

After-hours Remote Work and Family Life: The Impact of Work-Extending Technology

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Navarro, J. L.* & Helms, H. M. (2020). After-hours remote work and family life: The impact of work-extending technology. In Stephen Sweet (Ed.) *Work and Family Encyclopedia*. Work and Family Researchers Network.

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Abstract:

The development of information communication technology (ICT) has dramatically influenced the way people communicate, socialize, and work. In the past fifteen years, the use of smartphones has skyrocketed among working adults. In the United States, 85% of adults owned a cell phone in 2019, up from 35% in 2011 (Pew Research Center 2019). Since the advent of the BlackBerry in 2002 and the iPhone in 2007, these forms of ICT have quickly altered the dimensions of modern work; traditional notions of time and space have been upended (Towers, Duxbury, and Thomas 2005). Desk-based employees are no longer bound by landlines, typewriters, or heavy desktop computers. Smartphones, laptops, and tablets enable workers to work from anywhere with an internet connection, allowing many employees to work remotely. However, modern employees are often perpetually connected during non-work hours—checking email and responding to messages in the evenings, on weekends, and on vacations. This perpetual connection has also changed the pace of work; communications are now speedier and more dense (Chesley and Johnson 2010).

How work-extending technology (WET) impacts the relation between after-hours remote work and family life is a dynamic area of research, especially given that “studying technology use is like trying to hit a moving target” (Chesley 2005:1246). As elucidated by Hessel and Dworkin (2018) in their review of adolescents’ use of ICT with family members, comparisons across studies can be challenging because of the different technologies described in each (e.g., earlier studies limited to cell phones while later studies took a wider view, choosing to include social media). As the COVID-19 shutdowns have illustrated, how society utilizes ICT can change dramatically in a few days, and research must adapt to accommodate how these changes impact workers and their families.

Studies of the intersection of technology, work, and family life are found across a wide variety of disciplines, including sociology, communications, management, and occupational therapy, psychology, and family studies. By synthesizing theories and findings across disciplines, our aim

is to elucidate key ideas, clarify terminologies, and explore the complex and dynamic role WET play in the relations between after-hours remote work and family. This review covers: 1) a brief background of the history, theories, and key concepts related to WET, 2) the importance of WET to work-family research, 3) an overview of the existing research about WET, and 4) implications for research and practice.

Keywords: policy advocate | researcher or teacher | workplace practitioner | family dynamics and wellbeing | technology

Article:

Introduction

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Basic concepts and definitions

Beginning in the early 1990s, researchers began to study the link between work-related information communication technology (ICT) and home life. ICT is defined as “...technologies people use to share, distribute, gather information and to communicate, through computers and computer networks” (Sharaievska 2017:401). ICT is an umbrella term, including both hardware (e.g., phones, smartphones, tablets, computers, gaming consoles, etc.) and software (e.g., texting, email, video chatting, social media applications) (Carvalho et al. 2015). The use of work-related ICT during non-work hours has been referred to as work-extending technology (WET), computer-aided supplemental work at home, and technology-assisted supplemental work (Derks and Bakker 2014; Towers et al. 2005). Unlike telecommuting or working remotely (i.e., when employees work from home or a remote site on a regular or daily basis), WET refers to work-related activities that take place beyond the spatial and temporal bounds of the workday. While there is a large body of work related to remote work and families, this entry is specific in scope and limited to discussion of WET (i.e., the use of ICT for work-related purposes outside of the workday) and families.

While computers were the original WET of the digital era, smartphones, laptops, tablets, and high-speed wireless internet connectivity have augmented the scope of WET; work is now accessible almost anywhere and at any time. All of these forms of ICT are the technologies through which employees engage in work-related activities beyond their ascribed workdays. As such, technology has the capacity to extend work from the workplace into other domains, including the family.

While offering flexibility, work-extending technology can amplify work-family conflict (WFC) and work-home interference (WHI). These terms describe negative associations between the work and family domains. WFC and WHI occur because the role demands of one (or both) domain negatively impact the other (Derks and Bakker 2014). Information communication technology also facilitates bidirectional spillover between work and family. Spillover refers to work-related stressors that “spill over” into family life (Perry-Jenkins and Wadsworth 2017). Family-related stressors can also “spill over” into work life (Hertlein 2012). Work-extending technology blurs the boundaries between these two domains and makes it easier for stressors from one domain to negatively impact role performance in the other.

Boundary theory is widely applied to the study of the intersection of technology, work, and family. Boundary theory posits that people create boundaries between life domains to manage and cognize their environments (Allen and Shockley 2009). Sensorial and psychological clues in our surroundings help to differentiate between home and work environments; work-extending technology can inhibit this process and make it difficult to determine whether one is in a work or home environment and, correspondingly, which role to inhabit. As a result, WET can enable the breakdown of spatial, temporal, logistical, and psychological boundaries between home and work (Wajcman 2008).

This breakdown can manifest in role-boundary permeability, which is the extent to which one is physically present in one domain, but psychologically or behaviorally performing a role related to another (Chesley 2005). Similar to spillover, role-boundary permeability is bidirectional; work-extending technology blurs boundaries and roles from both work-to-home and home-to-work. For many workers, societal and organizational norms urge them to be available beyond their workday; the incoming “ping” of a text message, e-mail, voice mail, or notification can necessitate an immediate response regardless of time or location. As such,

being at home no longer means taking a break from work (Derks and Bakker 2014).

Importance to Work-Family Studies

In our acceleration towards a technologically driven society, the importance of studying the impact of work-related technology (WET) on family processes is central to understanding modern families. Data collected in 2019 indicate that between 79% to 96% of American adults own a smartphone, with younger adults owning at the highest rates (Pew Research Center 2019). Smartphones enable employees to access their messages, calendar, email, and a multitude of other applications with a few clicks from almost anywhere at any time. Information is being both delivered and sent instantaneously. For many families, smartphones and other technologies are perceived as tools to enable “having it all” (Chesley 2005). Among other possibilities, WET offers: (a) accessibility to family while at work, (b) accessibility to work while at home, and (c) flexibility in scheduling as the need arises.

However, work-extending technologies have altered dimensions of time and space. For many daytime workers, the nine-to-five workday is a relic of the past (Towers et al. 2005). Evenings, weekends, and even vacations are no longer breaks from work; many workers are expected to be available for work-related matters regardless of their time or location. As a result, many workers are working longer hours and, as a result, spending less time with their families (Derks et al. 2015). In contrast, these technologies not only enable work-extension into the family sphere, but the extension of family into work. As discussed below, this can be advantageous for many employees, as they are able to connect with their family throughout their shift or workday. However, this may also impact how employees are perceived in the workplace or effect productivity (Golden 2013). Finally, in our modern, technologized world one might expect that we would have more time for family and leisure than previous generations. However, the opposite may be occurring (Wajcman 2008). The impact of work-related technology on family life is complicated; there is not a linear relationship between time, accessibility, and flexibility. Technology is changing the very nature of work, pushing cultural change, creating new social norms, and forcing contemporary families to renegotiate workfamily balance.

Body of Knowledge

Like many phenomena, perpetual connectivity has benefits, but it also has downsides, particularly for families. Benefits are not uniformly distributed; they depend on a multitude of factors including gender, occupation, person characteristics, organizational norms and rules, and government policy. For some employees, work-extending technologies (WET) can reduce work-family conflict and lead to higher levels of reported work-family balance (Derks et al 2015). The flexibility afforded by WET can reduce typical time constraints, and give workers increased autonomy and control over their schedules. Some employees have the agency to choose when and where to work and can accommodate their schedule to fit family needs. Flexibility can also lead to a flattening of organizational hierarchy. As employees gain autonomy and self-direction, less managerial oversight is necessary to facilitate productivity (Towers et al. 2005). Productivity may also improve as workers can quickly and easily respond to issues when they arise, as well as choosing when and where they work best.

Especially for workers with children, this flexibility can be invaluable in the face of

illness or emergencies (Wajcman 2008). For example, in 2020, WET played an essential role for employees impacted by COVID-19 self-isolation policies; WET assisted workers in meeting the demands of both work and family. In addition, information communication technology can aid in the coordination of family activities, including planning and coordination of schedules. This may reduce stress, as families can engage in “real time” planning and avoid rigid scheduling. Further, ICT facilitates communication between family members during the workday, creating more opportunities for connection and strengthening relationships (Chesley, Siibak and Wajcman 2013). A 2008 study found that workers looked at their mobile phones most frequently in the late afternoon and early evening, using it to coordinate evening activities with their spouses and children (Wajcman et al. 2008). Over half of the participants in that study felt that using their mobile phone during the workday helped them with work-family balance, with only three percent reporting that it had a negative impact.

However, work-extending technology is just that—it extends when and where people can work. Organizational and social norms towards perpetual connectivity may pressure employees to use work-extending technology during family time. Employees may also worry that their availability is being monitored through work-extending technology during non-work hours (Towers et al. 2005). As a result, employees may be checking email, sending messages, and taking calls in the evenings, on weekends, and on vacation. Further, work-extending technology can increase the total number of hours worked per week, which can contribute to work-family conflict (Derks et al. 2015). These extra hours may not be recognized or compensated by employers. In addition, boundary theory posits that work-extending technology may make it difficult to distinguish between home and work, thus blurring the boundaries between the two domains (Glavin and Schieman 2012). The increased permeability between these two domains may lead to role confusion, work-home interference, and ultimately, work-family conflict (Derks and Bakker 2014; Glavin and Schieman 2012).

Time away from work helps employees to relax and decompress, thus reducing stress and burnout. However, perpetual connectivity makes detachment from work outside of work hours difficult and can have negative ramifications for both individuals and families. A 2007 study found that work-extending technology use in the evenings (as reported by both the employee and their spouse) significantly increased work-family conflict (Boswell and OlsonBuchanan 2007). In addition to work-family conflict, use of WET can lead to role overload. Role overload occurs when work and family demands contradict, making it difficult to perform work and family-related roles effectively or comfortably (Towers et al. 2005). In turn, role overload can put excessive strain on physical and mental health, sleep, and family relationships (Derks and Bakker 2014).

While existing studies are not sufficient to make a generalization about the overall impact of ICT on work-family conflict and balance, they do indicate that work-extending technology does not affect all workers in the same way (Derks et al. 2015). Gender, psychological characteristics, and organizational norms and policies all impact the extent to which work-extending technologies impact families. For some workers WET makes it easier to balance the demands of work and family, while for others it makes it more difficult (Towers et al. 2005). The type of work-extending device also influences how families are impacted. A 2005 study found that cell phone use (but not computer use) was associated with negative work-family spillover, reduced family satisfaction, and negative employee affect (Chesley 2005). The portability and instantaneous accessibility of mobile devices may encourage more intensive or maladaptive work-related use.

Women, who are often primary caregivers in their families, may experience more role overload than men as spillover from family life into the work domain may occur more frequently for them (Chesley 2005). Further, it may be seen as more socially acceptable for men to work in the evenings, weekends, and on vacations than women (Derks et al. 2015). Other studies have indicated that the flexibility (particularly related to scheduling) offered by work extending technology may reduce work-family conflict for women, and yet this flexibility may also lead to expectations of more household work (Allen and Shockley 2009). For example, a female employee may leave work early to meet childcare demands and work later in the evening using WET. However, this scheduling flexibility, and the resulting increased time in the home environment, may also increase her partner's expectations of meal preparation and household chores. Recent media coverage of the COVID-19 shutdowns provides journalistic evidence of stark differences in the way mothers and fathers use of WET is impacted differentially in the home (e.g., Grose 2020). However, overall, empirical evidence to date related to gender differences is mixed and effect sizes are small. Further qualitative and quantitative research on the lived experiences of men and women could help clarify these differences.

Studies have also found that psychological characteristics moderate how work extending technology impacts family life. For example, employees' ambition and investment in their work role have been found to be predictive of the use of WET (Boswell and OlsonBuchanan 2007). While studies have used different theoretical frameworks, results suggest that workers who actively negotiate the role of WET in their lives have better outcomes. For example, Park and colleagues (2011) found that employees who preferred segmenting work from non-work domains were better able to engage in psychological detachment from work, and thus had more positive physical, emotional, and social outcomes. In 2014, Derks and Bakker found that the intensity of WET use was not predictive of work-home interference; what mattered was the employees' ability to psychologically detach from work. In a 2015 study, Derks and colleagues found a negative association between employees who were more able to separate work and family domains and levels of work-family conflict. In support of their previous findings, they also found that taking a break from work and relaxing reduced work family conflict, even for intensive smartphone users.

In addition to gender and psychological characteristics, organizational policies and norms impact the extent to which employees utilize work-extending technology. As the total number of hours worked has been a consistent predictor of work-family conflict (Kelly, Moen, and Tranby 2011), the extent to which organizations encourage or discourage the use of WET is an important element in the complex intersection between work, family, and technology. Companies increasingly expect their employees to be available during non-work hours (Derks and Bakker 2014). As other research on flexible work arrangements has shown, the flexibility associated with WET alone will not relieve spillover or work-family conflict (Allen and Shockley 2009). In companies that promoted separation of work and home domains, employees engaged in more psychological detachment and lower use of WET. Employers encouraged this segmentation by giving employees laptops and smartphones specifically for work-related use (Park et al. 2011). In Europe, governments, unions, and corporations have been working together to develop policies and programs aimed at helping employees disconnect from work in the evenings, weekends, and vacations. While these programs are still small and not utilized by all employees, they do offer innovative solutions to this ubiquitous issue.

Implications for Research and Practice

Despite its ubiquity, the research on work-extending technology and families has not kept pace with technological change. Much of the research in this area was completed prior to the advent of smartphones, tablets, and wireless data; these innovations have further expanded the reach of work-related technologies into family life. Associated cultural changes have also altered the ways in which people perceive and use technology. In addition, generational differences may exist in how employees utilize WET, and ongoing research must examine how these attitudes vary depending on both chronological age and life-course (Chesley 2005).

Overall, research on WET is limited by its exclusive focus on the experiences of white, middle-class families in the United States. Furthermore, the extant literature has focused on white-collar workers, leaving out many working-class and non-standard shift workers who use work-extending technology. Notably missing from this body of work are the experiences of minoritized families, including those of different classes, races, ethnicities, sexual orientation, and immigration statuses. An intentional focus on the role of power and oppression is critical to understanding how organizational hierarchies, workplace policies, and discrimination play into the complex and bidirectional relations between WET and work-family life.

While work-family conflict is often used as an outcome measure, studying other outcomes of interest (e.g., quantity and quality of family time, family conflict, family transitions, and child-related outcomes) may give a more holistic perspective of how work-extending technology impacts family life (Mesch 2006). Longitudinal studies could also provide valuable information as to the causal mechanisms at work. Further, daily diary, ecological momentary assessment techniques, and phone-usage data could provide time-intensive data of daily and weekly fluctuations in WET and family-related outcomes (Derks et al. 2015). Person-centered analyses may also help identify which characteristics (e.g., workload, occupational prestige, coping skills) are associated with boundary setting and less work-family conflict. These approaches could be useful in making more targeted recommendations for workplaces, workers, and their families.

Finally, future work should take into account the dynamic nature of this field of study. Chesley (2005) wrote that “studying technology use is like trying to hit a moving target” (p. 1265). This is true now more than ever; many employees and employers relied intensely upon work-extending technology during the COVID-19 crisis. Qualitative and quantitative inquiries into these experiences, discussed widely in the media (e.g., Kleinman 2020), offer unique opportunities to examine what has worked for families and what has not. In addition to supporting families, such endeavors will help inform organizational and governmental policies, and hopefully support economic recovery and growth.

References

- Allen, Tammy D. & Kristen M. Shockley. 2009. Flexible Work Arrangements: Help or Hype? In D.R. Crane & E. J. Hill (Eds.), *Handbook of Families and Work: Interdisciplinary Perspectives* (pp. 265-84). Lanham, MD: University Press of America.
- Boswell, Wendy R. & Julie B. Olson-Buchanan. 2007. The Use of Communication Technologies After Hours: The Role of Work Attitudes and Work-Life Conflict. *Journal of Management* 33(4):592–610.
- Carvalho, Joana, Rita Francisco & Ana P. Relvas. 2015. Family Functioning and Information

- and Communication Technologies: How Do They Relate? A Literature Review. *Computers in Human Behavior* 45:99–108.
- Chesley, Noelle. 2005. Blurring Boundaries? Linking Technology Use, Spillover, Individual Distress, and Family Satisfaction. *Journal of Marriage and Family* 67(5):1237–1248.
- Chesley, Noelle & Britta E. Johnson. 2010. Information and Communication Technology, Work, and Family. Sloan Network Encyclopedia Entry.
- Chesley, Noelle, Andra Siibak, & Judy Wajcman. 2013. Information and Communication Technology Use and Work– life Integration." In D.A. Major & R.J. Burke (Eds.) *Handbook of Work–Life Integration Among Professionals* (pp. 245-266). Edward Elgar Publishing.
- Derks, Daantje & Arnold B. Bakker. 2014. Smartphone Use, Work-Home Interference, and Burnout: A Diary Study on the Role of Recovery. *Applied Psychology* 63(3):411–440.
- Derks, Daantje, Arnold B. Bakker, Pascale Peters, and Pauline van Wingerden. 2015. Work-related Smartphone Use, Work–Family Conflict and Family Role Performance: The Role of Segmentation Preference. *Human Relations* 69(5):1045–1068.
- Glavin, Paul and Scott Schieman. (2012). Work-family Role Blurring and Work-family Conflict: The Moderating Influence of Job Resources and Job Demands. *Work and Occupations* 39(1):71–98.
- Golden, Annis G. 2013. The Structuration of Information and Communication and Work-life Interrelationships: Shared Organizational and Family Rules and Resources and Implications for Work in a High-technology Organization. *Communication Monographs* 80(1):101–123.
- Grose, Jessica. 2020. "They Go to Mommy First." *The New York Times*. Retrieved on July 20, 2020.
(<https://www.nytimes.com/2020/07/15/parenting/working-moms-coronavirus.html?smid=em-share>).
- Hertlein, Katherine M. 2012. Digital Dwelling: Technology in Couple and Family Relationships. *Family Relations* 61(3):374–387.
- Hessel, Heather and Jodi Dworkin. 2018. Emerging Adults' Use of Communication Technology with Family Members: A Systematic Review. *Adolescent Research Review* 3(3): 357-373.
- Kleinmen, Avery. 2020. "Working Remotely in the Near and Distant Future." National Public Radio, Studio 1A. Retrieved on June 16, 2020.
(<https://the1a.org/segments/working-remotely-in-the-near-and-distant-future/>)
- Mesch, Gustavo S. 2006. Family Relations and the Internet: Exploring a Family Boundaries Approach. *Journal of Family Communication* 6(2):119–138.
- Pew Research Center 2019. "Mobile Fact Sheet." Washington, DC: Pew Research Center. Retrieved February 1, 2020
(<https://www.pewresearch.org/internet/fact-sheet/mobile/#smartphone-dependency-over-time>)
- Park, YoungAh, Charlotte Fritz, and Steve M. Jex. 2011. Relationships between Work-home Segmentation and Psychological Detachment from Work: The Role of Communication Technology Use at Home. *Journal of Occupational Health Psychology* 16(4):457–467.
- Perry-Jenkins, Maureen, and Shelley MacDermid Wadsworth. 2017. Work and Family Research and Theory: Review and Analysis from an Ecological Perspective. *Journal of Family Theory and Review* 9(2):219–237.

- Sharaievska, Iryna. 2017. Updating the Family Operating System: A literature review of Information Communication Technology and Family Leisure. *Leisure Sciences* 39(5):400–414.
- Sheller, Mimi and John Urry. 2003. Mobile Transformations of 'Public' and 'Private' Life. *Theory, Culture & Society* 20(3):107–125.
- Towers, Ian, Linda Duxbury, and John Thomas. 2005. Time Thieves and Space Invaders : Technology, Work and the Organization. 4th Annual Critical Management Studies Conference, July, 1–25.
- Wajcman, Judy. 2008. Life in the Fast Lane? Towards a Sociology of Technology and Time. *British Journal of Sociology* 59(1):59–77.
- Wajcman, Judy, Michael Bittman, and Judith E. Brown. 2008. Families without Borders: Mobile Phones, Connectedness and Work-home Divisions. *Sociology* 42(4):635–652.

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