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Chapter 11

Escaping the Cubicle: Exploring the Physical Work Environment of the Home

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ABSTRACT

A rise in contingent work, the increasing real estate costs for organizations, technological advances, and more recently, restrictions on movement emerging from the COVID-19 pandemic have resulted in a sharp increase in the number of employees working from home. These have significant implications for individuals, organizations, and society. Yet the physical work environment within the home has received little attention from scholars. Research on traditional office settings indicates that the physical environment influences a range of well-being and performance outcomes, indicating a critical need for researchers to consider the impact of the physical work environment at home. To address this issue, the authors briefly summarize the effects of the physical work environment and review existing research on working from home. They then propose directions for future research and emerging methodologies to undertake this research. Finally, they detail the practical implications that these changes bring for individuals, organizations, and society.

INTRODUCTION

The advent of the industrial revolution and the introduction of a centralized means of production has meant that factories or offices have been the primary setting for work for billions of people since the 1900s (Haigh, 2012). While work from home (WFH) arrangements have been in place in modern orga-

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nizations since the 1970's, this has been considered by many managers as a tangential way of organizing work. While the technology to support remote work (Pérez, Sánchez, de Luis Carnicer, & Jiménez, 2004), and the desire of employees to WFH has been long established (Bloom, 2014), the willingness of organizations to embrace these work arrangements has lagged significantly. Researchers have identified several barriers to WFH including managerial concerns over supervision of employees, how to maintain productivity and how to effectively co-ordinate work (see Allen, Golden & Shockley, 2015 for a review).

The arrival of the COVID-19 pandemic and the subsequent waves of government initiated lockdowns have resulted in WFH becoming a global, overnight reality for millions of workers. This shift has brought the benefits and costs of WFH into sharp focus. Images rapidly emerged on social media of a wide array of make-shift workspaces, including the kitchen table, lounges, and even upturned laundry baskets as employees struggled to find both the space and equipment to undertake their work effectively. It has become apparent that while technology and a laptop can facilitate the completion of work tasks, many people do not appear to currently have the physical work environment to be able to WFH effectively and safely.

Despite the inherent challenges of sharing spaces with others who may be working in different jobs (e.g. call centre work with a partner who is doing accounting work) or doing online school, and the difficulties of not having an ergonomically safe work desk or chair, recent surveys in several countries have indicated that staff are reluctant to return to spending most of their work week in the office (Ziffer, 2020). Seeking to capitalize on the interest in WFH, companies including Facebook, Twitter, Microsoft, REI, and Mastercard have stated that they will allow their employees to continue working at home on a permanent basis (Brownlee, 2020). However, although the physical work environment of the office has been the focus of study across a broad range of disciplines for many decades, academic research tells us very little about the physical work environment of the home. This topic has received virtually no attention from scholars. Furthermore, a broad adoption of WFH may have significant implications for not only employees and their organizations but for the wider communities in which individuals live, and for policy makers and housing designers.

In this chapter, we briefly consider existing theory and research on WFH to identify potential issues related to the physical work environment of the home. Given that very little research has been undertaken from any discipline on the physical work environment of the home, we describe the existing multidisciplinary literature on the physical work environment before proceeding to propose suggestions for future research. Next, we consider relevant theoretical perspectives that may be applied to the physical work environment of the home, and then suggest directions for future research. Finally, we discuss the practical implications of the shift to WFH for individuals, organizations, designers and policy makers.

OVERVIEW OF RESEARCH ON WORK FROM HOME

The ability to WFH, also known as teleworking or telecommuting, has been enabled by developments in technology and flexible work practices (Eurofound & ILO, 2017; Nilles, 1997; Perez, 2004). As a result of technological developments, many formerly office-based employees can work outside of the traditional office setting. Prior to the COVID-19 pandemic, and in spite of numerous benefits in terms of cost-savings through reducing the need to situate employees in shared offices, environmental benefits from reduced commuting, and improved employee well-being and productivity (see Allen, Golden & Shockley, 2015 for review; Golden & Gajendran, 2019), WFH was not as common as might be imagined.

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Impediments to implementing WFH include managers' perceptions that employees may 'slack off' (Allen, Golden & Shockley, 2015) and employee concerns that WFH may harm their career (Baruch, 2003). Although many companies state that they offer flexible work arrangements, including greater autonomy over employees' hours and conduct of work, this does not necessarily extend to support for employees to WFH (Allen, Johnson, Kiburz & Shockley, 2013). Even those permitted to work from home may only be allowed to do so on a limited basis despite reports suggesting that up to 40% of employees in developed economies are able to do their job from home (Travers, 2020).

Benefits of Work From Home

Research suggests that most employees highly value being able to work from home. In fact, research has shown that employees valued the option to WFH at about 8% of their wages (Alexandre & Pallais, 2017). Extant research has highlighted a number of benefits of working from home at both the organizational and individual level, which are briefly considered below.

Improved Organization Level Performance

Recent evidence suggests that there are generally positive benefits of WFH in terms of organizational level performance (Allen et al., 2015). Analysis of data from 156 Spanish companies using CEO's ratings, found that organizations who had higher percentages of employees who worked from home demonstrated the strongest innovation, financial and relational performance (Martínez-Sánchez, Pérez-Pérez, de-Luis-Carnicer, & Vela-Jiménez, 2007; Martínez-Sánchez, Pérez-Pérez, Vela-Jiménez, & de-Luis-Carnicer, 2008). This may be due to the increased autonomy associated with working from home leading to higher levels of satisfaction and commitment (Ryan & Deci, 2017). Additionally, organizations can make significant savings by implementing WFH arrangements. For example, Bloom et al. (2015) reported that a company they studied saved around US\$2,000 (A\$2,784) per employee on lease costs.

Increased Employee Productivity and Satisfaction

A meta-analytic review of studies highlights that there is a positive association between WFH and objective job performance (Gajendran & Harrison, 2007). Specifically, supervisor-rated task and contextual performance were higher for telecommuters than for non-telecommuters (Gajendran, Harrison & Delaney-Klinger, 2015). In one of the few controlled experimental studies on WFH, a two-year study using randomly assigned groups found a 13% productivity increase occurred after WFH was introduced to one of the groups. In this study, turnover decreased by 50% among the WFH group with individuals in this group taking shorter breaks and fewer sick days (Bloom, Liang, Roberts & Ying, 2015). The positive impact of WFH may be partially explained by an increased ability to focus and fewer distractions at home when the employee is away from co-workers (Sander, Caza & Jordan, 2019).

In their review of telecommuting, Allen et al. (2015) note that the extent of telecommuting influences a wide range of outcomes including employee well-being, satisfaction and productivity. However, the extent of telecommuting is insufficiently considered in many existing studies. Some research suggests that employees who WFH a moderate amount of time are the most satisfied (Golden & Veiga, 2005; Martin & MacDonnell, 2012; Virick et al., 2010). However, individuals who telecommuted extensively, but also had high-quality supervisory relationships, had the highest levels of commitment, job satisfaction

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and job performance (Golden & Veiga, 2008). These findings highlight the importance of considering a range of contextual factors such as leadership quality, when establishing WFH arrangements.

Improved Employee Well-being and Health

WFH cuts commuting times and associated fatigue, transport congestion, and environmental impacts (Houghton, Foth & Hearn, 2018). Employees value WFH as a way to maintain a work-life balance, and this has been found to be especially important for the millennial work cohort (Allen et al., 2015). Additionally, some studies have found reductions in stress associated with work when individuals WFH as a result of increased autonomy and greater flexibility in their lives (see Gajendran & Harrison, 2007 for a review). Surprisingly, however, there is very little research in the field (Allen et al., 2015).

Challenges of WFH

Although there are clear benefits when employees WFH, there also are challenges for both individuals and organizations. Examples of potential negative effects of WFH at the individual level include social and professional isolation (Maruyama & Tietze, 2012) and the blurring of work and life boundaries (Kelliher & Anderson, 2009; Standen, Daniels & Lamond, 1999). At the organizational level, there can be difficulties in establishing and maintaining team cohesion and innovation (Allen et al., 2015) when work from home practices are in effect. These issues are discussed in more detail below.

Employee Social and Professional Isolation

Working from home for extended periods can leave employees feeling socially and professionally isolated (Maruyama & Tietze, 2012). When individuals work from home, they have fewer opportunities to interact and acquire information, which may explain why remote workers report feeling less confident than their office-based counterparts (Golden, Veiga & Dino, 2008). More than half of the volunteers who WFH full-time in one study felt so isolated that they changed their minds about wanting to work from home all the time (Bloom et al., 2015). According to a meta-analysis of 46 studies involving more than 12,000 employees, working from home more than 2.5 days a week can negatively affect relationships with co-workers as well as knowledge transfer (Gajendran & Harrison, 2007). Further, resentment can arise between co-workers if teleworking is not widely available (Collins, Hislop & Cartwright, 2016).

Blurred Work and Life Boundaries

Another significant issue that has been identified is that it can be hard for employees who are working from home to switch off, particularly when those individuals don't have a dedicated home office space (Kelliher & Anderson, 2009; Standen, Daniels & Lamond, 1999). Telecommuters often work longer hours, with 48% of employees increasing their work hours when WFH (Baruch, 2000). Another study from 15 countries found that 42% of individuals WFH had trouble sleeping and woke up repeatedly in the night, compared to only 29% of individuals who always worked in the office (Eurofound & ILO, 2017). Further, research showed that 41% of highly mobile workers felt stress "always or most of the time" compared to only 25% of those individuals who always worked at the office (Eurofound & ILO, 2017).

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Reduced Team Cohesion and Innovation

WFH can have negative consequences for team cohesion and innovation compared to working in the office (Allen et al., 2015). Research supports the idea that as the availability of laptops and other remote work devices increases, proximity in face-to-face interaction is becoming more important. One study showed that engineers who shared a physical office were 20% more likely to stay in touch digitally when compared to those who worked remotely (Waber, Magnolfi & Lindsay, 2014). Employees who were in the same office emailed each other four times as often to collaborate on shared projects compared to staff who weren't in the office. In addition, performance benefits included 32% faster project completion times when employees were in the same office. Other research finds that face-to-face interaction is essential for identifying opportunities for collaboration, innovation and developing relationships and networks (Coenen & Kok, 2014).

THE PHYSICAL WORK ENVIRONMENT

The physical work environment in an organization incorporates the material objects and stimuli that people encounter in their day-to-day work life, as well as the nature and arrangement of these objects and stimuli (Davis, 1984; Davis et al., 2011; Elsbach and Pratt, 2007; Hedge, 1982; Sundstrom, Bell, Busby, and Asmus, 1996). Research on the physical work environment of the office has expanded significantly over the past decade, highlighting the effects of different functional aspects of the workspace, including privacy, layout, ergonomics, materials, noise, lighting, greenery and furniture, and examining the impact of these on, amongst other factors, employee performance and well-being (see Colenberg, Jylhä, & Arkesteijn, 2020; Davis, Leach & Clegg, 2011; Elsbach & Pratt, 2007, Zhong & House, 2012 for reviews).

Research on the Physical Work Environment of the Home

The physical work environment of the home has received virtually no scholarly attention. This presents both challenges and opportunities for researchers and practitioners. Although it may be possible that specific dimensions of the physical work environment of the office will influence similar outcomes in the home environment, these factors need to be investigated. In this section, we discuss dimensions of the physical work environment of the office and consider their potential relevance to the physical work environment of the home.

Drawing on research on workspaces within the office (see Davis, Leach & Clegg, 2011; Elsbach & Pratt, 2007; Kim & de Dear, 2013; Zhong & House, 2012 for reviews) the dimensions of the physical work environment of the home are likely to have both direct and indirect effects on employee and organizational outcomes. Aspects of the physical environment such as air quality, lighting, access to daylight, noise, views, and ergonomics have direct effects on employees. For example, poor air quality has been shown to reduce cognitive performance (MacNaughton et al., 2014), poor ergonomics can result in musculo-skeletal problems (Brand, 2008), and background noise in office settings has been shown to increase physiological stress (Evans & Johnson, 2000; Jahncke, Halin, Hygge, Green & Dimberg, 2011). The dimensions of the physical work environment, however, can also have indirect effects on employees. For example, a lack of privacy can result in negative affective and psychological reactions (Sander et al., 2019). Shared desk ownership has been shown to reduce perceptions of supervisory sup-

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port, as well as to be associated with employees reporting that they feel indifferent to their colleagues (Brown & Robinson, 2011; Morrison & Macky, 2017). We anticipate that some of these findings in the workplace will be replicated when the impact of the physical WFH environment is investigated. For instance, at home, individuals also are likely to experience negative impacts from a lack of privacy and sharing desks or rooms with partners and children.

Although the physical work environment of the office is usually comprised of clearly defined spaces, defining workspaces in one's home can be much more difficult as the physical boundary between work and home will inevitably include shared private space. The reality of working and living in the same space means that the physical work environment of the home presents challenges not seen in office settings both in terms of fixed physical boundaries, and more fluid dynamic boundaries that arise in the conduct of the employee's work. In the office, employees are not distracted by private spaces and the responsibilities associated with those spaces. For example, when WFH an individual may see a load of laundry piling up as they make their way to the kitchen to get a cup of coffee. As such, WFH presents additional challenges in terms of navigating the separation of one's work and personal life, while having to manage the effects of WFH on other residents in the space, and concerns about a lack of separation of one's private life from one's work life (Wapshott & Mallett, 2012). Complicating matters, the constructs and objects of the physical work environment in the work setting, including an appropriate desk and chair, visual and auditory privacy, and the sensemaking role that an office plays may be much more challenging to recreate in the home.

Potential challenges the physical environment of the home present include visual and auditory privacy, ergonomic concerns, and creation of a defined workspace that is separate from home life. At present, though, our understanding of the effects of these issues when WFH is very limited. The role and importance of the physical work environment in the home and how work and private spaces overlap cannot be understated. Past research suggests that a third of respondents reported that work became more intrusive in their personal lives when they took up homeworking (Harris, 2003).

A range of interventions have been identified to manage issues related to the physical work environment of the office including the provision of healthy food and water, mindfulness or yoga spaces and exercise equipment. Such activities are now commonplace in organizations to encourage employees to take physical and mental breaks from their work (MMK, 2014). Further, the physical layout of modern offices is increasingly intentionally designed to encourage employees to move around the office to connect with others and undertake physical activity (Hess, 2017), elements that are dramatically altered when employees WFH. Other research suggests that there are increased tensions between the public (work) roles and private (domestic) roles for those who work from home (Marsh & Musson, 2008). Employees struggle to keep work and domestic roles such as parenting separate as technology makes it difficult to escape from "pings" on teamwork platforms, phone calls and email. These issues are complicated by differences in individual circumstances (e.g., single or living with others) (Berke, 2003), different personality types (e.g., introverts and extraverts) (O'Neill, Hambley, Greidanus, MacDonnell, & Kline, 2009) or institutional environments and sub-cultures (e.g. outcome or people focused cultures) (Peters and Heusinkveld, 2010).

Surman (2002) has highlighted the importance of the perceptions of not just the employee, but others around them as antecedents of the successful implementation of moving work into the home. Other researchers have argued that a successful transition to work from home is contingent on individual choice and control (Lee and Brand, 2005; Maruyama et al., 2009; Mirchandani, 1998), as autonomy has been found to be significantly correlated with satisfaction with the physical work environment (Elsbach &

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Pratt, 2007). Knowledge workers commonly attempt to replicate familiar aspects of their office in the home environment, using similar desks, computers, and creating separate workspaces (Ng, 2010; Tietze and Musson, 2005). These actions transform private spaces to work areas with technology, files and other artefacts of traditional office environments (Halford, 2005; Maruyama et al., 2009). Since many organizations utilize the physical environment of their offices to convey messages about culture, a sense of belonging and desired behaviours, this presents a significant challenge as to how these elements can be recreated in virtual platforms or in the employee's home workspace.

Finally, it is important to note that while not having to dress for the office, and the reduction in commuting time are often cited as positive aspects of WFH in terms of time saved (Allen et al., 2015), research has highlighted a potential negative impact of losing the 'transition time' involved in travelling from home to the office (Kurland and Bailey, 1999). Often this transition time is used in separating private home issues from work issues or in preparing for the day by thinking through issues to be addressed in the day ahead. In working from home this opportunity is often lost.

FRAMEWORKS FOR THE PHYSICAL ENVIRONMENT AT HOME

Beginning with Taylor (1911), early theoretical approaches to the physical work environment have taken a practical view, examining instrumental features such as layout, privacy, lighting or spatial efficiency (Davis, 1984; Elsbach & Pratt, 2007). An extensive stream of research on disparate dimensions of the physical environment followed with a focus on spatial layout (Backhouse and Drew, 1992; Brennan et al., 2002; Zalesney and Farace, 1987), building materials (McCoy and Evans, 2002), decorations (Bring-slimark et al., 2009), noise (Yadav, Kim, Cabrera, and de Dear, 2017; Zaglauer, Drotleff, and Lieble, 2017), lighting (Zhong and House, 2012) and opportunities for personalization (Elsbach, 2004). Gagliardi (1990) notes that this focus on features and layouts that could be replicated across contexts meant that the reactions of the employee to the physical work environment, and their experience at work took a back seat until researchers began to take a more subjective view based on employees' experiences of work. The importance of the individual *employee's subjective* reactions to the physical environment, rather than the objective (practical) characteristics of the environment are now well established (see Hackman and Oldham, 1975; Salancik and Pfeffer, 1978; Roethlisberger and Dixon, 1939; Sander et al., 2019).

Giving employees control over aspects of their physical work environment such as their seating arrangements, the lighting and temperature of work and the setting of work, mediates the effects of environmental characteristics that have otherwise been shown to have detrimental effects (Lee and Brand, 2005). Theoretical approaches have incorporated this perspective, recognising the link between employees' cognitive and affective reactions to their work environment and their impact on employee mood, behaviour and performance (see Ashkanasy et al., 2014; Bitner, 1992; Brown and Robinson, 2011; Sander et al., 2019 for examples).

In the last decade, a number of criticisms of existing theories have emerged suggesting that theorists have taken a fixed view of space and fail to account for spatial dynamics. Researchers have argued that there is a need to incorporate movement into the physicality of work, by examining how dynamic features can create and alter spatial arrangements (Stephenson et al., 2020; Wapshott & Mallett, 2012). For example, Wapshott and Mallett (2012) suggest that homeworkers explicitly control or demarcate the spaces of their home by replicating what they might have in the office. These authors argue that it is important to consider other significant aspects of work within the home including spatial practices,

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that is the cohesive practices and patterns of social activity, and representational space, that is spaces that we seek to change and appropriate and our passive experiences of the space (Lefebvre, 1991) which may not be conducive to becoming a work environment.

We suggest that theoretical frameworks of the physical environment in the home need to consider a wide range of factors to adequately capture the complex dynamics of the setting. For example, in order to maintain psychological anchors and associations for effective sleep behaviours, research suggests a range of factors need to be addressed in the physical environment. Potential interventions include reducing clutter (Thacher & Reinheimer, 2015), lighting and darkness control measures such as blinds or curtains (Blume, Garbazza & Spitschan, 2019), the choice of bed and linen (Jacobson, Boolani & Smith, 2009), use of scent (Sowndhararajan & Kim, 2016), the use of music which has been shown to reduce anxiety and alleviate physical pain (Trahan, Durant, Müllensiefen, & Williamson, 2018). Similarly, not using technology devices before bed can help with sleep as exposure to artificial light in the evenings can interrupt circadian rhythm and delay sleep onset (Tosini, Ferguson & Tsubota, 2016). Researchers have argued that addressing these factors, which directly and indirectly affect the brain's physiological process of producing melatonin, and signalling sleep (Irish et al., 2015), are critical when considering and managing the impacts of the physical workspace in the home. What is not clear is the impact of adding work requirements that fit with these recommendations, particularly for some employees who may not have spacious living space.

Rather than just identifying the spatial features and aspects of the physical work environment of the home, researchers need to consider the dynamics of movement and process (Stephenson et al., 2020; Wapshott & Mallett, 2012). For example, in addition to practical considerations such as closing technology programmes and finalising tasks, employees may use an end of day ritual to achieve psychological detachment, emotional regulation of the nervous system and the reduction of physiological stress (Sonnetag, Binnewies, & Mojza, 2010). Techniques such as meditation, journaling, listening to music, engaging in hobbies or pleasurable activities, or undertaking exercise may be useful in promoting effective end of day rituals (Zucker, 2019). Theories of the physical work environment of the home also need to consider how space can be utilised to create boundaries and support rituals that promote behaviours such as stopping work, reducing work spill over, rumination, visual distraction, and to support planning for the next day as a restorative physical environment has been shown to support detachment from work (Kaplan, 1995; Sonnetag, 2012). Potential frameworks that may be useful when considering managing the impacts of WFH that arise from the physical environment include those from emerging research on the use of circadian lighting to support biorhythms and melatonin production for sleep (Dai, Huang, Hao, Lin, & Chen, 2018), soundscaping using artificial noise of printers and other office equipment to create anchors to workplace behaviours (Acun & Yilmazer, 2018), as well as physical design elements such as tactile materials and the use of scent to promote cognitive and affective responses that support effective work (Bitner, 1992).

FRAMEWORK FOR FUTURE RESEARCH

Given the limited existing understanding of the impacts of the physical work environment of the home, there is a wide scope for scholars to build a body of knowledge in this emerging field. Below, we outline four areas of potential research into the physical work environment of the home.

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Understanding the Dimensions of the Physical Work Environment

A first consideration should be to investigate to what extent the dimensions of the physical work environment of the office - layout, materials, lighting, temperature, colour, and privacy (as examples) are relevant in WFH settings. At present, no guidance exists for employees or organizations on how to create WFH environments to optimise well-being and performance. Areas that future researchers could investigate include the effects of different layouts of the workspace within the home on outcomes such as attention and the employee's ability to focus, engagement in high performance work behaviours, and well-being. Research could also investigate how work from home arrangements and the design of the physical environment of the home facilitate or hinder team cohesion and performance, creativity and innovation, career progression and co-worker relationships.

Another topic of interest arises from research on visual and auditory privacy, which have been found to be significant predictors of satisfaction and performance in office settings (Kim & de Dear, 2013). At present, we have no understanding of whether, how or when such dimensions are relevant in the home setting. Similarly, the beneficial effects of greenery, air quality and biophilic design have been demonstrated in office settings (see Colenberg, Jylhä, & Arkesteijn, 2020 for a review). In the WFH setting, it would also make sense to investigate the role that these factors play as antecedents of cognitive, affective and physiological outcomes.

In office settings, researchers have found that clutter influences employees' cognition, emotions and behaviours, affecting decision making and relationships with others, stress, eating choices and even sleep (see Sander, 2019 for review). Research shows disorganization and clutter have a cumulative effect on our cognitive functioning (McCains & Kastner, 2011). To think clearly individuals like order, and constant visual reminders of disorganization drain our cognitive resources, reducing our ability to focus as well as our working memory. That is, the visual distraction of clutter increases cognitive overload and can reduce our working memory (Gaspar, Christie, Prime, Jolicœur, & McDonald, 2016). Given the established body of research highlighting the effects of clutter across a wide range of outcomes, we suggest that future research could investigate the role of clutter in the home workplace and its potential influence on individual detachment and rumination, factors which will have important consequences for employee well-being (Sonnetag & Bayer, 2005; Mache, Servaty & Harth, 2020).

As outlined earlier in the chapter, ergonomics is a vitally important area for future research on the physical work environment of the home. Ergonomics has been highlighted as an important issue and a potential barrier in effective WFH implementation, and as such further understanding of this field in the home setting is essential. Research has shown that a "proper" ergonomic setup includes a minimum of a separate work desk with a flat surface, ergonomic chair, and suitable lighting. Such a setup can reduce problems such as muscle strain, lower back injuries and tendonitis, as well as decreasing muscle fatigue and enhancing productivity (Brand, 2008). Finally, we suggest that researchers should investigate how to utilize physical environment design for boundary setting for employees. For example, researchers may consider the use of barriers to separate workspaces from living areas thereby avoiding the cognitive distraction of work related materials and clutter, or the use of wind down practices such as work task review and filing of work materials to signal the end of the work day.

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Objective Measurement to Assess the Impact of WFH on Employee Well-being and Performance

A significant body of research on both the physical work environment of the office, and on WFH arrangements, has utilized self-report methodologies (Allen, Golden & Shockley, 2015; Davis, Leach & Clegg, 2011). However, recent advances in technology and also the reduced cost of objective measurement tools such as heart rate monitoring and mobile EEG scans, has meant that objective measurement is now being used far more widely in research on the physical work environment (Ganster, Crain & Broissit, 2018). These tools allow researchers to assess psychophysiological effects of the physical work environment on outcomes such as employee stress, attention, and sleep. Using objective data, alongside traditional self-report surveys and more granular approaches such as experience sampling methodologies (Fisher, 2008), will allow researchers to track the effects of the physical work environment in the home. This offers the possibility that research also can assess temporal and process influences of the physical work environment of the home on employee physical and psychological well-being, work life balance, mood, performance and detachment.

Developing Process Approaches to the Physical work Environment

The physical work environment has traditionally been viewed as a fixed, physical workspace (Davis, Leach & Clegg, 2011; Elsbach & Pratt, 2007). However, a growing body of research has begun to take into account spatial dynamics and the incorporation of movement into the physicality of work (Kingma, Dale & Wasserman, 2018; Kornberger & Clegg, 2004, Wapshott & Mallett, 2012). This is particularly relevant to the changing dynamic of WFH, where boundaries between work and home are diluted and traditional structures are missing. As such, process studies have emerged as a way to investigate dynamic features that create and alter spatial arrangements (Stephenson, Putnam, Kuismin, & Sivunen, 2018). Situating work in the home changes the focus of the home environment from one of predominantly recreation, rest, and leisure to a setting where work occurs. By adding work as a significant feature within this context, WFH is likely to influence the relationships of the inhabitants of that space as they try to balance potentially conflicting demands and challenges of work and non-work activities (Wapshott & Mallett, 2012). Issues related to the separation of work, work/family conflict, work spill over and multiple role juggling are likely to be significantly heightened when work is occurring for some or all of the time within the home.

In the office environment, symbols and objects play important roles in communicating culture (Elsbach & Pratt, 2007). The layout of space designates the type of activities intended to take place there, acting as a container for spatial dynamics and different work processes (Stephenson et al, 2018). For example, a lunchroom or social eating space provides a separation from tasks, and the chance to interact with other colleagues. Furthermore, the physical work environment in the office acts as a signal for different activities. For example, water cooler discussions, printing, eating lunch, and meeting spaces. These activities constitute important rituals in our work, providing comfort, putting us at ease, and in building and maintaining rapport (Smith & Stewart, 2011). When these activities occur in one space, important elements of the work process are removed. For example, when working in an office with others, we often meet people on the way to a meeting to catch up on issues or discuss our views before going in. We get coffee, and the simple act of relocating to a different room is energising. But at home, we might be just working on a task and then we begin a meeting using video-conferencing software, often without tak-

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ing breaks. WFH also eliminates the opportunity for casual conversations and social interactions with colleagues and employees from other parts of the organization.

Overall, the physical environment acts as a cognitive scaffold (Sander, Caza & Jordan, 2019), whereby we attribute certain meanings to different spaces within the office, leading to subtle changes in our behaviour. This can include providing anchors for important issues such as creativity and problem solving. For example, walking is known to improve creativity (Opezzo & Schwartz, 2014), highlighting the importance of discussions while walking to meetings, bumping into others, and moving around the office. Given the likely prominence of WFH going forward, understanding the spatial implications of the physical work environment of the home on process studies of organizational space is a vitally important area of research.

Creating Identity and Connection

Items such as memorabilia from an employee's favourite sporting team, or a collection of Star Wars figurines play a role in helping an employee to signal their identity to others at work (Elsbach & Pratt, 2007), while the display of qualifications, awards and photographs may be used to communicate status (Elsbach, 2004; Elsbach & Pratt, 2007). Research could investigate whether these concepts are transferable in the WFH space and how individuals create a space that allows them to signal their identity to work colleagues when at home. If everyone uses virtual backgrounds and prefers to hide their home identity, what role does this play in relationship development, cohesion, and other identity outcomes for employees and managers?

PRACTICAL IMPLICATIONS

In addition to research direction, there are numerous implications for individuals, organizations, policy makers, urban planners, and designers that will require focussed attention. We outline these separately below.

Individual

A shift to the home environment as the default setting for work, or the predominant setting, will have profound implications for individuals. Situating work in the home changes the environment of the home from one of predominantly recreation, rest and leisure (and recuperation from work stresses) to a setting where work occurs. By adding work as a significant feature within this context, WFH will influence the relationships of the inhabitants of that space as they try to balance potentially conflicting demands and challenges of work and non-work activities. Implications such as separation of work, work/family conflict, work spill over and juggling multiple conflicting roles are likely to be significantly heightened when work is occurring some or all of the time within the home. Such scenarios require careful management and ongoing discussion between employers and employees. The design and use of the physical work environment of the home needs to support separation of these differing activities as they occur, as well as facilitate the transition to differing roles within the home. Design that supports effective detachment from work is essential for employee well-being.

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Organizational

A key factor in the planning of WFH arrangements for organizations is the duty of care they bear to provide a safe workplace for their employees, incorporating both physical and psychological well-being. As outlined in the review of research on WFH earlier in the chapter, ergonomic workstations and accessories will be imperative to ensure the safety of employees and their productivity, and the onus is likely to fall to the employer to pay for this in designating the home as a primary or significant place of work. This is an important consideration, as ergonomic work furniture and equipment is expensive, and many employees may be unable to afford what is needed to ensure an appropriate home workspace. This topic has received little consideration to date beyond general media discussion and some industry publications.

In addition to physical considerations such as the workstation and chair, computer, lighting, and acoustics, employers will have a heightened imperative to ensure safe work practices in the home, including taking appropriate breaks and monitoring hours of work to prevent burnout. Employees working from home have been shown to work longer hours than their office-based counterparts (Allen et al., 2015). The increased autonomy and flexibility in terms of when work hours are completed and how work is done may result in enhanced outcomes in productivity, engagement and well-being (Bloom et al., 2015) if care is taken to address the negative effects of WFH. The issue that remains is how these new arrangements may impact on ongoing remuneration and compensation decisions.

Management training, training in separating work and life, and consideration of human resource practices and processes such as no afterhours emails or video conferences, will also need to be undertaken to assist employees to optimise the set-up of their WFH environments for safety, productivity and well-being. The logistical and cost considerations of these initiatives require planning, and may result in the emergence of workplace wellness certification consultants engaged by organizations in the way that ergonomics consultants have been used in the past to monitor the work set up of employees both in the office, and more infrequently, in home settings. Finally, organizations may need to consider the use of satellite offices, or access to coworking spaces, where personal situations or preferences of the employee may not align with hybrid or full-time work from home arrangements.

Policy Makers and Designers

Governments and policy makers continue to discuss the impact of smaller head offices and WFH arrangements on the landscape of cities, and in particular, central business districts. These shifts are likely to have several far-reaching implications. First, the shift to permanent or hybrid WFH arrangements means that employees are reconsidering where they live. A significant motivation for many employees in determining their choice of home relates to the distance from their workplace. In addition, as opportunities continue to arise for employees to be located anywhere in the world, employees may choose to relocate to regional and rural areas driven by lifestyle considerations rather than distance to the office (see the chapter by Green in this handbook).

Second, in the past 15 years there has been a global trend toward smaller homes, driven primarily by the cost of real estate in urban areas (Urban Developer, 2020), as well as the rise of single person households (Snell, 2017). The pandemic, with its associated fears for health and safety, and the concurrent shift to WFH is likely to result in a new lens when viewing the home. Emerging research indicates an increasing trend towards the home being seen as a retreat, a space that provides a feeling of comfort, separation and restoration from noisy cities, crowded offices and health concerns that the pandemic has

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presented (Kolomatsky, 2020). The WFH shift is likely to mean that people will spend more time at home, and more than one person may be working (or studying) from home. Where the home office was something of a rarity, the WFH shift will require designated work and study spaces in the home that include auditory and visual privacy, technology infrastructure, and critically, spaces that allow for both physical and psychological separation, retreat and restoration. For example, physical separation may be achieved through walls, partitions, screening and acoustic treatment. As noted earlier in the chapter, psychological separation, where employees are able to switch off and detach from work is particularly critical in work from home environments. The deliberate design of spaces that promote psychological and emotional detachment from work are also important considerations. Restorative spaces have begun to emerge in office settings in recent years (Pochepan, 2018) and may include areas designated for specific activities such as sleep pods, meditation spaces, yoga rooms, and indoor and outdoor “rooms” where employees can immerse themselves in nature. Home designers may also draw increasingly on the Danish concept of *hygge* (Jensen, Strengers, Raptis, Nicholls, Kjeldskov, & Skov, 2018), the idea of designing homes and the activities that occur in them to promote a feeling of comfort, cosiness and connection. A part of this design may now include the separation of work and private spaces within the home.

CONCLUSION

The COVID-19 pandemic has brought the physical work environment of the home into sharp focus. Despite an established body of research examining the psychological and social impacts of WFH, research has largely ignored the physical setting in which it takes place. Scholarly attention on the physical work environment is burgeoning (see Colenberg, Jylhä, & Arkesteijn, 2020; Stephenson et al, 2020) in line with our growing understanding of the impact of the physical environment on cognition, affect, behaviour and well-being in individuals, and organizational performance (Colenberg, Jylhä, & Arkesteijn, 2020; Masterton et al., 2019). As WFH is predicted to be a permanent feature of work arrangements going forward for millions of employees (Hirschfeld et al., 2020), it is critical that we better understand the physical work environment of the home. In this chapter, we have briefly summarised the research on WFH and the physical work environment in organizations. We have recommended a framework for future research on the physical work environment of the home, suggesting directions for future research as well as the use of emerging methodologies to undertake this research.

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