Work from Home

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Work from Home: Multi-level Perspectives on the New Normal

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INVESTOR IN PEOPLE

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Foreword

I am writing this foreword seated at the not-so-comfortable improvised workstation that I have been periodically readjusting atop my dining table, in the living roomof my South Dublin suburban apartment. In spite of the typical scepticism Irish have about the arrival of this illusive season, summer has come to our shores and, therefore, windows are flung wide open allowing all the noises ofthe apartment complex to stream in: children playing and screaming, car engines raving, motorbikes passing, boxes offloading, neighbours talking, etc. and, of course, the olfactory sense kicks in as well, when cigarette smoke wafts from the apartment below to my living room.

This work from home (WFH) scenario, in its myriad variations, has been a common experience for so many of us for over a year now. To be sure, I am one of more fortunate ones: I have a reasonable internet connection, I live in a safe neighbourhood, which is fairly quiet, I live on my own, and my apartment is comfortable enough to work in.

As we are slowly – and, given the emergence of new viral variants- quiet uncertainly – trying to move from that 'new normal' into some kind of older/newer normal, it is useful to look back and take stock of what this pandemic-ridden, lockdown-rich year has taught us about work, space, and ourselves. The changes in our work practices during the pandemic have been numerous and with the relocation of workspaces from the offices, factory floors, classrooms, and other organisational settings, into our homes, The book *Work from Home: Multi-level Perspectives on the New Normal*, edited byProfessors Payal Kumar, Anirudh Agrawal, and Pawan Budhwar, could not have been more timely.

From my conversations with a broad group of friends and colleagues, I was fascinated to hear about the diversity of experiences and impacts that working from home had on them. While some thrived and resolved to 'never go back to the old normal', others encountered multiple difficulties and cannot wait to return to their workplace. The first part of this book, which is focussed on individual-level aspects of WFH, provides multiple scholarly explanations for this diversity ofreactions. The second part, which deals more with macro- and organisation-levelthemes, sheds further light on the issue of differential effects of WFH by examining topics which appeared often in media discussions, such as the different effects of WFH on women and men, and how diversity aspects act as moderators of WFH effects on well-being and performance.

The full range of themes that are included in this edited book covers multiple dimensions of WFH, and I appreciate the critical evaluation of both technologies

and organisational practices that many of its chapter authors engage in. This book strikes a good balance between studies that put forward conceptual frameworks and empirical studies that test current theories and models. I was also satisfied to see the wide range of chapter authors' nationalities, making this book truly international and, as such, relevant for people in both the global north and south.

As someone who has been teaching in higher education for over 25 years, with rich experiences in directing master's programmes and leading in international academic organisations and also having published research on learning, management, and work aspects, I can attest to the rigour and relevance of this book. It would make a valuable addition to organisational scholars from management, sociology, psychology, social sciences, and education disciplines and would also be a useful resource for policymakers, business leaders, and practitioners.

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Preface

The COVID-19 pandemic is a black swan event that has thrown our lives into deep uncertainty. Firms have been compelled to take drastic measures, including reducing workforce and production, while re-designing organisational processes and delivery. Like disruptive events in the past that changed human and organisational behaviour, this pandemic too has wrought a tremendous change in policies, norms, and behaviour. One such disruptive change that has become the 'new normal' is the work from home (WFH) phenomenon. This edited volume – *Work from Home: Multi-level Perspectives on the New Normal* – makes empirical and conceptual contributions on the impact of WFH on individuals, organisations, teams, service providers, and institutions.

Some studies suggest that firms that adopted WFH practices quickly saw their valuations go up, received higher brand visibility, and their employees perceived greater business resilience (Mulki, Bardhi, Lassk, & Navaty-Dahl, 2009). However, the other side of the coin is that some employees face work–life imbalance and strife, and that organisational productivity is not always up to the mark (Deloitte, 2020; Unison Public Service Union, 2019). WFH during the COVID-19 pandemic offers an opportunity for new academic inquiry, which we hope to take further in this edited volume.

Organisations which are fast movers in adopting technology tend to provide greater choices to their employees including the choice of WFH. Many studies have suggested that WFH has seen improvement in work–life balance through reduction in commuting time and increased flexibility in allocating time for work and family. Since people need not commute to work as often as before, WFH leads to decrease in traffic jams and vehicular pollution, and consequently increases sustainability (ILO & EUROFOUND, 2018). While, these benefits are certainly encouraging, it is important to look critically into what types of organisations are best suited for WFH, and how its practice impacts organisational productivity, employee–organisational relationship, and work identity.

This edited volume attempts to answers such questions and more. This book is divided into two broad sections. The first section contains five chapters, and the second contains seven chapters. The first section primarily focusses on conceptual- and individual-level frameworks. This section focusses on the individual perspective and how they could think, adapt, change and re-train, and manage their lives while trying to stay productive and relevant in the new post-pandemic work environment. The second section focusses on the strategic-, organisational-, and policy-level scenarios. It discusses how firms and countries should be

strategic- and policy-driven in managing relevance, employment, innovation, and competitiveness.

The *first section* of this book studies how the transition to WFH affects individuals and how they managed to balance their home life with WFH. WFH may have adverse implications on employee motivation, leading to burnout (Giurge & Bohns, 2020). There are potential conflicts between work and home (family life) from the organisational boundary theory perspective, which could reduce productivity (Kreiner, Hollensbe, & Sheep, 2009). Van der Lippe and Lippényi's (2020) exhaustive cross-country study on team performance in a WFH scenario shows negative team productivity when multiple co-workers WFH. At the individual level, there are many points of discussion which this volume and, in particular, the first section explores.

The first chapter by Carmine Gibaldi and Ryan T. W. McCreedy suggests that virtual work is positively correlated with productivity. Their detailed study investigated how sustained virtual work impacts perceived individual productivity, perceived organisational productivity, collaboration, job satisfaction, and connectedness over 15 weeks. They found that perceived productivity and connectedness were exceptionally high in the initial weeks, tapering downwards as a function of time physically removed from co-workers, while job satisfaction remained essentially unchanged and collaboration yielded no reportable trends. The second chapter by Ada T. Cenkci takes a contrary position to Chapter 1. It suggests that working from home globally has contributed to loneliness and isolation because of the lockdowns while providing practical recommendations to enable organisational leaders and human resource practitioners to decrease workplace loneliness.

Communication plays a vital role in organisational innovation, production, and value creation. Companies offer several channels for employees to communicate their ideas and issues. Digitalisation has brought forth additional channels for communication, which have assumed greater importance in the post-COVID world. The third chapter by Christina Fuchs and Astrid Reichel focusses on employee communication. Their chapter shows that while digital informal voice channels do influence employees' willingness to communicate, they also observe a 'missing spark' in digital communication. Work–life is a significant challenge among young families. The chapter on women's global view on work–life by Kerri Cissna, Lene Martin, Margaret J. Weber, and Amanda S. Wickramasinghe explores the stories of women on work–life integration issues. It offers a strategic framework for WFH that traces theoretical progressions while proposing a new perspective.

When higher education institutions had to be closed suddenly because of the pandemic, instructors quickly adapted to the online teaching environment. Fifth chapter by Holly Chiu, William Hampton-Sosa, and Tomas Lopez-Pumarejo tries to understand the effects of the quality of instructional technologies on compatibility and psychological availability, which further affect online teaching satisfaction and online teaching intention. Their work offers a clearer picture of the experiences of instructors since the imposition of the lockdown.

In their 2020 edited volume, Kumar, Agrawal, and Budhwar suggest that technologies are changing the way employees engage in productive activities and, consequently, leading organisations to re-imagine organisational practices and boundaries. The general understanding is that technological breakthroughs have substantially impacted spatial characteristics of productivity, including WFH (Agrawal, Schaefer, & Funke, 2018; Shamir & Saloman, 1985). However, technology is an enabler and not a solution. Although technology has dramatically helped the WFH transition, it cannot possibly consider the human dimension of this shift. Technology is not a panacea to all problems. We also need to consider the sociological, psychological, and economic costs on individuals and organisations asked to make transitions.

The *second section* explores technological, organisational, and institutional behaviour and their outcomes in the WFH transition. Shared leadership is achieved and maintained through the types of interaction between team members and the leader. Exploring communication problems among teams engaged in WFH, the sixth chapter by Dr Neha Chatwani explores how shared leadership among distributed teams working from home can increase trust, productivity, and effective coordination. Women face well-documented barriers to career success while working in male-dominated spaces. The seventh chapter by Seterra D. Burleson, Debra A. Major, and Kristen D. Eggler reviews key career obstacles for women in male-dominated fields. It analyses the impact of WFH on these obstacles while providing actionable strategies for organisations to implement WFH in a way that promotes rather than hampers the success of women in these fields. The eighth chapter by Devalina Nag shows that the varied personality types of employees may hinder employee performance, given that introverts and extroverts thrive in different work environments. It also discusses strategies to accommodate introverts' and extroverts' preferences while designing the physical workplace.

WFH as the new normal has challenged existing organisational cultures. The chapter by Sumita Raghuram reviews research that shows the relationship between remote work and organisational culture and its subsequent impact on critical outcomes of interest such as organisational identification, socialisation, knowledge sharing, employee turnover, and productivity. This chapter includes a model and propositions, adding to previous research on voluntary and mandatory remote work programmes. Organisations promote certain behaviours and norms as and when their culture is developed. However, this can be challenging in uncertain times such as these. The tenth chapter by Matthew D. Deeg, Andrew Fitzgerald Henck, and Doreen Matthes seeks to explain how the organisation, HR managers, and employees can both conflict and complement each other in an internal three-way tug of war during crises, provides recommendations for organisations, and further avenues for research.

The eleventh chapter by Elizabeth Spradley and R. Tyler Spradley extends WFH literature by recasting WFH performances that emphasise agents' manipulation of the scene. Drawing on the dramatist paradigm, the study uses Burke's pentadic criticism to code the social media application Pinterest's 'work from home' and 'home office' pinboards for act, agent, agency, scene, and purpose. Start-ups faced volatility, uncertainty, complexity, and ambiguity times during

these pandemics. The flexible, start-ups that adapted to WFH environments had higher survivability potential than those that remained dependent on a brick-and-mortar business model.

In this context, the last chapter by Anirudh Agrawal, Payal Kumar, Shalaka Sharad Shah, and Pawan Budhwar explores how start-ups in India are managing the new normal. They draw on an institutional logics framework to contrast the difference between work from office and WFH. Their findings suggest that although WFH is strongly sustainable, it may increase stress in the long run and decrease innovation capabilities and trust. They suggest a hybrid approach to work, as the way for the future.

This volume tries to address a recent event and the related outcomes on employees, organisations, and institutions. It covers a whole gamut of interests, from practical effects on people and technology to a more conceptual approach, to looking back and placing this new normal of work from home in a broader context of employees, theories, nations, productivity, work–life balance, and organisational performance.

Admittedly, we did not envisage that the pandemic would still be raging when we started this book project over a year ago. While scholarship on WFH is in its infancy, we hope this edited volume will make a valuable contribution for other scholars to build upon. It is hoped that both researchers and practitioners alike will enjoy reading this volume and will gain new insights from early research by numerous authors from both the Global North and Global South. We thank the contributors, reviewers, and the publisher for making this edited volume possible.

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Section I

Individual Perspectives

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Chapter 1

The Observed Effects of Mass Virtual Adoption on Job Performance, Work Satisfaction, and Collaboration

Carmine Gibaldi and Ryan T. W. McCreedy

Abstract

Since the dawn of modern technology, managers have long discussed the effectiveness of virtual work. While general trends have indicated increased acceptance of virtually working in recent years, the onset of the global coronavirus (COVID-19) pandemic forced a majority of the world's professional workforce to quickly embrace virtual work. Building upon previous research, this chapter suggests that virtual work is positively correlated with productivity. Using an online open survey, the study examined the extent to which sustained virtual work impacts perceived individual productivity, perceived organisational productivity, collaboration, job satisfaction, and connectedness over a 15-week period. Findings demonstrate that perceived productivity and connectedness were particularly high in the initial weeks, tapering downward as a function of time physically removed from co-workers. Job satisfaction remained largely unchanged and collaboration yielded no reportable trends. Managers reported more negatively than non-managers in all tested variables. Findings support more flexible working systems for employees in the future.

Keywords: Telework; remote work; virtual work; productivity; COVID-19; job satisfaction; connectedness; collaboration

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Effects of Sustained Virtual Working on Worker Productivity during the Pandemic

Between February and March 2020, the number of global employees teleworking/working virtually grew significantly, in the United States alone from an approximated 4.7 million (Hering, 2020) to 16 million, accounting for nearly one in four knowledge workers (Slack, 2020). This abrupt shift towards the virtual working environment (VWE) is the direct result of the 2019 coronavirus disease (COVID-19) pandemic, which resulted from the spread of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (WHO, 2020). Scepticism of VWEs has seemingly prevailed in the global management zeitgeist (Kaplan, Engelsted, Lei, & Lockwood, 2018) with adoption slowly growing. Prior studies supported the positive benefits of VWEs; however, previous studies did not research a randomised group of working adults during a mass, non-elective adoption of virtual work. The current study used global survey responses to observe a 15-week period of virtual work to rectify the gaps in existing research.

The present study observed perceptual shifts in productivity, collaboration, job satisfaction, and connectedness for the global virtual workforce as functions of time, managerial status, and previous experience working virtually. In addition to quantitative corollary analysis, qualitative analysis in the form of open participant responses was included. Based upon a review of previous literature and studies, as well as emerging contemporary surveys, this study aimed to support the following hypotheses: (1) On average, workers with previous exposure to a VWE will report greater (a) job satisfaction, (b) perceived productivity, (c) sense of collaboration, and (d) connectedness than those who are inexperienced; (2) workers with little to no previous virtual work experience will report increasing levels of (a) job satisfaction, (b) perceived productivity, (c) sense of collaboration, and (d) connectedness as their length of exposure continues; asymptotically reaching the levels of their virtually experienced counterparts; (3) managerial perceptions of productivity will initially be more negative than non-managerial employees, rising as a function of time; and (4) workers' sense of (a) collaboration and (b) connectedness will decrease as a function of sustained time physically removed from co-workers.

It should be noted that there is risk of skewed data during a global pandemic. As will be elaborated on later, observations of perceptual changes over time during the COVID-19 crisis aimed to illustrate correlations in time exposed to VWEs, with the global pandemic as a control. Further, this study investigated knowledge workers that continued employment during the then ongoing pandemic. With unemployment levels near that of the Great Depression (Reinicke, 2020), it is understood that the VWE was not a safe haven for everyone.

Literature Review

> […] when we suddenly make available technologies that can place a low-cost 'work station' in any home, providing it with a 'smart' typewriter, perhaps, along with a facsimile machine or computer

> console and teleconferencing equipment, the possibilities for home work are radically extended. (Toffler, 1980, p. 213)

History of VWEs. Alvin Toffler's (1980) futuristic view of mankind returning to their homestead, much like the world prior to the industrial revolution, but connected via technology to work collaboratively at a distance, is not far from the reality for many in modern times. The term 'telecommuting', herein described as working virtually, was first coined in 1975 in a seminal paper by Jack Nilles (1975), in which he envisioned that technological advances would curb urban sprawl and increase worker productivity.

Global and local crises have a rich history in increasing virtual work adoption. Following the oil crisis of the 1970s, virtual work became of greater interest in corporations and academia, though various studies found little correlation between commute reduction and the attractiveness of working virtually (Bailey & Kurland, 2002). Virtual work saw popularity gains in the early 1990s with call centre workers in the Los Angeles area in response to an earthquake disaster; still, a majority of people globally did not have the necessary data connections and management was sceptical (Paulak, 1994).

Echoing the 1970s oil crisis, gas prices soared above four dollars (USD) per gallon in 2008; yet, while 92% of those surveyed believed their work could have been done remotely, only 39% were able to work virtually at least part-time, citing managerial distrust (Gelston, 2008). A haunting harbinger for the early 2020 forced adoption of virtual work, a 2009 article reported that 74% of experienced virtual workers could continue working in the event of a potential 18-month flu pandemic where up to 40% of the US population would be let go or furloughed (Pearce, 2009). Despite the growing prevalence of virtual work, business leaders still felt that communication and collaboration suffered with remote workers; around 2013, Yahoo, Best Buy, Hewlett Packard, and others began to reverse prior corporate policies, forcing more employees to work in-office (Wilkie, 2014).

As of early 2020, just prior to the COVID-19 outbreak, it was estimated that 3.4% of the US population were working virtually full-time, a seemingly small number for such a technologically advanced country. However, this represents a 91% growth over the decade (Hering, 2020). Generationally, 62% of Millennial and Gen-Z homebuyers reported working virtually at least one day a week compared to 54% of Gen-X homebuyers (Coursolle, 2020). Similarly, slow growth is found throughout Europe and is generally attributed to managerial distrust of VWEs (Peters & den Dulk, 2003). It has been suggested that an increase of virtual work may happen once managers and human resources (HR) programmes operate with 'commitment and trust as guiding principles, rather than control and coordination' (Peters, den Dulk, & de Ruijter, 2010, p. 517).

Productivity. Perhaps the largest criticism of working virtually has been the concern of decreased productivity (Kaplan et al., 2018). This conventional wisdom is difficult to support scientifically; a meta-analysis of 80 studies conducted in the 1980s and 1990s yielded unanimous evidence of increased productivity while working virtually (Bailey & Kurland, 2002). However, Bailey and Kurland (2002) stated that the majority of the studies they reviewed of telework productivity were

derived from self-reported data and therefore claimed to find little evidence of true productivity improvements. They postulated that since most virtual workers at the time did so via request or by volunteering, they may have been biased in reporting, to skew research in their favour (Bailey & Kurland, 2002). Others have stated that individuals may lack the perspective to measure their own productivity in relation to organisational expectations, suggesting only managers can gauge levels of shirking in VWEs (Rose, 2015).

In direct response to concerns of self-reported data, quantitative studies emerged. A five-year observation of virtually working call centre employees (n = 3–4), with productivity measured as a function of hours worked and calls handled, found productivity gains of 154% over their in-office peers (n = 6–9) within the first 13 months, and mostly sustained through the study (Butler, Aasheim, & Williams, 2007). Stanford economics professor Nicholas Bloom and his colleagues conducted a nine-month study (n = 249), using a call centre and quantitative metrics, finding a 13% performance increase (Bloom, Liang, Roberts, & Ying, 2015). Bloom (2017) shared critiques of self-reported productivity data; however, call centres provide easy fodder for self-report sceptics because the number of successful calls can be quantitatively correlated to hours worked to determine productivity.

Another study (n = 89) aiming to avoid biases in self-reporting found a positive correlation between productivity and teleworking through a six-dimensional model of productivity, consisting of motivation, job satisfaction, time management, economics, socio-environmental factors, and teamwork (Ahmed, Ishaque, Nawaz, Ali, & Hayat, 2014). Using a seven-dimensional ACHIEVE questionnaire, on a random set of staff at the Iranian Ministry of Cooperation, Labor, and Social Welfare, teleworkers (n = 120) were measured as having greater productivity than their office counterparts (n = 120) (Farahbakhsh, Shafiabadi, & Sakhaei, 2015).

While it varies by industry, studies measuring self-reported percentage of time used inefficiently suggested that virtual workers (n = 1,001) on average waste almost 26% of their time on the clock (Hyde, 2020), while office workers (n = 1,989) reported wasting approximately 64% (Vouchercloud, 2017). While both survey results are alarming, one could assume in-office workers waste 246% more time than virtual workers, based on comparative calculations.

Suspicion of direct self-reporting and broad definitions of productivity permeates much of the literature reviewed for this study. Because most knowledge workers do not produce repeated, measurable widgets, we often rely on hours worked as a measurement of productivity (Rose, 2015). Some companies, such as Best Buy, have come to the realisation that hours do not necessarily correlate to output, and thus, they have adopted a 'results-only work environment' (ROWE), abandoning rigid work-hours in favour of task completion (Pearce, 2009). ROWE adoption with virtual working teams resulted in a 35% increase in productivity, though this change in management style was met with resistance and was rolled out in phases (Pearce, 2009).

The present study defines productivity as the subjective state of an individual, in which they perceive they/organisation are generating value; when one perceives

greater productivity, they perceive greater value generation within a time period. Our study measures both personal productivity, the individual's perception of their value creation, and organisational productivity, the individual's perception of their organisation's value creation collectively. Questions about individual productivity were asked to mirror the self-report studies in our review of literature. However, we wanted to distinguish any potential dynamics between managerial versus non-managerial responses in relation with their individualised perceptions of their organisation's productivity; therefore, we also added a question pertaining to organisational productivity.

Given the common trends in increased productivity in virtual teams, paired with discomfort and distrust from managers, the present study measured correlations between managerial perceptions of organisational and individual productivity against non-managerial staff as a function of time in the VWE. Further, as there appears to be little significant difference in results between definitions and measurement methods of productivity, and given that the participants' productivity would be exceedingly difficult to measure without managerial bias (from a manager-reported model), or uniform measures of productivity (e.g. calls per hour), the present study observed self-reported perceived productivity.

With rapid adoption, there may also be connections between perceived productivity and prior experience with the VWE. Bailey and Kurland's (2002) meta-review yielded one example of an initial drop in productivity by adopting the VWE, yet the study saw an increase in productivity thereafter. At the time of this writing, one current survey of the VWE during the COVID-19 crisis was reviewed. In a sample of 2,877 American knowledge workers, 45% of which were working virtually, almost one in three inexperienced remote workers claimed negative effect on productivity, compared to only 13% of those who had previously worked virtually (Slack, 2020). Seeing as most new virtual workers had been forced by the global pandemic, and 60% of experienced virtual workers claimed increased productivity (Slack, 2020), we expected to see a correlation between previous exposure to VWEs and perceived productivity. Additionally, as those inexperienced with VWEs gain more time to acclimatise, we presumed they would begin to report similar levels of productivity as the experienced participants of the present study. Lastly, as managers become involved in or exposed to virtual work, they tend to form more favourable opinions of the VWE (Gelston, 2008), and thus, we anticipated to see the same trends reproduced within the current study.

Job satisfaction. Remote work may present a promising tool for increasing job satisfaction. Job satisfaction in the VWE stems largely through work–life interface, especially for dual-career families and those with children (Pearce, 2009). Early studies failed to clearly support increased job satisfaction in the VWE, with a few exemptions through interviews or free response format (Bailey & Kurland, 2002). More recently, virtual workers are believed to be 57% more likely to be satisfied with their job than those in-office and 80% report moderate to no stress (Hyde, 2020). In the six-dimensional productivity study mentioned previously (Ahmed et al., 2014), job satisfaction was measured; 61.78% of experienced virtual workers reported a high level of job satisfaction with a standard deviation of 0.94.

Farahbakhsh et al. (2015) found greater job satisfaction in virtual workers when compared to in-office cohorts. Fonner and Roloff (2010) also correlate working virtually with increased job satisfaction, crediting work–life interface and limited interruptions or distraction that would otherwise be present in an office setting. However, while workers enjoy work–life interface, they find it difficult at times to socialise with co-workers and feel connected, making job satisfaction a complicated function of factors (Peláez & López, 2013). It is important to recognise that work–family conflicts have a moderating effect on how an employee may perceive their work–life interface; several studies have shown that work impacts on family are decreased in virtual workers but family impacts on work are increased, with household size (Golden, Veiga, & Simsek, 2006) and having children (Madsen, 2003) being the largest determinants of work–family conflicts.

It should be noted that short-term studies, especially where the VWE is new to employees, may be subject to Hawthorne effects. Hawthorne effects have the potential to skew all dimensions measured in the present study. To avoid potential Hawthorne effects, one of the aforementioned studies (Butler et al., 2007) that collected data over five years, did not directly measure job satisfaction. However, they found no significant difference between virtual worker and in-office employee rates of absenteeism. Studies examining the duration of immersion in a VWE are exceedingly rare; much of our current understanding of virtual work is based on studies with those already working virtually or experiments involving initial exposure. The current study explored virtual workers' job satisfaction, and other dimensions, with greater definition than previous studies by having respondents self-report job satisfaction while comparing with consecutive time working virtually and level of prior VWE experience. The intention of this study was to be novel by comparing seasoned virtual workers with those without prior work experience as they become more acquainted over a sustained time working virtually.

Collaboration/connectedness. Managers who are virtual work sceptics place a lack of face-to-face managing and less organic conversations at the top of their list of fears (Monroe, 2010). Collaboration and connection, while virtually working, have long been the subject of scrutiny. The book *Managing the Flow of Technology* (1977), by MIT professor Thomas J. Allen, illustrated a model wherein frequency of communication decreases as physical distance increases, known as the 'Allen curve'. Allen (1977) observed that people were four times more likely to communicate with someone seated 6 feet from them than 60 feet. Since Allen's seminal study, working outside of the physical office proliferated, as did communication technologies such as cell phones, instant messaging, email, and videoconferencing. A study revisiting the Allen curve found that, despite technological advances, the curve still held the same behaviour; in fact, employees who shared physical space were 20% more likely to use digital communication than virtual workers (Waber, Magnolfi, & Lindsay, 2014). Interestingly, 61.8% of virtual workers believed that the then-current technologies would allow them to facilitate collaboration, while only 23.61% disagreed or had no opinion (Ahmed et al., 2014).

Shortfalls in collaboration appear to stem from a lack of open information exchange (Allen, 1977; Waber et al., 2014); in other words, virtual workers do