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Researching informal workplace learning in the context of remote working in the post COVID-19 world

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ABSTRACT

Work practices and learning are entangled processes that operate differently in each workplace. Central factors producing this diversity are the informal, social and affective cultures facilitated and supported in each workplace. Recent research findings further suggest that these informal modes of workplace practice are critical for how people in these organisations learn, and for their capacity to innovate and adapt to changes in their business environment. Lockdowns implemented because of the COVID-19 pandemic, during which many organisations and individuals have had to embrace remote working using digital devices, software and broadband, have significantly reduced opportunities for these important informal and social dimensions of workplace practice. Given the likelihood that diverse forms and degrees of remote working will become part of the post-pandemic 'new normal', we discuss in this paper approaches to researching the extent to which, and in what forms, the benefits of informal interactions can be enabled and replicated in situations of partially or wholly remote working. The paper contributes to the literature on workplace learning by critically discussing the effects of the pandemic, and especially remote working, on the modern workplace, and discussing possible future directions for research.

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INTRODUCTION

The Covid-19 pandemic has challenged many of our assumptions of what a workplace is, what it is not, and has even raised questions about what it can possibly be(come). A staggering percentage of people all over the world have had to switch – sometimes overnight – to a remote working mode, and with businesses and industries adjusting their procedures and business models. The pandemic has brought into sharp view that working productively goes beyond just the tasks that are required to be done. While much of the initial concerns were on immediate problems related to this entirely different working mode, such as setting up appropriate technological infrastructure or coordinating work across geographically dispersed teams, it is now time to reflect on the consequences of these changes on the more informal aspects of the workplace.

One of these consequences, with which we are particularly concerned in this paper, is the effect of remote working on informal interactions at work, and on informal workplace learning. Workplaces are social as well as regulated and procedural environments, and anthropological and socio-cultural studies of workplaces suggest that, especially in a highly dynamic technological context, informal interactions between colleagues are essential for optimising not just the formal objectives of work, but professional learning too (e.g. Fayard & Weeks, 2007). It is generally also acknowledged that such interactions are shaped by the physical environment and affordances of the workplace (Edenius & Yakhlef, 2007), which have been disrupted by the pandemic.

The aim of this paper is to survey and discuss research possibilities suggested by these issues in the light of the increasing trend, afforded by technology and accelerated by the pandemic, for people to work, partially or fully, away from where the workplace is physically located. A key motivation for doing so is that remote working is predicted to become a feature of the 'new normal' in a post-pandemic world (see for example Lee, 2020). It is likely that hybrid forms of work arrangements will emerge, and that workers will need diverse skills to navigate the different digital and physical spaces that constitute the workplace. We are especially interested to explore what bearings this has on those informal, spontaneous interactions that contribute to workplace learning.

First, we briefly outline some of the evidence for the significance of informal interactions in the workplace as critical elements of productivity and learning, and survey ways in which these have been conceptualised in earlier studies. Then we discuss processes of change in the workplace, and outline the main changes brought about by the COVID-19 pandemic (focusing in particular on the increased incidence of remote working arrangements), and the issues raised by these changes. Finally we sketch out a prospectus for future research into these issues, which briefly covers conceptualization, suitable methodological approaches, including how and where appropriate empirical data might be collected.

WHAT IS 'INFORMAL LEARNING' AND WHY IT IS IMPORTANT?

Research from socio-cultural and anthropological perspectives on the organisation of work has been pointing to the significance of the informal, transitory, interactional aspects of work for over 30 years (see for example Brown & Duguid, 1991; Lave, 1993; Hutchins, 1995; Orr, 1996;

Eraut, 2000). This body of work has used qualitative data about workplace culture and behavioural norms, the arrangement of the physical environment, and procedural frameworks that support or inhibit workplace learning (Fuller & Unwin, 2006). These studies argue that workplaces are key sites for understanding learning. Workplace learning can be deliberate, structured and codified in the same way as in formal institutions of learning, but more often it is 'informal', in that it takes place as part and parcel of daily work practice: through conscious and unconscious reflections about work tasks and processes while carrying them out, and through interactions with work colleagues.

Jensen, Johnson, Lorenz, and Lundvall (2007) posit two modes of workplace learning: 'Science, Technology and Innovation' (STI) and 'Doing, Using, Interacting' (DUI). The first broadly deals with codified and formal aspects of practice, explicit structures, rules and procedures, documents, rubrics, etc; the second with more informal aspects, including workplace cultures and social norms, socio-cultural aspects of leadership, interaction, practitioner identity within teams, and the tacit elements of knowledge and expertise. Informal, unstructured interactions between workplace colleagues, it follows, are one of the key vehicles for this kind of learning. These interactions may consist of exchanges about the best course of action to complete a work task or solve a problem, evaluative feedback on proposals, encouragement, advice, or suggestions. Orr (1996) identified a further important function of these interactions as the sharing of 'war stories' – narratives about past experiences which are intended to throw light on problems of the present.

Two characteristics of this mode of work and learning distinguish it from more formal, institutionalised modes: the first is that informal work and learning has a collective dimension, for example in connection with the shared understanding operating between experienced members of a team working together on a common task. Learning is an intrinsically social rather than individualistic process, and knowledge is located, shared and developed within 'communities of practice', made up of individuals with varying levels of expertise and knowledge (Brown & Duguid, 1991; Wenger, 1998). Expertise in this view includes tacit as well as explicit (codified) knowledge (Polanyi, 1966), 'know-how' as well as 'know-that' (Ryle, 1949), and is embodied and physical as well as cognitive (Merleau-Ponty, 1945). The second distinguishing characteristic of informal learning is that it is relatively unstructured and unpredictable: the outcomes of informal interactions and the learning that follows are not determined (though they are of course influenced) by the initial conditions. This is an important point because it allows us to account for and explain unplanned and perhaps completely unexpected outcomes in terms of (a) what is accomplished by such interactions (including undesired outcomes) (b) what is learned, collectively and individually, and (c) for the emergence of innovation. Earlier, more technocratic conceptions of work and learning, have had difficulty explaining the incidence of unplanned outcomes (Brown & Duguid, 1991; Guile, 2014; Derrick, 2020).

Informal interactions and learning at work are affected, for better or worse, by contextual factors of all kinds: physical, procedural and cultural, and by the social and affective relationships operating in each workplace (Brown and Duguid, 1989, 2001; Gherardi, 2012; Guile, 2014):

> 'The activity in which knowledge is developed and deployed, it is now argued, is not separable from or ancillary to learning and cognition. Nor is it neutral. Rather, it is an integral part of what is learned. Situations might be said to co-produce knowledge through activity.' (Brown, Collins, & Duguid, 1989, p. 32)

Informal interactions in workplaces are a source of learning, then, because:

1. they afford the development of 'knowing-in-practice' which is necessary to complement formal learning (Billett, 2001a; Orlikowski, 2002)
2. they help people develop shared ideas and language about their work, its purpose, and their specialist expertise (Lave & Wenger, 1991; Wenger, 1998)
3. practitioners learn through the tacit and embodied dimensions of practice critical to work, as well as the cognitive (Polanyi, 1966; Schön, 1983)

Informal interactions can also be the means by which practitioners learn explicit knowledge about their work, as found by Orr's (1996) study of photocopier technicians. This kind of learning is described more accurately as participatory than acquisitive (Sfard, 1998), and involves knowledge which is located, shared and developed within 'communities of practice' (Wenger, 1998).

Furthermore, informal interactions in workplaces have distinctive spatial affordances that may hinder or facilitate learning (Willems, van Marrewijk, Kuitert, Volker, & Hermans, 2020) and apply to digital as well as physical workspaces. For instance, physical spaces that are usually not associated with work and productivity (such as restaurants, water coolers and photocopiers) have been shown to be important enablers for spontaneous interactions (Orr, 1996; Fayard & Weeks, 2007). Such interactions, however mundane and unrelated to work they may seem, have significant impacts on work issues. Co-located offices can improve knowledge dissemination (Song, Berends, van der Bij, & Weggeman, 2007), specifically the tacit, embodied knowledge that has to be 'felt' and 'sensed' within a community in order to be effectively used collaboratively (Willems, 2018). These interactions also contribute to developing team membership and shared organizational identities (Hinds & Mortensen, 2005).

Many people, now with experience of working remotely and of significantly greater reliance on digital technology during the pandemic, are much more aware of how our working practices are mediated by technology, and especially in contexts of remote or virtual working. How these elements affect work and workplace learning is an important area of inquiry but is still only vaguely understood (Bailey, Leonardi, & Barley, 2012). While remote working increases the physical distance between people, this does not necessarily imply a lack of or reduction in informal workplace practices: virtual workers sometimes explain their interaction with colleagues as being 'far-but-close', while proximity may also reinforce existing power relations (Wilson, Boyer O'Leary, Metiu, & Jett, 2008).

We argue therefore that research is needed to improve our understanding of and the extent to which informal interactions between colleagues, and the learning this facilitates, are affected by the increased incidence of remote working, given the likelihood that this will become part of the 'new normal' in a post-pandemic world. We now move on to look at ways in which workplaces have responded to the pandemic, and at issues, challenges and questions about the organisation of work that have been raised by these responses.

CHALLENGES FOR INFORMAL INTERACTIONS WITH INCREASED REMOTE WORKING

In the context of the Covid-19 pandemic with many people working remotely from home, often blending virtual and physical modes of work and collaboration, the ways in which informal

interactions take place and their potential benefits have been put under pressure. Here, we need to distinguish between informal interactions that support learning (our focus) and formal, organized and structured modes of workplace learning, such as training or reskilling modules.

A recent McKinsey report (Kshirsagar, Mansour, McNally, & Metakis, 2020) estimated that during the pandemic 50% to almost 100% of organized in-person workplace learning programs were cancelled. While these are impressive percentages, the immediate effects of remote working on *informal* interactions is less well understood and less readily measurable. Yet, these effects may continue to shape workplace learning even when we enter a new, post-pandemic normal. This is especially the case because informal modes of learning are less organized and often happen spontaneously, so that there may be certain challenges ahead in terms of picking up the habit of informally engaging with colleagues and learning from them.

The main challenge in this regard is that social distancing measures put in place to decrease the transmission of infections have reduced and, in some instances, minimized workers' physical presence in the office. As we have argued above, the physical environment of a workplace and the material artefacts in it provide important affordances for informal interactions. We thus have to reimagine what informal interactions may look like when workers do not share a similar physical location. While some of the consequences of the pandemic may soon be things of the past because new solutions are found or social distancing measures are lifted, it is likely that for many a new hybrid form of workplace will emerge, made up of different virtual and physical spaces.

What, then, may informal interactions in virtual or hybrid space look like? More specifically, why may it be harder in such spaces to create or encourage these interactions that sustain workplace learning? We briefly touch on three such challenges below.

First, working from home means, quite literally, a blending of work and private life. The spare bedroom has become a substitute office and colleagues get to peek into your house and family life during the teleconference calls that now often substitute for physical meetings. While this may obviously provide a sense of informality to work practice, this is not what we mean by informal interactions. At the office's watercooler or photocopier, colleagues who interact belong to and share a similar spatial and temporal orientation to work. Both have taken a conscious decision to step away from their computer and engage in another mode of working or interacting, either as an actual 'break' to disrupt routine work and energize or as a shift in an orientation to work that allows a more creative or spontaneous engagement.

While working from home brings rewards for many (such as having more autonomy over one's own time), for informal interactions it also introduces several challenges (Wapshott & Mallett, 2012). Besides the potential effects on workers' wellbeing, individuals now need to learn to deal not only with constant connectivity but also the continuous stream of interruptions to tasks facilitated by the ubiquity of technology in remote work (e.g. Wajcman & Rose, 2011). Moreover, the workday becomes primarily structured around formal meetings and prearranged events, so that there is little opportunity to spontaneously meet in more informal settings.

Second, with remote work interactions happen, by and large, in virtual space. Now, it is important to highlight here that the virtuality of work in itself need not necessarily be the main challenge. For instance, Wilson et al. (2008) conducted a study on geographically dispersed teams and observed a paradox, namely that colleagues who are geographically far removed from each other can still collaborate on a project and feel close in a relational sense. Likewise, Mukherjee (2021) has recently argued that lockdowns and quarantine orders imposed by

Covid-19 measures simultaneously collapse and expand organizational space. In some virtual interactions, one can get the feeling of 'being-there', even when the other is across the globe, while in other virtual interactions it is much harder to establish such an informality. However, there is no doubt that more work is needed to provide empirical data on these kinds of interaction and the outcomes of them.

In particular, sharing tacit knowledge and expertise between colleagues is undermined in contexts of remote working. Informal learning in particular is characterized by its close semblance to actual work practice. Learning, in such instances, is not an activity that takes place after work as a matter of reflection, but it happens in the process of the doing of the work (Billett, 2001a). In virtual interactions, or in the ways that virtual spaces such as Zoom or Skype are designed and in the ways that we use these tools, processes of learning are more restricted. Learning about work is more likely to be detached from actual work practice, so that the richness and depth of learning in a tacit and embodied sense may be lost. We thus need to consider how virtual interactions might be able to take on embodied forms and how virtual spaces can be designed so that they provide affordances – much like a physical workplace does – for people to meet in ways more closely integrated with their work.

Finally, these issues point to an underlying, broader issue. Learning, and especially workplace learning, has always been closely associated with community, identity, and a sense of belonging (Brown & Duguid, 2001), all of which seem to be challenged by the increase in remote working. For example, in relation to 'communities of practice' theories, existing conceptualizations of the interconnections between learning, belonging, and its spatial distribution (e.g. moving from the periphery to the core of a community) need to be reassessed (see for example Hafermalz & Riemer, 2021). Relatedly, what if we take the distributed nature of work and communities (accelerated by the increasing prevalence of remote work) better into account? For example, it has been argued that a multilevel understanding of a landscape, rather than a community of practice, might better account for learning through practice (Pyrko, Dörfler, & Eden, 2019).

Recent studies, fortunately, have also suggested that digitally-mediated remote working can provide substantive opportunities to replicate, create, or even improve informal learning through practice. Yu, Liu, Huang, and Cao (2021), for instance, have shown that the challenges set by the pandemic can directly stimulate informal learning. For example, digital technology can be designed to support informal learning by facilitating a sense of belonging (Hafermalz & Riemer, 2021). This will require further research on the interconnection between virtual and embodied space: Kupers (2015, p. 267), for example, argues that our material body is a precondition for understanding and navigating virtual space, and that when immersed in VR-enabled environments, human actors are only able to navigate this landscape because they know how to do so in the material world. Thus, the design of virtual platforms to support informal learning needs to take these important linkages into account rather than designing virtuality as a completely separate dimension of human experience. Similarly, virtual platforms may enable transdisciplinary collaboration and visual 'thinking' skills through gamifying learning situations (Earle & Leyva-de la Hiz, 2021). This study suggests that the gamification of work and learning can be designed to facilitate "a playful environment in which people are legitimised to express their identities. . .mobilise themselves to help others with their real-life problems at work and share stories on their day-to-day work" (Spanellis, Pyrko, & Dörfler, 2021, p. 16). The induction of new employees to a remote working context should also be designed anew, for instance by providing more immersive introductions (such as shadowing team meetings) or by building,

more purposefully than in the past, online communities of practice (Martyniuk, Moffatt, & Oswald, 2021). Finally, for our own research community, it could be fruitful to study benefits and downsides of in-person conferences that have gone virtual during the pandemic. Research suggests that online conferencing, as well as supporting professional development (Etzion, Gehman, & Davis, 2021) also reduces the carbon footprint of physical events and conferences (Achakulvisut et al., 2020).

In sum, while we have described likely challenges to informal interactions within remote working, we are also suggesting that the new circumstances present opportunities for positively reformatting workplace learning, and supporting new kinds of productive interaction. We are calling for critical and creative engagement with the design of technology and virtual spaces supporting remote work, and the ways in which we use them. In the next section we will explore potentially generative pathways through which informal interactions sustaining workplace learning in a post-pandemic world might be studied.

RESEARCHING REMOTE WORKING IN RELATION TO INFORMAL WORKPLACE LEARNING

To understand the dynamic complexity of informal workplace interactions, we argue that broadly socio-cultural conceptual perspectives on both work and learning are required. There is room within these perspectives for a range of different research approaches, and for a variety of different emphases, focusses, concepts and terms, all of which can be helpful, though all together, even if related conceptually, they can present at times a confusing picture. For researchers, however, this situation presents the opportunity to select from a range of different conceptual frameworks and methodological approaches, two of which are briefly surveyed now. The first of these concentrates mostly on how workplace environments can be designed, in terms of procedures, policies, and cultures, to support and foster workplace learning of all kinds, both formal and informal. The second's focus is more on the nature of team-working practice within the limitations and constraints of any work situation, and on the dynamic interaction not just between the team-members involved but between them and features of the physical and cultural environment.

Fuller and Unwin (2006) offer a methodological and analytical tool for examining, comparing and evaluating different work contexts, called the '*Expansive-Restrictive Continuum*'. This consists of 20 indicators which can produce a unique profile of specific work contexts, for evaluating it from the perspective of employee learning, organisational development, and capacity to respond to changes in its environment. The strength of this framework is that it focusses on the factors contributing to or inhibiting environmental conditions for learning, rather than defining what is included in the definition of learning or excluded from it: in other words it treats learning as fundamentally integrated with workplace practice rather than as a distinct element:

> '*Investigation into the nature of on-the-job learning has revealed that the term 'informal' is helpful because it draws attention to the workplace as a site for learning in which people learn both with and without structured and specialist support. The important point here is that this learning is not the primary goal of the workplace but a by-product of workplace activity in general.*' (Fuller et al., 2003, p5)

'Tacit pedagogy' (Derrick, 2020) is an important dimension of the 'expansiveness' or 'restrictiveness' of specific contexts for practice (Fuller & Unwin, 2006). This framework could be used to investigate the measures taken by organisations to support informal interactions between employees working remotely, the nature of these measures, and the extent to which they are retained after the pandemic.

Guile's (2014) concept of '*Recontextualisation*' helps explain the way practice decisions are made by groups of practitioners within the environmental contexts of their specific work situations. This is an anthropological account of practice, which sees practitioners as continuously adapting and developing their expertise through sharing ideas, opinions, and judgements about how best to address the requirements of the workplace and the immediate tasks they are engaged in, while at the same time shaping and developing both the workplace environment itself, and their practice (Edwards, 2010). Guile's generic conception of collective practice can be used to compare team-working situations featuring different degrees and intensities of remote working, using data collected either through observation, or through focus groups and/or interviews, or both.

We now discuss some examples of recent empirical studies on remote working in order to sketch out a potential research agenda for studying informal interactions within remote work, and follow this with a brief discussion of methodological issues.

Recent empirical research on remote working, some informed by the experience of the pandemic, have built on a large body of more general theoretical literature (for example, Brown & Duguid, 2001; Billett, 2001b) on affordances for effective team-working. Whillans and her colleagues, for example, (2021) identified a generic typology for analysing team working task interactions (the 'what'), process interactions (the 'how'), and relationship interactions (the 'why'), and compared the views of team-workers who had experienced a rapid shift to remote working as a result of the pandemic, about changes in their work based on this typology. They found that while some work functions were improved while working remotely, most were experienced as problematic, and this led firstly to proposals for adaptations and improvements, and secondly to greater understanding and awareness of the practicalities of effective team-working among team members. This perspective, of increasing the understanding of work processes, may be the most productive investigative angle for further studies, rather than aiming simply to identify deficiencies in remote working or 'good' and 'bad' aspects of remote team-working.

Beunza's (2020) study of financial traders has interesting and perhaps unexpected findings. This sector has been working via computer screens for many years, so it might be thought that the transition to physically remote working during the pandemic might not be too challenging. However, this seems not to be the case: banks that kept their trading floors open during the pandemic had significantly better results than those which sent their traders home to work. As Beunza says:

> 'If we want to limit financial crises down the line, banks must figure out a way to replicate the benefits of physical proximity, whether it is through technology, partial reopening of the trading floors, or a combination of the two.' (Beunza, 2020)

This study suggests that the specific effects of general environmental factors must be expected to be different in different sectors.

Leonardi (2021) points out that remote working using digital technology creates 'digital exhaust', which is the meta-data collected by digital systems as a bi-product of digitised work processes, and which, gathered together, represent digital footprints or profiles of teams, departments and individuals. These profiles can help improve work processes (Zuboff, 1988), which would be an interesting focus for research, but also of course have the potential to be used by organisations to monitor, control and restrict autonomy (Zuboff, 2019), with problematic implications for the culture of the workplace and employee motivation.

Another lens through which to research informal interactions and learning at work is exemplified by Hoff (2021), who looks at the effects of remote learning on professional cultures and identity, and especially at times of rapid change. He notes that personal values and psychological subjectivity have become much more central in professional identities as work situations have become less stable and more uncertain, and that the pandemic has called into question the assumption that professionals by definition, as it were, are in full control over their work. He suggests that researchers need to focus more on issues such as resilience, self-esteem, and self-efficacy, all phenomena in which informal work relationships, interactions and learning might be expected to support.

Different possible effects of the pandemic on organisational cultures are surveyed by Spicer (2020), who cites not only examples of shock and refusal to accept and adapt to changed circumstances, but also more productive responses involving collective learning and resilience. This paper suggests several potential angles for productive research initiatives, including comparative studies of organisational resilience, comparative responses to change at organisational or departmental level, across sectors, or between large and smaller organisations. In particular, Spicer asks these key questions:

> 'Can you transport a culture out of a physical space such as an office and into the immaterial world of virtual working? Does the move online lead to a rise or decline of much of the empty symbolic rituals of corporate life? When people are physically separated from each other, how is it possible to build up and maintain a collective culture?' (Spicer, 2020)

The fact that supporting research to find answers to these questions is also the purpose of this paper suggests the extent to which informal interactions at work, and informal workplace learning, are critical indicators of organisational culture.

We now briefly discuss some relevant methodological issues. Research on the effects of remote working on informal workplace learning will need to collect data on (a) tacit and informal aspects of the work environment and (b) formal features of work which may have tacit effects on the motivation of employees, and thus affect employee learning. It will need to look at affective factors including respect for colleagues and the organisation, social norms, career goals, etc, and how these interact with the rules and procedures governing employees' work, to produce learning. Such studies will aim to identify principles for the design of work processes, the physical environment of work, and appropriate cultural and social norms: it will therefore be important to compare a range of different work contexts. By the same token, it will be valuable to examine work practices comparatively in different social, geographical, cultural and economic contexts. For example, few studies so far have looked at 'crowdworking' (Margaryan, 2019) – collaborative teams working virtually on time-limited projects, typically made up of contract workers – with teams working remotely in other practice domains. This group, most of whose

work has always been 'remote', might be seen as of particular interest to the questions which are the focus of this paper.

A key source of insight into these issues will be the perceptions of practitioners themselves, on their workplace as a social and cultural environment. It is probable that mostly qualitative approaches to data collection are therefore indicated, making use of interviews and/or focus groups (Kvale & Brinkmann, 2009), with primary informants being people with recent experience of working remotely, the sample ideally including people working remotely as a result of the pandemic some, all, and none of the time. These informants could all work in one industry or one organisation to enable case study analysis, or in several, enabling a comparative analytical approach. It will be helpful to try to get informants to recollect how their feelings and attitudes to remote working developed and changed over the period of lockdown, and the specific triggers for such changes, especially if these are factors over which the organisation might have some control.

A different approach to data collection and analysis in a relevant study can be found in Margaryan (2019), whose account identifies the informal dimensions of crowdworkers' learning. Her interesting qualitative study used a previously-validated online questionnaire designed to elicit information from digital freelancers in a wide variety of roles about two conceptual types of informal learning: 'workplace learning activities', derived from the workplace learning literature, and 'self-regulated learning strategies' based on Zimmerman's model of self-regulated learning (Zimmerman, 2005). The data collected was coded and analysed using SPSS software, and the results tested for significance mathematically.

Another possibility is the 'Teaching-Learning Ecologies' approach developed by Bailey and Barley (2011), in which data was collected about workplace learning within one occupational sector, but without relying solely on the 'insider perspective' provided by interview data. Their main data collection approach was observational, but they utilised a scheme for structuring their observations, based on Barker's (1963) notion of the 'stream of behaviour', within which they identified 'episodes of learning' against a rigorous set of defining criteria. Each of these episodes was tagged with descriptors, including how long they lasted, who initiated them, how many people were involved, their level of seniority in the organisation, the topic of learning, and the method of teaching. These data generated a complex range of profiles for 3 structural and 3 hardware engineering companies, each one a 'Teaching-Learning Ecology', which they used to compare individual organisations, and engineering specialisms.

Finally, we would like to point out some potentially interesting empirical settings where the above conceptual and methodological toolkit could be used productively. The pandemic has, interestingly, made the topic of remote work an almost globally acknowledged issue. It can now be studied across a wide range of industries, organizations, and other contexts. Nonetheless, we think that some empirical settings will lend themselves particularly well to better understand the role of informal interactions on workplace learning in remote work environments.

First, very many organizations have put tremendous effort into setting up technological infrastructures to support remote working. These initiatives themselves could be a valuable subject for research, including the process by which this was done and how much informal interactions and workplace learning were considered (or not) in their design. These new infrastructures have contributed to the 'digital exhaust' (Leonardi, 2021) mentioned above,

creating metadata as well as, for example, recordings of online meetings, with rich potential for research. There is scope for serious and critical studies into technology *use* rather than the required technology as artefact. This would include observations of people using different tools and platforms when working remotely. One could also inquire into how these technologies are experienced. What, for instance, are their effects on how work gets conducted? How do people use the platforms – as intended or by creatively finding workarounds – in order to continue, change, or adapt informal interactions with colleagues? A recent example of such a study is Miller et al. (2021) on the role of smartphones, an essential part of the infrastructure for digitally-based remote working, in the everyday lives of young people.

Second, the pandemic has been a challenging and unprecedented period for nearly everyone. Researchers should be able to identify rich qualitative data on the experiences of people from all walks of life. Narrative analysis could provide a deeper understanding of the challenges people have faced, especially in terms of being physically removed from work, family, and social settings. Besides identifying the challenges, we also see opportunities for identifying how people have coped with this challenging context, and what they have learned from it. For instance, many friends, families and work colleagues stayed connected socially via weekly "Zoom gatherings", etc. An analysis of such events may show how people can creatively repurpose digital tools and technologies whose primary function is carrying out work tasks and processes. Narrative data of these sorts could potentially be found in online or offline archives that capture the experiences of a specific "*Zeitgeist*".

Third, as we have argued before, the relationship between informal interactions and the physical environment of the workplace is an important one. This enquiry perspective could inspire new work on the role of virtual space within remote work settings. Of specific relevance here is to go beyond descriptive accounts, where space is seen as merely a 'container' of action, but to identify the recursive relationship between space that shapes social practices and practices that, in turn, shape or repurpose physical or digital space. This could be a fruitful empirical area for studying change in working practices as organizational space increasingly becomes more virtual (e.g. Kingma, 2019).

Finally, a thorough reflection on how we ourselves, as researchers and as educators, have been affected and have adapted to new work environments, will be valuable. While we acknowledge that different work contexts have been affected by the pandemic in very different ways, the situation is also unique in that work practices have been disrupted on a global scale. Investigating how our own informal interactions have been disrupted, as well how we have dealt with these disruptions as educators and researchers, provides a potentially interesting vantage point from which to think about workplace learning in the context of remote working. The pandemic and its disruptions are still with us, but studies have already been published that we see as constructive and inspirational attempts to bring new thinking to the organisation of work (see for example Bolander & Smith, 2021; Cozza et al., 2021).

CONCLUSION

In this paper we have focussed on the importance of informal interactions between workplace colleagues for effective practice and for workplace learning, and drawn attention to the possibility that the increase in remote working arrangements for many people, either partially or

wholly, in the post COVID-19 world, raises questions about whether and how the benefits of these informal interactions for work and for learning, may be preserved or replicated. We have suggested that this is an important area for qualitative research, and we have surveyed existing studies with conceptual and/or methodological approaches that may be adapted and/or utilised for such research.

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