

VIRTUALITY AT WORK: A DOUBLED-EDGED SWORD FOR WOMEN'S CAREER EQUALITY?

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Organizational scholarship on virtuality and women's career equality are growing research streams relevant to the changing nature of work. Yet these streams are underintegrated, creating a lack of nuanced understanding of how virtuality impacts gender equality. We review findings from 100 articles and synthesize two main research perspectives to develop an integrative framework of virtuality's mixed effects for women. Studies grounded in person–environment fit theory have tended to emphasize positive effects, while those based on social role theory have examined both positive and negative effects. A critical insight from our review is that while growing virtuality holds promise for advancing gender equality by enabling opportunities for women to overcome persistent career challenges, it may simultaneously inhibit their success. However, few studies have examined these dynamics together. Our review illuminates the career-enhancing and career-damaging mechanisms through which virtuality–gender interactions concurrently improve and undermine women's equality outcomes. These dual mechanisms create three virtuality tensions for women between: (a) work–nonwork boundary control and interference, (b) enhanced and reduced job opportunities, and (c) social integration and exclusion. We offer a research agenda that attends to both sides of these tensions, identifies their interdependencies, and examines how they operate over time.

For decades, researchers have sought to identify factors in the work environment that influence women's career equality, defined as “the degree to which women have equal access to and participation in career opportunities, and experience equal intrinsic and extrinsic work and nonwork outcomes compared to men” (Kossek, Su, & Wu, 2017: 228). One of the most significant changes in the workplace is the growth in virtuality, where employees are increasingly dispersed (i.e., not working face-to-face) and engage in technology-mediated communication. However, research on the implications of rising virtuality at work for gender equality is fragmented across different organizational fields (e.g., management,

psychology, information systems, communications) and virtual work disciplines (e.g., telecommuting, virtual teamwork, computer-mediated work) (Raghuram, Hill, Gibbs, & Maruping, 2019). This lack of conceptual and empirical integration is critical to address, as virtuality likely will continue to expand at an accelerated rate (Alexander, De Smet, Langstaff, & Ravid, 2021; Dua, Cheng, Lund, De Smet, Robinson, & Sanghvi, 2020; Lund et al., 2021). Yet, its potential effects on women's careers is uncertain, and there is evidence that the increase in remote work during the COVID-19 pandemic significantly exacerbated career inequality for women (Kossek, Dumas, Piszczek, & Allen, 2021; Shockley, Clark, Dodd, & King, 2021).

Although extant research has suggested mixed effects of increased virtuality for women's career equality, a holistic understanding is missing because individual studies have tended to emphasize *either*

We would like to thank Marya Besharov for her editorial guidance and incredibly constructive and thoughtful feedback during the development of this manuscript.

negative or positive effects, drawing on only one of two prevalent theoretical views: person–environment (P–E) fit theory (Kristof-Brown, Zimmerman, & Johnson, 2005) or social role theory (Eagly, Wood, & Diekmann, 2000). For instance, while some studies have shown that working at home may fit women’s tendency to prioritize work–life balance, increasing their participation in the labor force (Chung & van der Horst, 2018, 2020; Costantini, Dickert, Sartori, & Ceschi, 2021), others have found that it may also increase their work–family conflict because of the greater family role expectations women generally face (e.g., Falkenberg, Lindfors, Chandola, & Head, 2020; Hammer, Neal, Newsom, Brockwood, & Colton, 2005). As another example, while women’s tendency to adopt more collaborative managerial styles may be beneficial in computer-mediated communication (Adrianson, 2001; Lind, 1999; Lowden & Hostetter, 2012), the reduced social cues in this context may strengthen biased perceptions of women as lower in competence and achievement orientation, resulting in less favorable task assignments (Christofides, Islam, & Desmarais, 2009).

To clarify the confusion in the literature and advance research on the gender equality implications of increased virtuality at work, we conducted a comprehensive review to integrate these mixed effects and theoretical views and propose a future research agenda. We synthesize virtuality’s effects on women’s career equality across disciplines following Raghuram et al.’s (2019) recommendation to theorize the underlying effects of virtuality’s two core dimensions: (a) degree of dispersion, defined as “different forms of distance between participants in virtual work arrangements, including the extent to which virtual workers are distributed across space and time”; and (b) degree of technology dependence, defined as the “extent to which individuals rely on communication tools and the types of communication tools (e.g., email, text, and social media) they use in their work” (Raghuram et al., 2019: 6).

Drawing on these two dimensions, our goal is to provide a systematic interdisciplinary review of the gendered implications of different degrees of virtuality in *all* jobs, not only those more typically classified as “virtual work,” which are generally limited to knowledge workers. Historically, researchers have tended to dichotomize virtuality as solely in-person or face-to-face, versus solely virtual. Consistent with more recent conceptualizations of virtuality as a continuum (Gilson, Maynard, Jones Young, Vartiainen, & Hakonen, 2015), we argue that contexts vary in their degree of virtuality, ranging from primarily

face-to-face work (e.g., a manager in a grocery store) to solely virtual work (e.g., a member of a globally distributed engineering team who fully depends on technology to communicate). Thus, we assume that most jobs have at least some degree of virtuality (e.g., even the grocery store manager exchanges texts with vendors about orders), and most individuals engage in a combination of virtual and face-to-face work. By recognizing virtuality as an “increasingly common element of conducting business” and “the norm for many employees” across occupations (Makarius & Larson, 2017: 159), we hope to encourage researchers to broaden their thinking to consider virtuality’s gendered effects in many occupational settings.

We propose an integrative framework that explicates the varied impacts of different subdimensions of dispersion and technology dependence to reveal their countervailing influences underlying what we refer to as the double-edged sword of increasing virtuality for women’s career equality. A critical insight uncovered in our analysis is that while virtuality holds great promise for advancing women’s career equality by enabling their success at work (increased opportunities for job access and career advancement) and in life (enhanced work–family balance and well-being), ironically, it can simultaneously inhibit these same outcomes. We also identify the career-enhancing and career-damaging mechanisms through which virtuality–gender interactions concurrently improve and undermine women’s work and nonwork outcomes. These dynamics create three tensions for women’s career equality between: (a) work–nonwork boundary control and interference, (b) enhanced and reduced job opportunities, and (c) social integration and exclusion. Finally, we highlight contingencies that may tip the balance of each tension toward positive or negative gender career equality effects, and conclude by proposing a future research agenda. Our review redirects management scholars to focus on better understanding how organizations can leverage the benefits of increased virtuality while mitigating its adverse effects.

LITERATURE REVIEW

Related Reviews

Previous reviews relevant to the implications of virtuality for women’s career equality fall into four major categories: (a) broad integrative reviews on virtuality that have not focused on gender effects (e.g., Makarius & Larson, 2017; Raghuram et al., 2019), (b) reviews on gender and career equality that have not focused on virtuality (e.g., Grandey, Gabriel, &

King, 2020; Kossek et al., 2017); (c) reviews focused on a specific type of virtual work, such as virtual teams (e.g., Martins, Gilson, & Maynard, 2004), telecommuting (e.g., Bailey & Kurland, 2002; Gajendran & Harrison, 2007), or computer-mediated communication (e.g., Aldunate & González-Ibáñez, 2017; Nowak & Fox, 2018), but without a major gender focus; and (d) reviews focused on gender effects for specific types of virtual interaction, such as online negotiations (Stuhlmacher, Citera, & Willis, 2007), or specific virtual work outcomes, such as work–life balance (Ollier-Malaterre & Foucreault, 2017; Ollier-Malaterre, Jacobs, & Rothbard, 2019). We extend previous work by holistically examining the implications of virtuality for women’s career equality.

Review Methodology

We searched for papers in five databases, including Academic Search Complete, APA PsycArticles, APA PsycInfo, Business Source Ultimate, and Web of Science, limiting our search to articles published between 1995, when research activity related to virtual work started to grow (Raghuram et al., 2019), and February 2021. Below, we describe how we conceptualized women’s career equality, gender, and virtuality at work to develop our search terms (see Appendix A for a complete list).

Conceptualization of women’s career equality and search terms related to gender. Our conceptualization of women’s career equality is based on Kossek et al.’s (2017) established framework, which explains gender differences in career opportunities and intrinsic and extrinsic work and nonwork outcomes. For our review, we used established gender search terms (e.g., gender, sex, male/female, women/men).

Conceptualization and search terms related to virtuality at work. Our conceptualization of virtuality is based on Raghuram et al.’s (2019) approach, which focuses on the two core dimensions of virtuality noted in the introduction: *dispersion* and *technology dependence*. We used their extensive list of virtuality search terms augmented by additional terms that have been associated with virtual work: global work; types of dispersion (e.g., spatial); different communication media characteristics (e.g., lean, rich) and types of technologies (e.g., mobile devices); and properties capturing degrees of virtuality (e.g., connectivity).

Inclusion criteria. We applied a three-step process to systematically identify which empirical studies

to include. First, two of the authors independently coded the studies by reviewing the abstracts and excluding studies that (a) were not empirical, (b) were unrelated to an organizational setting (e.g., virtual communities such as Facebook), (c) did not analyze a virtuality dimension (e.g., focused on gender differences in technological sectors such as the gaming industry), or (d) did not examine a gender difference (e.g., examined the impact of working at home but did not consider gender effects). Second, we reviewed the abstracts and, if necessary, the full text, retaining only those studies that examined both virtuality at work and gender differences. The initial agreement between coders was 90%, which increased to 95% after discussion. We resolved the remaining disagreements by consensus with a third coauthor, resulting in an initial list of 118 papers. We only retained articles based on the most rigorous research methods—that is, those published in journals included in Thomson-Reuters’s Journal Citation Reports—yielding a final list of 100 papers.

As Table 1 shows, most of these papers were published in the last decade, reflecting the growth of virtuality research over time. This growth is largely due to the drastic increase in dispersion-related studies (mostly involving remote work and telecommuting), which more than doubled from 14 papers from 2010–2014 to 35 papers from 2015 through early 2021.

OVERVIEW OF INTEGRATIVE FRAMEWORK

In research examining the effects of virtuality for women, scholars have generally either explicitly or implicitly assumed an interactionist approach, which focuses on interactions between the person and their environment (i.e., how virtuality interacts with gender). Virtuality, as captured through subdimensions of its core dimensions (dispersion and technology dependence), is assumed to create changes in the work environment, which we refer to as *virtuality dynamics*. These *virtuality dynamics* interact with workplace dynamics related to gender differences studied in career equality research, which we refer to as *gender dynamics*, to cause a differential impact of virtuality across genders that shapes women’s career outcomes.¹ For example, a

¹ Although dispersion subdimensions (such as working at home) are necessarily facilitated by technology, following Raghuram et al. (2019), we classify studies involving these subdimensions as dispersion-related if the effects theorized relate to employees’ locations rather than the effects of using CMC.

TABLE 1
Summary of the Growth of the Literature on Virtuality and Women's Career Equality and the Methodological Approaches Used

	Dispersion	Technology Dependence	Total
Total number of articles in the review	67	33	100
By timeframe			
1995–1999	2	5	7
2000–2004	7	7	14
2005–2009	10	10	20
2010–2014	14	4	18
2015–2019	26	4	30
2020–Feb 2021 (14 months)	9	3	12
By methodology			
Quantitative	41	26	67
Qualitative	19	3	22
Mixed-methods	4	3	7
Meta-analysis	3	1	4

higher level of dispersion associated with working at home (a virtuality subdimension) provides employees greater flexibility in the location of their work (a virtuality dynamic), making it easier to manage nonwork demands. This interacts with women's stronger interest in work–family balance (a gender dynamic), such that women benefit more than men from this flexibility in terms of improved work–life balance and quality of life (career outcomes) (Maruyama & Tietze, 2012; Sherman, 2020).

Adopting this interactionist approach, we propose an integrative framework (see Figure 1) that emerged from the research findings to show that virtual environments may both improve and impair outcomes related to women's professional and personal success. Whether virtuality is beneficial or detrimental to women depends on the specific virtuality and gender dynamics that interact. Our findings show that different virtuality–gender interactions can be explained by two main theoretical perspectives highlighted in Kossek et al.'s (2017) women's career equality framework that have often been implied or directly used in the studies reviewed: P–E fit theory (Kristof-Brown et al., 2005) and social role theory (Eagly et al., 2000). The P–E fit view involves gender dynamics related to attributes of women (e.g., values, interests, and needs) that make them either a better or worse match (compared to men) to the dynamics of virtual work environments. This may be because these attributes shape the extent to which women effectively manage the challenges of working virtually or benefit from its opportunities. The social role view involves gender

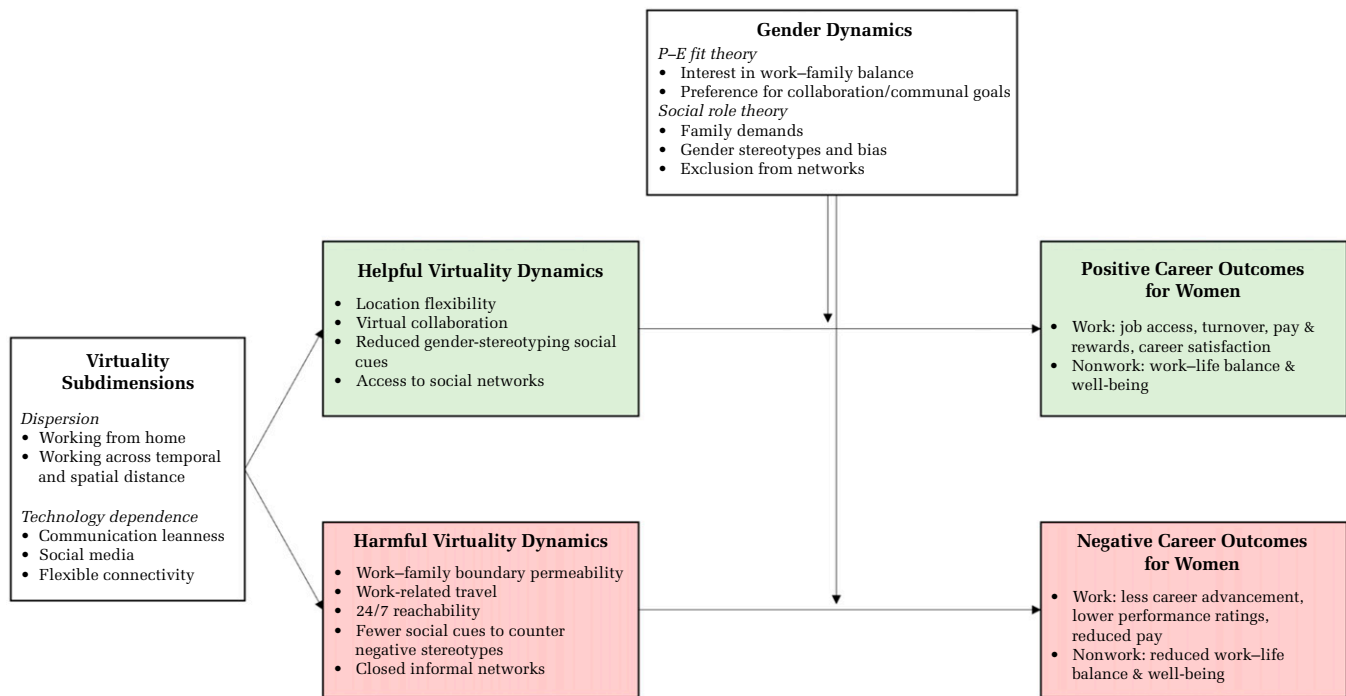
dynamics related to gendered perceptions, biases, and stereotypes about women that are either strengthened or mitigated in a virtual environment.

Virtuality Subdimensions and Corresponding Dynamics

For each virtuality dimension (i.e., dispersion or technology dependence), we identified *virtuality subdimensions* that have been studied in conjunction with gender (see Figure 1). The two subdimensions of dispersion are (1) working at home and (2) working across temporal and spatial distance—that is, interacting with others across different time zones and physical locations (O'Leary & Cummings, 2007). The three subdimensions of technology dependence focus on properties of technologies used to facilitate virtual interactions and include (1) communication leanness, (2) flexible connectivity, and (3) social media. Communication leanness describes the extent to which communication media transmit fewer social and informational cues that are present in in-person, face-to-face interactions (Daft & Lengel, 1986; Kirkman & Mathieu, 2005). For example, email and instant messaging are considered leaner than videoconferencing because they are text-based and do not transfer nonverbal cues (e.g., tone of voice and facial expressions). Flexible connectivity describes the extent to which communication technologies (e.g., smartphones) enable employees to connect to work-related systems and people at any time and from anywhere (Hill, Axtell, Nurmi, & Raghuram, 2022; Nurmi & Hinds, 2020). Social media are digital Web-based platforms that have several properties that distinguish them from older forms of digital communication media such as email and text messaging: Social media are more open and dynamic and enable users to form large and highly interactive networks (McFarland & Ployhart, 2015).

Our findings show that these five virtuality subdimensions change the work environment to create two types of virtuality dynamics. *Helpful virtuality dynamics* interact with different gender dynamics to improve women's work and nonwork career outcomes (e.g., job access, pay and rewards, work–life balance, and well-being). They include location flexibility, virtual collaboration, reduced gender-stereotyping social cues, and access to social networks. The same virtuality subdimensions can also create *harmful virtuality dynamics* that interact with gender dynamics in ways that impair women's career outcomes (i.e., less career advancement, lower performance ratings, reduced work–life balance, and decreased well-being). These

FIGURE 1
Integrative Framework for Understanding the Double-Edged Sword of Virtuality for Women's Career Equality



include increased work–family boundary permeability, 24/7 reachability by family and colleagues, work-related travel, fewer social cues to counter negative gender stereotypes, and closed informal networks. Below, we describe the gender dynamics that interact with virtuality dynamics, before describing our key findings in detail.

Gender Dynamics

Grounded primarily in P–E fit or social role perspectives, we found five *gender dynamics*² (see Figure 1) relevant to understanding the virtuality–gender interactions producing virtuality’s mixed career-equality effects.

Dynamics aligned with P–E fit theory. These dynamics relate to the degree to which women are

a strong match (or not) for higher functioning in virtual environments. They include many women’s *interest in work-family balance and preference for collaboration and communal goals*.

Studies have consistently shown that women across different occupations tend to *prioritize work-family balance* when choosing their careers (Barbulescu & Bidwell, 2013; Ferriman, Lubinski, & Benbow, 2009) and evaluating their professional opportunities (Major, Morganson, & Bolen, 2013). This gender dynamic is relevant to understanding how virtuality dynamics such as location flexibility to manage nonwork demands and increased access to global careers without relocation influence gender equality.

Research has shown that women tend to *prefer collaboration* (McCarty, Monteith, & Kaiser, 2014; Su, Rounds, & Armstrong, 2009) and *pursuit of communal goals* (Diekman, Brown, Johnston, & Clark, 2010) in their work. This helps to explain why, despite having the same leadership aspirations as men (Eagly, 2013; Su et al., 2009), “their ambition is constrained by the lack of people-oriented opportunities and low communal affordance in such positions” (Kossek et al., 2017: 232). This gender dynamic pertains to the degree to which women may be a good fit for work involving

² In their integrative review of women’s career equality, Kossek et al. (2017: 230) warned readers to “not use group differences to make attributions about all women within and across all societies,” but to consider them as general tendencies that help explain women’s career outcomes. We join these authors and suggest caution in relying on generalizations.

challenges of collaborating virtually across time and space and building relationships using leaner communication media.

Dynamics aligned with social role theory. These dynamics relate to gendered expectations and perceptions of women that are modified (strengthened or mitigated) in virtual environments. They include *family demands, gender stereotypes and biases, and exclusion from networks.*

Social role theory (Eagly & Steffen, 1986) suggests that women are expected to be family-oriented, which leads to more *family demands* on them, even in dual-career couples (Bianchi & Milkie, 2010)—a tendency reinforced during the COVID-19 pandemic (Shockley, Clark, Dodd, & King, 2021). This gender dynamic is relevant to understanding how virtual environments may amplify actual, perceived, or expected family demands.

Research has shown that women are subject to *gender stereotypes* regarding their competence (i.e., their performance ability) and agency (i.e., their self-assertion and independence), which leads to *gender stereotypes* about how they should and do behave (Heilman, 2012). This can result in biased evaluations where women with the same qualifications or performance as their male colleagues are evaluated as less competent or as having lower leadership potential (Ellemers, 2018). In addition, women often face backlash when they behave counterstereotypically; for instance, women who are perceived as too agentic receive worse performance evaluations (Rudman & Phelan, 2008). This gender dynamic interacts with virtuality dynamics related to the reduced social cues in leaner communication, which tends to decrease women's conformity to gender stereotypes (e.g., perceptions of less agentic behavior) but also strengthens others' negative stereotypes of women (e.g., perceptions of lower competence or task-orientation).

Another relevant bias is individuals' tendency to categorize themselves and others into in-groups (i.e., those perceived as similar to oneself) and out-groups (i.e., those perceived as different from oneself) based on readily observable characteristics (e.g., sex). People are attracted to in-group members and are more likely to interact with them (Tajfel & Turner, 1986). As a result, in diverse teams, minority members may feel isolated and ignored because of their lower perceived status (Riordan & Shore, 1997; Sidanius & Pratto, 1999). Consequently, in mixed-gender teams where women are in the minority, they tend to speak less, have less influence, and be less likely to be perceived as leaders (Cleveland, Stockdale, & Murphy, 2000; Lockheed & Hall, 1976). This gender dynamic

is relevant to the virtuality dynamic reflecting how the reduced social cues in leaner communication tend to equalize status differentials.

Women are often *excluded from organizational networks*, especially in industries dominated by men (Brands & Kilduff, 2014; Michailidis, Morphitou, & Theophylatou, 2012). From a social role theory perspective, one explanation is that women's actual or perceived greater family responsibilities may make it more difficult for them to attend after-hours networking events (Wellington, Kropf, & Gerkovich, 2003). Even when women do network, they may be taken less seriously because they are often perceived as being more committed to their families than to work (Killewald, 2013). By contrast, the tendency and expectation for men to prioritize work over family is reflected in their greater engagement in networking behavior (Woehler, Cullen-Lester, Porter, & Frear, 2021). Women also face structural barriers, such as being underrepresented in leadership positions, which may make it more difficult for them to network and find mentors (Kossek et al., 2017). These gender dynamics interact with virtuality dynamics related to how social media facilitates women's ability to join larger networks, but also makes it easier to form informal networks that exclude women.

VIRTUALITY AND WOMEN'S CAREER EQUALITY

Our analysis enabled us to identify interactions between different combinations of virtuality and gender dynamics that produce the mixed effects of virtuality on women's career equality.³ Table 2 summarizes these interactive effects organized by the relevant dispersion and technology subdimension. It also shows the percentage of studies related to each subdimension. All but one virtuality subdimension is linked to both helpful and harmful virtuality dynamics, resulting in both positive and negative work and nonwork career outcomes for women.

Across the virtual work subdimensions, we found six positive effects resulting from different virtuality–gender interactions (see Table 2). Three are grounded

³ We identified these effects based on our analysis. For each paper's findings, we coded the (a) relevant theoretical perspective (P–E fit or social role theory); (b) virtuality dimension, subdimension, and dynamic; (c) gender dynamic; and (d) career-related outcomes. Two authors coded all articles independently and resolved disagreements by consensus with a third coauthor.

TABLE 2
Literature Review Analysis of the Positive and Negative Effects of Virtuality on Women's Career Equality

Virtuality Dimension (Subdimension)	Virtuality Dynamic	Virtuality-Gender Interaction (Gender Dynamic)	Examples of Career-Related Outcomes for Women ^a	Relevant Theory
Dispersion: <i>Working from home</i> (62% of studies)	Helpful dynamic: Location flexibility to manage nonwork demands	Location flexibility to manage nonwork demands fits women's stronger interest in work-family balance	<ul style="list-style-type: none"> + Increased labor force participation for married women (Dettling, 2017) and mothers (Chung & van der Horst, 2018, 2020; Costantini et al., 2021; Herr & Wolfram, 2012). + Reduced motherhood pay gap (Fuller & Hirsh, 2019). + Increased job performance (Sherman, 2020). + Enhanced work-life balance and quality of life (Hilbrecht, Shaw, Johnson, & Andrey, 2008; Maruyama & Tietze, 2012; Sherman, 2020). + Increased well-being (Sullivan & Lewis, 2001) and satisfaction (Wheatley, 2012a), and less depression (Kossek, Lautsch, & Eaton, 2006). 	P-E fit
	Harmful dynamic: Work-family boundary permeability	A more permeable work-family boundary increases stigmatization of women as prioritizing family over work because they are assumed to have more family demands	<ul style="list-style-type: none"> - Reduced earnings resulting from fewer hours of work on-site (Glass & Noonan, 2016). - Lower evaluations for women who request flexible work (Munsch, 2016). - Lower salary and career prospects, and reduced visibility for women working flexibly (Maruyama & Tietze, 2012; Smithson, Lewis, Cooper, & Dyer, 2004). - Lower pay for female manual workers who work from home (nonmanual were better paid) (Felstead, Jewson, Phizacklea, & Walters, 2001). 	Social role
		A more permeable work-family boundary increases family demands for women while working	<ul style="list-style-type: none"> - Increase in domestic tasks (Kim, Henly, Golden, & Lambert, 2020; Powell & Craig, 2015; Radcliffe & Cassell, 2015; Rafnsdóttir & Heijstra, 2013; Sullivan & Lewis, 2001; Wheatley, 2012a, 2012b; 2017) and constant "double shift" (Kurowska, 2020; Loretto & Vickerstaff, 2015; Russell, O'Connell, & McGinnity, 2009). - Higher expectations of constant availability for childcare, eldercare, or housework (Ammons & Markham, 2004; Mirchandani, 1999). - 1.5 times higher probability of doing supplementary work to "catch up" or "keep up" with work (Cortis & Powell, 2018). - Reduced ability to disengage from work (Eddleston & Mulki, 2017), less restoration (Hartig, Kylin, & Johansson, 2007), and less happiness (in the case of mothers) (Song & Gao, 2020). 	Social role

TABLE 2
(Continued)

Virtuality Dimension (Subdimension)	Virtuality Dynamic	Virtuality-Gender Interaction (Gender Dynamic)	Examples of Career-Related Outcomes for Women^a	Relevant Theory
Dispersion: <i>Working across temporal and spatial distance</i> (5% of studies)	Helpful dynamic: Location flexibility that enables access to global careers without relocating	Access to global careers without relocating fits women's stronger <i>interest in work-family balance</i>	+ Increased access to global career opportunities for women (Fischlmayr & Puchmüller, 2016; Hutchings, Lirio, & Metcalfe, 2012).	P-E fit
	Helpful dynamic: Virtual collaboration across space and time	Women can better overcome challenges in virtual teamwork because of their <i>preference for collaboration</i>	+ Increased shared leadership in teams with a higher female-to-male ratio (Muethel, Gehrlein, & Hoegl, 2012). + More cooperative learning and participative communication in dispersed teams led by women (Post, 2015).	P-E fit
	Harmful dynamic: Work-related travel to visit distant coworkers or clients	Work-related travel to visit distant coworkers or clients interferes with women's <i>greater family demands</i>	- Increased stigmatization, as combining family and an international career do not meet role expectations for women (Fischlmayr & Puchmüller, 2016). - More limited career opportunities (difficulty engaging in global careers even without relocation) due to societal values and lack of caregiving support (Hutchings et al., 2012).	Social role
Technology dependence: <i>Communication leanness</i> (26% of studies)	Helpful dynamic: Virtual collaboration with reduced social cues	Women can better overcome challenges in virtual teamwork because of their <i>preference for collaboration</i>	+ Higher perceived usefulness of CMC (Debrand, & Johnson, 2008; Gefen & Straub, 1997; Ledbetter, 2008; Lowden & Hostetter, 2012). + Higher group satisfaction and development for teams with higher proportion of women (Savicki, Kelley, & Ammon, 2002). + Stronger team performance for teams with higher proportion of women (Song, Restivo, van de Rijt, Scarlatos, Tonjes, & Orlov, 2015).	P-E fit
	Helpful dynamic: Reduced gender-stereotyping social cues that create social status differentials in groups	Women participate more in group discussion because the reduction in social status differentials mitigates <i>their minority status</i>	+ Higher perceived group cohesion, cooperation, and satisfaction with virtual groups (Lind, 1999). + Higher perceived inclusion in teams using CMC first and then F2F (Triana, Kirkman, & Wagstaff, 2012). + Greater influence in CMC groups (Flanagin, Tiyaamornwong, O'Connor, & Seibold, 2002; Jaffe Lee, Huang, & Oshagan, 1999).	Social role
	Helpful dynamic: Reduced social cues that promote conformity to gender stereotypes	Women participate more and have greater influence in decision-making because the reduction in social cues makes them less likely to conform to <i>gender stereotypes (e.g., agency)</i>	+ Lower tendency to agree to CMC versus F2F messages (Adrianson, 2001; Guadagno & Cialdini, 2002; 2007). + Higher performance and more aggressive behaviors in virtual vs. F2F negotiations (Stuhlmacher et al., 2007). + Higher perceived social presence in CMC (Nowak, 2003).	Social role

TABLE 2
(Continued)

Virtuality Dimension (Subdimension)	Virtuality Dynamic	Virtuality-Gender Interaction (Gender Dynamic)	Examples of Career-Related Outcomes for Women^a	Relevant Theory
	Harmful dynamic: Fewer social cues to counter negative gender stereotypes	Women face stronger <i>gender stereotypes</i> (e.g., <i>women being less competent</i>) because there are fewer social cues to counter these negative perceptions	<ul style="list-style-type: none"> – More stereotypical evaluations and task assignments for women when anticipating working with them over CMC vs. F2F (Heilman, Caleo, & Halim, 2010). – Lower evaluations of women and more male superiority heuristic in CMC vs. F2F (Christofides et al., 2009). – Greater reliance on gender stereotypes (Lee, 2007) and more stereotypical behaviors in anonymous CMC environment (Postmes & Spears, 2002). 	Social role
Technology dependence: <i>Social media</i> (4% of studies)	Helpful dynamic: Access to social networks	Women benefit more from access to social networks because they tend to have <i>smaller networks due to institutional barriers</i>	<ul style="list-style-type: none"> + Increased union participation (Thornthwaite, Balnave, & Barnes, 2018). + Higher social capital in terms of more network ties, shared vision, and trust with colleagues (Tijunaitis, Balnave, & Barnes, 2019). + Increased volume of communication as well as greater access to knowledge and expertise, which translate into more billable hours (Wu & Kane, 2021). 	Social role
	Harmful dynamic: Ease in forming closed informal networks	Women are more disadvantaged by closed informal networks because of their greater tendency to be <i>excluded from informal networks</i>	<ul style="list-style-type: none"> – Reduced work participation that harms women's career progression (Dutta, 2020). 	Social role
Technology dependence: <i>Flexible connectivity</i> (3% of studies)	Harmful dynamic: 24/7 reachability by family and colleagues	24/7 reachability by family and colleagues creates more family–work interference for women because of their <i>higher family demands</i>	<ul style="list-style-type: none"> – Increased expectations of women to be always available for their children and respond to family demands immediately (Dutta, 2020). – Reduced possibility of going home early or not being on call (Rafnsdóttir & Heijstra, 2013). – Less availability to foster interpersonal relationships with coworkers after hours, which could negatively influence a range of career outcomes (Nurmi & Hinds, 2020). – Harder for women to disconnect from the “always-on” mentality and to meet constant connectivity demands needed for career advancement (Nurmi & Hinds, 2020). 	Social role

Notes: CMC = Computer mediated communication. F2F = Face-to-face. Additional details of these findings are provided in Appendix B.

^a + = positive outcome; – = negative outcome.

in P–E fit theory: (a) location flexibility, which facilitates managing nonwork demands and (b) provides access to global careers without relocating, in line with women’s stronger interest in work–family balance; and (c) women’s greater fit for managing the challenges of virtual teamwork due to their stronger preference for collaboration. Three are aligned with social role theory: (d) reduction in the gender-stereotyping social cues that create social status differentials, which mitigates women’s minority status in groups; (e) reduction in the social cues that promote women’s conformity to gender stereotypes, which frees them to behave counterstereotypically (i.e., allows them to be more agentic); and (f) increased opportunities to join social networks, which is more helpful to women because they tend to have smaller networks as a result of institutional barriers.

All the negative effects that we uncovered align with social role theory. These include: (a) increased work–family boundary permeability, which intensifies stigmatization of women as prioritizing family over work, and (b) often increases their family demands while working; (c) work-related travel to visit distant coworkers or clients, which interferes with women’s greater family demands; (d) fewer social cues to counter negative gender stereotypes (e.g., women being perceived as less competent or less task-oriented), which strengthens the influence of these stereotyped perceptions; (e) 24/7 reachability by family and work colleagues, which creates more work–family interference because of women’s higher family demands; and (f) greater ease in forming closed informal networks that exclude women.

Next, we elaborate on the positive and negative effects shown in Table 2 for each virtuality subdimension.

Working from Home⁴

Positive effects. Studies have consistently shown that women benefit more from the increased location flexibility working from home provides because they have a stronger interest in work–family balance.

⁴ Most of this research has appeared in the teleworking or telecommuting literature. We use a different term, “working from home,” in line with Raghuram et al.’s (2019) recommendation to integrate findings across virtual work research domains by moving away from a focus on specific types of virtual work arrangements (telecommuting, virtual teams), and, instead, identifying the particular aspect of the virtuality dimension that is theorized to influence work outcomes.

Not being tied to a main office makes it possible to locate and schedule work around family demands. As a result, women who work from home are less likely to reduce their work hours after childbirth (Chung & van der Horst, 2018), and highly educated women are 5–6% more likely to remain employed after motherhood (Herr & Wolfram, 2012). By reducing potential conflicts between work and family responsibilities, working from home is also related to stronger job performance for women (Sherman, 2020). In addition, there is evidence that having the ability to work from home narrows the motherhood pay gap (i.e., the wider gender pay gap working mothers face) by 3.7–4.8% (Fuller & Hirsh, 2019). Women telecommuters also often experience improved nonwork career outcomes such as enhanced work–life balance, well-being (Costantini et al., 2021; Hilbrecht et al., 2008; Sullivan & Lewis, 2001), life satisfaction (Wheatley, 2012a), and reduced depressive symptoms (Kossek et al., 2006).

Negative effects. Yet, working from home increases work–family boundary permeability—defined as “the extent to which a person who is physically located in one domain (work) may be psychologically or behaviorally involved with another domain (family)” (Allen, Cho, & Meier, 2014: 102). Because women tend to be perceived as having more responsibility for caregiving and household duties, requesting to work more proximately to their family domains may heighten managers’ and coworkers’ perceptions that they prioritize family over work. This stigmatization may negatively impact their performance evaluations (Munsch, 2016), salaries (Glass & Noonan, 2016), career prospects (Smithson et al., 2004), and organizational visibility (Maruyama & Tietze, 2012). For example, Maruyama and Tietze (2012) found that women telecommuters with dependent children were more likely to report concerns about reduced visibility and lack of career advancement opportunities before they began telecommuting and experiencing those outcomes. Respondents stated that women telecommuters with children or other caring responsibilities “may be viewed by management as having a lower commitment to work, and hence, may have a higher likelihood of being passed over for promotion or for challenging assignments” (Maruyama & Tietze, 2012: 462).

Another detriment to women of a more permeable work–family boundary is an increase in family demands and domestic tasks (Kim et al., 2020; Powell & Craig, 2015; Radcliffe & Cassell, 2015; Rafnsdóttir & Heijstra, 2013; Sullivan & Lewis, 2001; Wheatley, 2012a, 2012b, 2017). This creates a constant “double shift” (Kurowska, 2020; Loretto & Vickerstaff, 2015;

Russell et al., 2009) where women telecommuters are expected to be continually available for child-care, eldercare, or housework (Ammons & Markham, 2004; Mirchandani, 1999)—a trend exacerbated during the COVID-19 pandemic (Clark et al., 2021; Feng & Savani, 2020; Kossek, Dumas, et al., 2021; Nash & Churchill, 2020). Consequently, women working from home are more likely to work outside their normal work hours to “catch up” (Cortis & Powell, 2018), and to experience greater difficulty disengaging from work (Eddleston & Mulki, 2017), less restoration (Hartig et al., 2007), and less happiness (in the case of mothers) (Song & Gao, 2020).

Working Across Temporal and Spatial Distance

Positive effects. Temporal distance refers to the lack of overlap in working hours with others (e.g., working across different time zones), and spatial distance reflects physical separation from coworkers (O’Leary & Cummings, 2007). The ability to interact with colleagues across time and space provides employees with flexibility in the location of their work, which enables more women to accept work assignments in different countries without relocating their families (Fischlmayr & Puchmüller, 2016; Hutchings et al., 2012). This benefits women because it aligns with their greater interest in balancing work and family, which often deters them from taking traditional expatriate assignments. Thus, nontraditional expatriate assignments (i.e., those that do not involve relocation) are an important means for women to pursue high-potential global assignments (Hutchings et al., 2012), which research has shown are key for career advancement (Kossek et al., 2017).

Working with dispersed colleagues requires virtual collaboration, which tends to be more challenging than traditional teamwork because of the difficulty in communicating and coordinating work across time zones and locations (Raghuram et al., 2019). These challenges may play to women’s strengths because of their tendency to prefer collaboration and communal goals, making them more effective leaders of dispersed teams (Muethel et al., 2012; Post, 2015). In their study of 82 geographically dispersed innovation teams, Post (2015) showed that teams with women (vs. men) leaders are more cohesive and engage in more participative communication and cooperative learning. Post argued that women leaders are more likely to have a relational self-construal, resulting in a greater focus on addressing coordination challenges in dispersed teamwork. Similarly, Muethel et al. (2012) found that dispersed teams with a higher

percentage of women engage in more shared leadership, which fosters stronger team performance. These findings may have important implications for the evaluation of women and their advancement as leaders, although researchers have yet to test whether this leadership advantage for women translates into career outcomes.

Negative effects. A key downside for women of working across distance is the potential for this virtuality subdimension to result in more work-related travel to visit distant coworkers or clients, which may be more problematic for women given their greater family role expectations and demands (Fischlmayr & Puchmüller, 2016; Hutchings et al., 2012). Fischlmayr and Puchmüller (2016) identified this problem for mothers from four different continents who were in dual-career partnerships and pursuing global careers as nontraditional expatriates (i.e., in roles requiring international travel instead of relocation). Their findings showed that women in these roles are still expected to organize childcare and be the main caregivers in their families, despite traveling for their jobs. Consequently, these persistent dual demands serve as a barrier to pursuing a global career, even one that does not involve relocation.

Communication Leanness

Positive effects. Work interactions using leaner (e.g., email) rather than richer (e.g., videoconference) communication media are more virtual, as they are less like interacting face-to-face (Kirkman & Mathieu, 2005; Raghuram et al., 2019). Across studies, researchers have focused on the different implications of reduced informational and social cues in leaner communication for women’s workplace interactions. The lack of social cues in computer-mediated communication reduces social presence (i.e., awareness of a communication partner) (Short, Williams, & Christie, 1976), thereby increasing ambiguity and uncertainty in interpersonal interactions (Greenberg, Ashton-James, & Ashkanasy, 2007; Tangirala & Alge, 2006). This, in turn, undermines aspects of effective virtual collaboration such as relationship-building and developing a sense of connectedness to others (Hinds & Bailey, 2003).

Research has suggested that women are better able to overcome these challenges because of their preference for collaboration and communal goals, as evidenced by their more positive collaboration outcomes when communication is not face-to-face. For example, in a study of teams interacting via email, Savicki et al. (2002) found that women are more likely than men to

use a more relational and collaborative communication style; thus, members participate more in mixed-gender teams than in teams composed entirely of men. Research has further suggested that women perceive greater social presence in email communication (Gefen & Straub, 1997), perceive email as a more useful communication medium (Debrand & Johnson, 2008), and are more satisfied with videoconferencing (Lowden & Hostetter, 2012). Song et al.'s (2015) study showed that these dynamics translate into more productivity when communicating via an online platform for teams with a larger percentage of women—not because women work harder, but because they tend to foster more cooperation between team members.

A second advantage of communication leanness for women is the decreased salience of gender-related social cues that beget gender stereotyping. This virtuality dynamic equalizes status differentials in groups, increasing participation of minority-status members because they experience less evaluation apprehension and social inhibitions (Ocker, 2007). Lind (1999) showed that women feel more included and perceive stronger group cohesion and support in virtual (compared to face-to-face) teams. Similarly, Flanagin et al. (2002) found that in computer-mediated communication groups where members are anonymous, men apply strategies to make their computer-mediated communication interactions more like those taking place face-to-face, whereas women feel they can exert more influence in their teams if they maintain anonymity. Triana et al. (2012) reported similar results under nonanonymous conditions, where women on project teams composed mostly of men who first met via computer-mediated communication before interacting face-to-face perceived greater inclusion and participated more than those whose teams first met face-to-face. These authors argued that cues leading to social categorization that exclude minority members are less salient in leaner communication environments.

Finally, the reduced social presence (i.e., awareness of others) in leaner communication reduces women's tendency to conform to gender stereotypes, freeing them to behave in counterstereotypical ways, including engaging in more agentic behaviors and agreeing less frequently in discussions and negotiations. Research has shown that women are less likely to agree via email versus face-to-face messages (Adrianson, 2001; Guadagno & Cialdini, 2002, 2007). In addition, meta-analytical evidence has suggested that women are more agentic in virtual (vs. face-to-face) negotiations, perhaps because they feel less pressure to be affiliative, which allows them to be

more aggressive, as needed, to improve their negotiation outcomes (Stuhlmacher et al., 2007).

Negative effects. A downside of communication leanness is that it tends to reduce cues available to counter gender stereotypes. In contrast to the idea that computer-mediated communication provides equalizing effects, the social identity model of deindividuation effects (Dubrovsky, Kiesler, & Sethna, 1991) suggests that when limited information related to personal features (e.g., names, voices, etc.) is available, people have a greater tendency to rely on stereotypes. Researchers have confirmed this gender-stereotyping effect, finding that participants who communicate via anonymous text-based communication treat their communication partners more in line with gender stereotypes (Lee, 2007; Postmes & Spears, 2002). Moreover, this type of gender stereotyping in online communications results in more positive evaluations of men compared to women interviewers (Christofides et al., 2009). Researchers have also found that the mere anticipation of working under computer-mediated communication conditions is sufficient to produce stereotyped perceptions and judgments; both men and women are evaluated more stereotypically and are given more gendered task assignments when coworkers anticipate electronic (versus face-to-face) work arrangements (Heilman et al., 2010).

Social Media

Positive effects. Although this area of research is still emergent, it suggests that a key advantage of social media relative to digital communication media (e.g., email, texting, videoconferencing) is the opportunity they provide for many people to join networks where they create, share, and receive content while expanding their connections (McFarland & Ployhart, 2015). Opportunities to join and participate in social networks may be particularly helpful for women who tend to be excluded because of institutional barriers, such as a lack of access to women mentors or role models. Thus, women may benefit more from the enhanced network connections (Tijunaitis et al., 2019) and greater access to knowledge and expertise (Wu & Kane, 2021) social media provide. These benefits for women have been linked to their greater participation in unions (Thorntwaite et al., 2018), increased social capital (Tijunaitis et al., 2019), and increased performance (Wu & Kane, 2021). For example, based on data collected from more than 1,000 consultants, Wu and Kane (2021) found that adopting an expertise search tool improves network connections and information diversity, enhancing

employee performance; notably, women (and junior employees) benefit most from adopting these digital collaboration tools that help them overcome the institutional barriers in forming traditional face-to-face networks.

Negative effects. Unfortunately, social media also enables people to form informal closed networks, which disadvantages women who are already more likely to be excluded from networks. In their interview study with 35 women in STEM careers, Dutta (2020) described “gendered informal channels” whereby social media enables men to form communication networks that exclude women. For example, there were secret all-male chat groups and male managers reached out to their favorite male team members individually via chat apps. Women in this study reported that being excluded from these informal networks hurt their career progression.

Flexible Connectivity

A final emerging research area examines flexible connectivity that enables employees to be reachable by family and work colleagues at any time and from anywhere (Conole & Dyke, 2004; Thomas, 2014). We found only negative effects of flexible connectivity for women, as this 24/7 reachability creates more interference between their work and family because of their greater family demands (Rafnsdóttir & Heijstra, 2013). Dutta (2020) highlighted more work interruptions for women because they are expected to be constantly available to respond to family matters (e.g., notifications from their children’s schools) that come up while they are at work. Similarly, findings from interviews with 179 global professionals from 13 multinational corporations showed that women are less likely than men to engage in after-hours connectivity with coworkers because they have to focus on childcare and household chores, despite recognizing that after-hours relationship-building is important for career advancement (Nurmi & Hinds, 2020).

VIRTUALITY’S TENSIONS FOR WOMEN’S CAREER EQUALITY

Our review highlights the complex workplace dynamics through which increased virtuality affects women’s career equality, and reveals a critical insight: although growing virtuality holds great promise for *advancing women’s careers* by providing opportunities to overcome persistent challenges,

it may simultaneously *inhibit their career success*. This dual effect of virtuality has implications for both types of outcomes proposed by Kossek et al. (2017) as relevant to women’s career success: work (e.g., career advancement, pay, and rewards) and nonwork (e.g., work–family balance and well-being).

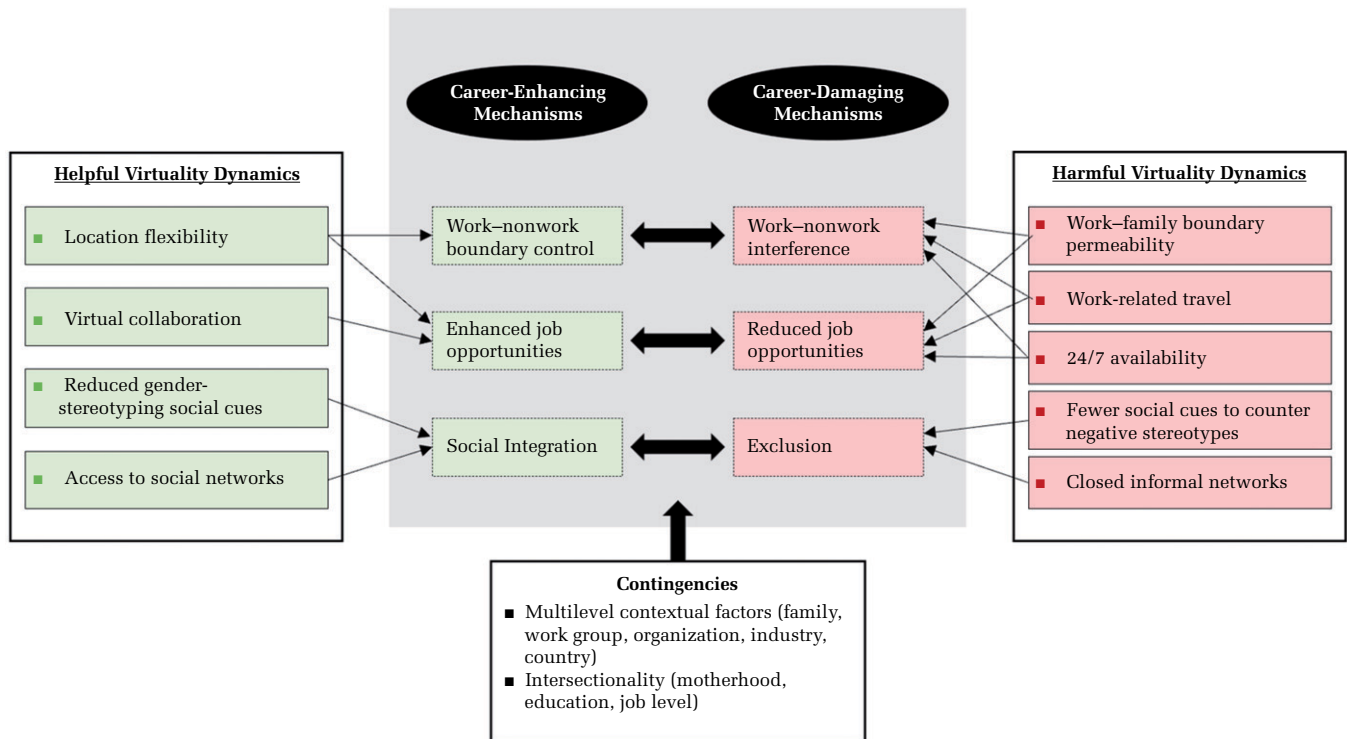
Our review illuminates competing *career-enhancing* and *career-damaging* mechanisms (shown in Figure 2) through which the interactive effects of virtuality and gender simultaneously improve and undermine women’s work and nonwork outcomes. These competing mechanisms create three tensions that explain the double-edged sword of virtuality for women. The first tension—between *women’s increased work–nonwork boundary control and interference*—explains the effects of virtuality on nonwork outcomes. The second and third tensions—between *enhanced and reduced job opportunities* for women as well as between their *social integration and exclusion*—explain the effects of virtuality on work outcomes. We also find preliminary evidence of contingencies that may determine the extent to which women experience the career-enhancing and career-damaging side of each tension.

Increased Work–Nonwork Boundary Control and Interference

The first tension pertains to the capacity for virtuality to increase women’s control over their work–nonwork boundaries while also creating more interference between work and nonwork domains. Greater work–nonwork boundary control associated with virtuality comes from increased flexibility regarding work location (e.g., working from home, or working with distant colleagues remotely without needing to disrupt family life by relocating). This career-enhancing mechanism translates into positive nonwork outcomes for women, such as improved work–life balance and well-being (e.g., Sherman, 2020; Sullivan & Lewis, 2001).

Yet, at the same time, virtuality may increase work–nonwork interference because working out of the office blurs the boundary between work and family, increasing the potential for responsibilities in each domain to spill over into each other. Additional work–nonwork conflict may occur if working with distant colleagues from a preferred location leads to increased travel for work. Moreover, as work locations become more flexible, employees are likely to use technologies that allow them to connect to work and colleagues from anywhere and at any time, which may

FIGURE 2
Virtuality's Tensions for Women's Career Equality



create demands for them to be constantly connected to work. This increases the potential for women to experience family interruptions while at work and work interruptions while attending to family responsibilities, thereby decreasing their work-family balance and well-being (e.g., Nurmi & Hinds, 2020).

Our review reveals contingencies that may “tip the balance” toward either side of this tension, including intersectionality effects. On the career-enhancing side, married women (Giovanis, 2018) and mothers (Hilbrecht et al., 2008; Kossek et al., 2006) are more likely to benefit from the flexibility virtuality provides for greater work-nonwork boundary control. Yet mothers may also be more prone to experiencing the detrimental side of this tension because their greater care-giving responsibilities expose them to more work-nonwork interference (Ammons & Markham, 2004; Hutchings et al., 2012; Nurmi & Hinds, 2020; Song & Gao, 2020). Indeed, nearly all the adverse outcomes explained by work-nonwork interference are stronger for mothers, highlighting the need for more research to understand factors that mitigate virtuality's effect on this career-damaging mechanism. These dual moderating effects of motherhood further highlight the complexity of the

virtuality dynamics, which tends to emerge only by synthesizing findings *across* studies.

Despite the surprising lack of research that has examined how the work-nonwork tension operates across different career stages, there is preliminary evidence that this may be a relevant consideration. Given the growing demand for more work flexibility from employees at all organizational levels and in different job categories (Alexander et al., 2021; Lund et al., 2021), it will be increasingly important to understand how women experience virtuality-related tensions in different types and levels of jobs and at different career stages. This perspective is currently lacking because of the predominant focus in empirical research on virtuality's short-term, between-subjects effects.

We also found contextual factors related to different sources of support that reinforce the tendency for virtuality to allow women more control over their work-nonwork boundary to reduce work-nonwork interference. This includes support from family, coworkers, managers, and organizations, as well as support at the country level (e.g., national leave policies, gender equality norms). For instance, married women whose spouses take on a greater share of household work are generally happier and have more work-

family balance when they work from home (Giovanis, 2018; Kurowska, 2020). They also feel more comfortable traveling for work, knowing that their spouses will attend to family duties (Fischlmayr & Puchmüller, 2016). Support from coworkers and supervisors also plays an important role, because high workloads and time pressures may prevent women who work from home from flexibly structuring their work to achieve the desired level of work–life balance (Donnelly, Proctor-Thomson, & Plimmer, 2012). Finally, country-level support includes childcare facilities and cultural norms that promote more equal distribution of household labor and responsibilities (Fischlmayr & Puchmüller, 2016).

Enhanced and Reduced Job Opportunities

A second key tension relates to increased virtuality concurrently enhancing and reducing job opportunities for women, with implications for their pay, career advancement, and access to leadership roles. Virtuality may increase women’s job opportunities for several reasons. First, the flexibility to select their work location opens new opportunities for women to remain fully employed despite personal circumstances (e.g., the birth of a child) that often cause them to reduce their work hours or even leave the workforce entirely (Chung & van der Horst, 2018, 2020; Herr & Wolfram, 2012). This should facilitate women’s career advancement and contribute to higher pay for women (Fuller & Hirsh, 2019), given that career interruptions are a key factor underlying the gender pay gap. Location flexibility also opens the door to a broader range of career-enhancing job roles for women that involve working with remote colleagues without the disruption of moving their families, which is often a barrier to women accepting global assignments (Hutchings et al., 2012). Women’s more participative and communal leadership style may also better position them for success in these new remote work opportunities (Muethel et al., 2012; Post, 2015; Savicki et al., 2002; Song et al., 2015), as their relationship-oriented leadership approach may help to overcome the challenges of leading in a virtual environment (Bell, McAlpine, & Hill, 2019; Brown, Hill, & Lorinkova, 2021).

However, virtuality may simultaneously create opposing dynamics that cause women not to pursue these promising job opportunities because they conflict with their family role expectations and demands. Women are often hesitant to take advantage of more location-flexible work arrangements such as working from home because of concerns that they

will be stigmatized for seemingly prioritizing family over work, resulting in reduced job security (e.g., Maruyama & Tietze, 2012). They may also turn down remote leadership and global roles because these roles tend to increase work-related travel, which is counter to expectations for women to be available to attend to family demands (Fischlmayr & Puchmüller, 2016). Finally, success in remote work roles often depends on being available to connect with distant colleagues after hours, which may be more difficult for women with childcare responsibilities (Nurmi & Hinds, 2020).

From an intersectionality perspective, researchers have demonstrated that having a family, and particularly children, reinforces *both* sides of the job opportunity tension. On the career-enhancing side, since women are at particular risk of leaving the workforce or reducing work hours after childbirth, the flexibility to work from home is key for new mothers to continue their careers (Chung & van der Horst, 2018; Costantini et al., 2021; Herr & Wolfram, 2012). Women with higher education and professional job roles (Dettling, 2017; Herr & Wolfram, 2012) may also be better able to take advantage of enhanced opportunities for remote work—an issue that has been highlighted during the COVID-19 pandemic (Kochhar, & Passel, 2020). However, on the career-damaging side, women with children may also be especially vulnerable to the career-limiting stigmatization women face when working from home or traveling extensively for their work, which is due to the strong caregiving role expectations society has for mothers (Munsch, 2016; Nurmi & Hinds, 2020).

The contextual contingencies of the job opportunity tension have focused primarily on the organizational context. Women in organizations with policies that support work–family balance are more likely to accept remote work roles and are less likely to be stigmatized when they do. Such policies signal to employees, including managers who are evaluating women in remote work arrangements, that the organization’s view of an ideal worker is not limited to someone who works in the office (Van der Lippe, Van Breeschoten, and Van Hek, 2019). Organizations can further reduce women’s stigmatization by promoting an organizational discourse that avoids framing flexible work-from-home arrangements as a “women’s issue” (Smithson & Stokoe, 2005).

Studies including macrolevel institutional forces have suggested that government policies mandating the option to work from home (e.g., in New Zealand) are insufficient if they simply pass the burden for making these arrangements work on to employees

without organizational interventions that ensure equal adoption and use without stigmatization (Donnelly et al., 2012). However, countries with national cultures that are more supportive of professional women may provide more opportunities for them to choose jobs that enable them to work from home or involve work-related travel (Fischlmayr & Puchmüller, 2016). In addition, in countries where restrictive social and cultural practices have historically excluded women from the traditional workplace, working from home may increase opportunities for them to participate in the labor force. For example, McAdam, Crowley, and Harrison (2020) described how women in Saudi Arabia are overcoming the cultural restrictions of working in mixed-gender environments by pursuing online entrepreneurial opportunities from home.

Increased Social Integration *and* Exclusion

The final tension we identified relates to a nascent research area on how the use of electronic communication to enable work interactions can both promote women's social integration in the workplace and facilitate their exclusion. Social integration has been used as an umbrella term reflecting how positively people are integrated into a social system (e.g., groups, organizations, and society) such that they have positive relational bonds and social interactions with others (Katz & Kahn, 1978; O'Reilly, Caldwell, & Barnett, 1989). Virtuality promotes women's social integration in the workplace in at least two ways. First, leaner communication transfers fewer gender-stereotyping social cues, thereby reducing perceived social status differentials. This tends to increase women's participation in team discussions and decrease their conformity to gender stereotypes. Second, social media also fosters women's greater workplace participation, increasing their access to information resources and broader networks. These dynamics have implications for women's performance in the workplace by increasing their participation and influence (Flanagin et al., 2002; Stuhlmacher et al., 2007; Triana et al., 2012), social capital (Tijunaitis et al., 2019), and access to organizational knowledge and expertise (Wu & Kane, 2021).

However, the same technologies that can increase social integration for women may also promote their exclusion from social networks and reduce their tendency to be viewed as leaders. Because leaner communication contains fewer social cues to counter negative gender stereotypes (e.g., of women being less competent), it may increase others' stereotypical

evaluations of women. In addition, social media makes it easier to form closed informal networks that exclude women. These dynamics hinder women's work success in terms of, for example, less favorable task assignments (Heilman et al., 2010) and lower evaluations (Christofides et al., 2009).

Given the limited number of studies in this area, our review has uncovered only scant evidence of contingencies that influence women's experience of this tension. In discussions using computer-mediated communication, men tend to engage in more gender-stereotypical behaviors (e.g., by adopting a more autonomous and overbearing discussion style) when the topic of discussion is more masculine and there is little personal information about a communication partner (Postmes & Spears, 2002). This raises the question of whether reliance on leaner communication might reinforce biases against women in sectors where they are already in the minority, such as STEM jobs.

FUTURE RESEARCH AGENDA

Fulfilling the promise of virtual work for gender equality requires scholars to focus on three broad strategies in future research: attend to both sides of the tensions, identify interdependencies that influence how women experience the tensions, and understand how the tensions operate over time.

Simultaneously Attend to Both Sides of the Tensions

There is a critical need for researchers to take an integrated approach to understanding the dual effects of virtuality for women's career equality by simultaneously theorizing and empirically examining career-enhancing and career-damaging mechanisms *within* and *across* different tensions. Surprisingly, in most studies, researchers applied only *one* theoretical perspective (P-E fit or social role theory) to focus on only *one* side of a *single* tension (Table 2). Yet our review showed that it is not only possible but *likely* that women will experience both sides of a tension, and more than one tension concurrently. Taking a piecemeal approach precludes understanding how contradictory mechanisms underlying the tensions operate in tandem, with joint implications for women's personal and professional career outcomes. This lack of understanding is problematic, given that with growing virtuality, the work and home domains are likely to become increasingly intertwined.

An example that points to the benefit of this more integrated approach is the finding *across* studies that increased flexibility (explained by P–E fit theory and related to the work–nonwork tension) also increases stigmatization (explained by social role theory and related to the job opportunities tension). Kossek, Dumas, et al.’s (2021) study of STEM women during the COVID-19 pandemic illustrates these dynamics. These authors showed that managing the work–nonwork boundary while working from home during the pandemic caused some women to reveal their nonwork roles, deviating from the masculine norms in their work contexts. Work colleagues sometimes viewed this as unprofessional, as it violated existing ideal worker norms favoring work–nonwork boundary separation; it also negatively impacted women’s well-being, sometimes leading to career tradeoffs and plans to leave their organizations (Kossek, Dumas, et al., 2021). This example demonstrates the utility of combining different theoretical perspectives (P–E fit and social role theory) to identify career-enhancing and career-damaging effects underlying different tensions (work–nonwork and job opportunity) associated with virtuality.

We also encourage future research to continue exploring how the same gender dynamic may contribute to dual effects for women’s career equality. For example, research so far has found that two of the three gender dynamics aligned with social role theory—gender stereotypes or biases and exclusion from networks—explain both positive and negative effects depending on the virtuality dynamic with which they interact; however, the third social role dynamic—family demands—consistently contributes only to negative effects. Yet, it is possible that different types of family demands when working from home may impact career outcomes differently. Some of the family demands that increase while working from home may be less personally enriching—such as those related to custodial task performance (e.g., cleaning or cooking after a long day on the job)—and may have uniformly detrimental effects on women. In contrast, working from home may allow women to attend to family demands that are perceived as more enriching (e.g., nursing a baby, reading a book to a child), which may promote their well-being and the resulting positive emotions may carry over to work, enhancing career success.

Future research might also consider whether there are negative effects explained by P–E fit theory, given that we found *only positive* effects in our review (Table 2). While it is possible that women’s attributes are generally a better fit to the challenges

or opportunities created by virtuality dynamics, the picture may not always be so optimistic. An example of a potential negative effect aligned with P–E fit theory relates to the gender dynamic involving women’s “preference for collaboration and communal goals.” Although this may result in women being better leaders and partners in virtual collaboration, creating more job opportunities for women, it may also cause them to be less effective in using impression management to expand their networks in leaner communication settings. This is because women tend to use less aggressive and other-oriented impression management styles (Bolino, Long, & Turnley, 2016), which may be easier to enact when communication is face-to-face.

Future research might also identify additional virtuality dynamics that interact with gender from P–E fit or social role perspectives. For example, our review reveals that the social integration–exclusion tension results from virtuality dynamics linked to technology dependence. However, dispersion-related dynamics such as physical isolation resulting from working across spatial and temporal distance might also contribute to women’s exclusion—yet, so far, the role of physical isolation has been underexamined with regard to women’s career equality.

Identifying Interdependencies That Influence How Women Experience the Tensions

Future research needs to build on our preliminary evidence for contingencies (see Figure 2), including intersectionality effects (i.e., related to different types of women) and multilevel contextual factors (e.g., family situation, workgroup, organization, industry, and country). Regarding intersectionality effects, the predominant focus has been mothers and married women, and, to a more limited extent, privileged, highly educated women in entry and mid-level professional roles facing work–nonwork and job opportunity tensions. Scholars have largely overlooked other intersectionalities that, according to gender research, are relevant to understanding gender equality (Kossek et al., 2017). For example, few researchers have examined moderating effects of the intersection between gender and social identities such as race and culture (e.g., women of color, biracial women, immigrants), sexuality (LGBTQ+ women), nontraditional family structures (e.g., women breadwinners and single mothers), job type (e.g., frontline women, unionized women), and health (e.g., differently abled or neurodivergent women). Since women in these groups are likely to face more stigmas than

White women in professional jobs, broadening the intersectionality lens might facilitate delineating additional effects related to the social integration–exclusion tension. Because stereotyping and exclusion from networks are well-established gender dynamics that impact women’s career success, interventions to increase social inclusion may be even more effective to tip the tension toward the benefits of virtuality for women who are often stigmatized. For example, the career-enhancing effect of increased access to networks, which fosters social integration, may be stronger for women of color who face even more structural barriers to forming networks and finding mentors and sponsors to advocate for their careers (Krivkovich, Starikova, Robinson, Valentino, & Yee, 2021).

Regarding multilevel contextual contingencies, researchers have considered contextual moderators that skew the work–nonwork tension toward greater boundary control and reduced interference. Yet there is a paucity of cross-level contextual research on the enhanced–reduced job opportunities tension, and even less on the social integration–exclusion tension. In future research, scholars could expand on these limited number of contingencies and incorporate additional levels of analysis, such as the occupational context in which virtuality is occurring. For example, while we proposed an insight related to the social integration and exclusion tension, suggesting that working in an occupational context dominated by men could be a relevant contingency, our view is speculative and has not been empirically tested. This is concerning, given the current focus on increasing representation of women in STEM, the growing virtualization of work in this industry, and research suggesting that in contexts where women are underrepresented, there is greater potential for marginalization and negative stereotyping (Kossek, Dumas, et al., 2021).

Researchers could also consider whether there are nonlinear effects related to mechanisms on either side of each tension that provide a more nuanced understanding of how women experience the tensions. Examining virtuality as a continuum would enable theorizing such effects, which are currently missing in the literature. Despite calls to conceptualize virtuality as a continuum from low (in-person) to high (dispersed with no face-to-face interaction), scholars have failed to do so in most of the studies in our review (72%). Specifically, researchers examined virtuality as a dichotomy (i.e., solely face-to-face vs. solely virtual) in 40% of studies and

examined solely virtual work in 32% of studies. As a result, in nearly all the studies, researchers either explicitly or implicitly theorized linear effects (i.e., stronger effects at higher degrees of virtuality) and were unable to consider potential nonlinear effects. Conceptualizing virtuality as a continuum is particularly relevant to hybrid work (Bell, McAlpine, & Hill, in press), which is a growing workplace trend (“Top 10 work trends list,” 2022). One example of a potential nonlinear effect relates to our finding that leaner communication may reduce status differentials in teams, allowing women to exert more influence (e.g., Flanagan et al., 2002), which has only been demonstrated in work environments where employees exclusively rely on computer-mediated communication. In future work, researchers need to assess whether these effects may disappear (i.e., not simply be attenuated) in hybrid environments that allow the transfer of some status cues, or whether a certain degree of communication leanness is required to experience positive effects.

Understand How the Tensions Operate Over Time

Missing from our review are insights on how the three virtuality tensions operate over time, which would also help to illuminate how women navigate these tensions over the course of their careers. We suggest two strategies for redirecting research toward this more temporal perspective of virtuality’s impact on women’s careers.

First, researchers might account for the role of time more explicitly by shifting from the current short-term, cross-sectional, between-subjects approach to studying virtuality’s effects on women’s career equality to examining within-subject effects over time. This includes how working more virtually at earlier career stages has downstream effects influencing success in later stages. For example, research has shown that women’s early career decisions such as taking a leave of absence or reducing hours sometimes means they get off the fast track and never catch up in terms of pay, retirement contributions, and leadership advancement (for a review, see Kossek, Perrigino, & Gounden-Rock, 2021). Decisions to work from home may have similar longitudinal effects. A temporal approach also accounts for different effects of virtuality at different stages of a woman’s career. For example, social media may have greater utility for strengthening women’s networks to foster social integration earlier in their

careers, when broader networks potentially play a more critical role.

Second, we encourage researchers to adopt a processual approach, rather than the predominant variance-based approach in existing research. Unlike variance-based approaches, which involve using predictive models to determine the optimal degree of virtuality for women's careers, a processual approach involves examining sequences of actions to understand how outcomes are shaped by preceding actions (Sabherwal & Robey, 1995)—that is, as a process that unfolds over time. For example, the job opportunities tension suggests that women who use remote work to remain employed after the birth of their first child may experience stigmatization related to working from home; however, researchers have yet to examine how women may attempt to mitigate damage to their careers by making adjustments that potentially involve their families and organizations. Researchers have also not considered how learning from these early experiences translates into actions that promote more supportive environments for similar flexible work arrangements at future points in women's careers. For example, women might actively seek out positions with managers or organizations that are more supportive of working from home arrangements, establish necessary support arrangements at home to be able to come into the office for part of the week, or implement strategies to maintain their professional networks while working from home. Adopting a processual approach could shed light on how women, in conjunction with family members and coworkers, and supported by their organizations and society at large, manage virtuality's downsides and maximize its career opportunities.

CONCLUSION

Virtuality at work has grown steadily over the last few decades, while career equality for women has been an ongoing problem. The COVID-19 pandemic has accelerated virtuality and exacerbated women's career inequality in ways that are likely to have lasting effects for decades (Armstrong, 2020). We have identified an urgent need for scholars to better understand the implications of increased virtuality for gender equality in ways that maximize its potential for career enhancement while mitigating career-damaging mechanisms. Our review reveals that virtuality–gender equality dynamics have created three dueling tensions, which we refer to as the double-edged sword of virtuality for women's careers: the tension between increased work–nonwork boundary control and interference,

between enhanced and reduced job opportunities, and between increased social integration and exclusion. As virtuality increasingly becomes the norm, our review contributes to advancing research at the intersection of virtuality and gender that should also inform evidence-based interventions to leverage virtuality's opportunities for women and promote career equality for all (Kossek, Perrigino, & Gounden-Rock, 2021).

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APPENDIX A COMPLETE LIST OF SEARCH TERMS USED FOR THE LITERATURE SEARCH IN OUR REVIEW

Gender Search Terms

- *Sex*
- *Male/female*
- *Women/men*
- *Woman/man*
- *Gender*

Virtuality Search Terms

As a starting point for our virtuality-related search terms, we applied the extensive list of search terms used in Raghuram et al.'s (2019) integrative review of virtual work research, which included terms related to:

- 1) Virtuality (i.e., *virtual**) as well as dispersion (i.e., *dispers**, *distributed*, *distance*, *mobile*) and technology dependence (i.e., *computer-mediated*, *technology-mediated*) combined with work context characteristics (i.e., *work*, *team*, *group*).
- 2) Specific virtual work arrangements (e.g., *telework*, *telecommut*).

Their total list included the following terms “*virtual team**, *virtual group**, *virtual work**,

*distributed team**, *distributed group**, *distributed work**, *mobile work**, *remote work**, *dispersed group**, *dispersed team**, *dispersed work**, *technology-mediated work**, *technology mediat* team**, *technology-mediated group**, *computer-mediated group**, *computer mediat* team**, *computer mediat* work*, *telework**, *telecommut**, *distance work**, *distance team**” (Raghuram et al. 2019: 3).

We broadened this list to include the following:

- 1) Terms related to global work, which necessarily involves working across spatial and temporal boundaries, often using technology to communicate: *global work**, *global team**.
- 2) Terms reflecting different types of dispersion commonly studied in research related to virtuality: *spatial*, *distance*, *spatial dispersion*, *temporal distance*, *temporal dispersion*, *isolation*, *proximity*.
- 3) Terms related to technology dependence that reflect characteristics of communication media: **synchron**, *rich*/lean**, *social presence**, and different technologies typically studied with regard to virtual work: *email*, *email*, *smartphone*, *mobile phone*, *mobile tech**, *digital tech**, *video conferenc**, *videoconferenc**.
- 4) Terms used in the literature associated with face-to-face and virtual work: *face time*, *front line work**, *frontline work**, *connectivity*, *future of work*, *new ways of working*, *flexible working*, *home working*, *portable work**.

APPENDIX B

TABLE B1

Summary of Study Findings Showing the Double-Edged Sword of Virtuality for Women's Career Equality

	Positive Outcomes (+)	Negative Outcomes (–)
	Dispersion	
Working from home	<p>Job access and opportunity</p> <ul style="list-style-type: none"> + Women who work from home are less likely to reduce their working hours after childbirth (Chung & van der Horst, 2018). + Highly educated women who work from home are 5–6% more likely to remain working after motherhood (Herr & Wolfram, 2012). + For women who are married (especially those with children and who are college-educated), having access to high-speed Internet at home increases labor force participation by 4.1% (Dettling, 2017). + For women in management positions who return to work after maternity leave, the availability of a telecommuting policy helps mitigate the negative effect of work–family conflict on commitment and engagement (Costantini et al., 2021). <p>Pay, rewards, and recognition</p> <ul style="list-style-type: none"> + Use of telework policies to work from home reduces the gender pay gap for mothers (3.7–4.8%) (Fuller & Hirsh, 2019). <p>Performance</p> <ul style="list-style-type: none"> + Working more days out of the week from home increases mothers' job performance (Sherman, 2020). <p>Work–life balance and well-being</p> <ul style="list-style-type: none"> + Working from home enhances women's work–life balance and quality of life (Maruyama & Tietze, 2012^a), especially for those who have children (Hilbrecht et al., 2008). + Married women whose spouses work from home report a healthier balance in household work (e.g., cooking, cleaning, childcare) and are happier (Giovanis, 2018). + Working from home increases women's well-being (Sullivan & Lewis, 2001^a). + Working at home increases job satisfaction (Wheatley, 2012a^a, 2012b^a). + Women with children who are formal users of telework policies report lower depression (Kossek et al., 2006). 	<p>Pay, rewards, and recognition</p> <ul style="list-style-type: none"> – Women who work from home tend to be paid less and have poorer career prospects (Felstead et al., 2001; Smithson et al., 2004). – For mothers who work from home, working more hours off-site is related to lower pay (Glass & Noonan, 2016). <p>Career advancement, promotions</p> <ul style="list-style-type: none"> – Mothers' requests to work from home are seen more negatively than those of fathers when their request is for childcare reasons (Munsch, 2016). – Women who work from home report reduced visibility and career advancement (Maruyama & Tietze, 2012^a). <p>Work–life balance and well-being</p> <ul style="list-style-type: none"> – Women who work from home report more family demands than their male counterparts (Hammer et al., 2005; Kim et al., 2020; Powell & Craig, 2015; Radcliffe & Cassell, 2015; Rafnsdóttir & Heijstra, 2013; Sullivan & Lewis, 2001a; Wheatley, 2012a^a; 2017). – Women who work from home report poorer work–life balance (Kurowska, 2020; Loretto & Vickerstaff, 2015; Russell et al., 2009; Wheatley, 2012b^a). – Women who work from home are more than 1.5 times more likely to engage in supplementary work to “catch up” or “keep up” with work demands (Cortis & Powell, 2018). – When working from home, expectations of constant availability for childcare, eldercare, and housework are higher for women (Ammons & Markham, 2004; Mirchandani, 1999). – Women who work from home tend to find it harder to disengage from work (Eddleston et al., 2017) and report lower restoration (Hartig et al., 2007). – Mothers who work from home report lower happiness compared to fathers (Song & Gao, 2020).
Working across temporal and spatial distance	<p>Job access and opportunity</p> <ul style="list-style-type: none"> + Mothers can have global careers (i.e., travel internationally for business) without relocating their families (Fischlmayr & Puchmüller, 2016^a; Hutchings et al., 2012^a). <p>Team performance</p> <ul style="list-style-type: none"> + In teams with members dispersed across cities, countries, and continents, having more women members increases the likelihood the team will develop shared leadership—an effective style for virtual team performance (Muethel et al., 2012). 	<p>Work–life balance and well-being</p> <ul style="list-style-type: none"> – Women are less likely than men to travel for work due to women's caregiving responsibilities (Nurmi & Hinds, 2020). – Mothers often face prejudice when adopting a global career because international travel does not correspond to traditional caregiving role expectations for mothers (Fischlmayr & Puchmüller, 2016^a).

TABLE B1
(Continued)

	Positive Outcomes (+)	Negative Outcomes (-)
	<ul style="list-style-type: none"> + Subordinates of women leaders report more cooperative learning and participative communication when working in teams with members located in multiple geographic areas (versus located in one area) (Post, 2015). 	<ul style="list-style-type: none"> - Women with global careers may have concerns about how the length of time spent away from family will influence their work-life balance and well-being due to societal values and lack of caregiving support (Hutchings et al., 2012^a).
Technology dependence		
Communication leanness	<p>Perceptions of group interactions</p> <ul style="list-style-type: none"> + Women perceive email (Gefen & Straub, 1997; Ledbetter, 2008), instant messaging (Debrand, & Johnson, 2008), and videoconferencing (Lowden & Hostetter, 2012) as more useful and favorable for communicating with dispersed team members. + In teams communicating over email, having more women members increases the use of effective communication, which translates into higher group satisfaction and development for teams (Savicki et al., 2002). + Women working in virtual groups composed of members in different locations that have never met F2F and exclusively use email to communicate perceive their group as more successful in sticking together and helping each other than men do, and are more satisfied with the virtual group experience than men (Lind, 1999). + Women's rating of instant messaging for communicating with other women is more favorable than men's rating for communicating with other men (Wachter, 1999). + Women, more than men, perceive more social presence when using instant messaging to communicate while collaborating on a virtual task (Nowak, 2003). <p>Team performance</p> <ul style="list-style-type: none"> + In teams collaborating virtually via a shared online message board, having more women members is associated with both quantitative and qualitative improvements in a group's final product (Song et al., 2015). <p>Inclusion and influence in discussions or negotiations</p> <ul style="list-style-type: none"> + Women are more likely to employ strategies that maintain the reduced social cues of collaborative technologies (e.g., instant messaging, virtual information sharing, and online forums) because these technologies afford them more influence in discussions (Flanagin et al., 2002; Jaffe et al., 1999). + Women working in male-dominated teams feel more included when their team uses instant messenger first and then meets F2F (Triana et al., 2012). + When communicating via email, versus F2F, women are more self-aware (Adrianson, 2001) and better able to be persuasive, with a lower tendency to agree in CMC versus F2F (Guadagno & Cialdini, 2002; 2007; Stuhlmacher et al., 2007). 	<p>Job access and opportunity</p> <ul style="list-style-type: none"> - When using only email and instant messenger to communicate rather than meeting F2F, women receive more stereotypically feminine task assignments and are perceived as more stereotypical in their communality (Heilman et al., 2010). <p>Performance</p> <ul style="list-style-type: none"> - When interviews are conducted over instant messenger rather than F2F, women are perceived as less effective interviewers and face a greater male superiority heuristic (Christofides et al., 2009). <p>Reliance on stereotypes</p> <ul style="list-style-type: none"> - Depersonalization from anonymity causes participants to rely more on gender stereotypes (Lee, 2007; Postmes & Spears, 2002).

TABLE B1
(Continued)

	Positive Outcomes (+)	Negative Outcomes (-)
Social media	<p>Access to information and networks</p> <ul style="list-style-type: none"> + Social media accounts run by unions encourage women to participate in union activities more than do nonvirtual methods of union information dissemination (Thorntwaite et al., 2018). + Women who use social media at work more often report higher social capital in terms of more network ties, shared vision, and trust in their colleagues (Tijunaitis et al., 2019). <p>Performance</p> <ul style="list-style-type: none"> + Women who use the firm's internal skill-based search tools have greater access to knowledge and expertise, which translates to more billable hours (Wu & Kane, 2021). 	<p>Access to information and networks</p> <ul style="list-style-type: none"> - Use of mobile phones increases the likelihood of male colleagues excluding women from informal job-related conversations (e.g., regarding new projects) (Dutta, 2020).
Flexible connectivity		<p>Work-life balance and well-being</p> <ul style="list-style-type: none"> - The constant connectivity to work and reachability by others afforded by the flexible connectivity of mobile phones interferes with women's work-family balance (Dutta, 2020; Rafnsdóttir & Heijstra, 2013) and reduces the possibility of going home early or not being on call (Rafnsdóttir & Heijstra, 2013). - Flexible connectivity leads to an "always-on" mentality where women find it hard to disconnect from work (Nurmi & Hinds, 2020). - Women have more difficulty meeting the expectations to be available for colleagues after hours because they have more family demands after hours (Nurmi & Hinds, 2020).

Note: CMC = Computer mediated communication. F2F = Face-to-face.

^a Paper simultaneously examined both helpful and harmful effects in the same study.