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Geographies of digital skill

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ABSTRACT

In an era of rapid technological change, especially considering the rise of robotics and AI, there is widespread anxiety about the impacts of digital technologies across a vast range of industries. Policy responses to this changing employment landscape champion the necessity for growing ‘digital skills’. However, we argue that these dominant macropolitical interpretations draw on a restricted understanding of spatiality where digital skills are discretely located in particular bodies and in particular geographical locations. The paper develops a novel geographical response through an exploration of the micropolitics of digital skills. This focuses on the material and practical dimensions of work with digital technologies that produces a more dynamic spatiality and thus a more complex politics of labour. We argue that the dynamic spatiality of digital skills can be evaluated according to: (1) site-specific dimensions, as digital skills are co-minglings of humans and technologies; (2) extensive dimensions, as digital skills are networked across geographically dispersed sites; and (3) intensive dimensions, as digital skills emerge across bodies and environments through repetitive practices. This analysis suggests that policy declarations of digital skills ‘shortages’ are problematic, since they overlook the contested and shifting forms of enablement and constraint that labour practices involving digital technologies give rise to. Unpacking this labour politics therefore requires geographical approaches that are adept at grasping these complex spatialities of labour.

1. Introduction

1.1. The question of digital skills

The urgent question of how digital technologies are affecting work is prompting widespread debate across academia, industry and government. The impetus for much of this debate is the looming spectre of robotics and AI. Foresight studies claim that this technological ‘revolution’ has the capacity to cause mass unemployment through the substitution of human workers for robotic counterparts (Frey and Osborne, 2013). Brynjolfsson and McAfee (2014) warn that this new technology will radically change the nature of skills required by workers of the future. Therefore, to avert the mass unemployment that such studies warn of, recent policy attention has grappled with the precise nature of the new skills required, so that workers of the future can be trained accordingly. These are often referred to as ‘digital skills’. However, this is a concept that invites a diversity of responses, definitions and implications. Responding to the prevalence of policy and emerging academic discussion on the nature of digital skills, we examine what a geographical dimension to these debates might involve. We do this to show that the concept of digital skills, often heralded as

the solution to the labour challenges that are predicted to be brought about by technological change, is by no means self-evident, introducing a series of new conditions and political concerns.

At first glance, new technologies can have opposing impacts on skill requirements. As Marxist labour process theorists have argued, new technologies can result in de-skilling by reducing the diversity of work tasks through automation and divisions of labour that proliferate ‘low-skill’ jobs (Braverman, 1974). However, new technologies can also be used to facilitate ‘re-skilling’ or ‘up-skilling’ through the provision of greater time and resources for workers to undertake ‘skilled’ work (Adler, 1990). This contradiction is intensified through the ongoing evolution of labour practices that it is claimed are increasingly ‘digital’. Think here, for example, how this very tension of deskilling and re-skilling can be found in contemporary accounts of working with digital technologies in which menial ‘on-demand’ jobs and the ‘threat of unemployment’ increase (Ford, 2015), concurrent with opportunities for entrepreneurial innovation and even ‘postwork’ futures (Srniczek and Williams, 2015). Part of why there seems to be a simultaneous de-skilling and reskilling at play in the evolution of labour with digital technologies is because of the diversity of activities that the term ‘digital skill’ gathers together. On the one hand, through everyday

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(human) entanglements with software and hardware, new digital technologies have given rise to a plethora of digital skills (Ash, 2013; Boyer and England, 2008; Kinsley, 2012; Wilson, 2014; Valentine, 2006). Yet on the other, despite these new configurations, reports indicate that government and business are increasingly concerned that there is a shortage of digital skills (STC, 2016; BIS/DCMS, 2016). Herein lies an intriguing contradiction: currently there is both a proliferation *and* a shortage of digital skills. It is this contradiction that interests us here, because it indicates the pressing need for an exploration of what, precisely, constitutes digital skills.

1.2. The spatial politics of labour

Broadening out from digital skills, questioning the nature of skill more generally is important because it focuses attention on the relationship between the politics of labour and technological change. As geographers have demonstrated, the politics of labour has distinctive spatial articulations. However, we suggest that the concept of skill directs us towards two different but related spatial articulations of labour politics, one perhaps familiar to geographers, the other, less so. The first more familiar articulation is a *macropolitical* framing, where skill operates as a classificatory schema that divides and locates labour in discrete space. The distinction between high skilled and low skilled human labour has long provided the justification for different points of remuneration, and thus fed into the broader inequitable distributions of income that geographers have noted occur at different spatial scales (Massey and Meegan, 1982; Massey, 1984; Dicken, 2003; Coe, 2013). In this macropolitical understanding of skill, labour politics is similarly contained in discrete institutional spaces, such as trade unions, in order to agree more equitable remuneration and working conditions. Accordingly, in this human-centred understanding, individual workers are enabled or constrained depending on where they are located within these classifications.

The second, less familiar articulation is a *micropolitical* understanding of skill, that occurs through a dynamic space of *ongoing transitions in enablement and constraint* that produce workers through the contingencies of their working environment. Here politics is understood through a more processual lens that focuses on how the bodily motions and dispositions that constitute working environments give rise to in-situ forms of enablement and constraint that wax and wane. This dynamic space thus evokes an understanding of skill that extends ‘outside’ the human, such that agency might seem sometimes to concentrate ‘in’ the worker, and seem sometimes to be distributed beyond them. We argue that the prevailing notion of digital skills currently championed in policy arenas is the first, macropolitical articulation, which provides only a partial rendering of the spaces of labour, and thus of labour politics with digital technologies. Therefore, to pluralise the spatial politics of labour, we develop the second, micropolitical articulation of enablements and constraints through the dynamic space of digital skill.

To make this argument we turn next to a context-setting empirical section that introduces the partial geographical understanding implicit in current policy on digital skills in the UK, in which skill functions to classify labour, often at national and regional scales. Contrasting with this macropolitical articulation of more or less skilled workers apparently contained in discrete space, section three puts forward a micropolitical approach premised on the contested and shifting nature of skill as the doing of labour, rather than skill as a labour classification. Through this focus on how labour takes place, we develop three dimensions of a more dynamic understanding of space and skill that illustrate the contingent agency of the human as a figure in labour processes. These differently ‘posthuman’ geographies open out alternative spatial configurations of enablement and constraint, and thus alternative understandings of the spaces of labour politics.¹

Firstly, we establish a dynamic sense of space through which skill is performed as a co-mingling between humans and technologies as labour takes place. Taking an historical focus, we show how the contested nature of skilled labour comes into view at times of technological change in the workplace, complicating neat ideas of a skills shortage, and thus of a fixed site for enablement or constraint. Secondly, we show how the networked constitution of digital labour necessarily means a shifting understanding of digital skill that distributes the enablement and constraint of labour performance beyond a contained workplace. Whilst certainly involving the more or less individualised ‘close doing’ of labouring activity, digital skills must also be understood through an extensive space of connections with dispersed people and places that are often obscured in policy debates. Thirdly, we show how the constitution of digital skills also shifts intensively via their emergence through ongoing repetition of bodily practices in specific environments. Through this intensive space, digital skills become less an attribute of specific bodies that can be known in advance, but rather might be understood as ‘incorporeal’ units of analysis that form between bodies and environments.

By outlining this dynamic space of the micropolitics of digital skill, we show the necessity for an approach to digital labour that re-configures and extends beyond a humanist framework – in this case one where digital skills are ‘individualised’ in certain bodies – if we are to appreciate the complex sites of enablement and constraint through which such labouring takes place. To be clear, this posthuman style of analysis does not negate important question of workers’ rights in the face of what some see as intensified capitalist oppression through new technologies (Stiegler, 2010; Guattari, 2015). Rather, by illustrating that the spaces of digital skill are dynamic, we seek to show that the units of analysis for a labour politics with digital technologies are neither singular nor necessarily predictable. This nuanced geography of digital skills is therefore intended as a fruitful extension of the sub-discipline of labour geographies that has yet to extensively engage with the question of digital technologies (Bissell and Del Casino Jr, 2017).

2. The macropolitics of digital skill

Our starting point is our observation that governments in many countries have become interested in digital skills. In this section, we show how this interest is produced through a macropolitical definition of digital skills that prevails in policy literature. To illustrate this, the empirical focus is on the definition of ‘digital skills’ in national policy debates unfolding in the UK, which allows us to drill down into one example. This appearance of digital skills conjures a particular understanding of space and the location of digital skills within that space. We describe this understanding of digital skill as *macropolitical* in so far as it is a government-propagated definition which is concerned with making programmatic policy ‘from above’ that is generalizable and can be rolled out across large populations (Masumi, 2015).

Uniting many policy reports emerging from governments around the world is the claim that there is a digital skills shortage, and further, that this shortage is an urgent problem that needs to be addressed. In the context of the UK, a report to the government by the House of Commons Science and Technology Committee (STC) (June 2016) is indicative of this understanding of digital skills as a national problem. The committee identified what it termed a ‘digital skills crisis’ in the UK. For them, the main driver of this crisis is the difficulty in recruiting suitably trained staff. The report highlights the needs of the so-called ‘datavore’ (NESTA, 2012), businesses that make heavy use of data analytics for strategy and productivity, two-thirds of which have

(footnote continued)

wider argument. Nonetheless we recognize both the variations in such scholarship that is obscured by any umbrella term, and the plural interpretations of the term ‘posthuman’ itself. For some recent critical discussion of the term in human geography see Anderson (2014) and Joronen and Ha Kli (in press).

¹ We are terming such approaches ‘posthuman’ for the purposes of brevity to serve our

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