Final report submitted for the qualification: Master of Arts Comparative Education, investigating the topic: “The Multifaceted Goals and Challenges in Digital Skills Education for Adults in England between 2010-2019”

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The Multifaceted Goals and Challenges in Digital Skills Education for Adults in England between 2010-2019

> The UK is at a tipping point: The country is not addressing its significant digital skills shortage and an incoming Government urgently needs to resolve this, a Lords report warns today. The Digital Skills Committee also highlights the impact of changing technology on the labour market, with an estimated 35% of UK jobs at risk of being automated over the next 20 years (UK Parliament, 2015).

The Digital Skills Shortage (DSS) is a phenomenon highlighted in a 2016 report on Digital Skills (DS) for the UK Economy (Science and Technology Committee, 2016). It refers to a severe deficit in the number of people with the “Digital skills…[that] are becoming increasingly essential for getting access to a range of products and services” (STC, 2016, p.7). Primarily, the DSS refers to the shortage of skills “needed to build a robust digital economy” (STC, 2016), p.7). While there are no universally agreed upon definitions, I borrow from Gilster’s broad definition of DS as “the ability to both understand and use digitised information” (Gilster, 1997 p.2), This refers firstly to the knowledge of technical skills such as the “ ability… to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others”(Gilster, 1997 p.2). Secondly, Glister refers to DS as “the awareness, attitude” (Gilster,

1997 p.2) to use these tools appropriately and effectively. I elaborate on more detailed concepts about DS later in the Literature review.

Introduction

The Introduction section consists of six sub-sections namely *Research Questions/Phenomenon of Interest (POI), Overall Argument, Justification of the POI, Scope of the study, Justification of the Case Selection, and an Overview of the Rest of the Report*

Research Questions/Phenomenon of Interest (POI)

Firstly, this study asks: What were England's policies regarding DS acquisition between 2010-2019, and how did England's policies align overall with international directives from the Organisation for Economic Co-operation and Development (OECD) and the United Nations Educational, Scientific and Cultural Organization (UNESCO)? Secondly, this study questions: What can explain why there was a DSS among adults in England in the 2010s?

Overall Argument

Overall, in response to the Research Questions, I argue that in the 2010s England's policies for improving DS for adults, primarily focused on developing individuals and organisations' DS to promote economic growth. DS development for adults was also a central tenet of the state's Lifelong Learning (LLL) agenda. Overall, England's policy direction was largely in tandem with international guidance on DS development, yet the UK still found itself in a DS crisis. I posit that the DSS largely occurred because of challenges that can be surmised into two themes: Funding and Awareness and Motivation. Firstly, in the execution, the ambiguity in the state's policies created confusion about funding responsibilities, as well as a lack of

awareness about the roles that the key stakeholders, namely the government, employers, and workers, were meant to play in DS development. Secondly, the state's policies largely did not align with stakeholders' actual needs whether in terms of funding or awareness about the importance of DS, and hence did not appropriately aid in workers' DS development. Specifically, I illustrate these points by drawing on evidence of challenges in the execution of Workplace Learning (WPL) and how that contributed to the DSS in England between 2010-2019.

Justification of the POI

The DSS is curious and pertinent for the following reasons. Since the 2000s rapid globalisation, namely the increasing interconnectedness of global markets "connected to permanent changes in economy, technology, and society" (European Parliament, 2010) has accelerated the UK state's focus on DS development. Namely, the UK government's policies emphasised the need to improve the DS of the workforce, due to wide-ranging and rapid changes for workers in production as well as in service industries (BIS, 2009) especially as the UK is a knowledge economy (BIS, 2009). This means that the UK government recognised that the backbone of the country's economic development was dependent on workers' strong skills, and that there was a need to adapt to new DS demands for the labour market (Guile, 2011). Given this context, a DSS is an odd result which beckons further examination, and hence the POI of this report is to firstly understand the UK's DS policies, and then to investigate the causes of the DSS.

Scope of the study

Timeframe: Firstly, while the COVID-19 pandemic from 2019 has exacerbated both the digitalisation of jobs, and the DSS in an unprecedented way (Allas, Canal and Hunt, 2020), this report focuses on policies and evidence from the pre-pandemic segment of the 2010s. While there have been numerous discussions about how the pandemic accelerated the rate of digitalisation and the consequent impact on DS acquisition (OECD, 2021), it is important to understand the trajectory of DS development before this extenuating circumstance to fully appreciate the roots of the DSS.

Significance of the DSS: This topic is particularly pertinent because there is a huge risk to jobs and livelihoods if workers do not have the necessary DS, which appears to be the case in the UK. The DS crisis 2017 report explained how “The imperative for businesses to develop the digital skills of their employees is now a matter of survival” (STC, 2016, p.20) because “millions of jobs are at risk of automation” (STC, 2016, p.10). This suggests that workers in the UK are currently at risk of being replaced by advances in technology because they lack the skills necessary to keep pace with the changes. The issue is severe given that a staggering 12.6 million people in the UK were found to lack basic DS (STC, 2016, p.3), thus threatening their employability.

Simultaneously, the DS gaps threaten business operations and hence overall economic growth. For example, Lloyds Banking Group’s most recent Business Digital Index survey showed that “as many as 1.2 million small businesses in the UK lack basic DS” (STC, 2016, p.10), and that this is “costing the UK economy an estimated £63 billion a year in lost additional

GDP" (STC, 2016, p.3). Therefore, the lack of workers' DS is affecting organisations' operations, and incurring massive losses for the national economy. It is thus imperative to improve the DS of workers, who are adult learners, to prevent further haemorrhaging of the country's finances.

Workplace Learning (WPL): In the UK Vocational and Education Training (VET) system, Work-Based Learning (WBL) broadly refers to training that occurs for a job, in a workplace setting for a formal school qualification. This could refer to internships, apprenticeships, and On-The-Job training (OTJ) such as work placements for both minors and adults (QAA, 2013). In this report, I use the term Workplace Learning to refer collectively to both WBL training, but also other types of informal or non-formal training that takes place on the job, that do not necessarily culminate in a qualification for adults aged eighteen and over. I focus on WPL because the research finds that while formal learning and qualifications are important, alternative forms of learning such as informal and non-formal learning, including via OTJ, all of which are terms I define in the literature review, are a fundamental way in which adults learn. This is crucial given that for many adults, once they have left formal schooling, they do not participate in via school-based programmes. Therefore, the bulk of their learning for work, including DS, occurs in the workplace. Therefore, it is imperative to understand how WPL for DS is executed in the 2010s, to understand the causes of the DSS.

Justification of the Case Selection

While certain policies, legislations and programmes evaluated in this report apply across the UK, this report's focus shall be on the DSS in England

specifically. As such, when evaluating the causes of the DSS, my analysis is based on the data pertaining to England specifically. For this report, I use the case study of the United Kingdom (UK), with a primary focus on England. England is a robust case study as the government has promoted both skills development for adults and LLL since the 1990s (DfEE, 1998, pp.10-11). The 2010s is a particularly important period in the UK's digital literacy development as it marked a ramping up of the country's emphasis on DS proficiency via policy (ECORYS, 2016). The state presented such robust efforts because the adult population's low DS proficiency now presented an imminent threat to the growth of the UK economy as digital literacy grew increasingly important in practically all industries (BIS, 2009). I focus only on the case study of England because I hope to provide a detailed analysis of the factors that can explain the POI. Additionally, I compare England's DS policies with international policies from the OECD and UNESCO to provide a benchmark of how England's policies measure up against global DS concerns and directives.

Overview of the report's structure

Besides the Introduction, this report consists of the Methodology, Literature Review, Analysis and Conclusion sections. The Analysis is divided into two parts. Part One of the Analysis is organised according to various key concepts surrounding DS learning, while Part Two is organised based on the key themes that can explain the DSS in England between 2010-2019.

Methodology

This section is divided into two subsections namely *Data Collection Approach and Analysis Approach.* In the Data Collection section, I explain the

data collection methods used in this report and in the Analysis Approach, I explain how I use Qualitative Thematic Analysis (QTA) in this report.

Data Collection Approach

In this report I analyse several policy papers from the UK (GOfS, 2017, LLLUK, 2017) as well as the OECD (OECD, 2013) and UNESCO (UNESCO, 2013) to support my arguments about LLL approaches, digital literacy and workplace skills in the UK and internationally. I obtained this information from the OECD, UNESCO, and Department for Education England policy databases. In addition, I analyse secondary data and evidence from surveys, interviews, and studies to substantiate my arguments on why the DSS persisted in the UK in the 2010s. I utilised prominent academic search engines such as Journal Strage (JSTOR) and Taylor&Francis to find journal articles and books on the topic. Additionally, I narrowed the key search criteria to obtain results specifically on DS in England only, and to include examples of both qualifications centric WBL training, as well as in-house OJT programmes. I restricted the time period for all data to between 2010 and 2019.

Analysis Approach

The key analytical approach I employ in this report is Qualitative Thematic Analysis (QTA). QTA is broadly described as “a method for identifying, analyzing, organizing, describing, and reporting themes found within a data set” (Braun and Clarke, 2006, p.79). Therefore, it involves analysing data, identifying similarities and differences within it and grouping the data based on overarching concepts. QTA is a robust analysis approach because while it provides a “highly flexible approach that can be modified for

the needs of many studies, it creates the opportunity to present “a rich and detailed, yet complex account of data” (Braun & Clarke, 2006, p.78; King, 2004, p.256). Therefore, QTA allowed me to synthesise key details from a large quantity and a variety of secondary data efficiently. Furthermore, because QTA is a useful method for “examining the perspectives of different research participants” (Braun & Clarke, 2006, p.78; King, 2004, p.256), it was helpful in organising information about the various stakeholders namely the English government, employers, and employees. I use QTA in Part one of the Analysis by structuring the section according to key concepts pertaining to DS acquisitions. In Part two of the Analysis, I summarise the key causes of the DSS into two themes: Funding and Awareness and Motivation.

Literature review

This Literature review consists of three subsections. The first subsection discusses *LLL, Literature about Formal, Informal, and Non-formal Learning and OTJ*. These theories underpin the discussion on what both international and UK approaches to skills development were, by illustrating the basis and rationale behind those policies, in Analysis Part One. The second subsection outlines literature related to DSL, and a DS framework to provide context on DS development in the UK. The third subsection discusses challenges in adult DS education, and how they can be subsumed under the themes of Awareness and Motivation, as well as Funding, to foreground the structure of, and subject matter in Part Two of the Analysis.

Lifelong Learning, Literature about Formal, Informal, and Non-formal Learning and OJT

In this subsection, I discuss, LLL, alternative modes of learning and OJT concepts that I use to structure Part One of my Analysis on the policies that England and international organisations employed to address DS training for adults in the 2010s and 2019. I also employ these concepts at times in Part Two of the Analysis to support my evaluation of the causes of the DSS.

Lifelong Learning: LLL is a central tenet to both adult education and the need for DS acquisition for the workplace. Hence it is imperative to understand the key principles of LLL to appreciate the concerns in this report. Modern conceptions of LLL can be traced back to the 1920s, in which Yeaxlee explained how “adult education, rightly interpreted, is as inseparable from normal living as food and physical exercise” (Yeaxlee, 1929, p.28) suggesting that continuous learning is an essential process and should be understood as necessary for a healthy adult existence. He elaborates that “[l]ife, to be vivid, strong, and creative, demands constant reflection upon experience, so that action may be guided by wisdom” (Yeaxlee, 1929, p.28), which suggests firstly that learning is something that occurs throughout the life course, and secondly that it is based on constant development of thoughts and ideas on prior events, for the purpose of self-improvement. In the first part of the Analysis, I show how international organisations and the UK government employ LLL philosophies primarily to achieve economic goals.

Formal, Informal, and non-formal learning: Three interlinked and key concepts in understanding adult DS learning, and workplace learning, are formal, informal, and non-formal learning. According to UNESCO, formal learning

“takes place in education and training institutions, leading to diplomas and other qualifications” and “is structured according to educational arrangements such as curricula qualifications and teaching-learning requirement” (UNESCO, 2022, p.8). This implies that formal learning typically entails dedicated learning spaces, specific teaching methods and materials and leads to recognised accreditations.

On the other hand, non-formal learning is described as an “addition or alternative to formal learning” that “takes place in community-based settings, the workplace and through the activities of civil society organisations” (UNESCO, 2022, p.8). Therefore, non-formal learning is a more flexible mode of learning that takes place in a broader set of contexts and is developed through social interactions.

Thirdly, Informal learning is defined as “learning that occurs in daily life, in the family, in the workplace, in communities and through the interests and activities of individuals” (UNESCO, 2022, p.8). This is the least rigid form as it does not require any formal structures such as specific curricula and accreditations, specified education institutions and who one’s “teacher” can be. Instead, it focuses on incidental learning that takes place seamlessly through daily interactions in any number of contexts, including in the workplace and broader society. I borrow from these ideas about formal, non-formal and informal learning to evaluate DS learning policies, both internationally and in the UK in Part One of the Analysis, and some of the challenges in learning, in Part Two of the Analysis.

Human Capital Theory (HCT) and On-the-Job Training (OJT): Becker argues that investments in the form of schooling and OTJ improve skills which leads to an increase in individuals' incomes, and that evidence shows that in almost all cases across different global contexts, and across time, individuals with more education and skills tend to earn more than others, reflecting how training is critical for individuals' economic gain (Becker, 1993, p.11). On a national level, Becker posits that "few if any countries have achieved a sustained period of economic development without having invested substantial amounts in their labor" (Becker, 1993, p.11). Therefore, there is a strong correlation between improving the skills and knowledge of workers, and the robust growth and development of a country's economy. In this context, it is unsurprising that in the knowledge economy of the UK (Department for Business, Innovation & Skills, 2014), a great deal of attention is given to skills upgrading and development for workers, to promote strong economic growth.

Importantly, Becker emphasises the value of OJT to improve both individual and national economic growth. He explains how OJT takes place in all types of jobs from those that he describes as "simple" such as dishwashing, but also those that entail "complicated tasks" such as engineering for example which can span over "several years" (Becker, 1993, p.20). Further, he posits that "[e]ven college graduates are not well prepared for the labor market when they leave school, and they are fitted into their jobs through formal and informal training programs" (Becker, 1993, p.20). Here he firstly suggests that OJT is a necessary complement to formal schooling regardless of the industry or role. Secondly, he suggests that OJT is an

essential form of learning that continues in the workforce after formal education. Thirdly, Becker posits that OJT is an important way in which “[m]any workers increase their productivity by learning new skills and perfecting old ones” (Becker, 1993, p.31). This suggests that OJT is a practical way to constantly develop knowledge for economic gains.

At the same time Becker acknowledges the costs associated with OJT. He explains how these include “the value placed on the time and effort of trainees, the "teaching" provided by others, and the equipment and materials used” (Becker, 1993, p.31). However, ultimately on balance, it makes economic sense for firms (companies) to invest in OJT because “on-the-job training is an important source of the very large increase in earnings as workers gain greater experience at work” (Becker, 1993, p. 20). Therefore, from a HCT perspective, the major financial reward is a key factor that explains why it is sound for firms to promote OJT. In this report, I borrow from Becker’s ideas on HCT and OJT to analyse the policy aims of both international and UK directives for skills development, in response to research question one. Additionally, I employ these concepts to illustrate the cost-benefit analyses that both employers and employees carry out when deciding how much to invest in OJT DS training in England in the 2010s, in response to research question two.

Digital Skills

This section is divided into two subsections namely *Digital Skills* and *DS Framework*. I firstly discuss concepts surrounding digital literacy and skills acquisition for adults to provide background information on the pertinence of

the topic of DS during 2010-2019, and then introduce a framework I refer to in my analysis of the DS policies in the Analysis Part One.

Digital Skills: Firstly, it is key to note that digital literacy goes beyond technical skills knowledge. For example, the literature suggests that DS "are not necessarily underpinned by ICT" (van Laar et al., 2017, p.582). This suggests firstly that the ability to use Information Communications Technology is only one facet of what DS constitutes, and secondly that DS is only one skill set required for work and beyond, in the new millennium. While there is no universal definition for DS, in this report I borrow from a study that highlights that "technical, information management" and "critical thinking and problem solv- ing, ethical awareness" are some of the other competencies that would constitute DS. Therefore, DS entails the ability not only to use technology, but also to be able to apply such knowledge effectively to tackle challenges. Further, the study posits that "cultural awareness, flexibility, self- direction and lifelong learning" are also key aspects of DS (van Laar et al., 2017, p.588). This suggests that an understanding of how to use technology in a socially responsible way, as well as the understanding that DS learning is continuous are key metrics of one's DS proficiency.

Importantly, mastery of DS is one key facet of skills needed for the 21st century. Firstly, the literature suggests that DS "are more related to the current economic and social developments than with those of the past century charac- terized as an industrial mode of production" (Voogt & Roblin, 2012 cited in van Laar et al., 2017, p.577). Therefore, they posit that the global conditions from the turn of the millennium require people to have a grasp of a range of skills that differ significantly from the past. This alludes towards how

some adults may have to update their knowledge to gain an understanding of DS, foregrounding the importance of adult learning. Furthermore, the literature names “collaboration, communication” and “problem solving, critical thinking, creativity and productivity” as some of the key 21st-skills besides digital literacy (van Laar et al., 2017, p.588). This suggests that digital literacy, alongside a range of soft skills, are what is required of people, in economic and social contexts for growth and development in the 21st century. Importantly, this implies that DS can be understood as a fundamental knowledge area for the development of society in the new century. Secondly, the preeminence of DS and its central importance for the economy highlight why it is imperative to understand limitations in DS acquisitions.

DS Framework: Ng presents a useful framework to situate and evaluate both the OECD and UK’s own metrics for measuring individuals' understanding and ability to use digital technology effectively, or their DS proficiency (Ng, 2012). Ng’s digital literacy framework consists of three dimensions namely the technical, cognitive, and social-emotional dimensions (Ng, 2012). The technical dimension refers to having the “technical and operational skills to use ICT for learning and in everyday activities"(Ng, 2012, p.1067). In practice, this means a variety of things, including but not limited to, knowledge of the working parts of digital devices, understanding file structures, setting up and employing communication and social media tools, and understanding key features of software programs e.g., user interface elements (Ng, 2012). Therefore, the technical aspect of digital literacy refers to understanding how to use hardware and software to create, convey and present information with digital tools on a regular basis.

The cognitive dimension of digital literacy on the other hand refers to "being able to evaluate and select appropriate software programs to learn with or to do a specific task" (Ng, 2012, p.1068) as well as being well-versed with the ethical, moral and legal issues associated with online trading and content reproduction that make use of digitally based resources (e.g. copyrights and plagiarism)" (Ng, 2012, p.1068). Thus, this aspect of digital literacy emphasises the importance not only of being savvy and selective with technology use, but also being aware of broader safety and legal issues that come with being participants in a digital space.

Thirdly, the social-emotional dimension of digital literacy refers to being able to observe "netiquette" such as by using appropriate language when using digital communication platforms to avoid miscommunications, understanding how much personal information is appropriate to share via digital platforms, and knowing how to seek help if someone's safety is being threatened (Ng, 2012, p.1068). Therefore, this dimension is concerned with whether one has the emotional intelligence to engage in social interactions using digital tools. In this report, I employ Ng's three dimensions of digital literacy to analyse both the OECD and UK's digitals skills literacy rubrics, to explain the scope and priorities of DS policies in Part One of the Analysis.

Analysis Part One

In this section, in response to Research Question 1, I discuss England's policies regarding DS acquisition for 2010-2019, and how they compare to international directives. Employing a QTA approach, I organise the analysis in four subsections according to the concepts of *LLL, Alternative Modes of Learning, DS for Jobs* and *OTJ*. Overall, I argue England's policies for

improving DS among adults in the 2010s focused on three main areas. Firstly, they focused on the importance of LLL and alternative modes of earning for continued economic growth. Secondly, they espoused the importance of DS for workers in all industries, and thirdly they emphasised the importance of OTJ to improve workers' DS. I argue that across the board, although England's policies echoed the OECD's and UNESCO's policies regarding adult DS education, the DSS still occurred.

LLL

In the 2010s, both international policies and UK policies emphasised the importance of LLL for economic growth. For example, UNESCO's Belém Framework for Action posits that "Lifelong learning "from cradle to grave" is key to "[h]arnessing the power and potential of adult learning and education for a viable future" (UNESCO, 2010, p.5). This suggests that LLL is a central framework that should guide the development of adult learning, echoing Yeaxlee's principles that constant learning and reflection are key for learning throughout the life course (Yeaxlee, 1929). Simultaneously, the OECD acknowledges that "lifelong learning has not been the focus of [its] holistic analyses in recent years"(OECD, 2013, p.72). This suggests that the organisation recognises the need for a greater emphasis on evaluating current LLL frameworks and upgrading them for the future. Further the GRALE 2 report explained that there is "evidence of a link between real growth rates of countries and participation rates in adult learning" (UNESCO, 2022a, p.98). This echoes Becker's ideas about how investment in human capital contributes to the betterment of the economy (Becker, 1993), but it

also foregrounds how economic concerns underpin international policy directives about the value of LLL.

Similarly, the UK government's policies in the 2010s, espouse the importance of LLL to meet economic needs, specifically the DS demands in the labour market. The "Digital Skills for Tomorrow's World" report highlighted how "Digital advances compound the importance of lifelong learning in an unprecedented way" and that "If we want to make sure that people can remain in the workforce for longer, they will increasingly need to improve their DS at all levels. We need to make sure that the support we offer to lifelong learning is fit for purpose for our digital future" (UKDST, 2014, p.15). Here, the state explains how first, LLL is a key tool to continuously improve the DS of adults, and secondly how DS development in adults is essential for adults to contribute effectively to the economy echoing Yeaxlee's idea of the essential nature of learning throughout life (Yeaxlee, 1929, p.28). Overall, the state's approach also showcases the strong human capital focus of LLL policies in the UK in the 2010s and illustrates more explicitly the economy-driven focus on LLL policies, reflecting international LLL policies.

Alternative Modes of Learning

Additionally, international policy in the 2010s promoted alternative modes of learning for adult education. The 2nd Global Report on Adult Learning and Education (GRALE) explained that "adult learning and education are an integral part of lifelong learning, which includes all modes of learning and education along the learning pathway", illustrating a clear push for a diverse range of learning modes (UNESCO, 2013, p.40). In formal legislation, the Belém Framework for Action, proposed that "[w]e recognise that adult

learning and education represent a significant component of the lifelong learning process, which embraces a learning continuum ranging from formal to non-formal to informal learning"(UNESCO, 2010, p.6). This is a clear endorsement that adult learning in the 2010s cannot be constrained to formal courses and must include non-formal learning that "takes place in community-based settings, the workplace and through the activities of civil society organisations", and informal learning "that focuses on learning from experience" in settings including in social interactions, but also in the workplace (UNESCO, 2022, p.8).

Similarly, the UK state in the 2010s showcased a commitment to promoting alternative forms of learning, highlighting its importance for DS specifically. The 2009 "Independent Review of ICT User Skills" focussed specifically on the future of informal adult learning making "particular reference to Digital Life Skills" (Morris, 2009, p.18). This suggests that for the UK state, promoting "learning that occurs in daily life, in the family, in the workplace, in communities and through the interests and activities of individuals" (UNESCO, 2022, p.8) was a key strategy to promote DS among adults specifically. Some key efforts included, "championing informal learning and supporting digital inclusion" by "offering space and support for self-organised learning" and "providing a route to advice through the new adult advancement and careers service networks" (Morris, 2009, p.18). Therefore, the state's priority was to increase information about opportunities to learn outside of formal educational institutions, and to create platforms for adults to initiate and execute learning for themselves. Further, the state hoped to provide support for tutors in an informal meeting adult learning context to

develop their skills to use technology as a tool with which to deliver learning (Morris, 2009). This strategy appears to promote DS development through non-formal learning or learning through social situations, as well. Therefore, the UK's approach to promoting formal, informal and non-formal learning for adults largely reflected international directives to improve adult education by exploiting a variety of learning modes and highlighted its value for DS development.

DS for Jobs

Both international and UK policies promoted the importance of DS development for all adults regardless of their jobs. The OECD explains how when it comes to ICT," specialists are increasingly expected to have additional skills, including "business" skills. Similarly, non-ICT related professions increasingly require at least basic ICT user skills" (OECD, 2010, p.136). This reflects how DS such as ICT skills were viewed as essential across a diverse range of jobs, rather than only something technical experts needed to possess. Notably, the organisation proposed that many adults even in "advanced economies" like "the Netherlands and Norway" have a poor grasp of these skills (STC, 2016, p.13). This suggests that DS literacy is a global issue, and that there was a push not just in the UK, but all over the world to build adults' DS capacities.

The UK state, on the other hand, articulated a specific framework for the DS that every UK citizen should have for daily life, including at the workplace. In 2015, the state presented the five categories of DS that every UK adult should focus on, which were "[c]ommunicating, Handling information and content, Transacting, Problem Solving, Being safe and legal online" (GO

ON UK, 2015). The communication category included competencies that covered both social and work areas. Some of these skills included “[s]et up a group on messaging platforms, such as WhatsApp or Messenger, to talk to friends or family members” and “[b]e a member of and manage personal networking sites, such as Facebook” (GO ON UK, 2015). This suggests that the state’s focus is on ensuring that citizens master the technical dimension of “setting up employing communication and social media tools” (Ng, 2012) by being able to utilise ICT tools effectively for social and professional purposes. Similarly, the transaction category entails objectives such as being able to “I can complete digital records for absence, holidays or expenses online” and” I can upload documents and photographs when this is required to complete an online transaction” (GO ON UK, 2015) which also focus on technical proficiency in using digital tools (Ng, 2012).

The category pertaining to Handling information and content, the focus is on being able to “evaluate what information or content may, or may not, be reliable” and to “Search for information requested by a supervisor using browsers such as Chrome, Internet Explorer or Safari”(GO ON UK, 2015) which reflects the cognitive aspect of digital literacy(Ng, 2012), or “being able to evaluate and select appropriate software programs to learn with or to do a specific task”, meaning the ability to use digital tools in a critical manner. Further, the Problem solving aspect refers to being able to “use appropriate software, including a spreadsheet, to manipulate and analyse data to help solve problems at work” (GO ON UK, 2015), which also refers to having the capability to select the best digital instrument to tackle a particular challenge (Ng, 2012).

The final category in the UK government's DS framework has to do with having the skills for **"**Being safe and legal online" which includes "Follow organisational guidelines and policies for choosing login information including choosing secure passwords and changing them when prompted and Know and use specific procedures to report suspicious emails to IT support staff in your organisation" (GO ON UK, 2015). These goals clearly align with the socio-emotional category of digital literacy (Ng, 2012), as they have to do with ensuring workers understand safety protocols when working online. Overall, the UK state did provide a broad framework on DS competencies that could be used to benchmark the level of digital capability and exclusion across the UK (DfE, 2019). However, it is imperative to consider that it was only in the mid-2010s that the state proposed these explicit DS guidelines on what constituted basic digital literacy. Therefore, in the first half of the 2010s there was no formal articulation from the state on what adults, including adult workers needed to have.

OTJ

It is also important to note that both international and the UK state's policy acknowledged the value of WPL. The OECD explained the value of WPL for developing the skills necessary for an increasingly digitised workplace. The OECD acknowledged how "The diffusion of digital technologies challenges national skills development systems and raises the importance of complementary skills, such as information processing, self-direction, problem solving and communication. As increasing use of digital technologies reshapes business models and firms' organisation, complementary skills become more important. These skills are developed in

formal education and in the workplace, through on-the-job training, and in leisure activities" (OECD, 2016, p.3). Therefore, OECD suggests that WPL is especially useful when it comes to learning not only DS, but other skills that are important for navigating the rapid changes that occur in businesses and workplaces precisely because of advancements in digital technology. This view also aligns with Becker's ideas on how OJT is an important way in which "[m]any workers increase their productivity by learning new skills and perfecting old ones", as OJT is important for developing skills to meet the evolving demands of the workplace (Becker, 1993, p.31).

The UK too acknowledged the importance of WPL, but specifically for developing DS. There was some acknowledgement in the policy of work-based and workplace learning. For example, major UK employer BT emphasised the importance of DS training by expressing that "Apprenticeships in a wide range of industries should include DS as part of apprenticeship schemes. Whether technology apprenticeships or not, DS have become a fundamental part of the workplace and must become a core part of training" (UKDST, 2014, p.74) . This view shows firstly that in the UK labour market, employers viewed DS as essential for the workplace, and when it came to work-based training, for example in the form apprenticeships, they perceived DS as a necessary component.

Overall, the UK state's policies in or just before the 2010s echoed the broad principles surrounding adult learning that the OECD and UNESCO proposed surrounding LLL, alternative learning modes. They also reflected the international organisations' focus on the importance of DS development for a range of purposes including particularly labour market needs. In fact,

overall, the UK policies appear to acknowledge the importance of principles like continuous learning and informal learning, for the specific purposes of DS, more often than international directives. Thus, I argue that the UK and England's policy direction on DS development for adults, appears to be congruent international guidance. Yet, in 2015, it was found that there was a DSS in England. In the next section of the Analysis, I illustrate how certain limitations in the execution of the UK's policies surrounding the themes of Funding and Awareness and Motivation, can explain why the DSS occurred.

Analysis part Two

In this section, I investigate the causes of the DSS in response to Research Question 2. First, I outline *The Preeminent Role of the State in DS Development*. Then, utilising QTA, I explore how issues of Motivation and Awareness and Funding affect each of the stakeholders, namely the *English Government, Employers and Employees* which led to the DSS. Overall, I suggest that ultimately the most significant reasons for the DSS can be traced back to limitations in the state's execution of DS policies.

The Preeminent Role of the State in DS Development

First and foremost, it is key to establish that the state plays a central role in influencing the priorities of the other stakeholders namely the employers and employees when it comes to DS education for adults. This is due to the state's fundamental role in funding education programmes as well as providing guiding information on what programmes were valuable.

Firstly, the UK state played a key role in shaping the kinds of skills education and upgrading programmes that employers and employees focused on, as the major financier of adult education programmes. The state's 2009

“New Industry, NewJobs” report explained how the “[t]he public sector itself spends or invests around £175 billion annually and is by far the largest customer in the British market” (HMG, 2009, p.24). The report then elaborates how the state’s significant financial influence “can have a powerful role in shaping markets, with the potential to drive demand for new technologies, skills, and processes” (HMG, 2009, p.24). Therefore, as the preeminent funder of the UK economy the state’s major role in financing the economy means that it can influence the kinds of skills, and infrastructure that individuals and businesses prioritize to “successfully to meet Government needs” (HMG, 2009, p.24). Overall, the government’s financial prowess means that it has tremendous financial push over the direction of skills development, including DS, of the country.

Beyond its funding prowess, the state played a key role in sending signals to various stakeholders via its regulatory frameworks on the skills that the various stakeholders should prioritise for economic progress. The “New Industry, NewJobs" report posits that “The UK Government’s regulatory decisions and frameworks define the investment landscape for millions of businesses and create incentives for individuals to choose between different skills” (HMG, 2009, p.23). Consequently, the report implies how the state plays a significant role in steering stakeholders’ views on the kinds of investments, which could include skills, that the various stakeholders should focus on. It further explained that “[r]egulators set the framework for investment in many network industries" (HMG, 2009, p.23) implying that regulators, in this case the UK state, set out for other stakeholders the directives as well as the bounds on what employers and employees can and

should do when it comes to skills upgrading. Thus, the state plays a crucial role in laying out the formal guidance on what skills development that companies, and individuals should invest in.

Therefore, overall, the state plays a powerful role via its funding and regulatory frameworks, in shaping the priorities of employers and employees. However, I show how the state's influence has significantly contributed to challenges that had led to the DSS. These challenges can be summarised into the themes of awareness and motivation, and funding.

English Government

Firstly, pertaining to the theme of Awareness and motivation, the English government did not provide updated terminology regarding DS, and how to best acquire them, which caused employers and employees confusion on how to go about DS acquisition and development. There was a lack of updated standards surrounding Information and Communication Technology (ICT), one key area of DS literacy in the 2010s. The data finds that in the early 2010s, the "existing national ICT standards, published in 2006, are out-of-date and do not reflect the digital, connected world we live in" (DfE, 2019, p.8) . Therefore, there was no formal updating of information from the state regarding this key area of DS literacy, despite the tremendous rate and leaps of advancement in the digital advancements during the early 2000s and 2010s. As mentioned earlier, it was only in 2015 that the state introduced an Essential DS Framework (GO ON UK, 2015). Thus, it was only in the mid-2010s that there was more explicit policy recognition that all adults in the UK need to have a basic standard of digital literacy. The framework was

updated in 2018 but given that the time period for this report is only until 2019, it is not possible to accurately deduce the impacts of that revised framework.

However, the state's frameworks provided only a narrow conception of what digital literacy entails, which were not necessarily helpful in advancing stakeholders' awareness of what kinds of DS are needed for the workplace and importantly how to develop them. Some studies find that "Using technical classifications might provide some indication of people's exposure to digital technology but does little to identify whether and how their skills are, or could be, adapted to the workplace" (BGT, 2019; Kispeter, 2018 cited in Lloyd and Payne, 2022). This suggests that the focus on measuring DS against a checklist of broad competencies, was not useful in explaining to employers and employees how exactly they should go about elevating their DS to meet the labour market needs. Ostensibly, the Essential DS Framework, addresses various dimensions of digital literacy. For example, one barometer of an individual proficiency in the technical dimension of digital literacy (Ng, 2012) would include being able to "use video-conferencing products such as Skype and Facetime to communicate with colleagues on conferences and calls" (GO ON UK, 2015). Similarly, the cognitive dimension of DS literacy (Ng, 2012) is acknowledged via the competency that one should be able to "use digital collaboration tools to meet with, share and collaborate with colleagues (GO ON UK, 2015)". Thirdly, the socio-emotional dimension (Ng, 2012) is also addressed via the criteria that one should be able to "comply with my organisation's security protocols when accessing my email or working remotely" (GO ON UK, 2015). However, a closer analysis reveals that while these offer broad yardsticks on what being a digitally literate worker is, there

is less acknowledgement of how the degree of proficiency in these skills would differ based on one's profession as seen from how there are "substantive differences between using a digital scanner and working with multiple applications and data sources" (GO ON UK, 2015). Further, the framework does not offer suggestions on how workers and employers can move from one skill level to another and work on developing their competencies overall. Therefore, the information provided by the state to employers and employees does not sufficiently equip them with the tools to understand how to execute the development of DS in the 2010s. Especially given the fact that these stakeholders look to the state for guidance on how to improve their positions, the shortage of guidance from the state could explain why both businesses and individuals were unable to adequately develop DS needed, contributing to the DSS.

Another key way in which the state played a part in the DSS was via funding issues. Firstly, the state's funding structure tended to exclude older workers, who were already in the workforce from qualifying for subsidised training in general. A 2012 study found that in the UK's VET scheme, "[t]he level of funding provided to training providers varies according to the age of the trainee. In general, if the trainee is aged 19 to 24 years old at the start of their training, the training provider will receive half of the unit cost of providing training for a given course, and if the trainee is aged 25 years or over, the training provider will generally receive no funding" (Hogarth et al., 2012, p.158).Therefore, the state's funding scheme for adults when it comes to WPL in the form of apprenticeships caters to younger adults only. This firstly is a signal from the state to employers that they should invest in the training of

younger workers. This ironically goes against the philosophy of LLL that the UK state ostensibly promotes, by disadvantaging older workers. Secondly, given that the state is the major financier of the UK economy, the lack of state-subsidised training for workers twenty-five and older would necessarily have an impact on the number of people who can afford training. This feature of the funding policy is especially a challenge given that digital advancements and the corresponding skills that workers require to keep up with them need to be constantly refreshed- regardless of the workers' age. Therefore, the state's age-dependent funding structure limited workers' opportunities to improve their DS consistently, contributing to the DSS.

Secondly, the importance of DS was only explicitly acknowledged in the English state's Funding legislation in 2020. Policy findings reveal that it was only in 2020 that "adults 19 and over who lack basic digital skills will be able to access specified basic DS training free of charge, where it is made available by providers as part of the publicly funded adult education offer. This will mirror the approach taken for adult literacy and numeracy training" (DfE, 2019, pp.4-5). Thus, it was only at the end of the 2010s, that DS were accorded the same fundamental importance as basic literacy and numeracy skills have been for several decades, and critically that training for elementary DS was fully subsidised. Therefore, up until that point the fundamental necessity of basic DS for life and work, while reiterated via policies about programmes and measured via skills framework, had not been practically legislated and enshrined via funding policies. Given that the employers and workers take cues from the state's policies regarding what key areas of focus should be, and that funding subsidies translate very practically into whether

employers can afford to send workers for training, it can be argued that in the 2010s the funding frameworks did not prioritise DS as essential. This would have contributed to less emphasis on DS skills development for workers generally, which contributed to the DSS.

A third issue is that the state's qualifications-centric funding policies for skills development in the 2010s did not promote Awareness about alternative modes of learning, which were better suited for DS learning. As explained in the literature review, WPL is a key mode of DS learning because of the exponentially quick rate of technological advancement, and hence skills updating required, when it comes to DS, which makes OTJ training essential to continuously update one's DS for work. However, in practice, the state's current skills development policies for adults are largely focused on qualifications leading to the National Vocational Qualifications (NVQ) certifications (Gambin and Hogarth, 2016). The "current dominance of the 'acquisition' model of skill formation" (Felstead and Unwin, 2016, p.19) which focuses on attainments of certification or formal learning modes, does not accord value to the tremendous ongoing non-formal and informal learning (UNESCO, 2022, p.8) of DS that occurs at the workplace. Therefore, for many workers especially in low-skilled jobs, "the formal VET system was of limited relevance to these elements of their jobs" (Lloyd and Payne, 2022, p.12).

However, because state funding was provided for courses within the VET system, some workers were spending time on training that was not directly relevant to the DS guidance they required for work. This illustrates how Funding misallocation within the VET system signalled to stakeholders that DS training was not the state's top priority. For example, one study found

that in the company UK-Drinks “around 50 existing workers were studying for level 3 national vocational qualifications with a local training provider” (Lloyd and Payne, 2022, p.14). However, these courses did not cover the DS regarding working with robots that workers required for day-to-day work and in fact employers were “open to workers whether or not they used robotic technology” (Lloyd and Payne, 2022, p.14). This suggests that employers were likely willing to train employees on the job on the DS related to working with robots regardless of their prior work experience reflecting informal and non-formal learning ideas (UNESCO, 2022, p.8), and that by and large the formal training and qualifications available are irrelevant. Yet, employers admitted to providing opportunities for workers to take on NVQ qualifications “because of government funding” (Lloyd and Payne, 2022, p.14). Therefore firstly, this suggests that the funding mechanisms incentivise employers to provide formal qualifications that are not entirely relevant to the skills that they want workers to focus on. Borrowing from Human Capital principles, this does not align with the objective of OJT or training in general, which is to enhance the skills and hence productivity of the workers (Becker, 1993). At the same time, the lack of digitals-skills centric qualifications in the VET system may indicate to employers and employees that improving DS development is not as important as other skills that can culminate in a formal qualification. The combination of these factors could explain why both employers and workers, taking their cue from the state, were unwilling and/or able to invest in DS development, explaining the DSS in the 2010s.

Another key impact of the funding misallocation was that employers who saw the value in DS training may not have been able to afford it. If

employers wanted to send employees for formal DS training, they would have to pay out of pocket for the fees and for replacement staff if needed. However, not all firms could afford to do this. For example, one hotel which was part of a huge hotel chain explained how “there is a very, very small pot of money available within the company to pay for extra training and extra qualifications. If it’s funded for free then there’s not [a] problem whatsoever” (UKCES, 2012, p.43). Therefore, some UK businesses and employers are only able to provide training for workers if it is paid for in part or full by the state as money is a limited resource. Therefore, the state’s funding system did not empower employers to support their workers when it comes to attaining the DS via formal qualifications, and hence did not help enlarge the pool of digitally skilled workers, leading to employees having a shortage of up-to-date skills, contributing to DSS

Employers

Employers are a key stakeholder in DS acquisition given that the bulk of skills training for adults occurs at the workplace. However, the data shows that there is a “real-term cut… of 16.7% per trainee” in the amount employers invested in training between 2011 to 2017 in England (CIPD, 2019 p.5). Overall, the setbacks that employers face when it comes to investing time and resources in DS upgrading can be pinned down to a complex mix of issues surrounding the themes of Funding, and Awareness and Motivation on how to develop DS effectively for economic needs.

The first challenge that employers had, which surrounds the theme of Funding, was that employers were unwilling to commit the financial resources to the DS development of their workers that the state wanted them to.

Notably, this was at least in part because the state-provided information about the benefits of doing so were inadequate. It is important to understand that the UK state has been pushing for a demand-led system in which employers are the main consumers of skills training since the 1970s (CITE), which foregrounds how this could be an entrenched mindset among the stakeholders that was difficult to alter. Further, the state posited in a 2014 report by the department for BIS that “to become real consumers of training, employers should… contribute themselves to the cost of training” (BIS, 2014, p.3). This illustrates how the state sought to make employers take greater ownership for funding skills training for employees. Based on Human Capital principles, investment in training leads to improved financial outcomes for both individuals and businesses (Becker, 1993). Therefore, it is economically sound that the two stakeholders who would primarily benefit from the return on investment in training, which would be higher skilled workers that can accelerate the firm’s economic growth, should contribute to the costs of training. This approach aligns with the state’s market-oriented policy position that “the purchasing power for training must lie firmly in the hands of employers”, meaning that employers should primarily guide the financing of training (BIS, 2014, p.3).

However, this model largely failed because of the state's flawed assumptions that employers had adequate awareness about the benefits of investing in the training of employees. According to the BIS findings, the state assumed that “employers and learners, as ‘purchasers’ of training are reasonably well informed about the training products available to them. Furthermore, as they will be investing their own funds in training, they will

ensure that their choices are economically rational ones" (Gambin and Hogarth, 2016, p.9). Therefore, the state's market-oriented model was based on the notion that employers and employees were willing and able to make rational decisions about what and how much to invest in training to improve their positions economically. However, the data suggests that in reality, businesses and workers did not have a full understanding of how training employees will benefit them economically. One prominent example is how a 2016 report on how policy informs the UK skills system found that a "lack of or poor-quality information about the potential returns from any investment" is one key factor that prevents employers from investing more finances and time in skills training in general (Gambin and Hogarth, 2016, p.11). This is because "Unless employers are assured that they can appropriate a return on their investment in skills they may be unlikely to make that investment" (Gambin and Hogarth 2015 cited in Gambin and Hogarth, 2016, p.11). Therefore, employers were unwilling to invest time and money into training staff unless they had the assurance that their investments would help advance their businesses. This makes sense from a Human Capital perspective given that the primary incentive for employers to invest in employee training is to help "workers increase their productivity by learning new skills and perfecting old ones", meaning that it is ultimately for economic gain (Becker, 1993, p.31).

Importantly, the employers' lack of Awareness and motivation to invest in DS training can be traced back to the dearth of robust state-provided information on the importance of DS. Firstly, it is key to understand that employers were looking for leadership from the state regarding information about what skills were important for workers and organisations to focus on.

For example, the data finds that “61% [of] businesses… strongly agree that it is important for government to take action to address digital skills gaps” (CBI and TCS, 2019, p.36) and that they want “[c]loser government-business collaboration that embeds digital skills” (CBI and TCS, 2019, p.7). These sentiments strongly indicate that employers were actively looking for guidance from the state on what the DS needs for the economy were and were expecting to work together with the state to develop those skills in workers.

Therefore, overall while employers expected state guidance on DS development, they did not receive robust directives. The lack of state-endorsed/verified information, and hence signals about the importance of DS, was one reason why businesses were hesitant to, or did not understand the financial incentive for them to invest in training for development of their staff.

Further, because of the lack of state guidance, employers lacked the awareness to conduct effective DS WPL. For example, smaller firms in general lacked the structure to execute OTJ effectively. The research finds that in the UK when it comes to carrying out WPL to meet DS requirements, in general, first-line managers were often put in charge (Bishop, 2017). At the same time, smaller companies would typically have line managers conduct all manner of skills training as they lacked the resources to have in-depth, in-house training programmes, “overseen by a training director and a dedicated training department” unlike larger companies (Bishop, 2017, p.522). Some studies found that when line managers conducted training it resulted in “impromptu and unstructured periods of on-the-job guidance”, and that “Line managers were also responsible for allocating work and again, this took place

without reference to a structured development framework" (Bishop, 2017, p.524). This firstly suggests that line managers conducted employee training and assessment or application of that learning via incidental or informal learning modes (UNESCO, 2022, p.8). Informal learning is often hailed as an excellent DS acquisition method (Hager, 2011). However, in this case, the fact that there was no formal basis underpinning the structure of the training was problematic because there was a lack of clarity regarding the aims of the training. For example, employers described how "Inevitably sometimes it's like, "well this needs to be done and you're around, therefore you need to get on and do it" (Bishop, 2017, p.524). Therefore, rather than focusing on a holistic set of competencies that trainees needed to develop, the employees' learning depended very much on what happened to be the work that was available or urgent for the day. Some might argue that this type of learning is practical because it prepares students to meet business needs directly. However, this also means that employees do not get the chance to hone the breadth of skills that they may need for the role in general.

Secondly, because larger firms have far more Funding resources to provide in-house formal, non-formal or informal training, there is an overall inequity in the skills development of workers via OTJ even within the same industry. For example, a study of accounting firms in the UK found that "standardisation and structure" characterised training programmes at larger firms such as RTP, for example "designated "training counsellors" played a key role in assessing each trainee's on-the-job performance against a codified and standardised competency list, and planned their future workload accordingly" (Bishop, 2017, p.522). Therefore, there was more dedicated

planning devoted to the training of the workers in larger companies, that reflects a formal learning style (UNESCO, 2022, p.8) with specific teaching methods and skills goals, and, and in contrast to smaller firms, the bigger firms were able to monitor the quality of training via a range of mechanisms. Borrowing from Human Capital theory, given that employers invest in OJT because “on-the-job training is an important source of the very large increase in earnings as workers gain greater experience at work”, (Becker, 1993, p.20) it makes logical sense for larger firms that can afford it to be able to put in a significant number of resources, since they believe doing so will help maximise their profits. However, the inequity in training resources among firms means that smaller companies had relatively less cohesive training programmes.

The above examples of discrepancies when it comes to WP training experiences are exacerbated when it comes to DS development, particularly due to the lack of DS training guidance and standards for organisations to measure themselves against and hence Awareness on how to do so efficiently. Ultimately, a lack of clear rubrics or effective standards on the minimum DS standards for the various industries, meant that there was no centralised guidance from the state, that firms could follow, to ensure some form of parity, or at least baseline DS competencies when it came to DS proficiencies. Therefore, without a clear regulatory framework from the state, it was perhaps inevitable that workers and organisations with fewer training resources, had lower skill levels, including in DS, than larger firms. This would have been a major cause of DS disparities in the market, and an overall shortage of workers with strong skills, thus contributing to the DSS.

Employees

Overall, when it came to WPL in England between 2010-19, the DS training did not address the diverse needs of workers, which explains the poor DS skills of workers overall, and the DSS. Importantly, one explanation for this phenomenon is that state frameworks on WPL did not provide clear guidance on how to address the diverse DS starting points of employees, and hence did not advance stakeholders' Awareness on how to manage the issue, explaining the poor overall of workers, and consequently the DSS. In this section, I focus on Low-skilled employees because they are the most likely to be replaced by automation and have the least resources to upgrade their DS (CEDEFOP, 2017). Firstly, the data posits that workers mainly learned DS for their jobs via OJT (Lloyd and Payne, 2022), rather than via formal accreditations. Secondly, the data reveals that there is a wide range in DS starting points for workers. For example, one study found that "Although the digital skills in these jobs may be defined as 'basic', workers experience them differently" (Lloyd and Payne, 2022, p.13), suggesting that what one worker might consider to be basic DS skills could be rather different from another worker's understanding of what core DS skills are. For example, on the one hand, studies find that even "[y]oung apprentices often had "difficulty transferring digital media competences which they have acquired in their spare time to work-related tasks" (Lloyd and Payne, 2022, p.5). This suggests that even though digitalisation is widespread, DS exposure in daily life does not necessarily translate into DS competence at work. Therefore, these younger workers may have some social or cognitive dimension skills

(Ng, 2012), just not the ones that were particularly relevant to the workplace, and hence they would be considered to lack basic DS. However, on the other hand, the lack of basic DS for work presented differently in older workers. One team leader at a drinks factory found that “we’ve got some people that have been here for 25, 30 years, you don’t necessarily keep up with the times . . . if you’ve been hand-packing on a line for 10 years . . . then you bring robots in . . . sometimes it’s a bit harder” (Lloyd and Payne, 2022, p.13). Therefore, it was difficult for older workers to adapt and pick up the skills for entire work processes that they had previously carried out in the same for years. In fact, technology was a huge barrier to some older workers’ WPL of DS because “There are some people that have never touched a PC; you cannot ask this person [to do the job]” (Lloyd and Payne, 2022, p.13) that requires DS. Therefore, it could also be said that some older workers lacked basic digital literacy as they had no understanding of the technical dimension (Ng, 2012) of how to operate a digital device at all.

Overall, in practice there was a huge diversity in the starting points of DS competencies of various workers. However, the rudimentary state framework (GO ON UK, 2015) presented only an elementary definition of what basic skills are and did not comprehensively account for the varied ways in which DS starting points could manifest among workers. Consequently, the state’s yardsticks did not offer comprehensive or appropriate suggestions on how workers at various skill levels should try to improve their DS either. Therefore, workers lacked a strong understanding of what kinds of DS they needed exactly, and employers did not understand how to help workers to develop skills needed for the workplace, contributing to the DSS.

Conclusion

This section contains a *Summary of Key Findings* from the report and proposes *Areas for Further Research*.

Summary of Key Findings

In summary, this report aimed to investigate the DSS in England by answering two key questions. Firstly, it sought to understand what England's DS policies targeted at adults in the 2010s were, and how they measured up to international DS policies. Secondly, it aimed to investigate the factors that resulted in the DSS. In conclusion, using QTA, this report finds that England's DS policies in the 2010s largely align with the economic focus of international policies, and promote LLL and alternative modes of learning. However, despite this, the DSS still occurred because in the execution, limitations in the English state's DS frameworks for labour needs, and funding policies did not incentivise employers and employees both to invest in DS training, nor provide them with sufficient information on the importance of DS. Therefore, the DSS can largely be explained by failures in the mechanisms put in place by the key stakeholder, the government, to effectively address the importance of DS for economic development.

Areas for Further Research

For further research, it would be useful to consider the effects of low DSL beyond labour market needs, and to consider the implications on social and daily living experiences. This would be helpful to provide a perspective beyond a human-capital-centric view of skills development, to understand the importance of DS for life in England between 2010-2019 holistically. Overall,

as the rate of digitalisation of jobs accelerates (DDCMS, 2022), the issue of DS and the challenges to acquiring them will continue to be a key question in adult education in the years to come.

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