, of course, to ensure that calibrating education to employer demands is done with a long term view that is capable of managing, if not avoiding, the temporary or short-term priorities of industries and economic sectors.

Impulses for the German context

When thinking about the German context, the US case studies offer some thought-provoking impulses. Given that there is a cap on the tuition fees that German HE institutions are allowed to charge, which therefore prevents them from recovering the costs associated with offering resource-intensive work-based HE programmes, German educational providers have little option but to notably increase student numbers and shift some of the financial burden to employing organisations and partners from industry and sector bodies. Here, German HE institutions could learn much from the US stakeholders' productive and innovative approaches to initiating and developing mutually beneficial collaborations with private sector partners, learning providers, and employing organisations, who of course stand to benefit by having greater input in curricular designs and being able to recruit from a well prepared pool of junior talent. This point reiterates previous recommendations made by the German Council for Science and Humanities (Wissenschaftsrat, 2017).

In this context, the imperative of a culture change cannot be overemphasised. As demonstrated by the US case studies, German HE institutions ought to reflect the effective integration of academic and experiential learning not just in their value statements but also in pedagogic approaches, course content, broadened conceptions of *knowledge*, and an increasingly student-centred facilitation of learning experiences. Some of the German HE

providers participating in the federal-Länder initiative "Advancement through Education: Open Universities" have already come to that realisation and have begun to develop modularised and short programmes, cooperate with employers, industry associations and sector bodies, and revise course content to meet modern, professional requirements.

Furthermore, the clear and purposeful division of roles that we have witnessed in both US case studies, involving teaching staff, employer-facing teams and student-facing personnel, could be of interest to the German context, especially as it is relatively simple to adapt. In the same vein, the systematic data collection and feedback loops, which educational providers in the US case studies employ to ensure that teaching and learning activities are continually improved and optimised based on student and employer experiences, constitute further tools and methods that German HE institutions might be able to implement easily.

4. Work-based HE in England

4.1 Educational context: a top-down approach to work-based HE

The beginnings of work-based learning

England, and the UK more generally, look back on a long-standing tradition of university education, which is rooted in a conviction that opportunities to access HE should be based on ability rather than socio-economic background (Osborne, Sandberg, & Tuomi, 2004). Notably, the Committee of Higher Education's Robbins Report in 1963 established HE as a binary national system, with universities providing standard academic HE and polytechnics offering HE in technical and vocational areas (Osborne et al., 2004). From the 1970s some academic programmes already included coop like semesters in which the learners would be expected to find employment in a relevant field, although these were rarely integrated with the content of the academic study programme (Lester, Bravenboer, & Webb, 2016). Driven by various economic rationales and the imperative to widen participation in HE from traditionally under-represented groups, major reforms in 1992 saw the conversion of most polytechnics into universities, thereby beginning the process of breaking down the binary lines of a parallel HE system and also reducing the divide between academic and vocational education (Osborne et al., 2004). Concurrently, as Lester, Bravenboer and Webb (2016) recount, in the early 1990s the national Employment Department sponsored an initiative to incentive English HE providers to include work-based learning into academic structures. It involved several pilot projects that explored facilitating and accrediting the learning of either individual or groups of practitioner students at, through and for work, and also laid the foundations for programmes of work-based learning that is negotiated between students, employers and the academic institution (ibid.). Importantly, the pilot projects drove some universities to set up work-based learning or employer-facing units, several of which have since evolved to become central departments.

Honing the principles for work-based HE

In 1997, the UK government published a series of major reports on the future of HE in the UK, formally known as the reports of the National Committee of Inquiry into Higher Education, and informally summed up as the Dearing Report. The report was commissioned by the UK government and was the largest review of HE in the UK since the Robbins Committee in the early 1960s (Osborne et al., 2004). Following the Dearing Report, England has seen frequent policy interventions to encourage collaborative working between employers and educational providers at degree and sub-degree level. In that vein, the government programme University for Industry, launched in 2000, provided further impetus by supporting employees and employers through an online portal for negotiating individual and group programmes with universities (ibid.). Lester, Bravenboer and Webb (2016) argue that these early government initiatives contributed much to developing some of the underpinning principles for incorporating work-based learning into academic structures, such as the use of learning agreements, recognition of previous learning based on the bearing it has on the negotiated programme of study,

and the application of generic assessment criteria that are based on academic level statements. Under the perspective of employers, the early government initiatives led to changes in approaches to recruitment, including sponsoring school leavers to complete a university degree and working with universities to develop programmes of study that fit in with work (ibid.).

Following the publication of the Leitch Report (Leitch Review of Skills, 2006), which identified the necessity to increase the UK's levels of higher skills; the government announced Higher-level Skills Pathfinders to spur employers to collaborate with HE institutions via funded *demand-led* projects. At about the same time, the Higher Education Funding Council for England (HEFC) launched the Higher Education Transforming Workforce Development Programme, which funded 37 projects aimed at bringing together universities and employers to enhance workforce development. Subsequent evaluations of both initiatives found that existing relationships between employers and universities were rather transactional as opposed to on-going, and that HE institutes needed to be more responsive and develop study programmes that meet employer needs and were mindful of their business requirements (DIUS, 2008). Furthermore, the evaluations highlighted the need for universities to adopt 'the language of employers', offer employers a 'single point of contact', involve employers actively in the delivery of HE programmes, and organise for academic members of staff to be seconded temporary posts in industry (DIUS 2008, p. 4). However, with the coalition government taking power in 2010, the government's policy focus shifted away from workforce development and the *co-funding* model used in Pathfinder projects came to an end (Lester et al., 2016).

Laying the foundation for degree apprenticeships

In 2013 the Specification for Apprenticeship Standards in England (SASE) was revised to align more closely with HE qualifications. Importantly, it encouraged universities to engage in the higher level skills agenda because it enabled the introduction of apprenticeships at bachelor's degree level (level 6) and master's degree level (level 7), both of which included a single integrated qualification that assessed *knowledge* and *competence*, but no longer separately (Bravenboer & Lester, 2016). Simultaneously, a government sponsored review of apprenticeships advised that employers should shape the design of apprenticeship standards and have purchasing power for all apprenticeships (Richard, 2012). Moreover, the review recommended rigorous end point assessments that test competence and employability within the relevant sector (ibid.). In so doing, the report marked a critical policy shift away from a supply-led approach to work-based HE, and laid the foundations for giving employers a considerable stake in the process. This is not to say that HE institutions do not have a critical role to play as well, as the University Vocational Awards Council (UVAC), which is the UK's national university representative body championing higher level vocational learning, has continually emphasised. According to UVAC, apprenticeships at the level of HE are an important means by which to create alternatives to traditional academic degrees, address the decline in student numbers, widen participation to underrepresented groups, and provide better career development opportunities to learners (Anderson & Crawford-Lee, 2016).

Tracing the development of England's educational landscape on work-based learning suggests that the country has long recognised the pivotal role of HE in workplace learning and workforce development. Over the years, a mix of governmental policies and funding incentives, rather than legislation, has created spaces for action in which universities, employers and industry bodies were able to experiment with various collaborations, set up necessary infrastructures, transcend cultural differences, and develop valuable expertise in what works. It has laid the groundwork for England's current mature, and arguably radical approach to work-based learning in HE.

4.2 A radical model of work-based HE: degree apprenticeships

4.2.1 England's HE degree apprenticeships

A flagship reform

In stark contrast to the US government's hands-off approach, England's government recently initiated a radical reform of its HE sector, intended to create three million new work-based study places in the UK by 2020 (British Goverment, 2015). In March 2015, the English government launched flagship degree apprenticeship, which is expected to become the most prominent approach to work-based HE in the UK. (Rowe, Perrin, & Wall, 2016). Available at the level of a bachelor's degree (level 6) and master's degree (level 7), degree apprenticeships combine academic and vocational learning and qualifications, and fully test both the wider occupational competence and academic learning. Apprentices must be aged 16 or over and in paid employment for the duration of their apprenticeship, while studying part time at a university or with a training provider. Degree apprenticeships are designed to meet the needs of both young people seeking to combine academic studies with employment in relevant job roles, and mature employees pursuing academic recognition and career progression (Bravenboer, 2019). The design of each degree apprenticeship is individual as it is purchased by a particular employing organisation that commissions a selected HE institute to develop and deliver the programme in close collaboration with the employer, relevant professional association, and where applicable an independent training provider (Mulkeen, Abdou, Leigh, & Ward, 2019). The Institute for Apprenticeships and Technical Education, an employer led crown Non Departmental Public Body, establishes and approves the industry-specific professional quality standards, to which a particular degree apprenticeship programme must be aligned, in addition to meeting the standard academic quality criteria of HE. Therefore, the course content, learning outcomes and competencies, performance assessment, quality assurance and recognition procedures for each degree apprenticeship programme are developed based on a combination of academic and professional standards. Arguably, this is not only a radical new approach to building knowledge and skills, but also has the potential of radically transforming entire occupations, if not sectors. For example, as a result of developing degree apprenticeship standards specific to the occupation of police constables, the College of Policing, a professional industry body, recognised the complex set of skills and competencies required of contemporary police constables (Interview, 2019viii). This led the College of Policing to set all entry routes for the occupation of police constables at a graduate level and no longer admit candidates who are educated to sub-degree level (ibid.).

Financing

The funding of degree apprenticeships is made possible by a new tax that first came into effect in April 2017, the *apprenticeship levy*, which requires large employers with payrolls in excess of £ 3 million to pay a 0.5 percent tax levy of the organisation's wage bill into a digital account, to which the government makes a 10 percent contribution every month (Interview 2019xi). The money in the digital fund is available for 24 months from the date of payment, and can be redeemed for the development and implementation of an apprenticeship degree programme (ibid.). If employing organisations fail to spend the money in the designated timeframe, it will be reclaimed by His Majesty's Revenue and Customs (HMRC); including the 10 percent contribution (ibid.). Smaller organisations are eligible for generous tax benefits as incentives for the introduction of degree apprenticeships, which, in some cases, may even exceed their initial expenses (Rowe et al., 2016).

Aims and objectives

Given England's economic agenda of developing a highly skilled workforce in order to be able to compete with OECD and BRIC competitors, the country's reform of work-based HE is driven by the imperative to refashion HE to meet the needs of employers and thereby the wider economy (Wall & Jarvis, 2015). Notwithstanding record levels of graduates in England, there are mounting concerns regarding the perceived quality of graduates leaving

university (Rowe et al., 2016). For example, 89 percent of employers reported being dissatisfied with the lack of job readiness (Association of Business Schools, 2014), citing non-realistic employment expectations and a lack of commercial awareness amongst the majority of graduates (Confederation of British Industry, 2012). Indeed, 80 percent of employers classify employability skills, and most critically, the skill areas of communication, team working and project management as more important than the degree subject (Confederation of British Industry, 2012). The impossibility of acquiring such employability skills directly through mainstream academic curriculum are widely documented alongside the opportunities afforded by developing associated tacit or professional knowledge in live business environments (see e.g. Billett, 2014). A further explicit goal of degree apprenticeships is to enhance social mobility and widen participation in HE by offering debt-free progression to higher level jobs for learners from disadvantaged backgrounds (Office for Students, 2019).

4.2.2 Integrating classroom-based learning and professional practice in HE degree apprenticeships

Formally linking theory and practice

In contrast to the cooperative education model in the US, England's degree apprenticeships are based on a formal link between learning in the classroom and learning at the work site. This is already evident in the degree apprenticeship standards, based on which degree apprenticeship programmes are developed. Most degree apprenticeship standards require professional qualifications to be integrated with the academic degree, often leading to a plethora of learning outcomes to ensure that both practical and theoretical competencies are achieved (Interview, 2019viii; Mulkeen et al., 2019). Adding to the challenge is that the knowledge, skills and behaviours that make up the learning outcomes need to be continually updated for the learning experience to remain valid, relevant and appropriate. Accordingly, the inception of degree apprenticeship programmes has proven difficult and time consuming, requiring high-level negotiation skills, alongside the ability to create and write appropriate work-based degree programmes, which meet professional and academic standards, and individual employer needs (Bravenboer, 2019).

The formal link between theory and practice continues in the delivery of degree apprenticeship programmes, with universities and employers having to effectively coordinate curricular and experiential activities so that they complement each other. For example, mentors in the workplace are expected to work closely with university colleagues so that they are aware of module requirements, material content, and assessment requirements, and can adequately support apprentices at the work site (Bravenboer, 2019). As a consequence, traditional siloes, whereby responsibility for professional competencies sits with employers while academic institutions take charge of academic knowledge and skills, are no longer sustainable (Interview, 2019viii). Previous boundaries need to be rethought and stakeholders must at least accept a level of cross over or blurring.

A flexible infrastructure and an innovative culture to underpin the formal link between theory and practice

Given all these demands, the ability to be flexible, innovative and do things differently is critical, which requires much internal lobbying in universities to change the culture and modus operandi of semi-autonomous faculties and their members of staff (Saraswat, 2016). In the same vein, university infrastructures and departmental procedures need to acknowledge and respond to the nuances of work-based programmes by becoming less rigid and more flexible in terms of admission and registry procedures, collaborative provision and the way in which resources are allocated, arranged and assessed when delivering degree apprenticeships.

Easier for some than others

Here, universities that look back on a track record of providing work-based learning before the introduction of the degree apprenticeships are at an advantage (Mulkeen et al., 2019). HE providers, such as Middlesex University, Portsmouth University and what was then Leeds Metropolitan University, had previously developed frameworks for what is referred to as negotiated work-based learning. In the past, these frameworks allowed for the academic recognition of previous practical experience and experiential learning of those students, who were

able to demonstrate their workplace capability, such as nurses or social workers. The frameworks for negotiated work-based learning enabled these learners to negotiate with university departments bespoke programmes of study, drawing on subject expertise and taught input (Interview, 2019x; Wall, 2013). For instance, Middlesex University's negotiated master courses in nursing, midwifery, or mental health have enabled practitioners with recognised professional qualifications and relevant work experience to have their prior experiential learning recognised by the university, and on that basis, negotiate their very own, tailored programme of part-time study in order to attain an academic qualification (Interview, 2019x). Unsurprisingly, adopting degree apprenticeships proved much easier for these universities considering that they already had both the academic infrastructure and a culture, which recognises that much of the knowledge capital in society exists outside of academia (Interview, 2019viii; Mulkeen et al., 2019). Unlike other universities with little or no experience in the provision of work-based learning, these HE institutes view the introduction of degree apprenticeships not so much as a threat in terms of unfamiliar pedagogy, but as an opportunity for building on the institution's existing strengths, and capitalising on its experience of work based and distance learning delivery (Interview, 2019x).

4.2.3 Connecting with employers in HE degree apprenticeships

Introducing degree apprenticeships has put employers in the *driver's seat*, as the University Vocational Awards Council (UVAC) has aptly pointed out. Employers play a central role not only with regard to shaping the learning content and co-delivering the programme but also in terms of covering the costs. Employers are responsible for the apprentice's wages, work-based training opportunities and mentoring, and they have co-responsibility with government for contributing to paying the university for academic training and assessment (Mulkeen et al., 2019). Effectively, these financial obligations constitute an increased investment in the training and development of employees – a lack of such investment having being identified as a key reason for the relatively slow growth in UK productivity (Richard, 2012). For example, following a competitive tendering process, the Metropolitan Police Service recently awarded a £136 million contract for developing and delivering degree apprenticeships in policing to a consortium of four HE providers, led by the University of Middlesex (Interview, 2019viii). In return, degree apprenticeships offer employers the possibility to professionalise and even transform occupations, grow and nurture talent, fill knowledge and skills gaps, and motivate employees (ibid.).

Keeping in mind that most employers are involved in formalised and assessed work-based learning for the first time, degree apprenticeships require them also to invest considerable non-monetary resources into the intensive collaboration, co-creation and joint management with universities (Mulkeen et al., 2019). In order to support apprentices to a degree level, employers need to invest staff resources and time, a process that moves resources away from their core business and increases costs. For instance, training regular employees to take on a work place mentor role for apprentices requires time and soliciting external expertise. Also, while employers generally are committed to making sure that the apprentices' learning experience at the work site is relevant and of high quality, pragmatic business concerns will always take precedence. For example, even though employers plan to place apprentices in job roles that are relevant to the academic module, this may not always be possible, given the requirements of the day-to-day business.

4.2.4 The benefits and pitfalls of HE degree apprenticeships

Opportunities

The introduction of degree apprenticeships is hailed nationally and internationally as one of the biggest changes in HE for decades, promising a sustainable approach to simultaneously developing relevant talent and offering a different route to traditional HE programmes (Kuczera & Field, 2018). Undeniably, the potential benefits of England's HE degree apprenticeships are many. For employing organisations, degree apprenticeships provide an opportunity to transform occupations, attract and retain staff, develop much needed skills and increase organisational productivity, whereas for learners it is an unparalleled chance to earn a degree plus a professional qualification without the average accrued £44,000 debt (Kirby, 2016). For some stakeholders, the focus is on

achieving three million apprenticeships by 2020, for others it is about the apprenticeship levy and increased investment into HE and skills, for some it is about putting employers at the centre of new developments, for others yet it is about bringing together universities, employers, students, professional bodies and independent training providers collaboratively to refashion work-based HE, while for another group of stakeholders degree apprenticeships offer an alternative income stream for universities from some non-traditional students and allow further diversification of HE portfolios.

Conditions for success

Certainly, the success of degree apprenticeships much depends on the effective collaborative working between all parties concerned, and the new programmes' ability to fulfil a variety of different stakeholder expectations (Interview, 2019viii). Herein lie a variety of challenges. The administrative systems of universities have to be able quickly to adjust quickly to the *shifting sands of government policy*, especially around changes in fees bands, validation criteria, regulatory compliances, and legal and contractual requirements, which differ considerably between private and public sector organisations (Interview, 2019ix, 2019xi). Universities also have to be responsive to employer and learner needs and become increasingly flexible so that they can , for example, manage multiple entries, accommodate interruptions of study, track students taking modules out of sequence, reimburse teaching staff from professional partner organisations that are subcontracted, provide monthly individual learner records (ILRs), promptly bid for large tenders, and approach and engage employing organisations that might be interested but are daunted by the complex procedures (Interview, 2019ix, 2019xi). This is not made any easier by the excessively bureaucratic and cumbersome administrative and reporting processes surrounding degree apprenticeships (Interview, 2019xi, 2019xii). Providers of the HE component also need to invest into building curricula and agreeing on curricula delivery, which in addition to meeting academic and professional standards, and employer and learner needs, also have to incorporate governmental requirements, such as safeguarding British values or health and safety regulations (Interview, 2019xii). Another condition for success relates to universities developing and integrating distinctive learning, teaching and assessment tools and strategies, including an effective Virtual Learning Environment that is compatible with the institutions' different ICT systems and able to get past the firewalls of employing companies, thus allowing for a truly blended approach to teaching and learning (Interview, 2019ix; 2019xi; 2019xii). Another key factor for success seems to be the HE institutions' willingness to create and effectively fill additional, unprecedented staff roles, such as degree apprenticeship operations manager or degree apprenticeship facilitator, to ensure that the responsibility for promoting, aligning and coordinating these programmes across academic, administrative and professional services departments as well as for recruiting employing organisations and apprentices is firmly anchored with a designated member of staff, if not an entire team depending on the size of the apprentice cohorts (Interview, 2019xii).

Threats

The university sector has raised concerns over the ways in which the differently distributed stakeholder responsibilities may affect scores in the National Student Survey, accreditation criteria and outcomes, as well as the scores and rankings within the teaching excellence framework. Moreover, degree apprenticeships may pose a threat to existing undergraduate and postgraduate portfolios of universities, considering that students are less willing to apply for a traditional degree and, instead, would rather engage in a debt-free, employer-led degree.

Paradoxically, degree apprenticeships also threaten to displace well-established work-based programmes of study, such as those that are negotiated between students, employers and the academic institution, of which Middlesex University and its negotiated master courses in nursing, midwifery, or mental health is only but one example. Currently, these negotiated programmes are at risk of being replaced by generic degree apprenticeships, which can be delivered at a lower cost. In the case of the example given from Middlesex University, a degree apprenticeship in *allied health professionals*, targeted at nurses, paramedics, physios and

occupational therapists, would replace the negotiated master programmes in nursing, midwifery, and mental health, thereby loosing valuable specialism (Interview, 2019xii).

While some positive steps have already been made toward achieving goals of increasing social mobility and widening participation, however the Office for Students (2019) highlights that much more remains to be done, especially with regard to widening access and facilitating social mobility. Currently, statistics reflect a general trend whereby the higher level the apprenticeship, the lower the percentage of disadvantaged learners it attracts. Moreover, with 87 percent of degree apprentices in the 2016-17 cohort being Caucasian, ethnic diversity is lower than in equivalent HE courses (ibid.).

Costs

Costs are a worry for both employers and universities. Employers are concerned over the *hidden* costs, such as diverting non-monetary resources to manage the increased level of administration that comes with the new programme and providing degree level support for apprentices. While degree apprenticeships provide an alternative source of income for universities, it is acknowledged that their running costs are higher than those of traditional programmes and involve reimbursing employers for part of the workplace training element. Inevitably, universities will need to improve in developing more commercial costing models, which will see *cost and profit sharing* with other stakeholders providing degree apprenticeships, and both employers and academic institutions will need to engage with alternative commercial models of programme delivery. Another issue is the involvement of Further Education Colleges (FECs) and other training providers that are vastly experienced in the administration and delivery of higher apprenticeships delivered up to level 5, have an excellent record of employer engagement, and are keen to partner with HE institutions in delivering degree apprenticeships. Yet some universities may be reluctant to sub-contract degree apprenticeships to these training providers, partly because they are direct competitors, but also because the performance of these training providers will directly influence the university's scores and rankings within the teaching excellence framework.

4.3 A case in point: Middlesex University's BSc (Hons) Professional Practice in Business to Business Sales

4.3.1 A leader in work-based learning provision

A best practice example of realising the English Government's flagship programme comes from Middlesex University, a public HE institution located in north-west London, with three overseas campuses in Dubai, Mauritius and Malta. The University has over 1,900 employees and about 40,000 students from highly diverse backgrounds. Middlesex has a long-standing track record in delivering vocational and work-based HE through apprenticeships and continued professional education in response to the needs of a wide range of employment sectors in diverse professional contexts. This includes delivering the largest Higher Education Funding Council for England (HEFCE) funded workforce development project in the country, being recognised as a Centre of Excellence for Work Based Learning by the Higher Education Academy, and winning the Queens Anniversary Prize for Work Based Learning. The expertise of Middlesex staff is evidenced by being listed as a degree apprenticeship good practice case study on the HEFCE website and through its representation on the Quality Assurance Agency's Advisory Group, which develops the Higher and Degree Apprenticeships Characteristics Statement to ensure the consistency of quality of delivery.

Middlesex University is home to the internationally recognised Institute for Work-based Learning, which has demonstrated substantial leadership in work-based learning in HE. The Institute was set up as an independent centre, operating as a hub, and not associated with a school or a faculty. Recent changes led by Middlesex University's vice chancellor now require all faculties and schools within the university to adopt a practice-based and/or work-based approach to their curricular developments. In so doing, they benefit from the disbursement of staff expertise from the Institute, which, as the University's numbers in apprenticeships grow, ensures that

there is a wider base of specialists who can ensure consistency of message, communication and engagement with employers on opportunities for delivery.

4.3.2 The BSc (Hons) Professional Practice in Business to Business (B2B) Sales

Middlesex University offers work-based study programmes in Professional practice in Business to Business (B2B) Sales, which lead either to a bachelor degree, a diploma in HE, or a certificate in HE. For the purpose of this report, we undertook a case study of the Bachelor of Science with Honours (BSc Hons) in Professional practice in B2B Sales.

Creating the underlying standard

Previously, sales had not been thought of as a profession and even gained a bad reputation as a result of being associated with poor ethics and practice. Working in partnership with Consalia Ltd., a private sector training provider specialising in sales, Middlesex University saw the creation of an apprenticeship route as an opportunity to establish sales as a recognised profession and put professionalism and ethics at the heart of the occupation's competencies. Starting with a blank flipchart, Consalia Ltd. and Middlesex University worked collaboratively with the employer trailblazer group to identify the common B2B Sales needs across the different industry sectors represented in the employer trailblazer group. Having identified the sector's needs, Consalia Ltd. and Middlesex University drew on the professional standards framework of the Association of Professional Sales (APS), a professional membership body in the sales industry that also awards professional qualifications, to inform the knowledge, skills, behaviours, and values that are contained within the B2B Sales Professional Degree Apprenticeship Standard, which the Institute for Apprenticeships and Technical Education approved in 2017. Accordingly, the knowledge, skills, professional behaviours, and values required by the level 6 B2B Sales Professional Degree Apprenticeship Standard gave rise to the learning outcomes and curricula of the BSc (Hons) Professional Practice in B2B Sales, which Middlesex University and Consalia Ltd. developed and deliver in a part-time, blended format (Interview, 2019ix). The delivery of the degree apprenticeship has been one of innovation and practical development as the programme moved into the Business School within the Faculty of Professional and Social Sciences. Programme Leaders had to create new ways of working within the University to ensure that the stakeholder tripartite was represented in the curriculum planning and delivery.

Admission criteria

In order to be admitted to the highly competitive bachelor programme of study either in October or January, candidates must have secured employment as a degree apprentice in a relevant B2B Sales role, and their respective employers must have agreed to sponsor their studies. Furthermore, applicants must have completed their secondary education with two A levels (or equivalent alternative relevant Level 3 qualifications), as well as English, Maths and ICT at Level 2, although relevant or prior experiential learning may also be considered. Finally, candidates are required to produce evidence of their ability to successfully engage with reflective work-based learning based on pre-entry assessment.

Professional component of the BSc (Hons) Professional Practice in Business to Business (B2B) Sales

From a practitioner perspective, the work-based bachelor programme in B2B Sales is designed to meet the professional workforce development needs of employers and contribute to the professionalisation of the B2B Sales sector. The diverse needs of employers who are investing into Middlesex University's bachelor in B2B Sales, such as British Telecom and Royal Mail, are met through the negotiated learning projects that student-apprentices undertake (Interview, 2019ix).

As it is, the programme prepares student-apprentices to be fully competent in undertaking the role of a B2B Sales Professional as specified in the B2B Sales Professional Degree Apprenticeship Standard. It also offers the opportunity to gain professional body recognition, as achievement of the degree apprenticeship standards meets the eligibility requirements for Sales Certification with the APS. The bachelor programme, therefore, serves as a

sound preparation for future career development towards undertaking leadership roles in B2B Sales, such as Director or Account Director.

Academic component of the BSc (Hons) Professional Practice in Business to Business (B2B) Sales

The module and wider programme learning outcomes are aligned with the Middlesex University's work based learning academic level descriptors at level 6, and later these were translated to general University descriptors when the programme moved to the Business School. These descriptors define the learning expectations for work-based learning programmes in terms of Knowledge and Understanding (KU), Cognitive Skills (CS), Practical Skills (PS) and Personal and Enabling Skills (PES) at each level of academic achievement. As illustrated in table 4.1, the referencing for this alignment is indicated by the code in brackets at the end of each programme learning outcome. For example, (KU1) indicates that the programme learning outcome is aligned with the first Work Based learning Academic Level Descriptor listed in the *Knowledge and Understanding* category, (PS3) indicates alignment with the third descriptor of the *Practical Skills* category and so on.

Table 4.1 also offers a taster of the pedagogic methods employed in delivering the B2B Sales programme at bachelor level. Clearly, the pedagogic approach is student-centred and employs a variety of teaching and assessment methods that promote self-directed learning.

Table 2: Illustrative excerpt of programme outcomes and pedagogic methods (Middlesex University, n. d.)

A. Knowledge and understanding	Teaching/learning methods
On completion of this programme the successful apprentice/student will have knowledge and understanding of how to:	Apprentices/students gain knowledge and understanding through a blended learning and teaching approach including:
1. Prospecting and Qualification Analyse the business environment, industry, sector and competitors to identify potential new customers. Build, prioritise and manage the pipeline of prospects according to their potential, ensuring strategic and commercial fit with own organisation. (KU1, CS1)	▪ Induction and review of progress workshops ▪ Computer based individual and group exercises ▪ Peer learning sets ▪ Structured diagnostic exercises and activities supported by briefing notes ▪ Completion of learning journal ▪ One-to-one coaching ▪ Work-based learning
2. Sales Planning Plan strategically and consistently to meet sales targets through prospecting, qualification and pipeline management. Define, refine and validate specific customer requirements in the terminology of the customer's business and industry. (KU1, CS3)	▪ Formative feedback on work from tutors through blended approaches including; face to face, via email, webcam, MyLearning discussion boards and workshops ▪ Student-led interaction via online discussion forums including MyLearning
3. Solution Development Use customer insight/requirements underpinned by an excellent level of portfolio and product knowledge. Analyse and create innovative solutions and propositions that deliver tangible business benefits to customers. (KU1, CS1, CS3)	▪ Self-directed learning facilitated by programme and module handbooks, MyLearning and other learning materials
4. Developing Proposals Develop effective sales proposals, tender documents and presentations utilising a range of communications tools and techniques. Produce compelling formal proposals using the customers' terminology and framed in a way to meet the customers' needs. (KU1, PS2, PS3)	The programme adopts a learner-centric approach, which means that specific methods and tasks will be discussed and agreed with the students and also with prospective employers to meet individual professional development and/or organisational development needs.
5. Commercial Acumen Contribute to commercial strategies with a deep understanding of financial principles and the external	**Assessment methods** Apprentices'/students' knowledge and understanding is assessed by: ▪ Learning Journal ▪ Portfolio ▪ Reflective commentary

environment such as relevant markets, competitors and associated products and services. Assess opportunities and risks for consideration through line management of others to support successful outcomes. (KU1, CS3)

6. Post Sales Delivery
Manage customer's expectations and the strategic value of achieving these. Influence teams to ensure company alignment with the customer. Analyse the company's performance together with the customer's view of every interaction and surmise how this can be used to inform continuous improvement. (KU1, CS1, CS3)

7. Applied Insights
Interpret and apply customer, competitor, consumer and market insight and intelligence from digital and traditional sources. Use these insights to effect actionable and ethical change of behaviours for mutual commercial benefit. (KU1, KU2, PES2)

- Role play
- Online 360 Feedback
- Work-based project
- Portfolio
- Report
- Case Study Analysis
- Action Plan
- Professional Development Plan
- Sales Plan/Proposal
- Stakeholder Map
- Customer/Stakeholder Survey
- Sales Pitch
- Presentation
- Panel Interview
- Research project proposal

B. Skills (Cognitive and Practical)

On completion of this programme the successful apprentice/student will be able to:

1. Working with others
Be influential, able to conduct stakeholder analysis and develop strong relationships at all levels, internally and externally, to build trust. Interact professionally and ethically maintaining a positive and flexible attitude. Demonstrate emotional intelligence. (KU2, CS1, PS2, PS3, PES2)

2. Consultative Selling
Work with customers to identify new business and market challenges, utilising insights and good questioning and listening techniques. Identify strategic and innovative solutions integrating products and excellent service solutions, to meet customer needs. (CS3, PS1, PS3)

3. Pitching
Lead a confident, clear and compelling sales pitch in front of a customer, which builds rapport, establishes credibility and delivers commercial benefit. Handle questions, objections and demonstrates the value of the proposal in a clear, quantifiable way. (PS3, PES2)

4. Negotiation and Closing
Apply the principles of negotiation, develops strategies and tactics to a mutually agreeable outcome, ensuring both customer and supplier leave committed to outcome. (PS2, PS3)

5. Psychology of Sales
Critically reflect on the different psychological needs of customers and other key stakeholders in the buying/selling process. Take into account strategic and

Teaching/learning methods

Apprentices/students learn cognitive and practical skills through a blended learning and teaching approach including:

- Induction and review of progress workshops
- Computer based individual and group exercises
- Peer learning sets
- Structured diagnostic exercises and activities supported by briefing notes
- Completion of learning journal
- One-to-one coaching
- Work-based learning
- Formative feedback on work from tutors through blended approaches including; face to face, via email, webcam, MyLearning discussion boards and workshops
- Student-led interaction via online discussion forums including MyLearning
- Self-directed learning facilitated by programme and module handbooks, MyLearning and other learning materials
- The programme adopts a learner-centric approach, which means that specific methods and tasks will be discussed and agreed with the students and also with prospective employers to meet individual professional development and/or organisational development needs

Assessment methods

Apprentices'/students' cognitive and practical skills are assessed by:

- Learning Journal
- Portfolio
- Reflective commentary
- Role play
- Online 360 Feedback

organisational context when adapting their sales approaches, by using the psychological models pertinent to developing positive and ethical buyer and seller relationships. (KU2, CS1, CS2) **6. Leveraging Digital Business** Adopt different approaches to social selling & digital technologies which aid the sales process. Develop a digital selling strategy that leverages social selling to support lead generation, nurturing and customer engagement. Develop digital networks and drive insight led engagements. Measure results and return on investment. (CS3, PS1, PS2, PS3)	• Work-based project • Portfolio • Report • Case Study Analysis • Action Plan • Professional Development Plan • Sales Plan/Proposal • Stakeholder Map • Customer/Stakeholder Survey • Sales Pitch • Presentation • Panel Interview • Research project proposal

4.3.3 The BSc's approach to interlinking academic theory with professional practice

Tightly integrating academic studies with a vocational apprenticeship, the bachelor programme in B2B Sales is designed to enable student apprentices to consolidate theory-led learning with closely aligned experiential learning at the work site. In so doing, the programme encourages reflexivity that facilitates the transfer of interdisciplinary knowledge relating to a very particular community of professional practice from the classroom to the world of sales, and vice versa.

Theory-led learning

Faculty members of the university assess student-apprentices in all taught modules based on their coursework. Typically, the academic coursework imparts general knowledge around management and commercial awareness, and might invite student apprentices to complete tasks, such as opening a LinkedIn account or going to a networking event after having explored the literature on networking theory and communities of practice in class (Interview, 2019ix). Some of the classes focus on the subject of sales, and are taught by professionals from Consalia Ltd., the private training provider with which Middlesex University has partnered up in delivering the degree apprenticeship in B2B Sales. Specifically developed for this programme, the classes taught by Consalia's professionals are designed to impart knowledge specific to the sector of sales, which goes beyond the narrow confines of employer-led professional competencies. In these classes, learners are encouraged to reflect more broadly on sales as a profession, the types of businesses with which they interact, and what knowledge they could gain from them (ibid.).

Experiential learning

Parallel to taking classes, apprentices work five days a week, out of which 20 percent, or one day, must be devoted to gathering experiential learning content that they are supposed to reflect upon (Interview, 2019ix). A typical experiential learning task might be, for example, shadowing a senior professional at the work site and subsequently writing up a reflective account of the work practice observed (ibid.). Learners are also required to write a learning journal, which must be signed off by the workplace coach. Employers are responsible for doing formative assessments at the work site, which, in some cases, involves weekly appointments with their apprentices (ibid.).

End point assessment (EPA)

Once apprentices have successfully completed the programme's modules, module assessments; and their learning journal, they have fulfilled all requirements to be eligible for the so-called end point assessment (EPA), which is specifically designed to test professional competence. For their EPA, student-apprentices undertake a final work-based project, in which they apply both their theoretical and practical knowledge for the purpose of innovation and change, and which they present and defend at a panel interview.

Formal evidence

The regulations governing degree apprenticeships require that the various activities around integrating academic theory with professional practice are continually evidenced and formally reported back to government in order to meet funding requirements. For example, government regulations require reporting on the 20 percent experiential learning that is expected to occur at the work site, or on the regular tripartite meetings between an academic staff member, the employer and the apprentice (Interview, 2019ix). While this is certainly time-consuming and burdensome from an administrative perspective, it demonstrates the government's serious commitment in ensuring the systematic and on-going integration of classroom-based learning with professional practice (ibid.).

4.4 A case in point: University of Birmingham's MSc Public Management & Leadership Executive Degree Apprenticeship Level 7

4.4.1 A Russell group member offering work-based learning

A traditional research-intensive Russell Group university

The University of Birmingham's Institute of Local Government Studies (INLOGOV) offers another fascinating example of bringing to life the English Government's educational reform aimed at work-based learning in HE. The University of Birmingham is a traditional public research university located in Birmingham, United Kingdom. According to the university's annual report 2017/18, the student population includes 22,440 undergraduate and 12,395 postgraduate students, making the HE institute the fourth largest in the UK (out of 167).[7] The university's annual income for 2017–18 totalled £673.8 million, out of which £134.2 million was generated from research grants and contracts. The university was ranked 14th in the UK and 79th in the world in the Quacquarelli Symonds (QS) World University Rankings for 2019.

The University of Birmingham is a member of the Russell Group, which is a group of 24 research-intensive, world-class universities that receive the majority of the research funding in the UK. Although the Russell Group has become synonymous with elite universities, it is a self-selected group and was never formed to measure university excellence, as the consumer advice charity Which? clarifies.[8] Nevertheless, Russell Group universities enjoy a strong reputation, and some of them are counted amongst the best in the world. They attract students and staff from around the world as a result of the quality, relevance, and reputation of the research groups and departments. However, as large institutions, they sometimes struggle to match the *customer satisfaction* offered by some of the smaller universities, find it difficult to meet targets around widening access, and might place less emphasis on work experience and building industry contacts (Boliver, 2015).

The Institute of Local Government Studies (INLOGOV)

The Institute of Local Government Studies (INLOGOV) is a relatively small academic department at the University of Birmingham that forms part of the School of Government and Society, which in turn belongs to the College of Social Science.[9] Founded 50 years ago, INLOGOV has built a reputation as the UK's leading academic centre for research and teaching of strategic public management and local governance. INLOGOV's mission is to enhance professional practice through academic insights, and enrich the world of local public service with research evidence and innovative ideas that can make a positive difference.

Although INLOGOV's courses have not been designed specifically with the principles of work-based learning in mind, the Institute's engagements in policy and management research, continuing professional and

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[7] See https://www.birmingham.ac.uk/university/index.aspx
[8] See https://university.which.co.uk/teachers/introduce-higher-education-options/russell-group-versus-non-russell-group-unis
[9] See https://www.birmingham.ac.uk/schools/government/departments/local-government-studies/index.aspx

management development, and consultancy for central government and other national and local agencies have ensured that INLOGOV has built a track record of maintaining close links with the world of practice – in its teaching and learning as well as in its research and knowledge production. INLOGOV offers a range of postgraduate degrees, at doctoral, masters, diploma and certificate levels, and welcomes applications for part-time study as well as full-time.

INLOGOV's uphill struggle in providing one of the first postgraduate degree apprenticeships at the University of Birmingham

While in some ways different from the wider university it is part of, INLOGOV is uniquely placed to offer postgraduate degree apprenticeships that are geared at executive employees at senior level, given its strong track record of developing on-campus and bespoke postgraduate programmes for and with local authorities and public sector organisations. In addition, the Institute has recently pioneered a 100 percent online Distance Learning Masters of Public Administration, which is delivered to public sector professionals worldwide. In so doing, INLOGOV is able to combine these two areas of expertise into a first class blended learning experience for its executive degree apprenticeship, which was one of the first postgraduate degree apprenticeships at the University of Birmingham.

However, being part of the University of Birmingham, a traditional, research-intensive Russell Group member that is designed for full-time, residential students, INLOGOV had to overcome major obstacles in initiating its executive degree apprenticeship. A persistent stigma conjured up by the term *apprenticeship*, combined with the lack of an existing infrastructure and a culture that facilitated the design and delivery of non-traditional work-based HE programmes, meant that the inception of the executive degree apprenticeship took INLOGOV's staff members a considerable amount of internal lobbying at all levels of the university (Interview, 2019xiii). Committed academics at INLOGOV took over much of the initial work of establishing the executive degree apprenticeship, which normally would have been done, or at least supported by members of the professional services teams, including writing tenders to get on procurement frameworks, conducting market research, or recruiting students (ibid.).

INLOGOV's strategic decision to get involved in a slightly different manner

Early on in the educational reform process, INLOGOV recognised that the apprenticeship levy was the only means by which local government employees would get funded to undergo any sort of continuing education and professional development, given that English local governments had been decimated by financial austerity. Consequently, unless INLOGOV found a way to become involved in the delivery of degree apprenticeships from the beginning, the Institute was unlikely to get any local government students on its part-time programmes (Interview, 2019xiii).

Unlike typical degree apprenticeships, however, INLOGOV adopted a unique approach in realising the programme, which did not involve an individual local government organisation commissioning an entire programme of study. Instead, INLOGOV paid for realising the degree apprenticeship itself, and designed the programme not in partnership with an employing organisation but with the Society of Local Authority Chief Executives (Solace), the UK's leading network for public sector professionals and an accredited training provider and assessor of vocational leadership and management courses. Teaming up with Solace in the design, and later on in the delivery, of the programme was particularly valuable given that Solace has a wealth of experience in leadership and executive coaching, and was also able to offer much practical insight as a result of already delivering a degree apprenticeship in leadership and management at level 5, which sits just below the bachelor level.

INLOGOV's journey in designing an executive degree apprenticeship that is different to the rest

Following INLOGOV's strategic decision to invest into the development of a postgraduate degree apprenticeship, the Institute's academic staff members began to gather intelligence on what local government organisations would expect from such a programme, which also included conducting market research on competitors (Interview, 2019xiii). In designing the executive degree apprenticeship, the Institute was able to draw on its previous research into the skills, behaviours and competencies needed for future professionals and managers in the public sector, such as its work on the 21st Century Public Servant. The Institute also built heavily on its existing study programmes, such as the online Distance Learning Masters of Public Administration (ibid.). Furthermore, INLGOV much benefited greatly from its partnership with Solace.

Through capitalising on existing links with local government authorities and sector bodies, handing out flyers at relevant conferences, holding designated webinars and organising other outreach activities, INLOGOV's academic staff members initially put in a considerable amount of work themselves to market the Institute's executive degree apprenticeship to public sector employers and communicate its value (Interview, 2019xiii). Despite the legal and administrative challenges involved, INLOGOV entered into individual contracts with every participating employer, thereby enabling public sector organisations to fund degree apprenticeships for anything from only one senior staff member to as many as they could afford to.

The admission of senior-level practitioner students to the degree apprenticeship involved further challenges, given the lack of a flexible central university admission procedure that is able to accommodate and recognise relevant previous experiential learning, especially at master's level (Interview, 2019xiii; 2019xiv). If an applicant had no first degree, but a reasonable amount of work experience and managerial responsibilities, INLOGOV tended to admit him or her, pending the applicant's personal statement, a conversation with the applicant, and, where possible, with his or her line manager. When the executive degree apprenticeship eventually went live in September 2018, it had managed to sign up 40 apprentices from 11 local government authorities.

A success story with room for improvement

With the executive degree apprenticeship successfully under way since 2018, INLOGOV has *punched above its weight* and demonstrated an impressive capacity for persistence, resilience and innovation in teaching. Since then, the wider university's leadership has bought into degree apprenticeships more generally, and the Deputy Pro-Vice-Chancellor's portfolio now includes responsibility for degree apprenticeships. Furthermore, a specifically recruited degree apprenticeship facilitator now manages the operational activities around the university's degree apprenticeships and acts as the lynchpin between the university, the central admissions team, employers, and the apprentices. An increasingly knowledgeable professional services team, along with improved back office functions, provide much needed support to those departments at the university offering degree apprenticeships (Interview, 2019xiii; 2019xiv). Having said that, anecdotal evidence, such as the continuing absence of a bespoke admission system for degree apprentices, the legal team's difficulties in progressing contracts with employers in a prompt and customer-focused manner, or the payroll service's regularly delayed payments of externally contracted staff members, suggests that flexibility and speed remain important areas for improvement, and that a deeper cultural shift has yet to occur at least at the wider university-level (Interview, 2019xiii; 2019xiv).

4.4.2 The MSc Public Management & Leadership Executive Degree Apprenticeship Level 7

Overview

Delivered in a part-time, blended format and costing £18,000 per apprentice, INLOGOV's new executive degree apprenticeship leads to both an academic qualification, namely a master degree in Public Management and Leadership, and a professional qualification, the Chartered Management Institute (CMI) Level 7 Diploma in Strategic Management and Leadership. Should apprentices choose the CMI as the End-Point Assessment

Organisation, they will also have membership of the CMI for the duration of the programme and 12 months afterwards, at which point their status is either Chartered Manager or Chartered Fellow, depending upon experience. The MSc Public Management & Leadership Executive Degree Apprenticeship was developed and is delivered, in partnership with the vocational training provider Solace.

Managing the MSc Public Management & Leadership Executive Degree Apprenticeship Level 7

The staff allocated to the MSc Public Management & Leadership Level 7 Executive Degree Apprenticeship is drawn from INLOGOV and supported by the apprenticeship team in the College of Social of Social Science. Given that the development and management of the degree apprenticeship requires considerably more work and liaison with a variety of stakeholders than an average academic programme does, two instead of one experienced academics are programme-managing it (Interview, 2019xiii). The two programme directors maintain an overview and ensure it meets all the requirements of degree apprenticeships by looking after everything from recruitment through to induction, through to making sure all the modules are set up and developed as they should be (Interview, 2019xiv). They are supported by an experienced postgraduate administrator who acts as a first point of contact for all students.

Delivering the MSc Public Management & Leadership Executive Degree Apprenticeship Level 7

The MSc, which consists of six taught 20-credit modules and a work-based 60-credit dissertation over two years, is geared to relatively senior level employees, and delivered through a mix of online and campus based classes, as illustrated in table 4.2. To ensure that the programme is as convenient as possible for employers, the number of days apprentices are expected to attend on-campus classes is limited to 8 per academic year, which breaks down to 2 days per blended module, and 4 days per block-taught module. Each of the modules is convened by an academic staff member in INLOGOV. The module conveners are experienced teachers and subject specialists. Where appropriate INLOGOV draws in its associates and high profile industry experts to offer lectures and workshops.

Both online and class-based learning is managed through *Canvas*, the University of Birmingham's Virtual Learning Environment (VLE). Each module has its own dedicated *Canvas* page, which includes all of the learning materials for each week of the module, and links to related reading materials. Throughout the programme, module convenors interact with and support their students online through *Canvas* as a complement to on-campus activities. The online content is specifically designed to be engaging and inspiring for students so as to enhance their learning experience. It includes features such as *live connect* sessions in which module conveners host audio-visual lectures and seminars that apprentices access remotely. Regular use of discussion boards is also a key element of the virtual teaching and learning, in which module conveners pose questions and topics, and apprentices are asked to respond and react to each other's views and ideas, drawing on their own work experiences and learning. Moreover the online platform makes use of interactive scenarios, exercises, quizzes, interactive diagrams, videos and case studies to help develop student learning. *Canvas* is available to apprentices via their Internet browser and is compatible with use on personal computer, tablet or smartphone. These online resources enable apprentices to fit learning around their busy schedules. However, unlike distance learning degrees, students are also connected with a thriving campus community, with each visit to campus offering the opportunity to network and exchange ideas with peers from across public services.

Table 3: Illustrative timetable for module delivery (University of Birmingham, 2018)

Induction	23-24 September 2019
Module titles	**Delivery method**
Core modules (20 credits): Year 1	

MODULE 1:Public Management and Governance **(20 Credits) - 08 31277**	Part time blended with two days face to face 30 Sept - 22 November 2019 (6 + 2 weeks) **2 Days on Campus: 21, 22 November 2019**
MODULE 2: **Leadership in Public Services** **(20 Credits) - 08 31275**	Part time blended with two days face to face 13 January- 6 March 2020 (6 + 2 weeks) **2 Days on Campus: 5, 6 March 2020**
MODULE 3: **Digital Era Public Policy** **(20 Credits) - 08 31279 - on campus**	Unit 1: 30 April, 1 May 2020 Unit 2: 04, 05 June 2020
Core modules (20 credits): Year 2	
MODULE 4: **Public Policy and Evidence** **(20 Credits) - 08 31278**	Part time blended with two days face to face 05 Oct - 20 November 2020 (6 + 2 weeks) **2 Days on Campus: 19, 20 November 2020**
MODULE 5: **Performance, Strategy and Challenge** **(20 Credits) - 31276**	Part time blended with two days face to face 11 January- 5 March 2021 (6 + 2 weeks) **2 Days on Campus: 4, 5 March 2021**
MODULE 6: **Commercialisation of Public Services** **(20 Credits) - 08 31273**	Unit 1: 29 30 April 2021 Unit 2: 04, 05 June 2021
Dissertation (60 Credits)	
Compulsory Modules (Alternative dates)	
Digital Era Public Policy (20 Credits) - 08 31274	TBA.
Optional Modules – Year 2	
Commercialisation of Public Services (20 Credits) - 08 31273	Unit 1: 26, 27 March 2020 Unit 2: 7, 8 May 2020

A virtual learning journey platform

In addition to completing online and campus-based modules and the work-based dissertation, apprentices are asked to complete an e-portfolio of work based experiences and projects to feed into the End-Point Assessment of the apprenticeship. The e-portfolio holds all the experiential learning activities that apprentices are required to undertake in the 20 percent of their time at work, which must be devoted to learning on site. The University of Birmingham has invested into a virtual learning journey platform, called PebblePad, to facilitate the e-portfolio, and keep track of individual apprentices' progress, validate learning and produce reports. Importantly, PebblePad, which is the virtual learning journey platform specifically for the degree apprentices, is compatible with *Canvas*, the university-wide Virtual Learning Environment, thus allowing apprentices to access the virtual learning journey platform via their *Canvas* account in order to:

- ▪ Upload evidence against the knowledge, skills and behaviours of the apprenticeship
- ▪ Log activity that counts towards their experiential learning
- ▪ Track their progress and ensure they are meeting the minimum requirements of the programme

Similarly to *Canvas*, apprentices can access PebblePad online, on their tablet and on their smartphone, to make filling in their progress quick and simple. While the system is designed to be user-friendly and intuitive, all learners have access to 24/7 support should they encounter any technical difficulties.

Through PebblePad, INLOGOV is able to produce reports of the learner's progress whenever the employing organisation requires it. For instance, the information recorded on PebblePed provides the basis for the termly tripartite review meetings between the employer, the University and the learner. There is also functionality within the system for the employing organisation to have access to the learners' account, and to pull off their own reports. Thereby, both the University and the employing organisations have complete oversight of the progress of each apprentice and are able to notice any learners who appear to be having difficulty. Furthermore, the information recorded on PebblePad also feeds into the various reports required to meet the government's funding criteria, which is the reason for both the Programme Coordinator and Degree Apprenticeships Facilitator also to have access to PebblePad.

A comprehensive support package

Based on its 30 years of experience in supporting local government practitioners to achieve postgraduate degrees, INLOGOV has developed a comprehensive support package to effectively underpin the delivery of its degree apprenticeship. It addresses a range of support needs, including the following:

Academic Support

The apprentice receives wrap-around support from dedicated tutors, both while they are studying and in the workplace. Each apprentice has:

- A Module Convener -This person leads the module the apprentice is currently taking and can be contacted regarding module content and assignments, and provides feedback on progress.
- An Academic Tutor - This person is the apprentice's academic point of contact over the course of the programme. The apprentice has three tutorials per academic year with the academic tutor who is able to offer guidance on academic progress and pastoral questions.
- An Academic Programme Director - This person oversees the whole Apprenticeship and can be contacted as required to address any programme-related concerns or questions.
- A Welfare tutor - This person can be contacted if the apprentice is having any personal difficulties that they need support with and can help them apply for extensions if personal circumstances are affecting their ability to study. This is rather important because there are unique pressures that full time public servants face when under-taking academic study.
- A Programme Administrator - This is a person the apprentice can contact for all administrative matters regarding the course.
- Apprenticeship coordinator – This person manages contracts with employers, and is responsible for attendance monitoring.

Professional Diploma Support

Following individual agreements with each participating employer organisation, the support provided with regard to attaining the professional diploma includes:

- An INLOGOV Practice Tutor - This person visits the apprentice's workplace three times per academic year and supports them in how to translate their academic learning into practice in the workplace, as well as in creating an e-portfolio.
- A Management Mentor - This person is nominated by the employer to offer on the job support and advice. This person should not have direct line management responsibility.
- Support by Line Manager – The Line Manager is expected to ensure that the apprentice is able to meet their learning and work related commitments.

Employer Support

INLOGOV offers help, advice and guidance on the mentor process, and ensures that the employer has a direct line of contact to the Degree Apprenticeship Facilitator and Programme Administrator so that any concerns or questions can be dealt with efficiently and effectively. The University's account manager sends reports to the

designated main contact at the employing organisation. In addition, INLOGOV hosts review and progress meetings once or twice a year with the programme team and the relevant personnel from the employing organisation in order to have a broader discussion about the programme and ensure it is working to both parties' satisfaction.

4.3.3 The MSc's approach to interlinking academic theory with professional practice

Theory-led learning

The particular model of the MSc Public Management & Leadership Executive Degree Apprenticeship Level 7 divides up meeting the apprenticeship standards on knowledge, skills and behaviours between the academic component and the work-based one. The academic teaching imparts the knowledge set out by the standards through introducing students to theories and concepts, although it explicitly seeks to ensure that students apply theory to practice and vice versa in their weekly tasks (Interview 2019, xiv). This is achieved, for example, through asynchronous discussion boards, or through set marking criteria, which make demonstrating the application of theory to practice and vice versa worth 25 percent of an assignment's overall grade (ibid.). The academic modules are assessed by written assignments, which can be completed in a location convenient to the employer and the apprentice. Typically, each of the modules includes one 1000-word essay and one 3000-word essay. The assignment questions are constructed in a way that they are relevant to the apprentice's work context and contribute to fostering learning that adds value to the employing organisation.

Experiential learning

The work-based component facilitates the learners' acquisition of the professional skills and behaviours required by the degree apprenticeship standards, which have to be evidenced in the dissertation, the e-portfolio, and the end point assessment. Working closely with their management mentors appointed by the employing organisation, apprentices choose current organisational challenges for their dissertation topics. Here, apprentices draw on INLOGOV's cutting-edge research that aims to critique and also to advance the public sector, thus enabling apprentices to apply fresh thinking and the latest theoretical ideas to real-world organisational challenges. In addition, through INLOGOV's partnership with Solace, apprentices are able to learn from high-level guest speakers at bespoke events hosted by the university. Practice tutors, who are practice-experienced associates and externally contracted by INLOGOV, including, for example former chief executives of local government authorities, retired academics and management coaches, are instrumental in supporting apprentices with their e-portfolios. Effectively, the practice tutors are the ones who help apprentices think about how they are going to transfer what they have been learning in the on-campus and virtual modules to their workplace and how they can best demonstrate the resulting skills and behaviours in their e-portfolios (Interview 2019, xiv). E-portfolios generally include artefacts, for instance a finance strategy document that the apprentice might have developed at work, and an associated reflective account, perhaps of the process of drafting the strategy document and getting it signed off by the employer (Interview, 2019xiv). The role of the practice tutor is deliberately designed to facilitate work-based learning, especially considering that most apprentices work for local governments with significantly stretched staff resources, and thus tend to work on their experiential learning activities during evenings or weekends as opposed to being able to complete these during 20 percent of their time at work (Interview, 2019xiii).

Lastly, representative assessors from the Chartered Management Institute conduct the endpoint assessment, which consists of two parts. First, apprentices are invited to do a 15 to 20 minute presentation followed by questions and answers, and second the assessor and the student have a professional discussion based on the e-portfolio (Interview, 2019xiv).

Learning through communities of practice

Another important aspect to the MSc's pedagogical approach is the campus elements of the degree apprenticeship, which include strategic social events in order to allow student-apprentices to mix with learners from other public sector organisations, as well as the students taking the Institute's full time MSc, many of whom work for local governments overseas. Making apprentices part of a thriving postgraduate community and creating a community of practice further promotes the integration of theory and practice because students are able to exchange knowledge with peers and can take these networks with them beyond the end of the programme.

4.5 Concluding reflections on work-based learning in England

The bottom line

Although rather contrasting in design and the ease with which they have been realised, the degree apprenticeships delivered by Middlesex University and the University of Birmingham respectively offer fascinating insights into work-based HE in England. Purposefully driven by governmental policies and funding incentives, both case studies pertinently illustrate, to use Bravenboer's (2019, p. 57) apt phraseology, the 'creative disruption' of deeply entrenched beliefs, practices and institutions around the incongruity of academia and the world of work. Evidently, there is a substantial role for HE institutions in work-based learning and workforce development, just as much as employing organisations and industry sector bodies have an important part to play in HE. The close, formalised collaboration between academics and professional stakeholders, which degree apprenticeships require by design, gives rise to a pedagogy that bridges unhelpful binaries between *theory* and practice, *knowledge* and *competence*, and *classroom* and *work-site*. Students are placed at the centre as self-managing practitioners and self-directed learners, theoretical and experiential learning is transdisciplinary, integrated, and mutually complementary, and reflexive processes lead to learning outcomes, which involve knowledge, skills, and behaviours that are relevant to an occupation or profession both immediately and in the longer term, and also meet the nation's economic priorities.

Without a doubt, much can be learned from England's *radical* degree apprenticeships, given the far-reaching structural, institutional, operational and cultural changes that come with the shift away from emphasising academic subject expertise towards practice-based expertise. The way in which universities providing degree apprenticeships are having to comprehensively reform the way they operate, including admissions, registry, finance, and marketing, in addition to developing learning provisions that meet the needs of industry, employers and apprentices, is particularly remarkable - and perhaps a pivotal factor in initiating a fundamental culture shift and achieving the true integration of academic theory and professional practice in HE. It remains to be seen whether the changes that universities initiate within the context of degree apprenticeships take root and mark the beginning of a new era in England's work-based HE, even when and if fickle politics and the shifting priorities of policies bring England's radical reform to an end.

Impulses for the German context

Although Germany's vocational dual study programmes, as well as some of its educational offerings in adult continuing education, exhibit some intriguing parallels to degree apprenticeships in that students both study and work at the same time in order to attain a qualification that includes an academic degree and also a professional certificate, there are very few such programmes at traditional German universities. Consequently, Germany's HE institutions could draw much inspiration from the two English universities in our case studies, particularly with regard to sharing responsibilities and a common language with employers, and effectively coordinating academic and professional learning activities.

Moreover, the obligation on the English HE institutions in the case studies to undergo a culture shift and adapt existing infrastructures, institutions and processes so as to be able to effectively deliver their degree

apprenticeship programmes implies many valuable lessons learned that might be of considerable interest to their German counterparts. In particular, the importance of staff members in professional service roles, such as contract managers, administrators, facilitators and legal personnel, provides much food for thought.

Similar to INLOGOV at the University of Birmingham, there are some German universities that already enhance professional practice through integrating high-end research in their teaching, which gives them a slight advantage in fostering closer links with the world of practice. However, the English case studies aptly illuminate the extent to which the bar can be raised when it comes to interlinking theory and practice. Having said that, teaching and learning methods, such as reflective learning journals, e-portfolios, peer networking, or dissertation topics that focus on real-life challenges at work, are perhaps easier to adopt in the German context than handing over final assessments to professional bodies.

5. Work-based HE in Denmark

5.1 Educational context: a Nordic model of work-based HE

A total policy change

In an effort to combat the inertia, institutional rigidity and antiquatedness that had become somewhat typical of many universities in Europe (OECD 2009, OECD 2015), Denmark formally initiated major New Public Management[10] reforms of its HE sector by passing the Danish University Acts of 2003 and 2011 (Degn, 2015). The two Acts consolidated and further strengthened an earlier short amendment, which the government had passed in 1989, as well as two previous legal changes, which were enacted in 1993 and 1999 respectively. The University Acts of 2003 and 2011 concluded the reform process by which Denmark's Government radically broke with academic traditions and entirely changed the way the Danes approach HE (ibid.).

The large-scale reforms conferred upon Danish universities a new legal status as autonomous, self-owning organisations, which the Ministry of Education governs by means of development contracts that specify overall strategic targets and performance goals, not unlike those that can be found in the private sector. Importantly, the development contracts align the activities, goals and performance of HE institutions to political agendas and socio-economic priorities at the national level, such as shaping more effective relationships between universities and employers and increasing the employability of university graduates (Government of Denmark, 2010; Interview, 2019xvii). Although Danish universities are still partly funded by government, they are self-owning and free to decide how to meet their contractual obligations (Interview; 2019xviii). Consequently, the reform created legally autonomous, unconstrained organisations, while also enhancing control of the state by contractualising the relationship between the Danish universities and the central government (Degn, 2015; Olsen; 2005). In some respects, this has led to adverse effects, such as the onus on students to complete their studies in record time (Interview, 2019xv).

The Danish miracle

Effectively, the reforms created a new type of university that is institutionally autonomous, and therefore, capable of rapidly adapting to the ever changing needs of a market, in which knowledge is generated to serve the specific needs of external stakeholders, such as government and industry. Scholars highlight the ideational shift that underpinned the reforms, through which contemporary Danes believe that universities should take on a new role as cost-effective partners to government, society and industry, and add value by generating and

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[10] New Public Management (NPM) is an umbrella term for a wave of reforms that have emerged since the 1980s aimed at modernising the way government and public service institutions are run. The main tenets of NPM-reforms include a private sector approach to managing the public sector, less bureaucracy and red tape, an increased focus on customers, greater cost-efficiency and an emphasis on public value.

imparting the relevant knowledge needed to meet the nation's welfare objectives (Degn 2015, Olsen 2005). Olsen (2005) suggests that such an approach is based on conceptualising universities as *service enterprises*.

Advocates of the reforms argue that the total policy change enabled the *Danish miracle*, which transformed the country's HE sector, and turned its rigid, unresponsive and inwardly focused universities into innovative and successful global players that actively contribute to Denmark's quest for welfare (Öquist & Benner, 2012). And, indeed, there is some evidence to support this position. According to the QS World University Rankings 2019, five Danish universities are ranked among the top 400 universities worldwide. Tuition is free for students from the EU, and fees are certainly not extravagantly high for those from further afield. Most courses are taught in Danish (especially at the undergraduate level), but there is also a good selection of programmes taught in English, and some in German. However, as critics point out, the transformation happened at the expense of the democratic imperative, scholarly autonomy, and traditional academic values and principles (Degn, 2015).

A single coherent system of vocational and higher vocational education and continuing training (professional education)

In 2000, parallel to reforming its HE sector, Denmark also implemented a major reform of its vocational and continuing training system, which exists separately from the Danish university sector (Interview, 2019xv, 2019xviii). The reforms led to what the literature refers to as a *Nordic* model of continuing education and lifelong learning, which is distinguished by high numbers of adult learners and high levels of educational equality (Müller, Remdisch, Köhler, Marr, Repo, & Yndigegn, 2015; Ornston, 2012; Stegeager, Thomassen, & Laursen, 2013). Following a number of acts adopted by the parliament, Denmark adjusted its welfare system in order to be able to invest in adult education and continuing training, which the government considered to be a key vehicle for responding to 21st century challenges (Müller et al., 2015). The reform involved converting social protection into skill formation by tightening requirements for social insurance, and increasing public and private sector investments in education and retraining, which led to Denmark ranking second Europe wide in terms of active labour market expenditure as a share of gross domestic product (GDP). The process was effectively underpinned by the nation's long-standing tradition of social partnerships, which enabled Denmark to maximise cooperation between industry and labour in creating opportunities for adult learning and continuing education (Interview, 2019xviii; Ornston, 2012).

Consequently, Denmark was able to establish a single coherent system of vocational and higher vocational adult education and continuing training, also called professional education, which is supported by a grant allocation scheme to help cover tuition fees, as well as assist providers of adult education and continuing training (Interview, 2019a; Müller et al., 2015). Importantly, the financial support system also ensures that Denmark's many small and medium sized enterprises (SMEs), which make up the bulk of the country's economy, are able to afford being partners in educational programmes involving internships, work placements, or apprenticeships (Billett & Smith, 2005; Lindegaard & Voergård-Olesen, 2012). The links between adult education and professional HE became even more permeable following additional measures by the Danish government, including enabling adults to obtain professional HE without completing a formal upper secondary educational programme, implementing laws on recognising previous learning (RPL), and allowing HE institutions to offer programmes in part-time formats or as single modules (Müller et al., 2015).

As a result, Denmark successfully improved both vertical and horizontal integration and permeability in further and higher vocational education (Interview, 2019xviii). As illustrated in table 5.1, the new single system established effective post-vocational education progression routes other than traditional university programmes, which enable people to extend their vocational qualifications to an academic level within their field (Interview; 2019xviii; Müller et al., 2015). They include Professional Bachelor programmes, Academy Profession (AP) programmes, which can be topped up to turn into a Professional Bachelor Degree, and Professional Master programmes (Interview, 2019xviii). Developed in close collaboration with industry, professional HE is primarily delivered by Business Academies and University Colleges. The programmes impart industry-specific theoretical

knowledge that is applied practically through mandatory work placements, internships and case studies (Interview, 2019xviii).

Continued impermeability between professional education and traditional higher education

However, the separation between Denmark's traditional academic HE and the vocational and continuing education system remains intact, and access through vocational education and training (VET) and vocational professional education and training (VPET) routes to academic bachelor programmes is almost impossible, except in the field of engineering or if students have a EUX, which combines a general upper secondary educational qualification with a vocational education and training qualification. According to the Danish think tank DEA, the perpetuation of such separation poses a structural problem that prevents Denmark from creating a much-needed common vision for its education sector and establishing permeability between the academic and vocational sectors (Interview, 2019xv). The DEA is concerned that it puts the country at risk of falling behind in re-skilling and up-skilling the workforce and meeting the rapidly changing demands of Denmark's modern labour market, which are driven by technical developments, accelerated globalisation and an ageing society (ibid.).
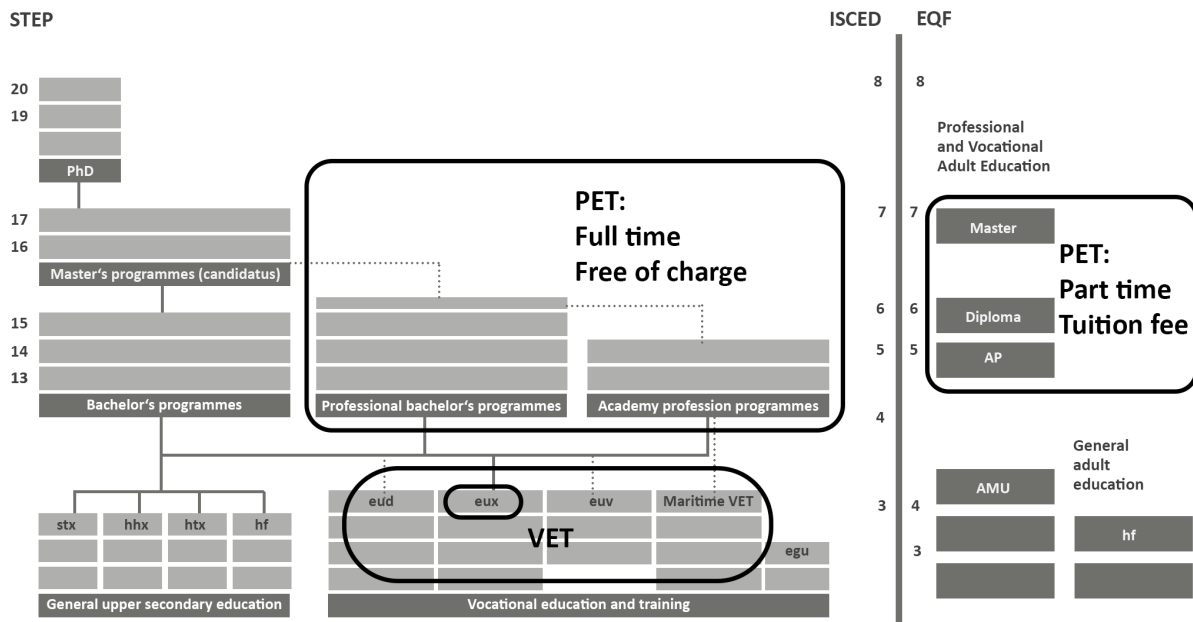

Figure 1: Overview of vocational education and training (VET) and vocational professional education and training (VPET) routes in Denmark (Ministry of Higher Education and Science, 2018)

Implications for traditional HE

Given the history and institutional context of Denmark's educational landscape, it is not surprising that, as Müller et al. (2015, p. 546) put it, Danish universities are characterised by 'a very open attitude' towards lifelong learning, in stark contrast to the 'aura of exclusivity' observed to surround German universities'. In light of the way traditional and professional HE is institutionally framed in Denmark, traditional academic HE providers in Denmark have carved out a role in continuing education and lifelong learning by offering executive master and diploma courses, which the Danes also refer to as educational programmes within adult higher education (Interview; 2019xviii). These programmes combine academic and professional learning, and are usually completely integrated into the existing structures of universities, although offered as part-time or as single modules of 5-10 ECTS (Interview; 2019xviii; Müller et al., 2015). Danish universities aim their executive programmes specifically at mid-career practitioners in full time employment, who often already have a bachelor's or even master's degree under their belt (Interview, 2019xviii; Monrad & Mølholt, 2017; Müller et al.,

2015). These post-experience students tend to be highly motivated and career-oriented, and they often have managed to secure funding from their employers to attend the executive-level programme at a traditional academic university (Interview; 2019xviii).

5.2 An empowering model of work-based HE: problem-based learning (PBL)

5.2.1 Denmark's PBL-centred approach to work-based HE

Interestingly, a literature search for *work-based* or *work-integrated* learning in Denmark's HE sector reveals an unexpected lacuna in the literature. Following some interviews with representatives from Danish universities, the Danish Agency for Science and Higher Education, and the DEA, a Danish think tank on education, however, it becomes apparent that one of the particularly prominent approaches to work-based learning in Denmark's traditional HE exists at master and diploma level, and is rooted in a pedagogic model termed *problem-based learning* (PBL). PBL, and its variations, became institutionalised as a unique educational model in Denmark's traditional HE with the establishment of the prestigious Aalborg University and Roskilde University Centre in the early 1970s (Stegeager et al., 2013).

Based on the educational approaches of William Heard Kilpatrick and John Dewey, PBL takes into account both the complex nature of learning as well as the practical experience of learning (Da Silva, Bispo, Rodriguez, & Vasquez, 2018). In essence, PBL proffers both an educational philosophy that interlinks theory with practice, and a method of learning that asks students to apply theoretical knowledge to solving real-life problems (Monrad & Mølholt, 2017). A PBL learning model requires students to identify a real-world problem, which, in the context of work-based HE, would stem from the learners' professional practice. Subsequently, individuals or groups of learners conduct research-like inquiries that are reminiscent of mini-PhDs. The implication is that students choose their topic of study, as well as their research strategies, thus taking responsibility for their own learning process and engaging in *self-directed* and *self-regulated* learning (Andersen & Heilesen, 2015; Da Silva et al., 2018). Notably, the research problem, rather than the paradigm of an academic discipline, determines the choice of theories and methodologies, which thereby ensures transdisciplinarity. Teachers take on the role of facilitators, somewhat similar to PhD supervisors, and assessment consists of the students presenting and defending their projects at the end of their semester and reflecting on their learning (Andersen & Heilesen, 2015; Knudsen & Adriansen, 2017). As a result, students learn to solve problems through an investigative process, and become well versed in applying theory to practice and vice versa. They develop their abilities for rigorous analysis and critical thinking, but also hone more general skills in collaboration, communication, and project management (Monrad & Mølholt, 2017).

5.2.2 Integrating classroom-based learning and professional practice in a PBL-centred approach to work-based HE

Although finding a solution for a *problem at work* is the central focus of a PBL-centred approach to work-based learning in HE, the term *problem* within a professional context does not necessarily have a negative connotation and could also be exchanged with terms such as *investigation-based* or *topic-based*, although PBL theorists argue that the notion of a *problem* provides students with a sharper focus and stimulus to learn (Da Silva et al., 2018). In the context of work-based learning, the *problem* consists of a situation, agenda, process, or institution at the work site that requires a solution, change or optimisation.

Theory-led integration

While there may be several ways of integrating theory with practice in a PBL-centred approach to work-based learning, usually within the context of traditional HE, after having identified the problem, students undertake their research-like inquiry. They intermittently exchange information with classmates, teachers, and colleagues or superiors at work to brainstorm ideas, gather a variety of perspectives and formulate hypotheses that can be tested and debated with both academic and professional stakeholders (Da Silva et al., 2018). Within the context

of a learning process geared toward professional practice, PBL requires three different key roles (ibid.). First, it is the teacher's role to encourage students to reflect on their chosen problems inside and outside the classroom, and help learners to connect their empirical knowledge to new theoretical concepts. Second, classmates, who are also practitioners, act as sparring partners and provide a platform for discussions, questions, and testing of emerging thoughts regarding the problem and possible solutions against both academic concepts and professional realities. Finally, an employee or manager, who works directly in the areas related to the proposed problem, provides input outside the classroom and facilitates the learner's reflections within the specific, applied context. PBL can be implemented in an interdisciplinary manner during a particular period of time, such as one semester, which allows students to draw on a range of information from various academic courses in contemplating the problem. Alternatively, PBL can also be employed in one specific course.

Assessment

Assessment should be planned as part of the curriculum structure, and the assessment process should reflect the goals and skills to be developed, which in a work-based context include not just academic competencies, such as critical thinking, analytical ability, and competence in backing up arguments and conclusions with the existing literature, but also professional ones, such as project-management, conflict resolution and lifelong learning skills, although these seem to be more generic than specific to particular occupations (Da Silva et al., 2018). As a result, when using a PBL strategy, instructors are expected to define learning outcomes that are also relevant to professional practice, considering broader principles, which ideally should be developed following consultation with relevant industry bodies or employing organisations, although this seems not always to be the case in Denmark.

Importantly, in PBL, assessment gives learners a critical role in analysing their own progress and that of classmates, rather than focusing only on the instructor's assessment or the successful implementation of the proposed solution at work (Macdonald, 2005). The purpose of assessment is to support students in their learning by engaging them in activities through feedback, and enabling them to measure learning progress and to set the standards by which those who are being assessed can be distinguished. Students must be supported in identifying their own learning needs for the acquisition of knowledge and skills required, with the understanding that learning is a holistic process (ibid.) To minimize ambiguity in the assessment process, Woods (2006) suggests that clear definitions be established for the following aspects: goals (what will be assessed?); criteria (what are they, and how will they be assessed?); types of evidence (is the evidence supported by the assessment criteria?); resources (how do the goals and evidence observed over time make use of available resources?); assessment process (how are students assessed? what is the purpose of the assessment? how will feedback be given to the students, and who is responsible for such considerations?); and training for assessment (has any prior training been given in how to conduct the assessment process?).

5.2.3 Connecting with employers in a PBL-centred approach to work-based HE

The use of PBL within a work-based HE context enables students to experiment and develop innovative and theoretically informed solutions for problems related to issues that arise in the course of professional activity. Although being a teaching and learning method rooted in the classroom, a PBL-centred approach to work-based HE adds value for employers by providing a creative space for research and development, generating solutions that contribute to increasing the productivity and efficiency of the company, and enabling employees to think creatively, become change agents, and assume some sort of leadership roles in their respective places of work. However, given the impermeable separation between the Danish academic sector and the world of work, there might be room to increasingly involve relevant industry bodies and employing organisations in drafting and developing perhaps less generic and more specific professional learning outcomes for executive courses that make use of a PBL learning strategy.

5.2.4 The benefits and pitfalls of a PBL-centred approach to work-based HE

Certainly, employing PBL in traditional HE aimed at reflecting on professional practice enables the interlinking of students' cognitive, behavioural and social dimensions, and fosters the development of generic academic and professional skills and competencies as well as the search for innovation within the context of professional activity. The student-centred approach promotes interdisciplinary learning and the integration of theory and practice makes learning both theoretically and empirically meaningful and also contributes to motivating learners.

As Da Silva et al.'s (2018) study has found, teamwork can both be a facilitating and limiting factor, as relationships with peers in the classroom, but also with colleagues or managers at the work site, are complex and involve behavioural and social dynamics that need to be taken into account by the teacher applying PBL in the classroom. Factors such as passivity and lack of commitment from work colleagues and classmates, conflicting agendas, and the difficulty of arriving at a consensus on the proposed solutions may hinder a student's ability to solve the problem. In addition, time is another factor that might pose a challenge, as the academic time frame in which to solve the problem might not meet the conditions and priorities of the professional context. Moreover, while PBL has certainly had a firm place in Denmark's traditional academic HE for almost half a century, the specific use of PBL in a work-based learning context, which is especially designed for practitioner students, is not yet particularly widespread (ibid.). Consequently, there are cultural and institutional challenges to overcome in a content-focused curriculum, in which the teacher is seen as the central figure and transmitter of knowledge, and teaching and learning strategies that give students such an active, self-directed role in learning are not standard yet.

5.3 A case in point: Aarhus University's Module *Experimental Management Practice*

5.3.1 A traditional Danish university

Aarhus University

Aarhus University was founded in Aarhus, Denmark, in 1928 and is the second largest and second oldest university in Denmark. The university comprises four faculties in Arts, Science and Technology, Health, Business and Social Sciences and has a total of twenty-seven departments that together serve more than 42,000 students. In addition to the main campus in Aarhus, Aarhus University has campuses in Herning and Copenhagen, and is home to over thirty internationally recognised research centres in 18 different locations in Denmark, Greenland and Tenerife, including fifteen Centres of Excellence funded by the Danish National Research Foundation. In 2011, 59 of the university's 113 Master's degree programmes were taught in English. Talent development of young researchers has been identified as one of the university's core activities, with the implication that highly qualified students have the option of starting their PhD studies before completing their master's degree.

The University is placed among the top 100 of the world's best universities according to prestigious ranking services, such as QS Top Universities and Times Higher Education University Ranking, and enjoys a strong international reputation across the entire research spectrum. The business school within Aarhus University, called Aarhus BSS, is one of the few in the world to hold the so-called Triple Crown accreditation.

The Danish School of Education (DPU)

The Danish School of Education (DPU) at Aarhus University is the source of yet another fascinating case study on work-based learning in HE. DPU offers one of Denmark's, if not Europe's, largest and strongest university environments for basic and applied research within the field of education and educational theory. Originally established in 2000 as the Danish University of Education following the merger of the Royal Danish School of Educational Studies, the Danish National Institute for Educational Research, the Danish School of Advanced Pedagogy and the Danish National Centre for Technology-Supported Learning, DPU became a department at the Faculty of Arts at Aarhus University in 2011. The School delivers advanced degree programmes with vocational relevance, including a. number of postgraduate programmes within the fields of preschool, compulsory schooling

and lifelong learning, to university graduates, teachers, childcare professionals, nurses, and graduates with other professional bachelor's degrees.[11] In so doing, DPU has always maintained close links with the world of practice and sought to bridge the divide between professional and academic HE in Denmark.

5.3.2 The Module *Experimental Management Practice*

The Master of Educational Management (MEM), a two-year, part-time Master's programme, which was initially developed and delivered in collaboration between the Danish School of Education (DPU) at Aarhus University and Copenhagen Business School, successfully employs PBL in one of its modules in order to enable professional managers in educational institutes and administrative bodies to integrate academic education with workplace-based learning (Interview, 2019xvi; Knudsen & Adriansen, 2017). The first two semesters of the Master's programme introduce students to a range of research methods and theoretical concepts about relevant themes, such as the relationship between an organisation and employees or between an organisation and the profession. In the third semester, learners take the module *Experimental Management Practice*, which invites them to identify a practical management challenge in their own work context and design an intervention (Knudsen & Adriansen, 2017). When carrying out the intervention at their respective workplaces, the students collect empirical data, which they subsequently analyse, guided by relevant theoretical literature from the current or previous modules, which the learners choose themselves. The participants thereby convert a practical challenge at work into a knowledge issue and also translate the learning from the classroom into an intervention that makes a change in their professional practice (Knudsen & Adriansen, 2017). At the end of the module, MEM students write up, present and defend their projects, upon which they receive feedback along with a *pass* or *fail* instead of a grade.

5.3.3 The Module's approach to interlinking academic theory with professional practice

Achieving a hybrid and liminal state of being

Agreeing with Schön (1987, p. 7) that the goal of educating professionals is to enable them to deal with 'indeterminate zones of practice', the aim of the module and the MEM more generally, is to prepare managers in the education sector to be capable of creating their own roles, balance different priorities and disparate views, and navigate between different rationales (Interview, 2019xvi; Knudsen & Adriansen, 2017). Through carrying out experiments in their own organisations, and subsequently analysing these experiments using the literature, learners adopt the roles of both student and manager at the same time. In writing about this module, programme leaders Knudsen and Adriansen (2017, p. 189) compare the hybrid and liminal state of being both student and manager to the analogy of a 'monster' with the aim to underline the 'ambiguous, troubled and potentially dangerous' nature of such state. In this context, highlighting the potential danger of being both a student and a manager relates to ethical concerns around students conducting experiments in the very organisations they work in as managers.

Specifically, the process requires learners to alienate themselves from formulating and solving practical managerial problems and change perspectives in order to examine and challenge the ways in which they have initially constructed the root cause of the problem. In other words, it enables students to probe into their own way of formulating problems as managers, and critically expose their social constructions and underlying assumptions in framing the problem, so that they are able to reformulate the issue (Knudsen & Adriansen, 2017). In this manner, learners are encouraged to make a distinction between practical problems and knowledge problems, or research issues, which is another way of conceptualising the distinction and relation between theory and practice. Making this distinction highlights not only the different functions that these two ways of framing problems fulfil, but also illuminates teacher's role, which is not to interfere in how managers practice

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their work but only advise on how they analyse their practice. It also enables students to move freely between practice and analysis, and between the role of manager and student (ibid.).

An illustrative example

The following example, narrated by Knudsen and Adriansen (2017), aptly illuminates the pedagogical concept: Two deputy principals from an upper secondary school formulated a practical problem around the question of how to improve the perceived effectiveness of management meetings. Subsequently, they designed an intervention involving the use of a Google document to ensure better preparation and record-keeping of the meeting, which the management team welcomed as a successful intervention. Suspicious of the apparent simplicity of the solution, the deputy principals formulated a knowledge problem asking, 'Which black boxed notions about management are present in the management team?' Following some interviews with colleagues on the management team, which were analysed using actor-network theory, the deputy principals concluded that different ideals about managing an upper secondary school existed among the members of the management team, and that the Google document allowed for the combination of those disparate notions. This insight enabled the two deputy principals to re-formulate the practical problem as, 'How can we create a common understanding of how to manage an upper secondary school?' In so doing, the two deputy principals were able to effectively analyse and reduce the complexity of a leadership task, and enable productive agency (Interview, 2019xvi).

Going forward

Unsurprisingly, previous students of the module have commended it as their best learning experience in the entire master programme. In an effort to build on its successful approach to work-based HE, the Danish School of Education (DPU) at Aarhus University is currently looking at ways to integrate theory with practice even more closely in its PBL-centred executive master programmes, for example by exploring options around holding classes at the students' work sites, increasing employer involvement in identifying the *problem* at work to be analysed, and facilitating greater networking and peer support among students (Interview, 2019xvii).

5.4 Concluding reflections on work-based HE in Denmark

The bottom line

Although located in the academic sphere rather than the professional one, DPU's module *Experimental Management Practice* highlights the empowering potential of an approach to work-based HE that is anchored in a PBL model. While the extent and quality of integrating academic theory with professional practice seems to depend heavily on the academics designing and delivering a PBL strategy in work-based HE, professional practice and experiential insight still form integral components of an effective approach to teaching and learning. Students are placed at the centre of an educational process that gives rise to a reflexivity, which facilitates the critical experience, and productive transformation, of professional practice through the use of theoretical concepts.

Depending on the way in which a PBL-centred approach to work-based HE is realised, there certainly seems to be untapped potential in terms of increasingly maximising the work context as a learning site. This can be achieved, for example, by systematically applying professional learning to shaping and building academic theory, as Knudsen and Adriansen (2017) have begun to do through their scholarly analysis of designing and delivering the module *Experimental Management Practice*, or by giving employing organisations and professional expertise a greater role in designing and facilitating curricular activities, learning processes and learning outcomes, as the Danish School of Education (DPU) is currently seeking to do (Interview, 2019xvii).

Having said that, in a national educational context such as Denmark's, which is marked by an impermeable gulf between traditional academic HE and vocationally-oriented professional HE, work-based learning programmes rooted in PBL models of learning offer an opportunity for building much needed bridges. On the one hand, they

allow for going beyond the relatively narrow, technical-rationalist confines of professional, vocational HE, while on the other hand, they firmly relate theory-led research and studies to developing the competencies and skills required by contemporary employers and labour markets.

Impulses for the German context

Although there are examples of German institutions providing academic continuing education that have embraced the concept of problem based learning, even if it is framed as project-based or research-based learning, their approaches are rarely systematically linked to the professional practice of students, involving employers. The PBL-centred approach to work-based learning illustrated by the Danish case offers much learning potential for German universities, particularly with regard to putting students in charge and encouraging self-directed learning, honing general skills that contribute to the employability of learners, adding value for employing organisations by having students address a *problem* at work, and maximising the knowledge of other student-practitioners in the classroom.

6. Concluding reflections and a glimpse into the future from a German perspective

6.1 Contextual considerations

Some factors to keep in mind

Following the absorbing assortment of international good practice case studies on approaches to work-based HE, the inevitable question arises: What lessons can we learn for the German context, and particularly with regard to the new developments gathering speed within the context of the joint Federal Government-Länder Competition "Advancement through Education: Open Universities"? Of course, in reflecting on this question, Germany's distinct educational context offers a unique starting point. Whereas in countries, such as the US and England, the cost of education is considerable regardless of age, studying in Germany, at least when attending a public university after attaining the ordinary school leaving certificate, is free of charge. In Germany, just as in Denmark, education is presumed a public good and funded by the government/taxpayers. However, this is not the case for Germany's lifelong learners, who return to studying during different phases of their lives. When it comes to job-accompanying or job-integrating study programmes, which are classified as university continuing education or professional HE, the picture is rather different. In these instances, students pay tuition fees, while universities are expected to recover their costs. The divide between first or basic study programmes free of charge and market-driven university continuing education where the learning provider needs to break even in its costs (not least due to political circumstances) is rather unhelpful. Furthermore, with regard to integrating work with academic studies, Germany has a long tradition of separation between its VET sector and the traditional HE sector, although this has recently become more permeable following some political changes (Cendon, 2019). Additionally, the array of newly founded German colleges providing dual study programmes have contributed much to integrating HE and professional practice, although not within the traditional university sector. Keeping in mind the conditions of Germany's current educational landscape, this chapter sets out to highlight the study's contributions and limitations, and draw attention to possible future opportunities specifically with a view to Germany's HE sector.

Boundary scouts

Certainly, some of the phenomena observed in the case studies hardly seem surprising. The integration of classroom-based learning and workplace-based learning, whether in form of degree apprenticeships, cooperative education, or problem based learning, usually (with a few exceptions) occupies neither a central place in HE provision or in HE policy. Unless they form part of an HE institution's strategic objectives and core business (as for instance in the case of Drexel University or Middlesex University), work-based learning initiatives

tend to hover at the fringe of university activities. As *unwanted outsider*, they struggle for recognition, visibility and sometimes even survival within their institutions. In the German speaking community of scholars, educationalist, such as Uwe Wilkesmann (2007, 2010) and Geri Thomann (2019), describe people engaging in university continuing education as *Janus-faced boundary scouts*, in an effort to capture their balancing act as boundary spanners between the world of work and academia, while simultaneously trying to be part of the HE institutions core activities, as they are working on permeability in both directions.

Trailblazers are created on the fringe

There is also another side to this coin. While work-based learning and university continuing education might lack strategic recognition as part of the core business, they are notable for their roles as *gateways to society* and as *testing zones for innovations* (Pellert, 2019), or as sites for experimentation. University continuing education experiments with new forms and formats, anticipates new developments that are not (yet) addressed by standard study programmes, deals with issues that are not (yet) the focus of research agendas, and offers interdisciplinary or even transdisciplinary perspectives that are not (yet) discernible from the point of view of single disciplines. At Penn, following years of piloting the delivery of study programmes in blended formats using online platforms, this mode of delivery has now become a strategic objective for the university as a whole. The same applies to new didactic models and the integration of students' professional experiences into academic studies – experimenting with new approaches on the fringes often takes place years before these find their way into regular study programmes. As soon as a particular pedagogic approach is mainstreamed as the standard pedagogic model across a HE institution's study programmes, it becomes a central subject matter, as both the case of cooperative education at Drexel University and the model of problem based learning in Denmark exemplify. However, existing schisms, such as Drexel University's faculty members feeling primarily responsible for research and academic teaching and learning, while Steinbright's staff members are in charge of educational activities relating to the workplace, render it questionable as to whether the existence of a mainstreamed, central model alone can change the thinking and acting of the academic stakeholders involved and, on a deeper level, departmental and faculty cultures. The years to come will show whether Middlesex University's strategic efforts to expand a work-based approach to curricular activities across all its faculties will engender lasting changes at the HE institution.

6.2 Kaleidoscopic impressions

Study counselling or career counselling

From a German vantage point, the role of a career centre as entry point and continuing point of reference throughout a learner's time at university, as we have seen in the case study on cooperative education, constitutes an interesting approach for advancing career objectives from the very beginning. Given that in the German speaking context career centres are a bolt-on at the end of a programme of study, integrating career centres early on in a learner's journey seems a productive approach especially with regard to mature and professionally experienced students who are likely to particularly benefit from support with re-thinking or re-framing their career goals, or reflecting on ways of building on their existing knowledge. So perhaps it might be less about study counselling than about career counselling?

New framings

The discussion about professional HE institutions needing to generate profits, or at least break even financially, while being careful not to sell out university values is an issue here and there in the German context. Penn's president's feeling strongly about giving something back to the community and reaching non-traditional and marginalized groups of learners should be consideres with regard to re-framing the perceived links between HE institutions, communities and society. The debt-free provision of HE, as is the case in England's degree apprenticeships, promotes social mobility and the widening of participation.

The role of the state

As demonstrated by the two English case studies, the state has a crucial role to play in driving cooperation between the world of work and academia. In England, the apprenticeship levy created important incentives for both universities and employing organisations to invest into the re-skilling and up-skilling of employees. Similarly, the Trump administration's policy agenda of reforming the US' increasingly unaffordable HE system by investing in workforce development has also had interesting effects on cooperative arrangements between universities and businesses, as the case study on Penn and Trilogy has usefully illustrated.

Negotiations despite mutual reservations

It is notable that, in spite of mutual reservations, some of the HE institutions in the case studies have negotiated with partnering businesses or employing organisations over protracted periods of time in order to make sure that the requirements for both parties are met; as for example, in the degree apprenticeship in B2B Sales at Middlesex University or the workforce development programme overseen by Penn. These examples also demonstrate the use of different drivers in developing new partnerships and programmes.

Differentiated job roles

The job roles of the people involved in facilitating and delivering teaching and learning to students either at the workplace and/or at the university are clearly differentiated, such as the roles in the University of Birmingham's degree apprenticeship, those within the coop programmes at Drexel University or in PBL programmes in Denmark. While this resonates with developments around different (supporting) roles in programmes, research done in Germany shows that students, especially those in professional HE who combine work and study, have very particular support needs that are best addressed when the staff associated with a work-based study programme has clearly demarcated and differentiated job roles (Seitter, Friese, & Robinson, 2018).

Rigorous research

The issue of rigorous, transdisciplinary research seems to be a central concern in the case of both Denmark and England. In contrast, at Drexel University the pedagogic emphasis is on experiential learning at the work site, while research seems to remain the prerogative of the academic world. The German context exhibits some similarities in that work-based learners might be asked to apply a particular research method to a problem out of their professional context, but one would rarely see learners invited to turn a practical problem of their choice into a research problem and set out to design and undertake a research project themselves. Moreover, in Germany, the focus tends to be on inquiry-based learning and ways in which students can become part of the research undertaken by academics, and less on how students can be guided to conduct research into their own professional practice.

6.3 Impetus for transformation

Finally, let us turn our gaze to the various forces for change that drove our case studies, and reflect on their relevance in transforming the integration of theory and practice in HE programmes in Germany.

Conducive framework conditions

Looking closely at the cases presented from the US, England, and Denmark, we can identify the following framework conditions that have driven transformation: In Penn's case, the university entered new terrain by partnering up with Trilogy, a company that offers very specialised educational services, which Penn has little expertise in nor is inclined to offer itself. The opportunity to earn a salary for a few months, and thus, somewhat reduce the astronomical tuition fees is part of Drexel University's attraction to students and their parents. For the University of Birmingham, the government's new educational policy and apprenticeship levy, aimed at creating three million new practice-oriented study places by 2020, provided strong incentives for cooperating with non-traditional partners - both for universities and businesses. In the case of Middlesex University, the

institution's previous expertise in work-based learning provision had placed it in an ideal position to adopt degree apprenticeships swiftly. In the egalitarian Danish system, which is characterized by a high proportion of adult learners, Aarhus University was able to fill a niche by addressing the educational needs of managers in a way that Denmark's professional HE system is unable to do.

Imperative for change

The forces that have pressured entire institutions or single departments to initiate change are a key factor: For Penn, there was an imperative to become more visible in work force development and generate revenue. Drexel University, as one of the oldest and most renowned providers of cooperative education, has to continually improve in order to do maintain its reputation of excellence in work-based learning. INLOGOV at the University of Birmingham found itself under pressure to recruit students working in England's resource-poor public sector, which has been ravaged by austerity. Aarhus University's contractual obligations to the Danish Government have underpinned the institution's drive to design executive study programmes that are meeting employer and labour market needs.

Networking creates opportunities

It is noteworthy that the opportunities that unfolded for the HE institutions in the case studies had much to do with the existence of their strong networks. As Penn has had much experience with networking and collaborating with external partners, not least because of its status as a medium-size, private university, the university was well-equipped to enter a partnership with Trilogy. While Drexel's long-standing partnerships with coop employers is pivotal to its success, INLOGOV at the University of Birmingham was able to capitalise on its strong networks with employing municipalities and organisations in the public sector. Middlesex University certainly benefited from the networks with different professional communities that the former Institute for Work-Based Learning had built and nurtured. At Aarhus University, the programme designer's personal connection with staff from Copenhagen Business School gave rise to the initial partnership between the two institutions in developing an approach to work-based learning rooted in PBL.

Impulses for institutional transformation

The impulses for universities to transform on an institutional level seem to have been quite diverse: For Penn, the transformation was driven by its objective to maintain a status as a research-intense elite university while at the same time seeking to enter the market of workforce development. In Drexel's case, the Steinbright Centre is key to the university's core business, and thus in a strong position to initiate and shape transformative processes. The University of Birmingham had to transform in order to be able to tap new sources of revenue and perhaps also score as an early adopter of work-based HE at master level. For Middlesex University, England's policy direction has provided the impulse to adopt a work-based approach across the entire institution. At Aarhus University, the government's development contracts combined with the success of its existing PBL-centred approaches to work-based learning has set important impulses for transformation.

German universities can gain a great deal from these insights. The case studies presented in this report offer much inspiration for identifying internal and external drivers of change, exploring new avenues for linking academic learning with professional learning in new fruitful ways, while also meeting the high and often complementary standards of both HE and the workplace. For German policy makers, not just the case studies but also the different political interventions underpinning various work-based initiatives provide food for thought.

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Appendix A

Project Information

Project title: Interlinking theory and professional practice in certificate, diploma and degree courses delivered by Higher Education Institutions (HEIs)

About the project: In seeking to address the socio-economic challenges of the 21st century and meet the needs of an increasingly globalized and digitalized labour market, Germany has set out to reform its higher education sector, with a particular view to develop an increasingly work-integrated approach to teaching and learning. To this end, Germany's federal government has teamed up with its regional governments in launching the initiative "Advancement through Education: Open Universities" (Aufstieg durch Bildung: Offene Hochschulen)[1], which runs from 2011 to 2020, and is funded with a total of 250 million euros. The initiative gave rise to this research project, amongst many others, and tasked the FernUniversität in Hagen with identifying a handful of outstanding HEIs worldwide – in order to undertake in-depth case studies on each institution's approach to interlinking theory and professional practice in de- signing, delivering and assessing courses that lead to either a certificate, diploma or degree.

Data collection & analysis: For each case study, we are planning to conduct interviews and/or focus groups with representatives of relevant stakeholder groups, including course/program directors, instructors, students, employers, professional associations, policy and advocacy groups, and other pertinent partners. Our fieldwork aims to collect data relating to three areas of interest: 1. organizational set-up & institutional design of the courses, 2. policy context & governance arrangements, 3. applied educational theories & models of knowledge transfer.

Publication: The case studies will be written up in various formats and presented on diverse platforms that are tailored to the needs of different audiences, including policymakers, academics, practitioners in the education sector, and the wider public. Accordingly, the outputs will include a policy-report to the German Federal Ministry of Education and Research, two articles in a peer-reviewed English- and German-speaking academic journal respectively, a handbook for practitioners, a contribution to a newsletter, video and/or podcast. We will, of course, make available to you a copy of each of the outputs.

About the team: The research team from the FernUniversität in Hagen is composed of three principal investigators, Dr Abena Dadze-Arthur, Anita Mörth, and Dorothée Schulte. If you have any questions, or would like to discuss the project with us, please contact us on abena.dadze-arthur@fernuni-hagen.de, anita.moerth@fernuni-hagen.de, or dorothee.schulte@fernuni-hagen.de.

On the following pages, please find information relating to the use and protection of your personal data as well as the interviewee consent form, which we kindly ask you to sign.

We would like to thank you for agreeing to take part in this study!

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[1] https://de.offene-hochschulen.de/en/open-universities

Information on data protection

Data protection policy: We work according to the FernUniversität's data protection policy[2], the Code of Ethics set out by the German Society of Sociology3[3], the Proposals for Safeguarding Good Scientific Practice by the German Research Foundation4[4] and the General Data Protection Regulation (GDPR)5[5]

Confidentiality: The data collected will be recorded (mp3) and transcribed, and the names of individual respondents and their institutional affiliations anonymized. Although we may cite short passages from some interviews, the sources will remain anonymous. The data will be stored in a password protected, encrypted file on the FernUniversität's server, and be used for the purpose of analysing and reporting upon the aggregate patterns across each case study. After completion of the research, in line with disciplinary standards, the data will be accessible in citable form by the publication date of the findings, and remain accessible for ten years.

Your rights as a participant: Taking part in the study is voluntary, and you may choose not to take part or subsequently cease participation at any time. In case of the latter, your interview and any other data you may have provided will be deleted. You will be sent the transcript of the recorded interviews as well as the final write-up ***of the case study, and you will be given several opportunities throughout the project to correct any factual errors.***

The benefits and risks of taking part in this study: Apart from being internationally recognised as a beacon of excellence, taking part in this study will enable your institution to demonstrate the considerable impact of your work-integrated courses in terms of informing and influencing education, policy-making, public discourse, and public services in Germany. We don't anticipate that there are any risks associated with your participation, but please remember that you have the right to stop the interview or withdraw from the research at any time.

If you have concerns about this research: If you are concerned about how the research is being conducted, you can contact Professor Dr Eva Cendon, Head of Department, Department of University Continuing Education & Teaching and Learning, FernUniversität in Hagen, Tel: +49 2331 987 4061 (or email at eva.cendon@fernuni-hagen.de).

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[2] https://www.fernuni-hagen.de/service/datenschutz.shtml
[3] https://www.soziologie.de/de/die-dgs/ethik/ethik-kodex/
[4] http://www.dfg.de/download/pdf/dfg_im_profil/reden_stellungnahmen/download/empfehlung_wiss_praxis_1310.pdf
[5] https://dsgvo-gesetz.de/

Informed consent

I hereby agree to participate in this study, and give the research team permission to use my data as described above. I have received, read and understood the information regarding the project, and the use and protection of my data. I have had the possibility to ask questions, and any questions I have had were sufficiently answered.

I am aware that participation in this study is voluntary. I have the right to revoke my consent at any point in time, in which case my data will be deleted.

I have received a copy of this consent form. The original document is stored at the FernUniversität in Hagen, Department of University Continuing Education & Teaching and Learning

_____ _____

 First and last name   Place, date and signature

Appendix B

Interview Topic Guide: Interlinking theory and professional practice in certificate, diploma and degree courses delivered by Higher Education Institutions (HEIs)

Welcome and introductions.

Profile of interviewee:

- Could you briefly introduce yourself, please?
- What is your involvement with work-based education generally, and at this institution specifically?
- How long have you been involved now in the work-based educational provision offered by this institution, and what was your motivation to become involved in this way?
- How do you see your involvement or role working out now and in the future?
- Overview of work-based educational provision (organisational set up):
- Please describe in more detail the format (design, delivery and assessment) of the particular work-based educational provision that we are talking about:
  - At this institution, is work-based education an entire program in and of itself, or is it a course or module that can be elected as part of a major? Why?
  - Is the administration of the work-based model anchored in a particular department, faculty or even a specially designated centre at this institution, or is it inter-disciplinary, and mainstreamed across the entire institution? Why?
  - How exactly does the module/course/program integrate classroom-based education with practical work experience?
  - How big is the annual number of students opting for work-based education at this institution, and how many are in an average class or student cohort? What is the student-teacher ratio?
  - How many employing organisations participate per annum?
  - How much does the initiative cost? How is it financed? And what funding is available to students, employers and the educational provider within the context of work-based education?
  - Who identifies, organises and sets up the practical work experience (the students, instructors, university management etc.)?
  - Does the classroom-based education alternate with the practical work experience, or are they delivered concurrently?
  - How long is the work placement? Is it full-time or part-time?
  - Is the work placement paid or unpaid? How are students, employers, educational provider reimbursed?
  - Is the practical work-experience mandatory or optional?
  - What are the requirements to get on this module/course/program generally, and its two constituent parts specifically?
  - Who delivers the classroom-based education and who supervises the practical work experience?
  - How are the two parts assessed respectively, on what basis are they assessed (i.e. academic standards, industry guidelines, etc.), and who assesses them?
  - How are the two parts accredited, individually and cumulatively? Does the module/course/program lead to a certificate, diploma or degree, and at which level?
  - In your opinion, what works particularly well with the work-based educational offer under discussion, and what could be improved?

Learning theories and models of knowledge transfer that are employed (pedagogical approach):

- What are the theoretical approaches to teaching and learning that underpin work-based education at this institution?

- How are skills and knowledge brokered and transferred from the classroom to the work place, and vice versa?
- How is the practical experience anchored in, and interlinked with, the academic teaching, and vice versa?
- How are assessments designed and administered to adequately evaluate both the professional and the academic skill development?
- How are academic instructors and work supervisors sensitised to the particular task of interlinking theory and professional practice in work-based education?
- What are some of the biggest challenges and opportunities encountered in teaching and learning within the context of work-based education?

The conditions within which the work-based educational provision takes place and upon which it depends (institutional embeddedness):

- What is the history of work-based education at this institution? When was it initiated, how has it developed and changed, what are its future prospects?
- How does work-based education fit into the institution's wider vision, mission and culture?
- How do students, employers and the wider public perceive work-based education generally, and this institution as a provider of work-based education specifically? Why?
- How is a work-based certificate, diploma or degree from this institution perceived by the outside world, and does it increase the chances of graduates in the labour market? If so, how and why?
- What makes the work-based educational provision at this particular institution attractive, unique and/or stand out?
- How are the institution's governance structures organised and arranged to assure the quality of work-based education from both a professional and academic perspective?
- What characterises the teaching staff on your work-based courses? How are they selected, recruited, trained and retained?
- What characterises the supervisors/instructors who oversee the practical work-placements? How are they selected, recruited, trained and retained?
- What characterises the student cohorts on your work-based courses? What type of students are attracted to the work-based educational provision that is offered here?
- Is work-based education supported in academia?
- Is work-based education supported by professional associations and/or industry?
- Is there a network of associated/participating employers, and if so what industries do they represent?
- What kind or type of employers are they?
- Have you built, nurtured and incentivised partnerships with employers, and if so, how and by what means?
- Are there any other key partners involved in the design and provision of work-based education? How do you keep them engaged?
- What are some of the institutional barriers, i.e. policies, procedures, norms, prejudices, situations that, at times, can make it difficult to deliver good work-based education here (e.g. cultural clashes between academia and the world of work, lack of awareness, competing priorities, financial constraints etc.)?
- What are some of the institutional opportunities, i.e. policies, procedures, norms, prejudices, practices or situations that help to facilitate good work-based education here?

Policy context and governance arrangements:

- Are there any formal policies, laws or fiscal initiatives that encourage and support the institutionalisation and increased proliferation of work-based education among higher educational institutions in the US? If so, what are their objectives and goals?

- Are there any governmental or state bodies that provide oversight, guidance, and/or regulation in terms of work-based education? If so, what is their focus and are they effective?
- Are there lobby groups or civil society actors that advocate on any issues surrounding work-based education? If so, what are the key debates and policy positions?
- How would you like to see the policy landscape develop in respect to work-based education?

Conclusion

- Overall, what would you say are the top three lessons that Germany could learn from your institution specifically, and perhaps the (case study country) more generally, in introducing and embedding work-based education into its higher education sector?
- Is there anything else that you would like to discuss or mention, or that you think I ought to have asked?
- Thank you very much!