

New technology, work and employment in the era of Covid-19

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Title: New Technology, Work and Employment in the era of Covid-19: reflecting on legacies of research

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Keywords: new technology; Covid-19; control; resistance; surveillance, crisis

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Abstract

The outbreak of Covid-19 is having a drastic impact on work and employment. This review piece outlines the relevance of existing research into new technology, work and employment in the era of Covid-19. It is important to be retrospective and undertake both a historically and theoretically informed position on the impact of new technologies in the current crisis and beyond. Issues of control, surveillance and resistance have been central to work on the impact of technology on work and employment and these themes have been identified as central to the experience of work in the current crisis.

Introduction

The impact of the Covid-19 crisis on working lives is enormous. As the virus spread across the globe in the early months of 2020, we quickly witnessed fundamental changes to our work and social lives. Across the world, millions of workers suddenly found themselves unemployed or furloughed as businesses struggled to meet costs (Lewis and Hsu, 2020). The full economic impact of the pandemic is yet to be determined, but it will be significant (see Keogh-Brown et al, 2010). Displays of emotions in the workplace have increased, and tensions have become heightened as society struggles to adjust to widespread illness and death of friends, family and colleagues (Williams, 2020).¹ Writing in the first issue of this journal, the opening editorial stated:

¹ See Vincent (2011) on emotional labour and Kessler et al (2012) on dealing with death at work.

'We can expect radical changes in the areas of skills, employment levels, work patterns, the content of jobs and occupational structure to name but a few. There will be no turning back; the seeds of fundamental change have already been sown. New technology is perhaps the most important issue that has ever faced workers and trade unions' (Gill, 1986: 7).

These points are now as pertinent as they ever have been as people experience radical disruption to the ways in which they work. As noted by Donnelly and Proctor-Thomson (2015: 48), 'Disasters disrupt the nature of work, creating a culture of ambiguity with shifting priorities for individuals, organisations and their wider communities. Operating within subsequent uncertain environments promotes a reassessment of the spatial configuration of work and the adoption of new ways of working'. This review article examines how the contents of this journal can help us make sense of the technological changes facing the world of work, heightened by the current crisis.²

In the UK, workers were divided between those deemed 'critical' ('key' or 'essential') and those working in businesses or sectors that were forced to close as the Government announced that 'All employees should be encouraged to work from home unless it is impossible for them to do so' (Department for Business, Energy & Industrial Strategy, 2020). Those deemed 'key' or 'essential' workers continue to see the enduring impact of technology on working lives, in terms of control, consent and resistance (Ellway, 2013; McCabe, 2014), as the pressures of working under such conditions are heightened from their already existing levels (Carter et al, 2011). The public debate

² Every paper published in the journal between 1986 and June 2020 was reviewed. The title and abstract of each paper was consulted, along with an electronic search of the following terms: control, surveillance, resistance, telework, homework, video-conferencing, distributed work, distributed resistance, social media, call centres. Relevant papers were then grouped and read. It would be impossible to outline and detail each paper and place it in the context of the wider field. Therefore, what follows is a condensed review of the works featured in the pages of the journal.

about 'key workers' will no doubt see increased emphasis placed on the importance of the *foundational economy* in the coming months and years across the UK and beyond (Leaver and Williams, 2014; Dobbins, 2020; Sisson, 2020). For those deemed non-essential, working from home suddenly became a reality for a vast number of workers, many of whom had been told for some time that flexible work was not an option. There is however a danger of working from home being presented as a panacea in the current context, when research shows that this is actually far from the truth (Mann and Holdsworth, 2003; ter Hoeven and van Zoonen, 2015; Messenger and Gschwind, 2016; Lehdonvirta, 2018).

Industrial relations research more broadly has been accused of suffering from an 'historical and conceptual amnesia' (Lyddon, 2003: 101) – a criticism which has also been levelled at studies on technological change and its impact on work (Gilbert, 1996). More recently, it has been claimed that employment relations research possesses 'far too little grasp of the past, and its fixation on the present is a continuing weakness' (Funnell, 2011: 170). The current crisis presents us with the opportunity to reflect on legacies of existing research on the many different dimensions of work and employment. Before rushing into research on the current crisis, there is a need for a more retrospective and reflective approach to understanding issues central to new technology, work and employment if we are to make sense of changes brought about in response to Covid-19. Therefore it is vital for academics, researchers and policy makers not to reinvent the wheel and utilise the vast array of existing research as a tool to help take stock of the impact of technology on changes to working practice imposed by the virus.

As the title of the journal suggests, the articles published in this journal are 'theoretically informed, empirically grounded' (Howcroft and Taylor, 2014: 1) accounts of how technologies have affected workers in all aspects of their lives. As technology advances, notions of what is 'new' have continued

to evolve, and it is crucial to have an expansive view of new technology (see also Holtgrewe, 2014), whilst at the same time acknowledging that the implications of these technologies are the product of human agency. Therefore, there is a need to reconsider how the existing labour process and work and employment research has mapped these contours over time. As many workers have become 'estranged' from their workplaces, it is important to recall early reflections of Marx, who noted 'the worker feels himself only when he is not working; when he is working he does not feel himself. He is at home when he is not working, and not at home when he is working' (Marx, 1844/1975: 326). Whilst Marx was specifically writing about the alienation of labour, the point remains valid and is particularly pertinent during the current crisis.

Grounding our understanding of current experiences of work must begin with an understanding of the employment relationship and structured antagonism to enable us to begin 'examining the labour process as both a condition and consequence of new technology' (Burnes et al, 1988: 1; see also Briken et al, 2017)³. This is crucial so that the debate does not disregard the importance of previous interventions, and fall solely into a sanguine view of the role of technology, rolled up in unitary debates about human resource management, commitment and engagement (Dundon and Rafferty, 2018). This paper briefly highlights some of the key debates that have occurred over the years that should be revisited in the current context. Without donning rose-tinted spectacles and reminiscing about the past, it is important to be retrospective and undertake both a historically and theoretically informed position on the impact of new technologies in the current crisis and beyond. It is argued that prior understanding of these issues will provide a useful starting point for understanding the recent changes as many adapt to their new environments.

³ For a discussion of labour process theory and structured antagonism, see Edwards, 1986; 1990; 2018.

The themes of control, surveillance and resistance have long been central to understanding the impact of technology on work and employment, both in this journal and beyond (Hyman, 1975; Burnes et al, 1988; Edwards and Ramirez, 2016). These themes have been identified as central to the experience of work in the current crisis for those in workplaces or working from home (Dobbins, 2020; Stringer et al, 2020; Wood, 2020a; Winton and Howcroft, 2020) and as such provide the framework for this paper. In what follows, some of the key research in these areas is briefly presented for reconsideration as part of this issue. The ways in which front-line, key workers continue to face issues of control and surveillance as part of their everyday experiences of work will first be considered. This section addresses what we know already about the impact of technology for those that have been identified as ‘key workers’ and considers how such issues may have been exacerbated in the current crisis. The following section provides a consideration of control and surveillance for those working from home. The involuntary shift to home working has brought with it a shifting frontier of control (Goodrich, 1975; Hyman, 1975; Hughes and Dobbins, 2020), and fundamental changes to individual’s labour processes. These issues have been examined extensively in this journal and an overview of this research is provided. Opportunities for resistance, both individual and collective are then discussed, before the paper ends with a conclusion, offering some brief reflections as to what all this could potentially mean for the future of work.

Control and surveillance on the front-line

Work intensification and increased managerial control dominates the findings of existing research on technologies at work. Research on the labour process has tended to focus on those in ‘traditional’ workplaces outside of the home. For the many ‘key’ workers still operating in physical workplaces, the technological impact of the current crisis is particularly clear. For example, workers in home care (Moore and Hayes, 2017) and the emergency services were already struggling due to increased electronic monitoring, the intensification of work (Adams et al, 2000), and being pushed to

‘unnecessary extremes’ (Granter et al, 2019: 280) before the outbreak of Covid-19. Clearly, work has intensified in the current crisis, with services dealing with unprecedented demand from users. The UK’s National Health Service’s (NHS) non-emergency medical helpline NHS 111 (formerly NHS Direct) experienced a huge increase in call volume as the virus spread through the country (Rapson, 2020). It is therefore necessary to reflect on the impact this will have had on those working in such call centres (Mueller et al, 2008; Fältholm and Jansson, 2008). Outside of the NHS, research into call centres more broadly has shown that ‘the call centre labour process is repetitive, intensive, often acutely stressful, and essentially Tayloristic in character, and that workers’ output and performance can potentially be measured and monitored to an unprecedented degree’ (Bain and Taylor, 2000: 17, see also Bain et al, 2002; Ellis and Taylor, 2006, Ball and Margulis, 2011). Existing research has shown the physical working environment can negatively impact on health and safety of workers (Bain and Baldry, 1995), particularly in relation to the spread of colds and flu and poor air-quality (see Barnes, 2007; Taylor et al, 2003). These dangers have clearly been exacerbated with workers encountering a lack of social distancing and hazardous workspaces in call centres across the UK, as the work of one of the journal’s former editor’s shows (see Taylor, 2020).

Supermarket workers have seen their jobs become ‘stripped down, highly rationalized, tightly controlled... [and] extreme’ (Bozkurt, 2015: 478). These workers are often on insecure contracts, dealing with flexible scheduling (Wood, 2020b) and subject to the introduction of new technology (see Evans and Kitchin, 2018), which can lead to ‘a greater likelihood that employees report mild or acute anxiety over unexpected changes to their work schedules’ (Felstead et al, 2020: 54). Winton and Howcroft (2020) note how many employers ‘are accelerating plans to automate roles... [and] future uncertainty is of concern for women as they are likely to be disproportionately impacted by processes of automation given their concentration in particularly vulnerable roles, such as sales and cashier roles’. When the public were faced with a period of lockdown and potential self-isolation,

supermarkets experienced a significant increase in public demand (Parveen, 2020). This in turn impacted on those in food production, already faced with despotic and coercive managerial regimes (Newsome et al, 2013), as workers and firms struggled to keep up with demand and just-in time production regimes (see also Turnbull, 1988; Delbridge et al, 1992). However, whilst this pressure eased over-time as the public shifted to online shopping (Collinson, 2020), the impact on online retailers should be noted. Those in warehouses expressed concerns about a lack of social distancing and other safety measures, leading to workplaces being described as a 'cradle of disease' (Butler, 2020). Workers for online retailers such as Amazon are subject to tight control and monitoring (Briken and Taylor, 2018; Moore and Newsome, 2019; Sainato, 2020), which again will have likely exacerbated in the current context. These are just some examples, but there are of course many other examples of key workers experiencing hazardous commutes and working conditions as well as increased technological challenges (see for example TUC, 2020; CWU, 2020; Unite, 2020; PCS, 2020). These increasing concerns are a stark reminder of the importance of health and safety (Walters and Nichols, 2007) which will likely become an even more important part of the research agenda in the future.

Control and surveillance working from home

Throughout this crisis, vast numbers of workers have been forced to work from home. For many, this will be a new experience, and with it will have come new challenges, many of which do 'not necessarily correspond to the confines of the traditional "workplace"' (Howcroft and Taylor, 2014: 2). Whether it is called homeworking, or teleworking (see Sullivan, 2003 for a discussion on the definitions and conceptualisations of teleworking and homeworking), research on teleworking has yielded an incredible volume of insights into the issues faced by workers (see for example Bailyn, 1988; Mann and Holdsworth, 2003; Fonner and Stache, 2012; Wheatley, 2012; Gold and Mustafa, 2013; Hilbrecht et al, 2013; Koroma et al, 2014; Collins et al, 2016; Messenger and Gschwind, 2016; Felstead and Henseke, 2017). In the current context, much can be learnt by examining the experiences of

teleworkers in a historical context as 'telework involves a re-regulation of work, that is, a reorganisation of the conduct of work... which will have variable effects on the employment relationship' (Taskin and Edwards, 2007: 196).

Popular representations of homeworking often depict it as 'technologically feasible, flexible and autonomous, desirable and perhaps even inevitable, family- and community-friendly, and more' (Bryant, 2000: 22). However, the technological pressures experienced at work that can lead to the 'eradication of leisure' (Boggis, 2001) for those in physical workplaces has been amplified for those working from home in the current context due to increased pressures of presenteeism, combined with social distancing and the inability to freely leave one's home. Indeed, due to the Covid-19 situation, the increasingly surreal nature of work has been set free from the constraints of structure and order, and work pressures have grown like some out of control, perennial creeping weed. For many, this work intensification has become the new normal and has left many workers feeling like they have to be 'online' and 'available' all the time, as 'the traditional exercise of management control... is based on the presence and the visibility of employees' (Taskin and Edwards, 2007: 197; see also Mann and Holdsworth, 2003; Valsecchi, 2006; Limburg and Jackson, 2007, Lai and Burchell, 2008). Video-conferencing through platforms such as Skype, Teams and Zoom has now become the new normal although it has greatly advanced since early studies into its usage (Pantelli and Dawson, 2001). When workers are not communicating through video-conference, they are experiencing increased use of their (often personal) mobile phone for work-purposes (essentially an instant portal to work that you carry in your pocket) which further blurs the boundaries between private and working lives (Townsend and Batchelor, 2005; Cavazotte et al, 2014; Dén-Nagy, 2014). It is therefore important to remember that an individual worker's capacity to work 'is shaped by access to utilities, caring responsibilities, shared living space and organisational resources' (Donnelly and Proctor-Thomson, 2015: 58). Due to this increase in homeworking, there will likely be an increase in research exploring the impact of

computer vision syndrome, which arises through extended viewing of digital screens and results in headaches, eye-strain and pain in both the neck and shoulders (Randolph, 2017), and negative consequences of severe ergonomic deficiencies in the design and layout of ad-hoc workstations that were not originally designed for work (Shikdar and Al-Kindi, 2007).

As the spatial mobility of workers has (temporarily at least) come to a halt for many, (Hislop and Axtell, 2007), one could assume that workers may benefit from no longer travelling to- and for-work (Wheatley and Bickerton, 2016). Instead however, many now find themselves working as part of multi-locational virtual teams (Hallier and Baralou, 2010), and people's work and working lives are increasingly fragmented as workers struggle to adapt to individualised "workplaces", which bring with them a distinct lack of mutual support from colleagues, and negative implications for career progression. Many studies in this journal are relevant here, but in particular, attention should be drawn to the work of Natti et al (2011) and Mann and Holdsworth (2003: 208) who 'highlighted the psychological stress of separation from professional colleagues and the social banter and buzz that constitutes an office environment'. The social impact of unexpected home working is an important area that warrants further investigation. Thus, at a time when many are more connected than ever before, working at a distance can lead to social isolation – exacerbated by the realities of social distancing outside of work. The work of Whittle and Mueller (2009) is acutely relevant here.

Often as an attempt to counteract the problems outlined above, employers are increasingly trying to foster an online culture (Ogbonna and Harris, 2006) through the creation of Facebook pages for colleagues to keep in touch. Here one should be reminded of the issues that can arise with using personal social media accounts for work-related issues (Hurrell et al, 2017; van Zoonen and Rice, 2017; Archer-Brown et al, 2018). All of these sudden, involuntary changes to working lives can result in the blurring of boundaries between work and personal life, resulting in feelings of 'loneliness, irritation,

worry and guilt' (Mann and Holdsworth, 2003: 208). These feelings are compounded by the often gendered nature of caring responsibilities, homework and the home-work boundary, the importance of which cannot be understated (Bryant, 2000; Wilson and Greenhill, 2004; Pantelli and Stack, 2004; Fonner and Stache, 2012).

The shift to homeworking has reinforced gender inequality (Ferguson, 2020; Connolly et al, 2020). It has long been argued that when working from home, it is be 'easier for men to fight the distractions there and to give work the necessary priority while at home' (Bailyn, 1988: 150). As such, much of the early adoption of homeworking was undertaken by men who enjoyed 'high trust relationships' with employers (Stanworth, 1997). As the technology advanced over-time, bringing with it increased mechanisms for control and surveillance, the possibilities for homeworking broadened and it was noted that 'Teleworking seemed to hold the key to equality for women with young children, who could hold on to hard-won careers thanks to more flexible regimes of home-based employment' (McCarthy, 2020). Yet research continues to show that 'time spent caring for dependents puts further pressure on the time available for paid work among women, reflecting continued presence of the double-shift' [of paid work for an employer and unpaid work within the home] (Wheatley, 2012: 239). In support of this, it is noted that 'the economic and social consequences of the crisis are far greater for women and threaten to push them back into traditional roles in the home which they will struggle to shake off once it is over' (Connolly et al, 2020). Thus, the research agenda on gender and teleworking identified by Wilson and Greenhill (2004) remains central to investigating homeworking in the context of Covid-19.

Alongside all of this, employees find themselves subject to increased levels of surveillance through technology, whilst using machines belonging to their employer (Harari, 2020; Satariano, 2020). Although privacy has been described as a 'fuzzy' or 'liquid' concept (Vasalou et al 2015; Bauman and

Lyon, 2011), it is important to ensure that workers, unions and managers fully understand the psychological implications of surveillance and electronic performance monitoring (Kidwell and Sprague, 2009; Jeske and Santuzzi, 2015). As time goes on and society tries to find a way back to work without a vaccine, care should be taken to ensure that privacy does not become the next victim as organisations seek to ramp up contact-tracing apps, which could be viewed as attempts to ‘sow the seeds of a future culture of hyper surveillance in the workplace’ (Ponce del Castillo, 2020: 1).

What scope for resistance?

As workers adapt to their new environments and increased levels of control and surveillance, it is important to reflect on the potential for worker resistance. If there is an increase in distributed work, there will likely be an increase in distributed resistance, both individual and collective. Although unions have historically had difficulties in exercising influence over the processes of technological change (Deery, 1989), there have been many documented accounts of resistance, both collective and individual (see Bain and Taylor, 2000; Barnes, 2007; McCabe, 2014; Johnston et al, 2019). This journal has published numerous accounts outlining the potential for solidarity among homeworkers (Törenli, 2010) and expressions of resistance explored in the context of Facebook (Cohen and Richards, 2015), blogs (Richards, 2008) and other social networking sites (Conway et al, 2019). Although workers may feel isolated, this should not stop them from organising and taking action as the example of remote gig work shows (Wood et al, 2018). Workplace closures (extending to organisations including Civic Election Services - formerly Electoral Reform Services) technically made strikes illegal in the UK as ballots were no longer able to be processed and recognised (Gall, 2020a). However, this has not prevented wildcat action from being taken in direct response to health and safety concerns relating to the virus (Gall, 2020b). Levels of union membership and activism have both increased as workers voiced inadequate protections against the virus (Greenhouse, 2020; Gross et al, 2020). Co-ordinating action through the use of technology is not just possible, but is now more vital than ever to ensure

that workers are protected. To that end, unions and activists can learn from the ways in which the labour movement already uses these technologies to train and organise members, and have to further adapt in order to succeed online (see Hertenstein and Chaplan, 2005; Martinez Lucio et al, 2009; Panagiotopoulos, 2012, Fitzgerald et al, 2012 Hodder and Houghton, 2015; 2020). Such contributions in the journal have been key to grounding this debate in the social and political context of technology, as opposed to some of the more extreme optimistic and pessimistic accounts which were commonplace in the early literature on unions and the Internet. Although the debate and the technologies have evolved, it remains the case that maintaining and building connections between workers is crucial, and the crisis has seen the development of new collaborative forms of solidarity (see Heckscher and McCarthy, 2014; Geelan and Hodder, 2017), such as the Workforce Coronavirus Support Group, established on Facebook in March 2020, with over 1,400 members at the time of writing.

Conclusions - looking to the future (of work)

This paper has provided a brief overview of the issues associated with new technology, work and employment in the era of the Covid-19 crisis. 'Few organisations plan for the loss of their workplaces or their workforces' (Donnelly and Proctor-Thomson, 2015: 59) and so by reviewing existing literature, the paper reminds us that much can be gained from examining our previous experiences with technology to help us understand the issues currently facing us in the world of work today and beyond. The crisis illustrates the continued relevance and importance of employment relations as a legitimate field of study, in terms of both research and policy. Lessons learnt from previous crises, either financial (Heyes et al, 2012) or natural (Donnelly and Proctor-Thomson, 2015) can help to ensure that debates about the role of new technology in the current situation do not fall subject to the 'familiar flaw of technological determinism' (Howcroft and Taylor, 2014:1) and are located in a reflective account of the labour process. Papers in the journal consistently remind us of the importance of choices and the

political - that technology is socially mediated - and that the introduction of new 'new' technologies are structured around social relations that pre-exist (Baldry, 2011; Howcroft and Taylor, 2014; Holtgrewe, 2014; Howcroft and Rubery, 2019).

A number of previous review pieces have provided useful oversight of the literature as it has developed over time (see for example Clark, 1989; Baldry, 2011; Howcroft and Taylor, 2014). This paper has not attempted to be as broad, instead confining its focus mainly on developments within New Technology, Work and Employment relevant to the current crisis. Reflecting on these debates is crucial as workers adjust to how the world of work has been altered and shaped by the Covid-19 situation. This paper has therefore briefly detailed the technological challenges faced by key workers in terms of control and surveillance, before explicating how these same issues are impacting on those working from home. What remains to be seen is whether we will see major ruptures in the ways in which work is organised and managed, or an intensification of existing trends. However, it is clear that whether workers are in physical workplaces, or in their own homes, papers in this journal offer insights into this important area.

Debates around the future of work and the impact of artificial intelligence on jobs have increased in recent years (Gekara and Nguyen, 2018; Spencer, 2018; Upchurch, 2018; Lloyd and Payne, 2019; Lewis and Bell, 2019; Howcroft and Rubery, 2019). However, we do not have to be limited by current thinking – another way is possible. There is an opportunity to rethink the future of work in the aftermath of the Covid-19 crisis and shift the emphasis and political lens toward skill, the value of work and structural inequality (see also Martinez Lucio and McBride, 2020). As noted by Winton and Howcroft, (2020): 'In light of the current crisis, a radical re-think of how labour is valued – both socially and financially – is needed, leading to policies which ensure that key workers are paid and protected in a way that reflects their critical contribution to society'.

The special issue

This review has shown that pages of this journal contain numerous works relevant to understanding work and employment in the era of Covid-19. A small selection of these relevant papers are identified below as part of this special issue. They represent just some of the relevant research published in this journal over the years, and there could have been many more listed. Whether workers are in physical workplaces or working from home, issues of control over the labour process, surveillance of work practices and opportunities for resistance have dominated debates. These themes remain crucial in helping us make sense of work experiences in the current crisis and as such, they have shaped the choice of papers identified below.

The journal has a longstanding interest in those employed in call centres and these accounts cover work practices, professional values and opportunities for resistance. The pieces by **Bain and Taylor (2000)** and **Mueller et al (2008)** highlight the challenges faced by those undertaking work in physical workplaces. As can be seen from the above, the journal has published a number of papers that focus on home working or teleworking. A helpful review of the differing conceptualisations and terminology is provided by **Sullivan (2003)**, and **Messenger and Gschwind (2016)** provide a thorough review of the literature in this area. The papers by **Hilbrecht et al (2013)**, **Mann and Holdworth (2003)** and **Whittle and Mueller (2009)** provide useful insights into the challenges faced whilst homeworking in terms of work-life balance, stress, isolation and representation. The work of **Donnelly and Proctor-Thompson (2015)** is of particular interest due to its focus on home-based working in the aftermath of a natural disaster.

As workers increasingly find themselves part of virtual teams, using video conferencing and social media for work, the technologies employed by those working from home are the focus of the pieces by **Hallier and Baralou (2010)**, **Panteli and Dawson (2001)** and **van Zoonen and Rice (2017)**. Of course, such technologies increase the prevalence of electronic surveillance, which is the focus of the work of **Jeske and Santuzzi (2015)** and **Kidwell and Sprague (2009)**. Finally, two pieces have been chosen which detail the changing nature of resistance. The paper by **Richards (2008)** shows how employees can use blogs to express conflict, and as a form of individual resistance. Conversely, **Wood et al (2018)** detail the process of organisation and a willingness to act collectively amongst distributed freelancers outside of the traditional confines of union organisation.

It is hoped that these papers, and the many others identified in this review signpost readers to important debates contained in the pages of *New Technology, Work and Employment*.

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