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Work-Related Communications After Hours: The Influence of Communication Technologies and Age on Work-Life Conflict and Burnout

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Work-Related Communications After Hours: The Influence of Communication
Technologies and Age on Work-Life Conflict and Burnout

A Thesis
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Science
in
Psychology:
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by
Alison Loreg
June 2020

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ABSTRACT

Organizations are increasingly utilizing communications technologies (CT) (e.g., smart phones, tablets) for the purposes of work-related communications after hours. Such technologies allow workers to instantaneously interact with clients and co-workers, accomplish work-related tasks at home or on the weekends, and access information across physical and temporal boundaries. However, researchers have suggested that use of CTs after hours can cause conflict between the work and life domains and can negatively impact employee well-being. Furthermore, due to age-related declines, older employees may be especially vulnerable to such outcomes. This aim of this study is to investigate the influence on age on the relationships between CT usage, work-life conflict, and burnout. Specifically, this study aims to explore whether older workers experience higher levels of work-life conflict and burnout due to CT usage when compared to younger workers. If these relationships are found to be meaningful, they can provide important implications for organizations on how to address after-hours work communications.

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CHAPTER ONE

INTRODUCTION

Communications technology (CT) use through avenues such as computer mediated communication (CMC) and information communication technology (ICT) have become increasingly ubiquitous in the modern workplace. This may be due to the fact that the proliferation of such technologies allows for instantaneous communication and transmission of funds, information, and interaction (Brody & Rubin, 2011). Information technologies (IT) create work portability, allows employees to accomplish tasks without interruption, and generally increases their ability to achieve work-related objectives that cannot be fully attained within the formal work environment (Brody & Rubin, 2011). Moreover, such technologies allow for greater flexibility in the organization of work, as information can be efficiently accessed and exchanged across physical and temporal boundaries (Rennecker & Godwin, 2005). Indeed, employees have reported numerous benefits of CT use. For example, Ter Hoeven, Van Zoonen, and Fonner (2015) found that employees felt empowered by CT usage, as it allowed them to establish a connection to their work from different locations. Such flexibility allowed them to stay on top of their work demands outside normal work hours, which in turn led to increased perceptions of control or productivity, higher work satisfaction, enhanced work engagement and a reduced risk of burnout (Diaz, Chiaburu, Zimmerman & Boswell, 2011; Ter Hoeven et al., 2015).

Though work-related communication systems offer many advantages, research studies reveal many disadvantages as well. For example, Ninaus, Diehl, Terlutter, Chan, and Huang's (2015) study discovered that ICTs were an additional source of work stress for all their participants. This may be due to the fact that communication technologies allow for a constant, continuous connection to one's work. Though CT usage affords employees the autonomy and flexibility to work anywhere at any time, they must also continuously meet the increased expectations and needs of their supervisors, colleagues, and clients (Mazmanian, Orlikowski, & Yates, 2013). Moreover, communication technologies such as e-mail create extra work due to asynchrony (i.e., the ability to send and receive work-related messages at any time) (Barley, Meyerson, & Grodal, 2011). Employees expressed a fear of falling behind in their work and the fear of missing information if they did not check their e-mail, even though such CTs often contained requests that led them to turn their attention to tasks they did not plan on performing (Barley et al., 2011). This constant connectivity can be detrimental to employee health, as it increases employee stress by increasing the speed of workflow, overloading employees with information and increasing expectations of productivity (Ayyagari, Grover, & Purvis, 2011; Barley et al., 2011). Moreover, constant connections prevent workers from taking a substantial break from work (Barber & Santuzzi, 2015). Furthermore, Barber and Santuzzi (2017) found that this phenomenon predicted burnout, absenteeism, and poor sleep quality among students and employees.

CT usage outside of work hours can have important implications for employees, as it blurs the boundaries between work and home, thus contributing to perceptions of work-life conflict (Ashforth, Kreiner, & Fugate, 2000; Wright et al., 2014). Such usage can foster interruptions, as the ubiquitous access afforded by mobile devices allows work to invade times and places previously safe from the workplace's intrusion (Barley et al., 2011; Boswell & Olson-Buchanan, 2007). Indeed, such technologies may become an intrusion to employees, as it detracts from their personal time and allows work to impose demands on them outside of the workplace (Boswell & Olson-Buchanan, 2007; Brody & Robin, 2011). In addition, after hours CT usage increases confusion about what role an individual should enact at a given time, which prevents full disengagement from one role to immerse in a current role (Ashforth et al., 2000; Wright et al., 2014). Similarly, unclear expectations regarding when it is appropriate to contact employees during their free time, the amount and the quality of work that is expected during these times, contributes to employee stress, a sense of reduced control, and burnout (Leonardi, Treem, & Jackson, 2010; Peeters, Montgomery, Bakker, & Schaufeli, 2005). For example, Barley et al. (2011) found that the more individuals utilized these technologies, the more likely they were to report feeling burned out. Indeed, Day, Paquet, Scott, and Hambley (2012) reported that ICT demands accounted for a significant amount of variance in exhaustion, cynicism, strain, perceived stress, and professional efficacy. CTs not only increases the

risk of negative spillovers and work-related burnout, they also decrease employee work engagement (Leung, 2011; Ter Hoeven et al., 2015). Despite such issues, research on the influence of CT usage on work-life conflict, as well as the implications of such usage on organizational outcomes (e.g., burnout), is still lacking. Similarly, prior research has not sufficiently studied whether the use of communication technologies for work during personal times differentially affects various age groups. For example, past research shows that older workers are more likely to create stronger work-life boundaries than younger workers (Spieler, Scheibe, & Robnagel, 2018). This is due to the fact that strong boundaries may help save cognitive resources since they entail few transitions between work and life (Spieler et al., 2018). Moreover, older individuals tend to experience a shift in motivation from future-oriented and instrumental goals to those that benefit well-being; as such, they may engage in strategies such as boundary management in order to increase positive affect and reduce negative affect in their daily life (Spieler et al., 2018). Given these preferences, it is possible that work-related CT usage outside of work hours may affect older employees more negatively. As such, the relationships among these variables need to be further investigated and was a primary focus of this proposed study.

Communication Technologies and Work-Life Conflict

Work-life conflict is characterized by a conflict between work and family demands, and the conflict between work and other role expectations in one's private life (Umene-Nakano et al., 2013). This conflict typically takes two different forms: work obligations interfere with family responsibilities or family responsibilities interfere with work obligations (Boswell & Olson-Buchanan, 2007; Kossek & Ozeki, 1998). In addition, there are three different forms of work-life conflict: strain-based, behavior-based, and time-based (Brauchli, Bauer, & Hammig, 2011). *Strain-based conflict* occurs when there is spillover of negative emotions from one domain into another (Brauchli et al., 2011). For example, an individual who feels the demands of their job negatively affect their relationship with their family would report strain-based conflict. On the other hand, *behavior-based conflict* occurs when behaviors required in one domain are incompatible with behavior expectations in another domain. For instance, replying to work-related emails during work hours may be an effective use of time at the workplace; however, this behavior may cause conflict with an individual's spouse or family member if exhibited in the home domain. Finally, *time-based conflict* occurs when the amount of conflicts perceived by an individual increases in proportion to the number of hours spent in both work and life domains. An individual who spends all their time at work and barely has time to spend with their family would experience time-based conflict.

As CT usage grows more prominent in modern organizations, work-life conflict is becoming an increasingly salient issue, as utilization of such technologies blur the boundaries between work and family (Kossek & Lautsch, 2008). This is due to the fact that the ubiquitous nature of ICTs allows individuals to access their work in multiple ways (e.g., texting or emailing) anywhere and anytime, which makes employees more connected than ever before (Leung, 2011). Barley et al. (2011) found that 60% of respondents handled work-related e-mails from home at some point during the day. Some organizations may even encourage after-hours communications by distributing mobile communication technologies such as cell phones and laptops, thus inferring the continuous availability of their employees and increasing expectations of productivity (Boswell & Osion-Buchanan, 2007; Sarker, Xiao, Sarker, & Ahuja, 2012).

Research regarding the implications of CT usage on work and family life has surfaced mixed results. As noted before, this type of constant connectivity increases the permeability and flexibility of work-life boundaries, which in turn can negatively affect worker health. Murray and Rostis (2007) observed that communication technologies such as e-mail, pagers, cell phones, and mobile devices increase stress because it makes it easier for work to spill into times and places formerly reserved for family and self. For example, Kossek and Lautsch (2008) noted that employees are increasingly self-managing work by responding to emails, texts, or calls during personal times on the weekend, or while on vacation. Leung (2011) echoed a similar sentiment, stating that ownership of a

mobile phone was an important predictor of burnout, as employees are now constantly in touch with their family and the office. This constant connection could mean that a job is no longer 9-to-5, but a 24/7 obligation to one's supervisor (Leung, 2011).

The blurring of work and family boundaries is potentially harmful for employees and their families, since CTs promote continual interruptions, overwork, accelerated family life, and isolation (Leung, 2011). Major, Klein, and Ehrhart (2002) found that total hours spent on work positively related to work interference with family life, which in turn lead to a higher risk of depression and somatic health complaints. In addition, long work hours made workers feel too drained to fulfill the requirements of their family role (Boswell & Olson-Buchanan, 2007). After hours CT usage can be such an impediment to family life that many workers reported that they stopped answering e-mails from home, as the practice led to conflicts with their spouse, significant other, or children (Barley et al., 2011).

However, other research studies have reported the positive effects of CT use. For example, Gadeyne, Verbruggen, Delanoeije, and De Cooman (2018) report that only work-related PC/laptop use, and not smartphone use outside of work hours contributed to work-life conflict. Other studies have found that ICT usage outside of work hours could have beneficial effects for people who prefer permeable work-life boundaries, also known as an integration preference (Derks, Bakker, Peters, & Van Wingerden, 2006; Kreiner, 2006). For these individuals,

Derks et al. (2006) observed that more daily work-related cellphone usage after hours was related to lower work-life conflict. Moreover, Leung (2011) asserts that the permeable work-life border created by ICTs allow for flexibility and can help with work arrangements, which in turn reduces tension between the two spheres. ICTs may help workers balance work and family demands by allowing individuals to attend to family issues during traditional work hours (Boswell & Olson-Buchanan, 2007). Indeed, Gozu, Anandarajan, and Simmers (2015) argue that many employees are using ICTs to facilitate role integration between work and family domains. Work-family facilitation, or the extent to which one life role is made easier through the participation in another, is positively related to personal well-being attitudes towards work (Butler, Grzywacz, Bass, & Linney, 2005; Gozu et al., 2015).

The implications of CT usage on work and family boundaries are important to note, as research has shown that work-life conflict is associated with many negative work-related consequences, such as increased stress and burnout, reduced work engagement, diminished job performance, diminished productivity, higher absenteeism, higher turnover intentions, reduced job satisfaction, and lower organizational commitment (Boswell & Olson-Buchanan, 2007; Brauchli et al., 2011). Moreover, studies have shown a plethora of health-related consequences as well. For example, Merecz and Andysz (2014) report that work-life conflict and burnout are responsible for poorer well-being, dissatisfaction, somatic complaints, fatigue, and problems in everyday functioning. In addition,

Brauchli et al. (2011) found that work-life conflict was correlated with various mental and physical health-related outcomes, such as increased substance abuse, stress, depression, other mental disorders, and various psychosomatic symptoms. Indeed, Umene-Nakano et al. (2013) report that work-life conflict is a major contributing factor to work stress for employees in the health-care sector in many industrialized countries. Given these implications, organizations should strive to reduce work-life conflict for their workers, as work-life balance—the issue of preserving balance between work and all other spheres of human activity—provides individuals with psychological well-being, high self-esteem, work and life satisfaction, and an overall sense of harmony (Richert-Kazmierska & Stankiewicz, 2016). When employees experience acceptable levels of conflict between work and life, and are able to simultaneously achieve work-related goals and feel satisfaction in all spheres of life, they tend to be happier, healthier, more creative, feel more accomplished and satisfied, and are more able to satisfy their desire for prosperity (Greenblatt, 2002; Kirchmeyer, 2000; Richert-Kazmierska & Stankiewicz, 2016).

Given the contradictory findings present in the current literature, it is apparent that the relationship between CT use and work-life conflict is not fully understood. For example, though boundary permeability and CT usage are related to increased work and job satisfaction, they are also positively related to work-life conflict, and negatively related to family satisfaction (Diaz et al., 2011; Leung, 2011). Moreover, Diaz et al. (2011) discovered that while CT flexibility is

negatively related to work-life conflict, translation of such flexibility into utilization positively relates to work-life conflict. Considering these mixed results, more research is necessary in order to better assess and understand the parameters and boundary conditions that may influence this relationship.

Burnout

As conceptualized by Maslach and Jackson (1981), burnout is a psychological syndrome due to chronic stressors on a job. It is a multidimensional construct with three interrelated dimensions: exhaustion-energy, cynicism-involvement, and inefficacy-efficacy (Maslach & Leiter, 2008). The exhaustion component represents the individual strain dimension of burnout, and refers to feelings of overextension and a depletion of physical and emotional resources at work, and may lead to the development of negative, cynical attitude and feelings to various aspects of an individual's job (Maslach & Jackson, 1981; Maslach & Leiter, 2008). Meanwhile, the cynicism component refers to the interpersonal context dimension, wherein individuals may develop a callousness or become excessively detached from various aspects of their job. Finally, the inefficacy construct refers to the self-evaluation dimension of burnout and refers to a lack of achievement and feelings of incompetence in work (Maslach & Leiter, 2008). These constructs differ from other common dimensions, such as stress, as it relates to cumulative and prolonged reaction to occupational stressors and

as a result, tends to be stable over time (Geraldes, Madeira, Carvalho, & Chambel, 2018).

Originally, the construct of burnout was almost exclusively studied in human services occupations (e.g., social workers). Due to their constant and intense interactions with patients and clients who receive their care, workers in helping professions are at a higher risk of burnout (Schaufeli, Leiter, & Maslach, 2009). For example, Umene-Nakano et al. (2013) found that psychiatry has been consistently shown to be a profession characterized by signs of high burnout, and psychiatrists are at a higher risk of mental illness, burnout, and suicide compared with other professions. Meanwhile, Starmer, Frintner, and Freed (2016) report that high rates of stress and burnout among physicians is well documented and have been associated with increased risk of medical errors. Burnout is an especially prevalent issue in the nursing profession, as nurses are most prone to the development of the syndrome (Iglesias & Becerro de Bengoa, 2013). Nurses who suffer from burnout experience health symptoms such as chronic fatigue, emotional instability, headaches, insomnia, and relationship problems (Embriaco, Papazian, Kentish-Barners, Pochards, & Azoulay, 2013). This not only negatively impacts the physical and mental health of nursing professionals, but healthcare centers and patients as well, as it lowers the quality of medical care and decreases staff retention rate (Barford, 2009).

Recently, researchers have begun to examine burnout in other occupational fields as well (Salanova & Schaufeli, 2000). For example, a study

conducted by Chang et al. (2018) examined the relationship between athletic identity, or the degree to which an individual identifies with their role as an athlete, and the emotional exhaustion component of burnout with athletes. They discovered that a strong athletic identity was positively related to the development of emotional exhaustion. However, this relationship was moderated by the athlete's psychological flexibility; individuals with high psychological flexibility had a lower risk of developing emotional exhaustion compared to individuals with low psychological flexibility.

Meanwhile, Sas-Nowosielski, Szostak, and Herman (2018) explored the range of burnout among sports coaches in Poland. They found that 5% of the coaches surveyed experienced full-symptom burnout in their work, and over 60% of coaches felt a low sense of accomplishment, despite reporting low levels of burnout in the emotional exhaustion and depersonalization components. This may be due to the fact that coaches must establish intensive interpersonal relationships with their athletes, are often exposed to social assessment and experience high expectations to deliver efficient results in their field. In another study, young executives of multinational companies reported moderate levels of overall job burnout, with moderate scores on the emotional exhaustion and personal accomplishment dimensions, and high scores on the depersonalization dimension (Anand & Arora, 2009). Anand and Arora (2009) posit that executives may experience high levels of depersonalization in their work due to overload and emotional exhaustion, which may lead to dehumanization of their clients.

Higher rates of burnout have also been found in other fields, such as education. Worly, Verbeck, Walker, and Clinchot (2018) discovered that medical students experienced high rates of emotional exhaustion and personal efficacy, as well as personal and perceived distress during their third year of medical school, with female students reporting higher levels on all dimensions when compared to male students. Similarly, in a study with primary and high-school teachers in Greece, Antoniou, Polychroni, and Vlachakis (2006) reported that in-class stressors such as overcrowded classrooms, students' lack of motivation, poor achievement, and students' disciplinary problems led to feelings of low self-efficacy among teachers, as well as a feeling that their job is meaningless. As these studies illustrate, burnout is a syndrome that is not exclusive to human services occupations. In their study, Salanova and Schaufeli (2000) note the burnout construct can be particularly useful for research on technology and worker's well-being, due to its work-relatedness and multifaceted nature. Given that certain professional groups outside of these occupations, such as coaches (Antoniou et al., 2006) and teachers (Sas-Nowosielski et al., 2018), are particularly vulnerable to the risk of burnout, further research into the burnout construct in other occupations is necessary in order to advance the research literature.

Personal Predictors of Burnout

Scholars have examined the factors that contribute to burnout, such as personality, socio-demographic variables, and job-related factors. For example,

Sas-Nowosielski et al. (2018) found that coaches with low perceptions of financial satisfaction were more likely to experience burnout. These coaches were more likely to subject negative treatment to their athletes, feel exhausted emotionally, and have a lower sense of personal accomplishments. Coaches with maladaptive perfectionism were also at a higher risk factor for burnout, especially with regards to personal accomplishments. Meanwhile, Zellars, Perrewe, and Hochwarter (2000) discovered that the “Big Five” personality factors predicted components of burnout, after controlling for role stressors. In their study, they found that neuroticism was associated with higher emotional exhaustion, while extraversion, openness to experience, and agreeableness were negatively associated with depersonalization. Meanwhile, extraversion and openness to experience were negatively associated with diminished personal accomplishment. Maslach and Leiter (2001) proposed that incongruities between a person and their job may also contribute to the risk of burnout. They determined six dimensions of work life that influence this relationship: workload, community, reward, control, fairness, and values. Despite common underlying organizational stressors, the researchers posit that individuals may react differently to burnout due to their personal attributes (Leiter & Maslach, 2004).

Job Related Predictors of Burnout

Much of the research literature have highlighted the role of job/environmental factors as the proximal cause of burnout (Halbesleben & Buckley, 2004). They highlighted two models that explain the development of

burnout: the Conservation of Resources Model and the Job Demands-Resources Model. In the *Conservation of Resources Model*, stress and burnout occur when individuals perceive a threat to their resources. These threats may take the form of job demands, loss of work-related resources, or a loss of resource investment. Meanwhile, in the *Job Demands-Resources Model*, Demerouti Bakker, Nachreiner, and Schaufeli (2001) propose that burnout occurs due to the incongruence between job demands and resources. They argue that job demands, or aspects of the job that require effort, are associated with psychological costs and predict the emotional exhaustion component of burnout. On the other hand, job resources, or characteristics of work that relate to work goals, diminished job demands, or personal growth, predict the depersonalization dimension of burnout. Indeed, research has indicated that organizational stressors are an important factor in the development of this syndrome. As previously mentioned, in-class stressors such as overcrowded classrooms and student behaviors lead to an increased risk of burnout in primary and high-school teachers in Greece (Antoniou et al., 2006).

In another study, police officers listed job conditions such as administrative red tape, unfair promotion decisions, lack of supervisory support, and lack of respect from court officials and the general public as the most distressing aspects of their work (Maslach & Jackson, 1984). In their review, Rotenstein et al. (2018) echo a similar sentiment, stating that the increased prevalence of burnout in physicians correlated with an increasing volume of non-

patient focused work rather than their interaction with patients. These studies are important to note, as they clearly illustrate that occupational factors influence the development of burnout outside of client interactions.

Communication Technologies, Work-Life Conflict, Burnout, and Employee Age

Though there is ample literature on the advantages and disadvantages to communication technologies in organizations, it is important to note that such findings may apply differentially to workers of different ages. For example, in general, older adults in the United States report lower use of technologies, such as computers and mobile devices, when compared to younger adults, with older individuals in European countries reporting similar trends (Charness & Czaja, 2019). In fact, Charness and Czaja (2019) found a 10 percent gap in internet usage between the 50-64 age group and the 18-29 and 30-49 age groups. The gap increases to 20 percent when the 65+ age group is compared with the 50-64 age group alone. Such distinctions are important, as technological shifts in communication drastically affects employee experiences in the current work environment, especially when different age groups with different expectations and behavioral norms are involved and begin to clash (Haeger & Lingham, 2014). Indeed, Haeger and Lingham (2014) explain that “people of different ages are immersed in different computing technologies to varying degrees” (p. 317).

For example, Lester et al. (2012) reported that older workers preferred face-to-face as their main mode of communication, and valued CTs such as

social media and e-mail less than their younger counterparts. Meanwhile, younger employees are especially likely to take advantage of and extend the use of ICTs and CMCs to communicate with organizational members (Myers & Sadaghiani, 2010). Indeed, Brody and Rubin (2011) discovered that older workers viewed work-related computers as a convenience, while it is simply taken for granted by younger workers.

Differences in CT adoption between younger and older employees may be due to the perceived benefits and costs of utilizing such technology. As Charness and Czaja (2019) explain, in order for successful technological adoption to take place, there must be a balance between the demands of the technological system and the capabilities of the intended user. The user weighs the costs—the perceived mismatches between their capabilities and system demands—against the benefits—what goals the tool may help them attain—before they decide whether or not to use a system. For older workers, age-related cognitive and physical constraints may make interactions with such systems more challenging. For instance, changes in motor skills, such as slower response times, disruptions in coordination, loss of flexibility and declines in the ability to maintain continuous movements may make it difficult for older employees to perform tasks that require small manipulations, or to use input devices such as a mouse or a keyboard (Charness & Czaja, 2019). Declines in working memory, processing speed, problem solving, selective attention, spatial cognition, and reasoning may further exacerbate such issues. For example, due to cognitive aging, it may be

more difficult for an older person to switch attention between competing displays of information, perform concurrent activities, selecting task targets on a computer or integrate information from multiple information sources.

In addition, employees in the modern workplace must constantly learn new skills or new ways of performing jobs in order to keep pace with developments in technology, a feat that may be difficult of older workers. Elias, Smith, and Barney (2010) also note that older employees are less likely to adopt and utilize newer technologies compared to younger employees, as they tend to lack computer experience due to a lack of exposure to computers during their formal education. However, younger cohorts are approaching asymptote in terms of computer and internet adoption, and many of these individuals are aging into older cohort categories and carrying their technology habits with them (Charness & Czaja, 2019). As such, age differences across cohorts is becoming less and less of an issue over time.

Prior literature reveals there are clear differences in perceptions of work-life conflict between age cohorts as well. In general, researchers have found either a linear or non-linear relationship between these two variables (Bramble, Duerk, & Baltes, 2019). If a linear relationship is considered, work-life conflict tends to be higher at younger ages and then decrease over time. In a non-linear relationship, work-life conflict tends to exhibit an inverted U relationship with age, with younger and older individuals expressing the least work-life conflict, and middle age individuals expressing the most. Research into the factors that may

contribute to this relationship has produced mixed results. For instance, scholars have reported that employees representing older age groups are less likely to experience work-to-family and family-to-work conflict, and are more likely to report greater work-family fit and work-life balance (Hill, Erickson, Fellows, Martinengo, & Allen, 2012; Richert-Kazmierska & Stankiewicz, 2016). These workers tend to experience higher levels of job flexibility, job satisfaction and morale, greater life and work success, and were the most well-adjusted when compared to younger and middle-aged workers (Hill et al., 2012; Richert-Kazmierska & Stankiewicz, 2016). This is despite the fact that this age cohort juggles increasing adolescent and elder care responsibilities, declining physical health, and goals of personal development that may influence the experience of work and family life (Staudinger & Bluck, 2001).

However, Bramble et al. (2019) report that age did not significantly relate to work-family enrichment or perceptions of work-family balance. Moreover, they found that eldercare demands were linked to both work-family conflict and depressive symptoms, and caregivers who were dissatisfied with such responsibilities reported increased absences and greater turnover intentions. They further found that older employees in the “sandwich generation”—individuals who simultaneously care for those older and younger than themselves—exhibited increased levels of work-life conflict and job burnout, and were at greater risk for negative outcomes such as decreased levels of health and well-being (Bramble et al., 2019). This age group was also significantly less

likely to be aware of and use work-family programs when compared to younger workers, and frequently did not agree that all workers have equal opportunities to benefit from such solutions (Hill et al., 2012; Richert-Kazmierska & Stankiewics, 2016).

Research on the permeability of work-life boundaries in older workers show that older employees tend to have stronger work-life boundaries than younger workers (Spieler et al., 2018). Indeed, Spieler et al. (2018) suggest that work-life balance is strongly influenced by the strength of the boundaries workers set up to separate work and private life. Moreover, these boundaries prevent spillover from one sphere into the other, even when demographics and various family and work characteristics are accounted for (Allen, Cho, & Meier, 2014). Indeed, Sterns and Huyck (2001) assert that older workers may be more adept at managing work and family demands due to their accumulated experience and more complex view of issues.

Moreover, Bramble et al. (2019) assert that work-family balance could be especially important to older adults. As such, this age group may differ from younger workers in their work-family needs and the coping behaviors they utilize to integrate the two domains (Baltes & Young, 2007). Indeed, Bramble et al. (2019) posit that older employees are more likely to place additional time and resources into the maintenance of work-family balance. For example, the theory of selection, optimization, and compensation (SOC) posits that older adults select goals within a domain of interest that is pertinent to an individual (selection) in

order to cope with resource loss (Bramble et al., 2019). These individuals may also reframe goal structures to align with their needs (optimization) and emphasize existing resources in order to compensate for those that they lose (compensation). Bramble et al. (2019) found that older individuals were more likely to employ SOC coping strategies than their younger counterparts, and as such, are able to reduce stressors in the work and family domain, while also minimizing work-life conflict.

In addition, older workers may have the added benefit of organizational tenure to facilitate work-life balance, as their long careers make them more likely to have jobs that are flexible, require little travel, and offer more leave time (Bennett, Beehr, & Ivaniskaya, 2017). However, it is important to note that CTs may greatly influence perceptions of work-life conflict between age groups. For example, Haeger and Lingham (2014) discovered that older workers did not consider CTs such as e-mail or social media as integral parts of concurrently managing work and life, while younger workers viewed them as an integral and positive part of work-life fusion. However, older workers view the virtual world as beneficial to managing work and life, while younger workers do not have these expectations (Haeger & Lingham, 2014). This may be due to the fact that younger workers grew up during a time when virtual is the norm for life and work management; as such, they are not cognizant of a world without this space (Haeger & Lingham, 2014). As older employees tend to have stronger work-life boundaries, they view spillover from work into family life negatively. For example,

Brody and Rubin (2011) discovered that reading and responding to work e-mails from home negatively impacted older workers, as they viewed these behaviors as a tether to their work. The opposite was true for younger workers however, as they viewed these e-mail behaviors positively (Brody & Rubin, 2011). Indeed, it seems the effect of communication technologies on work-life conflict differs for younger and older workers, and as such, will be a focal point of this proposed study.

Socio-demographic factors such as age may play a role in the development of burnout as well. As Peng, Jex, and Wang (2019) note, younger and older workers react differently to certain job characteristics. For example, in a study with fire fighters, electricians, and managers, older worker responded more negatively to role conflict when compared to younger workers (Peng et al., 2019). This may be due to the fact that balancing such conflicts required higher levels of cognitive and physical resources than the older workers possessed. In another study, Gomez-Urquiza, Vargas, De la Fuente, Fernández-Castillo, and Cañadas-De la Fuente (2016) found an inverse relationship between age and burnout among nursing professionals, with older nurses showing lower levels of exhaustion and depolarization when compared to younger nurses. However, the mean effect size for this relationship was small, due to the wash-out that occurred when positive and negative association values were averaged. In addition, the number of studies available for some variables were small as well. Moreover, this relationship may be due to selective attrition, as middle-aged

nurses who felt burned out may have left the profession. Older nurses, however, were more likely to experience a reduced sense of personal achievement, but only if they utilized high emotion-focused coping in their work (Mefoh, Ude, & Chukuworji, 2018). In contrast, younger nursing professionals were more likely to report lower levels of personal achievement if they used emotion-focused coping rarely or moderately.

Meanwhile, Hatch et al. (2018) reported that the physical and psychological dimensions of age and burnout interact, in that burnout was associated with lower physical and psychological ability, while older age was associated with lower physical ability only. Moreover, older age predicted lower work ability at high levels of burnout and predicted higher work ability at low levels. Peng et al. (2019) concur, as they found that physical demands were negatively related to older employees' perceived work ability, and workload was positively related to burnout. In the teaching profession, Antoniou et al. (2006) revealed younger and newer teachers reported higher levels of stress and burnout. The researchers posit this may be due to their failure to activate the appropriate coping strategies in order to manage the demands of their environment and accomplish their objectives. Given the results of these studies, it is clear that burnout also affects younger and older employees differentially.

Present Study

Researchers have illustrated clear relationships between CT usage, work-life conflict, burnout, and age; however, very few studies have integrated these constructs into a single study. For example, Wright et al. (2014) explored the relationships between after-hours CT usage, work-life conflict and their impact on burnout, job satisfaction, job stress, and turnover intentions. They found that CT-related work-life conflict predicted burnout and job satisfaction, but not turnover intentions (Wright et al., 2014). Although these scholars did investigate age in their study, it was utilized as a control variable and was not a focal point of their research. As a result, the impact of age on CT usage, work-life conflict, and burnout warrants further investigation, as the factors that influence work-life conflict and burnout may change with age. For example, utilizing the Job Demands-Resources Model, certain aspects of the job may require excessive effort for older workers (i.e., work-related CT usage after hours, permeability of work-life boundaries, physical and cognitive constraints, conflict between work and personal goals), which in turn may increase their risk of burnout. As the relationships between these four constructs remain unexplored, they were the focus of this proposed study.

We were interested in investigating the moderating effect of age on the relationship between CT usage and burnout. As Spieler et al. (2018) note, as individuals age, fluid cognitive resources (i.e., executive control, selective attention, task switching) begin to decline. Such age-related decline is not

restricted to a certain segment of the population; individuals with different levels of socioeconomic status, cognitive functioning, and different levels of job complexity all experience this phenomenon, although to varying degrees. Due to this, aging workers tend to invest their resources more selectively. Using the Job Demands-Resource Model of burnout, increases in CT usage may place undue strain on older employees, as this age group must expend more resources in order to address CT-related work demands, and age-related physical and cognitive constraints may make technological interactions more challenging (Bramble et al., 2019). As such, we hypothesized that:

Hypothesis 1: *Work-related CT use will be positively related to burnout.*

Hypothesis 2: *Employee age will moderate the relationship between work-related CT use and burnout. Specifically, we expect that the amount of burnout experienced by older workers will be significantly higher than that of younger workers at higher rates of CT use (see Figure 1).*

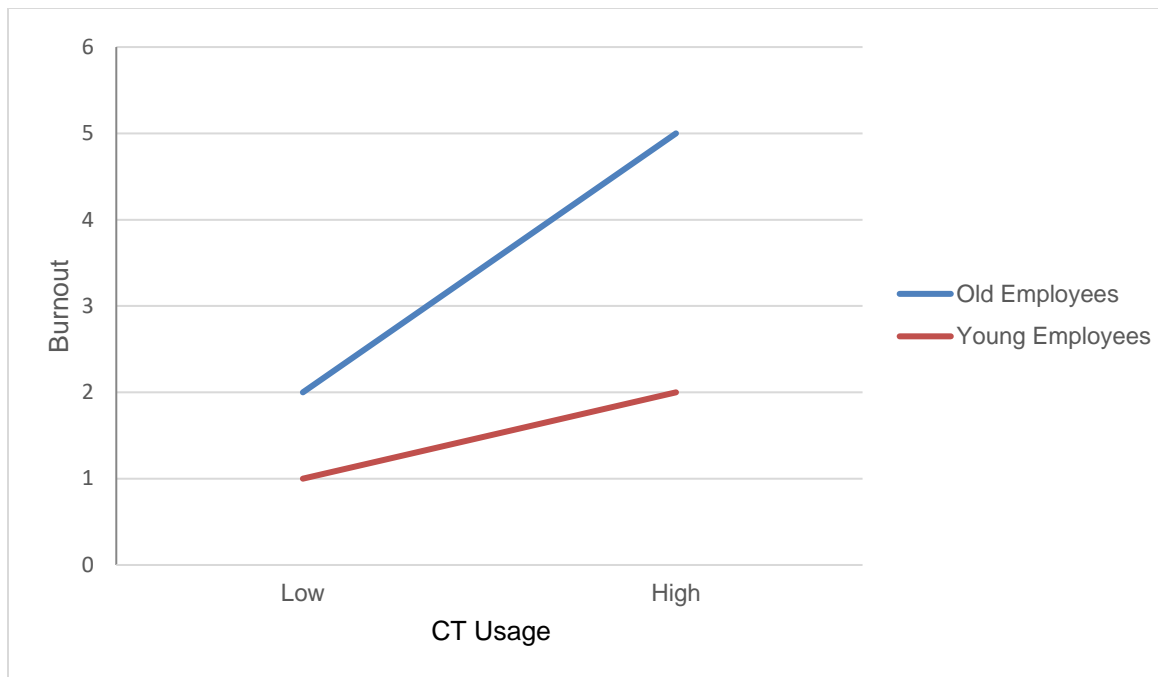


Figure 1. The hypothesized moderating effect of age on the relationship between CT use and burnout.

We were also interested in the relationship between work-related CT use, work-life conflict, and age. Researchers have indicated that older individuals emphasize the importance of work-life balance and work-life boundaries more than younger individuals (Bramble et al., 2019; Spieler et al., 2018). Since CT usage blurs the boundaries of work and family, utilization of such technologies may increase the risk of work-life conflict for older employees, especially since this age group values CTs less than their younger counterparts and does not find CTs useful for managing the work and family domains (Haeger & Lingham, 2014; Kossek & Lautsch, 2008; Lester et al., 2012). Given this, we hypothesized that:

Hypothesis 3: Work-related CT use will be positively related to work-life conflict.

Hypothesis 4: Employee age will moderate the relationship between work-related CT use and work-life conflict. Specifically, we expect that the amount of work-life conflict experienced by older workers will be significantly higher than that of younger workers at higher rates of CT use (see Figure 2).

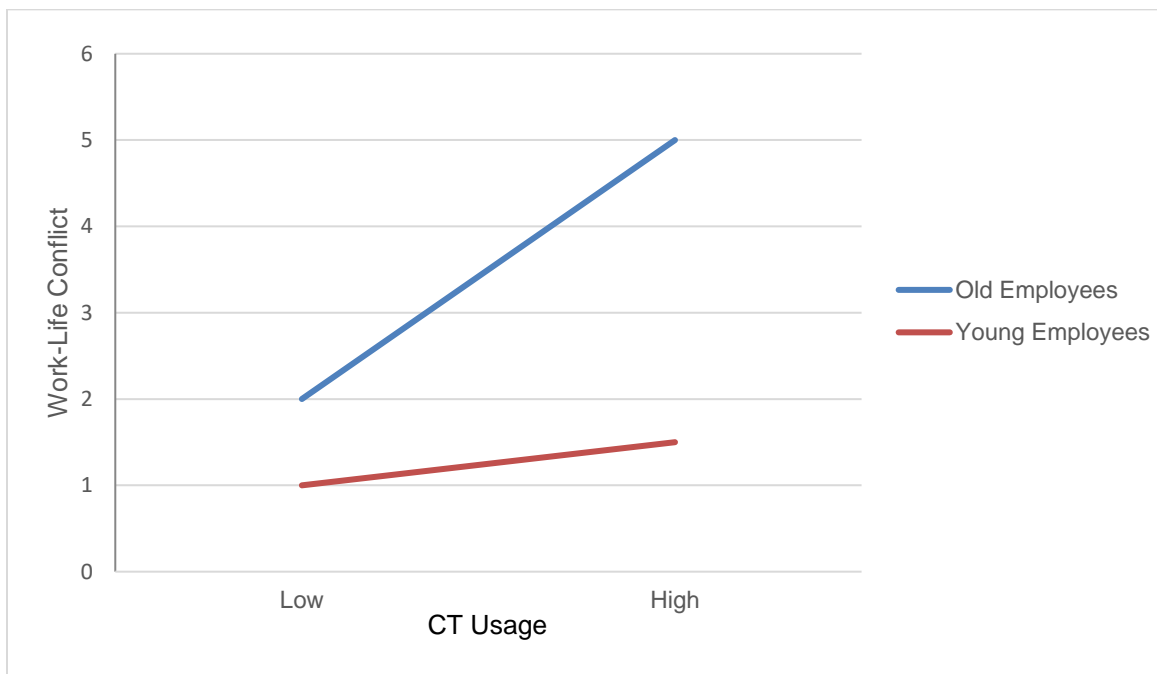


Figure 2. The hypothesized moderating effect of age on the relationship between CT use and work-life conflict.

Proposed Model Framework

In concordance with the above hypotheses, the following model framework was proposed to summarize the findings from the literature reviewed and illustrate the hypothesized relationships between variables as depicted below in Figure 3:

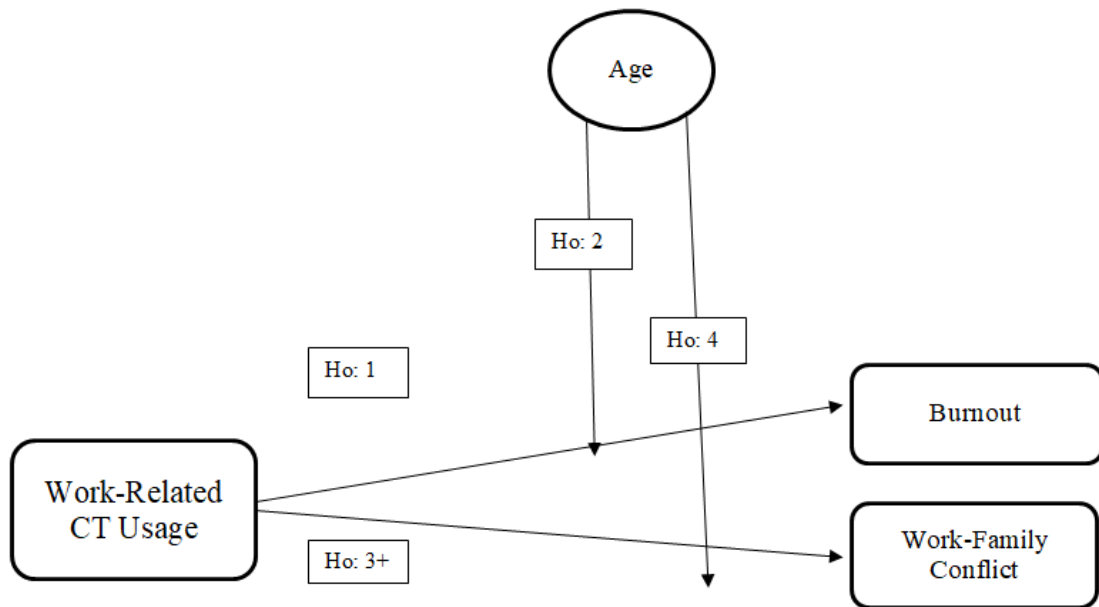


Figure 3. The Proposed Model Framework Illustrating Hypotheses 1-4

CHAPTER TWO

METHOD

Participants

Participants over the age of 18 were recruited to complete an online Qualtrics survey via Amazon's Mechanical Turk (MTurk) system. Only respondents that understood English and were presently working at least part time could participate in the questionnaire. In order to ensure a good ratio of older and younger employees, the survey was opened multiple times to assess whether different recruitment measures were necessary for each population. After data was gathered from 100 young participants, the survey was closed and reopened for employees who were 40 years of age and older only. The initial sample of 238 respondents, was reduced to 169 (see details below under data screening as to why cases were removed) which had an age range of 20 to 73 ($M = 38.46$, $SD = 10.28$), included 107 men and 62 women, and comprised multiple ethnicities (Asian = 26, African American = 10, Latino/Hispanic = 11, Native American or Alaskan Native = 2, White = 117, from multiple races = 3) (See Table 1 for a detailed breakdown of demographic characteristics). The demographic makeup of the initial sample ($N = 238$) did not substantially differ from the final sample ($N = 169$) used in these analyses.

Table 1. Participant Demographics

| Variable | Total | % |
|--|-------|--------|
| Age | | |
| 20 - 29 | 35 | 20.70% |
| 30 - 39 | 66 | 39.10% |
| 40 - 49 | 40 | 23.70% |
| 50 - 59 | 20 | 11.80% |
| 60+ | 7 | 4.10% |
| Missing | 1 | 0.60% |
| Gender | | |
| Male | 107 | 63.30% |
| Female | 62 | 36.70% |
| Marital Status | | |
| Single | 66 | 39.10% |
| Married | 71 | 42% |
| Living Together | 20 | 11.80% |
| Separated | 3 | 1.80% |
| Divorced | 8 | 4.70% |
| Widowed | 1 | 0.60% |
| Ethnicity | | |
| Asian | 26 | 15.40% |
| African American | 10 | 5.90% |
| Latino/Hispanic | 11 | 6.50% |
| Native American or Alaskan Native | 2 | 1.20% |
| White | 117 | 69.20% |
| Mixed | 3 | 1.80% |
| Highest Education Level | | |
| High School Degree or equivalent (e.g., GED) | 19 | 11.20% |
| Some college but no degree | 25 | 14.80% |
| Associate Degree | 17 | 10.10% |
| Bachelor Degree | 89 | 52.70% |
| Graduate/Professional Degree | 19 | 11.20% |

Table 1. Participant Demographics (continued)

| Variable | Total | % |
|---|-------|--------|
| Mother's Highest Education Level | | |
| Less than a High School Degree | 15 | 8.90% |
| High School Degree or equivalent (e.g., GED) | 64 | 37.90% |
| Some college but no degree | 20 | 11.80% |
| Associate Degree | 20 | 11.80% |
| Bachelor Degree | 40 | 23.70% |
| Graduate/Professional Degree | 10 | 5.90% |
| Father's Highest Education Level | | |
| Less than a High School Degree | 18 | 10.70% |
| High School Degree or equivalent (e.g., GED) | 53 | 31.40% |
| Some college but no degree | 23 | 13.60% |
| Associate Degree | 13 | 7.70% |
| Bachelor Degree | 46 | 27.20% |
| Graduate/Professional Degree | 16 | 9.50% |
| Number of Household Members | | |
| 1 - 4 | 145 | 85.80% |
| 5 or more | 24 | 14.30% |
| Number of Dependent Children | | |
| 0 - 2 | 152 | 92.30% |
| 3 or more | 13 | 7.70% |
| Number of Dependent Elders | | |
| 0 - 1 | 148 | 87.60% |
| 2 or more | 21 | 12.40% |
| Loss of Friends or Family in the Past 6 Months | | |
| Yes | 32 | 18.90% |
| No | 137 | 81.10% |
| Employment Status | | |
| Part-Time | 20 | 11.80% |
| Full-Time | 141 | 83.40% |
| Self Employed | 8 | 4.70% |
| Years of Experience | | |
| 0 - 9 | 98 | 58% |
| 10 - 19 | 47 | 27.80% |
| 20 - 29 | 17 | 10.10% |
| 30+ | 7 | 4.10% |

Table 1. Participant Demographics (continued)

| Variable | Total | % |
|-------------------------------------|-------|--------|
| Type of Job | | |
| Service | 32 | 18.90% |
| Clerical | 15 | 8.90% |
| Trade/Labor/Craft | 7 | 4.10% |
| Managerial | 27 | 16% |
| Professional | 79 | 46.70% |
| Other | 9 | 5.30% |
| Type of Industry | | |
| Public | 49 | 29% |
| Private | 119 | 70.40% |
| Other | 1 | 0.60% |
| Income | | |
| <\$10,000 | 8 | 4.70% |
| \$10,000 - \$39,999 | 57 | 33.70% |
| \$40,000 - \$69,999 | 50 | 29.60% |
| \$70,000 - \$99,999 | 30 | 17.80% |
| \$100,000+ | 24 | 14.20% |
| Hours per Week (including overtime) | | |
| 0 - 19 | 28 | 16.60% |
| 20 - 39 | 30 | 17.80% |
| 40+ | 111 | 65.70% |
| CT Usage per Week | | |
| 0 - 19 | 137 | 81.10% |
| 20 - 39 | 28 | 8.90% |
| 40+ | 4 | 2.40% |

Measures

Demographics

Participants were asked to report their age, gender, ethnicity, education level, income, and job type. See Appendix A for the specific wording of these demographic items. Details of the demographic breakdown of the research sample (N = 169) can be found in Table 1.

Work-related Communication Technologies Use

To assess work-related CT usage outside of regularly defined work hours, Fenner and Renn's (2009) Technology-Assisted Supplemental Work (TASW) scale was used. The TASW is a 5-item, 5-point Likert-type response scale (1 = never; 5 = always) that assesses the extent an individual performs work-related tasks at home outside regular work hours through the use of technological tools (i.e., I perform job-related tasks at home at night or on weekends using my cell phone, pager, Blackberry or computer). Based on a sample of 227 responses, Fenner and Renn (2009) conducted an exploratory factor analysis on 115 randomly selected responses. They found the scale to be unidimensional in nature, with factor loadings ranging from .60 to .82. All factor loadings were also found to be significant ($p < .05$) and explained 66% of the variance. Fenner and Renn (2009) then conducted a confirmatory factor analysis with the remaining 112 responses, which supported the proposed factor structure (NFI = .95, TLI = .91, CFI = .96). An analysis was then conducted to assess the reliability of the scale which produced a Cronbach's alpha of $\alpha = .88$. Given the changes in

communication technologies utilized at home and in the workplace, the measure was modified in order to include newer technologies and those of most relevance to employees in the workplace today. The scale had a Cronbach's alpha of $\alpha = .87$ for the present study's sample. See Appendix B for the complete scale.

Work-Life Conflict

Hayman's (2005) Work-Life Balance Self-Assessment Scale was used to measure work-life conflict. The 15-item, 7-point Likert-type response scale (1 = not at all; 7 = all the time) was adapted from an instrument reported by Fisher-McAuley, Stanton, Jolton, and Gavin (2001) that measured work-life balance. Hayman (2005) conducted an exploratory factor analysis on a sample of 61 human resource administrators to explore the construct validities of the items and dimensionality of the instrument. The factor analysis supported a three dimension factor structure: work interference in personal life (WIPL, i.e., "My personal life suffers because of work"), personal life interference with work (PLIW, i.e., "I find it hard to work because of personal matters"), and work-personal life enhancement (WPLE, i.e., "I am in a better mood at work because of personal life"). The WIPL subscale consists of 7 items, has factor loadings ranging from .70 to .90, an eigenvalue of 5.02, explains 33.46% of the variance and has a Cronbach's alpha of $\alpha = .93$. The PLIW subscale consists of 4 items, has factor loadings ranging from .63 to .87, an eigenvalue of 3.15, explains 20.98% of the variance, and has a Cronbach's alpha of $\alpha = .85$. The final subscale, WPLE, consists of 4 items,

has factor loadings ranging from .59 to .86, an eigenvalue of 2.17, explains 14.46% of the variance, and has a Cronbach's alpha of $\alpha = .69$.

Smeltzer et al. (2016) also assessed the factor structure of this instrument by conducting a principle component analysis on a sample of 1,197 faculty members of doctoral nursing programs. They found a factor structure that conforms to the factor structure reported by Hayman (2005), as all items loaded onto the three factors in the same pattern in their analysis. Furthermore, the Cronbach's alpha coefficients for the subscales found in their study were similar to those reported by Hayman (2005) (WIPL, $\alpha = .93$; PLIW, $\alpha = .85$; WPLE, $\alpha = .69$). For this study, the WIPL had a Cronbach's alpha of $\alpha = .94$, the PLIW had an alpha of $\alpha = .95$, and the WPLE had an alpha of $\alpha = .92$. See Appendix C for the complete scale.

Burnout

The Copenhagen Burnout Inventory (CBI) was used to measure burnout. Kristensen, Borritz, Villadsen, and Christensen's (2005) measure is a 19-item, 5-point Likert-type response scale (1 = never, 5 = always) that consists of three subscales: personal burnout (i.e., "How often do you feel tired?"), work-related burnout (i.e., "Do you feel that every working hour is tiring for you?"), and client-related burnout (i.e., "Does it drain your energy to work with clients?"). Personal and client-related burnout both contain 6 items, while work-related burnout contains 7 items. Cronbach's alpha for the internal reliability of each scale are high, with a score of $\alpha = .87$ for personal burnout, $\alpha = .87$ for work-related

burnout, and $\alpha = .85$ for client-related burnout. Walters, Brown and Jones (2018) conducted a confirmatory factor analysis on the three factor model. Based on a sample of 1,720 social workers, their analysis supported the proposed three dimension factor structure (CFI = .91, RMSEA = .09, RMSEA CI = [.09, .10], TLI = .90). All factor loadings were statistically significant, and all standardized regression weights were above the minimum standard of .4. For this study, only the personal and work-related burnout subscales were used in order to ensure the questionnaire was relevant to the general population. The Cronbach's alpha for the personal burnout subscale was $\alpha = .91$, and the alpha for the work-related burnout subscale was $\alpha = .90$ for this study's sample. See Appendix D for the complete scale.

Procedure

The survey was administered in an online format using Qualtrics survey software via Amazon's MTurk system. Workers registered with MTurk were able to access and participate in the study. Participants had to be 18 years or older, work at least part-time, had a HIT (Human Intelligence Test) approval rate greater than 98%, and had a number of HITs approved greater than 5000 in order to complete the questionnaire. If respondents fulfilled the screening requirements, they were asked to provide their informed consent before beginning the survey. Individuals who consented to participation completed a questionnaire utilizing the aforementioned measures. The primary investigator's

contact information was provided at the end of the study in case participants had any concerns, and respondents were compensated \$2.00 for their participation.

CHAPTER THREE

RESULTS

Data Screening

Data was examined for careless responses, univariate and multivariate outliers, missing data, and violations of normality, linearity, and multicollinearity. A total of 238 responses were recorded. Of these responses, 32 did not pass the survey requirement, 18 did not finish the survey, and 19 did not pass the attention checks. As such, 70 cases were removed from the dataset, and 169 cases were used for all subsequent analyses.

Variables were converted into standardized z-scores to identify potential univariate outliers. Using a cutoff z-score of ± 3.3 , 2 univariate outliers were identified: number of dependent children ($z = 6.39$, raw score = 8 or more) and number of dependent elders ($z = 3.66$, raw score = 3). Since these cases may be representative of the population, no univariate outliers were removed from the analysis. Using a Mahalanobis distance criteria set at $p < .001$, no multivariate outliers were identified. Data was then examined for skewness and kurtosis. Using a cutoff z-score of ± 3.3 , the CT and PILW scales were found to be skewed, while the psychological capital scale was both skewed and kurtotic (see Table 2). Square root transformations resulted in overcorrection of scores on all scales (CT skewness from $z = -3.80$ to $z = 1.95$; PLIW kurtosis from $z = 0.78$ to $z = -1.67$; psychological capital skewness from $z = -3.71$ to $z = 0.97$); as such, data was kept untransformed for the analysis. Examination of residual and scatterplots

identified no violations of linearity and homoscedasticity. Finally, examination of VIF statistics indicated that the assumption of multicollinearity was not violated. No variables were missing more than 5% of data. Pearson Product Moment Correlation Coefficients are found in Table 3.

Table 2. Descriptive Statistics

| Variables | N | Mean | SD | Skewness | Z Skewness | Kurtosis | Z Kurtosis |
|------------------------|-----|------|------|----------|---------------|----------|---------------|
| CT | 169 | 3.13 | 1.01 | -0.71 | -3.82 | -0.22 | -0.60 |
| Work Interference | 169 | 3.20 | 1.43 | 0.07 | 0.37 | -0.80 | -2.14 |
| Personal Interference | 169 | 2.48 | 1.42 | 0.97 | 5.18 | 0.31 | 0.84 |
| Work Life Enhancement | 169 | 4.37 | 1.37 | -0.35 | -1.85 | 0.18 | 0.49 |
| Personal Burnout | 169 | 2.46 | 0.88 | 0.48 | 2.58 | -0.09 | -0.23 |
| Work Burnout | 169 | 2.55 | 0.87 | 0.42 | 2.22 | -0.09 | -0.24 |
| Positive Technology | 169 | 4.10 | 0.57 | -0.23 | -1.23 | -0.43 | -1.16 |
| Dependent Technology | 169 | 3.47 | 0.99 | -0.41 | -2.17 | -0.54 | -1.45 |
| Negative Technology | 169 | 2.85 | 1.03 | -0.03 | -0.17 | -0.68 | -1.84 |
| Multitasking Attitudes | 169 | 3.12 | 0.66 | 0.42 | 2.26 | 0.03 | 0.09 |
| Life Satisfaction | 169 | 3.25 | 1.07 | -0.32 | -1.70 | -0.91 | -2.44 |
| Role Reward | 169 | 3.34 | 0.73 | -0.34 | -1.82 | 0.13 | 0.35 |
| Role Commitment | 169 | 3.31 | 0.83 | -0.50 | -2.69 | 0.10 | 0.26 |
| Psychological Capital | 169 | 4.46 | 0.66 | -0.68 | -3.66 | 1.53 | 4.12 |
| Self-Concept Clarity | 169 | 3.72 | 0.98 | -0.48 | -2.56 | -0.93 | -2.50 |

Table 3. Pearson Product Moment Correlations for Scales and Subscales

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|--------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|----------|
| 1. CT | .87 | | | | | | | | | | | | | | | |
| 2. Personal Burnout | .19* | .91 | | | | | | | | | | | | | | |
| 3. Work Burnout | .15 | .85** | .90 | | | | | | | | | | | | | |
| 4. Work Interference | .42** | .59** | .65** | .94 | | | | | | | | | | | | |
| 5. Personal Interference | .30** | .34** | .37** | .62** | .95 | | | | | | | | | | | |
| 6. Work-Life Enhancement | -.03 | -.48** | -.52** | -.34** | -.05 | .92 | | | | | | | | | | |
| 7. Positive Tech. | .12 | -.18* | -.23** | -.26** | -.23** | .21** | .77 | | | | | | | | | |
| 8. Dependent Tech. | .29** | -.23** | .11 | .24** | .23** | -.02 | .31** | .80 | | | | | | | | |
| 9. Negative Tech. | .15 | -.19* | .20** | .34** | .37** | -.19* | -.39** | .01 | .80 | | | | | | | |
| 10. Task-Switching | .05 | -.06 | -.10 | .12 | .32** | .13 | -.03 | .04 | .29** | .88 | | | | | | |
| 11. Life Satisfaction | .02 | -.49** | -.50** | -.28** | .03 | .60** | .07 | -.08 | -.02 | .24** | .93 | | | | | |
| 12. Role Value | .19* | .06 | -.01 | .09 | .19* | .32** | .27** | .27** | -.12 | .02 | .10 | .69 | | | | |
| 13. Role Commitment | .23** | -.21** | -.22** | -.03 | .04 | .36** | .26** | .19* | -.06 | .14 | .30** | .60** | .83 | | | |
| 14. Psych Capital | .11 | -.42** | -.44** | -.25** | -.07 | .56** | .40** | .005 | -.18* | .11 | .50** | .45** | .61** | .89 | | |
| 15. Self-Concept Clarity | -.15 | -.39** | -.38** | -.42** | -.63** | .05 | .23** | -.26** | -.31** | -.24** | .11 | -.08 | .04 | .21** | .95 | |
| 16. Age | -.05 | -.03 | -.006 | .006 | -.003 | -.13 | -.08 | .09 | .03 | -.09 | .01 | .03 | -.03 | .01 | .11 | 1 |

*p < .05; **p < .01; Cronbach's alphas for all variables (excluding age) are bolded on the diagonal

Note: Work/Life Interference, Work-Life Enhancement, and Life Satisfaction are 7-point Likert-type response scales; Psychological Capital is a 6-point Likert-type response scale; all other scales are 5-point Likert-type response scales.

Analyses

Analyses were conducted through IBM's SPSS 25 software. All analyses were run while controlling for demographic variables (i.e., age, race, gender, income, education level, and employment information); however, these results did not significantly differ from analyses that were conducted without control variables. As such, analyses performed without covariates were used for interpretation.

Hypothesis 1 and 2

A least squares bivariate regression and Hayes' (2012) PROCESS macro were used to test Hypothesis 1 and 2 respectively. For the first hypothesis, results indicated that work-related CT usage could significantly predict burnout (*Multiple R* = .17, *Multiple R*² = .03, $F(1, 167) = 4.92$, $p < .05$). Specifically, as hypothesized, higher rates of CT usage predicted higher levels of burnout (*unstandardized b* = .14, $t(167) = 2.22$, 95% CI [.02, .27], $p < .05$). The effect size though was relatively small. However, for Hypothesis 2, age did not significantly moderate the relationship between CT use and burnout ($p > .05$) (see Figure 4). In addition, age itself did not significantly predict burnout ($p > .05$). Additional analyses were conducted to ascertain whether the interaction between CT use and age could significantly predict burnout if technological attitudes, organizational role commitment, organizational role value, psychological capital and self-concept clarity were controlled for. Results indicated that after controlling

for the aforementioned variables, no significant interaction was found ($p > .05$). Analyses were also performed to examine whether age moderated the relationship between CT use and the individual burnout subscales (i.e., personal burnout and work-related burnout); however, no significant interactions were found ($p > .05$). When additional variables were controlled for (i.e., technological attitudes, organizational role commitment, organizational role value, psychological capital and self-concept clarity), these relationships were still found to be non-significant ($p > .05$). As such, Hypothesis 2 was not supported.

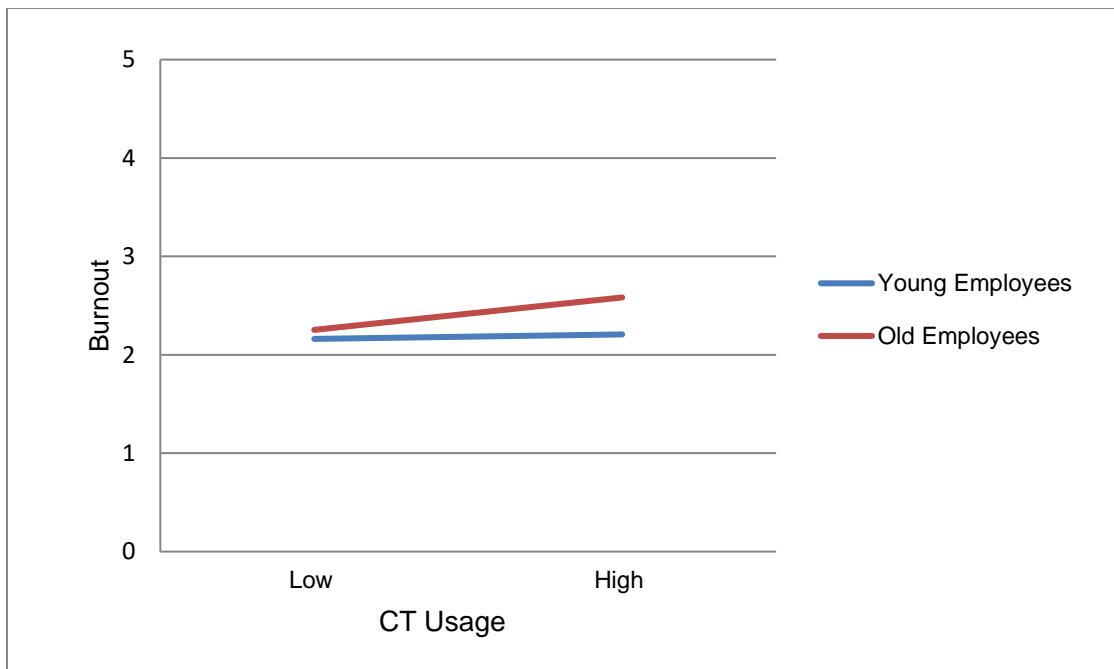


Figure 4. Moderating Effect of Age on CT Use and Burnout

Hypothesis 3 and 4

A least squares bivariate regression and Hayes' (2012) PROCESS macro were used to test Hypothesis 3 and 4 respectively. For Hypothesis 3, results indicated that work-related CT usage could significantly predict work-life conflict (*Multiple R* = .42, *Multiple R*² = .17, $F(1, 167) = 59.49$, $p < .05$). Specifically, as hypothesized, higher rates of CT usage predicted higher levels of work-life conflict (*unstandardized b* = .59, $t(167) = 5.94$, 95% CI [.39, .78], $p < .05$). The effect size for work-life conflict was small to moderate and substantially higher than the effect size for burnout. However, for Hypothesis 4, age and the interaction between age and CT use did not significantly predict work-life conflict ($p > .05$) (see Figure 5). Analysis were then performed while controlling for certain variables (i.e., technological attitudes, organizational role commitment, organizational role value, psychological capital and self-concept clarity) in order to investigate whether age would moderate the relationship between CT use and work-life conflict. Results indicated that there was no significant moderation effect after controlling for the aforementioned variables ($p > .05$).

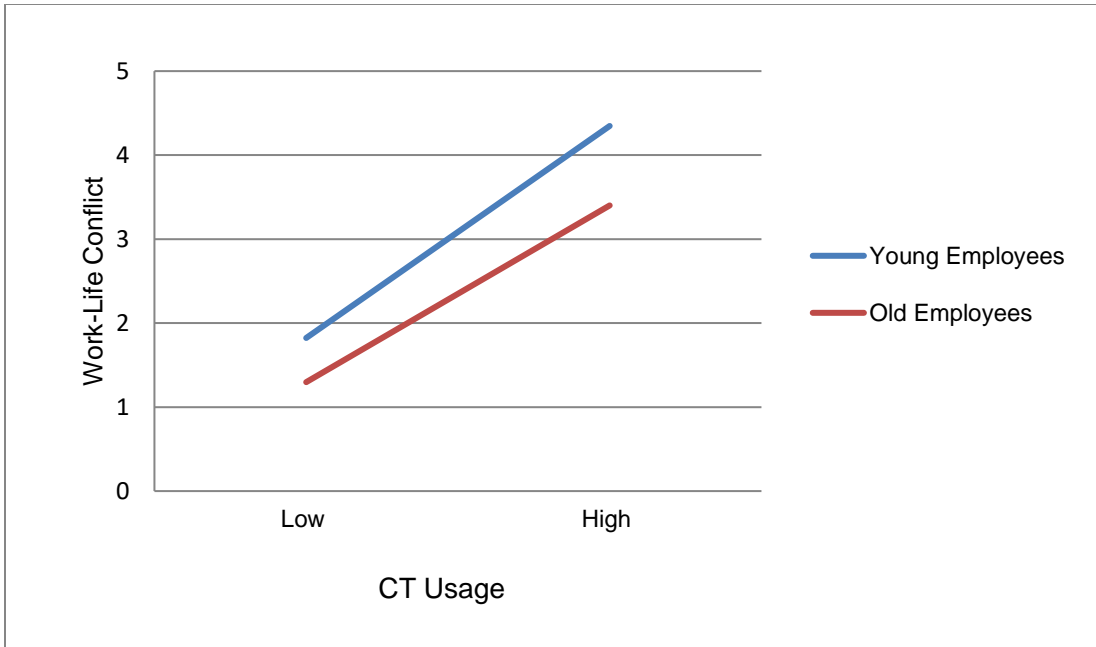


Figure 5. Moderating Effect of Age on CT Use and Work-Life Conflict

CHAPTER FOUR

DISCUSSION

The purpose of this study was to investigate the influence of after-hours communications technology usage on employee work-life conflict and burnout. Results of the survey confirmed that CT usage for work-related tasks outside of normal work hours was significantly related to burnout, however the effect size was relatively small. Furthermore, after-hours CT usage was significantly linked to perceptions of work-life conflict and the effect size was substantially bigger than for burnout. However, results indicated that age did not serve as a moderating variable for the relationships between CT use and burnout, and CT use and work-life conflict, despite controlling for a wide variety of potential covariates. Nevertheless, these findings shed light on existing theories in several important ways.

First, as previously mentioned, results indicated that higher rates of after-hours CT usage significantly predicted higher levels of burnout. As the burnout construct has mainly been studied in the human services context, this study confirms and extends the literature on burnout outside of these occupations. The relationship between burnout and CT use is consistent with Barley et al.'s (2011) findings that individuals who reported increased utilization of communication technologies were more likely to report feeling burned out, Moore's (2017) findings that expectations to reply to emails after hours led to higher employee stress levels and feelings of emotional exhaustion, and Barber and Santuzzi's

(2017) findings that workplace telepressure was related to increased perceptions of burnout and stress. CTs may increase the prevalence of such negative outcomes due to unclear expectations regarding after-hours work-related tasks, such as the amount of work employees are expected to complete, as well as the expected protocols for work-related contact outside of normal work hours (Leonardi et al., 2010; Peeters et al., 2005). The current study also adds to the literature by directly linking the devices utilized to accomplish after-hours work tasks (i.e., laptops, smart phones) with burnout outcomes, rather than the software and applications used to complete these tasks (i.e., email). Indeed, while Wright et al. (2014) have demonstrated that work-life conflict driven by device usage was associated with increased job burnout, their study tested the relationship between CT related work-life conflict and burnout, rather than the relationship between the usage of CT devices after-hours and burnout itself.

This study also differed from previous studies in that we examined the effect of age on the relationship between CT use and burnout. Specifically, we predicted that age would moderate the relationship between CT usage and burnout, such that older employees would experience higher levels of burnout when compared to younger employees. Initially, we hypothesized that, due to declining physical and fluid cognitive resources, utilization of CTs for work-related tasks may pose a greater burden for older workers (Spieler et al., 2018). Under the Job Demands-Resources Model of burnout, it was thought that the constant connection to work afforded by CT devices would exceed the amount of

resources older individuals possess to address such demands. Moreover, Bramble et al. (2019) have noted that technological interactions may pose a greater challenge to older employees due to the aforementioned age-related constraints. However, the interaction effect between age and CT usage on the outcome of burnout was not significant, and as such, this hypothesis was not supported.

As the usage of communication technologies to complete work tasks is now relatively ubiquitous in organizations, issues such as lack of training and exposure to CTs such as computers may be less of an obstacle for older employees than it was previously (Elias et al., 2010). Moreover, as Charness and Czaja (2019) note, younger cohorts are now aging into older cohort categories and carrying their technological knowledge with them. As such, it is possible that the modern workforce is becoming increasingly tech-savvy as older employees with less CT experience retire and younger employees take their place. Due to this, the modern workforce may be approaching asymptote in terms of CT adoption, and as such, may be less likely to be differentially affected by burnout due to CT usage. Given this trend, it is possible that the current workforce may soon reach a point where technological competences become ubiquitous among all age groups. In such a case, differential outcomes due to CT use may no longer be an issue for younger and older cohorts. Regardless, given the significant relationship between CT usage and burnout, the effects of

communication technologies on employee well-being should still be taken into consideration.

Individual differences may also influence the effects of CT usage on burnout outcomes. For example, Wright et al. (2014) posit that employees who experience greater communications technology dependency (i.e., those who feel the need to consistently “check in” on their work) may be more likely to experience burnout than those without this dependency. Moreover, in this case, this negative outcome may be “self-inflicted”, as it is not so much due to the employee’s CT usage, their supervisor, or other sources from the workplace that may be influencing the individual’s perception of burnout (Wright et al., 2014).

Although technological dependency was utilized as a control variable in this moderation analysis, the current study did not examine whether the variable itself was a predictor of burnout. Finally, although age was not specifically hypothesized to directly predict burnout in this study, these non-significant results contradict findings put forth by Brewer and Sharpard (2004) and Urquiza et al. (2016). In both meta-analyses, these scholars discovered small to moderate correlations between the age of workers and/or years of experience and burnout. However, no relationship between age and burnout was found in this study. Nevertheless, the results of this study are meaningful, as they suggest that increased rates of CT usage can lead to high levels of burnout in all employees, regardless of age.

The results of this study also indicated that increased usage of communication technologies for work-related tasks after-hours can significantly increase perceptions of work-life conflict. Indeed, this confirms prior research that CT usage was positively related to work-life conflict, and utilization of such devices outside of normal working hours can lead to perceptions of work-life imbalance (Boswell & Olson-Buchanan, 2007; Diaz et al., 2011; Gadeyne et al., 2018; Wright et al., 2014). These findings also affirm the notion that work-related CT usage may blur the boundaries between work and home, such as Leung's (2011) findings that ICTs increase the permeability and flexibility of work-life boundaries, which in turn influences negative spillovers of home into work, and work into home. Though CT flexibility was found to be negatively related to work-life conflict, when flexibility translated into utilization, CTs were found to be positively related to work-life conflict (Diaz et al., 2011). Indeed, though communication technologies may be a convenient way to carry work duties into home life, they may inevitably lead to increased work-life conflict due to the blurred boundaries between work and home (Wright et al., 2014). Given the relationship between CT usage and work-life conflict, this study extends existing literature by providing further empirical support for the influence of after-hours CT usage on work-life imbalance and provides justification for the inclusion of communication technologies in future work-life conflict models.

For this study, we also tested the effect of age on the relationship between CT use and work-life conflict. Specifically, we predicted that age would moderate

the relationship between CT use and work-life conflict, such that older employees would experience higher levels of work-life conflict when compared to younger employees. Given that older individuals tend to implement stronger work-life boundaries and place greater emphasis on the importance of work-life balance when compared to younger individuals, we hypothesized that utilization of CTs after-hours would negatively influence this age group's perceptions of work-life conflict (Bramble et al., 2019; Spieler et al., 2018). This is due to the fact that CTs tend to blur the boundaries between work and family (Kossek & Lautsch, 2008). Furthermore, researchers have shown that older individuals find less value in communication technologies when compared to younger workers, as they tend to prefer face-to-face communication (Haeger & Lingham, 2014; Lester et al., 2012). While younger employees tend to take advantage of technologies such as ICTs and CMCs, older employees either did not find them useful for managing work and life or viewed such technologies as a convenience (Brody & Rubin, 2011; Haeger & Lingham, 2014; Myers & Sadaghiani, 2010). However, the results of this study produced a non-significant interaction effect between age and CT usage on the outcome of work-life conflict. As such, this hypothesis was not supported.

The lack of a significant finding may be due to the fact that age may have served as a proxy variable for other physiological or psychological characteristics that may impact work outcomes (Bohlmann et al., 2017). As such, rather than age, it may be that other factors (i.e., the environment, individual differences)

exerted a greater influence on the relationship between work-life conflict and CT use. For example, Leung (2011) suggests “ICT connectedness may not be the main issue when assessing the consequences associated with ICT use; rather, individual control over what passes through the work-home boundaries shapes the consequences people experience” (p. 263). Indeed, Gozu et al. (2015) argue that having the decision-latitude about when to handle family and work demands may contribute to an individual’s well-being. Similarly, Gadeyne et al. (2018) discovered that the negative effects of CT devices on work-life conflict were buffered for individuals with an integration preference (i.e., those who prefer to integrate work and life). This is due to the fact that employees with a high integration preference prefer their work and home boundaries to be highly flexible (Allen et al., 2014). As such, these individuals may prefer to utilize CTs to accomplish work-related tasks after-hours and may not perceive such technologies as an interruption in their home domain.

It is important to note, however, that having highly flexible and highly permeable boundaries are not necessarily the same thing. For example, Leung (2011) found that people satisfied with their families tended to be older and have an impermeable work-life boundary to prevent work from penetrating into their home. However, these individuals also needed a highly flexible work environment in order to be able to deal with work-related tasks in their home domain. This distinction is important, as policies such as flextime can allow employees to create a flexible but impermeable boundary. Such arrangements can be highly

valuable to employees who suffer from considerable work-family conflict, as flexibility would allow these individuals to cope with work-life conflicts that a permeable work-life boundary would aggravate.

Nevertheless, Leung (2011) reported that individuals who had a highly permeable work-life boundary and a highly flexible work environment tended to feel that the Internet could help them accomplish work-related tasks, and that traditional media could help them relax after work. However, Gadeyne et al. (2018) note that such positive effects are only applicable when the work environment was characterized by low work demands and/or low integration norms. As such, it seems environmental factors may also exert some influence on work-life conflict perceptions. Indeed, Barber and Santuzzi (2015) found that, though environmental and personal factors can both predict workplace telepressure, environmental factors (i.e., workload and social norms) tended to have stronger relationships with telepressure than personal factors.

Boswell and Olson-Buchanan (2007) have also found that employees with higher ambition and job involvement were more likely to use CTs for work-related purposes outside of the work domain. Specifically, individuals who have a higher identification and attachment to work-related elements, and who consider the work role to be an important component of themselves, are more likely to engage in their work role even when in another role domain (Boswell & Olson-Buchanan, 2007). Differences in technological attitudes may also influence individual perceptions of CT usage on work-life conflict. For example, Leung (2011)

reported that the more central the Internet was to an individual's life, the more they valued its usefulness for work. Furthermore, these individuals tended to report higher levels of satisfaction within the family domain. Similarly, Wright et al. (2014) found that while hours of work-related CT usage outside of traditional work hours contributed to perceptions of work-life imbalance, positive attitudes towards CTs was associated with a decreased work-life conflict. Gozu et al. (2015) echoed similar results, stating that positive personal web usage (PWU) attitudes moderated the relationship between work-family facilitation and life satisfaction, and weakened the negative effects of role conflict and well-being. These scholars posit that employees may be better able to cope with role conflict if they have a mechanism such as work/family PWU in the workplace, as it may allow workers greater autonomy and flexibility in dealing with role conflicts. Although positive technological attitudes were measured and controlled for in the analyses, the relationship between positive technological attitudes and work-life conflict was not hypothesized, and therefore was not examined in the current study. Nevertheless, our results provide a meaningful contribution to existing literature by illustrating that after-hours CT usage can negatively impact work-life balance, regardless of employee age.

Theoretical and Practical Implications

This study provides several potential theoretical and practical implications. First, our results confirm the negative ramifications of after-hours CT usage on

perceptions of work-life conflict. Given that work-related CT usage increases work-life conflict, organizations and managers should be aware of their after-hours CT practices. For example, organizations should implement the distribution of CTs such as cell phones and laptops with caution, as the inference of continuous availability and productivity can be detrimental to employee health (Boswell & Olson-Buchanan, 2007; Sarker et al., 2012). In addition, organizational decision makers may want to establish clear policies for after-hours work-related communications, and managers may wish to confer with their employees to communicate their preferences for after-hours communication (Boswell, Olson-Buchanan, Butts & Becker, 2016).

Furthermore, the results of this study indicate that increased utilization of CTs for work-related purposes can increase the risk of burnout among employees. As such, the usage of CTs after-hours may be a unique contributor to employee burnout, and future scholars should consider incorporating the usage of CTs in future theoretical models of burnout. Organizations should be aware of the implications of CT usage on burnout as well. To address this issue, managers should reflect on how frequently after-hours communications are sent and decide whether specific communications are urgent or can wait (Boswell et al., 2016). If employee action is required after-hours, managers should clearly elucidate why this is so, and if possible, may consider compensation for additional work hours (Boswell et al., 2016). Organizations as a whole may also implement policies to ban after-hours communications; however, the

ramifications of such an action should be considered (Boswell et al., 2016). Future researchers may wish to examine how the implementation of such policies affect work-life conflict and burnout as well.

Limitations

There are a few limitations in this study that warrant consideration. First, due to the method of data collection, this survey required participants to possess some degree of technical knowledge. Since the survey was distributed through a technological medium, individuals who lack the skills and abilities to navigate such spaces may not be fully represented in the sample. This is an especially salient issue, given this study examined the effects of communication technology usage on employee health and well-being. As Charness and Czaja (2019) have mentioned, there is a 10 percent gap in internet usage between the 50-64 age group and younger cohorts, and a 20% gap between the 65+ group and the 50-64 age group. Since older adults are less likely to use technologies such as cell phones and computers in general, our survey may not have been accessible to these individuals. As such, future researchers should consider different recruitment and distribution methods (i.e., paper and pencil tests, snowball sampling) in order to obtain a sample that is more representative of the population.

Second, there are certain subsets of the population who may be underrepresented in the sample. For example, roughly 69% of the respondents in

the study were White, and about 63% were men. These demographic factors may influence the generalizability of these findings, and researchers should strive for a more balanced and diverse sample in future studies. In addition, around 63% of the sample had earned a Bachelor's degree or higher, and roughly 62% of participants worked in either a managerial or professional job. As education level and skilled jobs are associated with better benefits, access to resources, flexible schedules and greater chances to maintain work-life balance, these individuals may be better equipped to handle the strain of CT use compared to employees without a college degree (Haley-Lock, Berman & Timberlake, 2014).

Previous researchers have also raised concerns regarding the quality of data obtained through MTurk studies. For example, Wessling et al. (2017) found that a large proportion of MTurk respondents claim a false identity, ownership, or activity in order to qualify for a study. MacInnis et al. (2020) found similar results, reporting that 2.2 to 28% of participants misrepresented themselves in their study. Such misrepresentations can negatively impact the quality of study data, as responses to questions can have little correspondence to responses from appropriately identified participants (MacInnis et al., 2020). However, both MacInnis et al. (2020) and Wessling et al. (2017) note that the risk of character misrepresentation tend to be greater for narrow or rare screening categories, and for flexible characteristics (i.e., ownership, having hiring experience). Participants were less likely to misrepresent themselves for inflexible characteristics (i.e., age, other demographics). As we screened for characteristics that were relatively

common and fell within the inflexible category (i.e., age, work status), this does not seem to be as salient an issue for our study. In addition, the option to prevent ballot stuffing was enabled through Qualtrics in order to prevent respondents who failed the screening questions from retaking the questionnaire. Though character misrepresentation is an understandable concern, Wessling et al. (2017) reported that MTurk respondents tend to be consistent in their responses when there was no motive to lie. Indeed, when a survey was administered to participants at two different time points, Follmer et al. (2017) found no significant differences in scores from presurvey to postsurvey administrations. In addition, MTurk participants were found to be more attentive to the details and procedures of a study when compared to college students, and were more racially and socioeconomically diverse (Follmer et al., 2017).

Another key criticism of MTurk is that a significant proportion of workers participate in tasks for the financial reward, and as such, provide noncompliant responses (Barends & de Vries, 2019). In their study, Barends and de Vries (2019) found that roughly 15% of participants were flagged for noncompliant responses. In addition, they reported a small, but significant subsample of workers who actively searched for check questions. These individuals would only respond meaningfully to these questions and gave noncompliant responses to other questions. To combat such issues, attention checks were included throughout the questionnaire to flag noncompliant responses. Furthermore, responses were examined for intraindividual consistencies and inconsistencies,

as individuals who show too much or too little variation in their responses may be suspected of noncompliance (Barend & de Vries, 2019).

Directions for Future Research

Since age did not significantly predict the relationships between CT use, burnout and work-life conflict, researchers should explore other factors that may influence CT-related employee outcomes. As previously mentioned, researchers have indicated that technological attitudes can greatly impact employee perceptions of work-life conflict and burnout. Gozu et al. (2015) note that positive attitudes towards technology can weaken the negative effects of work-life conflict, and Wright et al. (2014) suggest technological dependency can contribute to employee burnout. Given this, future researchers should further examine whether different technological attitudes (i.e., positive, negative, and dependency) differentially affect employee well-being. Researchers should also explore whether the type of CT device used differentially affects the aforementioned outcomes. As Wright et al. (2014) note, while mobile devices such as smart phones allow workers to be reached anywhere and at any time, employees do not typically carry around laptop computers. Since this study did not differentiate between different CT devices, it would be interesting to explore whether differences arise in burnout and work-life conflict perceptions due to more mobile forms of CT (i.e., smart phones,) and/or more tethered forms (i.e., computers). Finally, future researchers should examine whether employee

motivations for utilizing CTs affect these outcomes. For example, employees who prefer the use of CTs for completing work-related tasks and are intrinsically motivated to do so may not view such devices as a burden, and consequently, may not incur the negative effects of CT utilization. In contrast, employees who employ such devices solely due to manager or client expectations may view CTs as stressful and intrusive, and as such, may be at a greater risk of experiencing such outcomes.

Conclusion

Scholars of the CT literature have illustrated how the usage of such technologies can impact employee well-being. In this study, we attempted to further our understanding of after-hours work-related CT usage on outcomes such as work-life conflict and burnout. This study further confirmed the relationship between CT use, work-life conflict and burnout, though results suggest that age does not serve as a moderator between these variables. Nevertheless, these findings provide important contributions to existing literature by illustrating the negative effects of CT usage can impact employees of all ages. As such, future research should focus on other technological and age-related factors that may mitigate the ramifications of these effects.

APPENDIX A
DEMOGRAPHICS

Please answer the following questions: (select one of each response)

DEMOGRAPHICS

Please answer the following demographic questions. For questions with multiple choices, please choose the one response that best applies to you.

1. What is your gender?
 - Male
 - Female
 - Transgender
 - Gender Queer
 - I identify another way (please Specify) _____

2. What is your age? _____ years

3. What is your marital status?
 - Married
 - Living together
 - Separated
 - Divorced
 - Widowed
 - Single, never married

4. What is your ethnicity?
 - Asian
 - African American
 - Latino/Hispanic
 - Native American or Alaskan Native
 - Native Hawaiian or other Pacific Islander
 - White
 - From multiple races
 - I identify another way (Please Specify) _____

5. What is your highest education level?
 - Less than a high school degree
 - High school degree or equivalent (e.g., GED)
 - Some college but no degree
 - Associate degree
 - Bachelor degree
 - Graduate/Professional degree

6. What is your mother's highest education level?
- Less than a high school degree
 - High school degree or equivalent (e.g., GED)
 - Some college but no degree
 - Associate degree
 - Bachelor degree
 - Graduate/Professional degree
7. What is your father's highest education level?
- Less than a high school degree
 - High school degree or equivalent (e.g., GED)
 - Some college but no degree
 - Associate degree
 - Bachelor degree
 - Graduate/Professional degree
8. How many people live in your household? (Please include yourself in your answer)
- 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8 or more
9. How many dependent children do you have?
- 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8 or more

10. How old are your dependent children?

- Child 1 _____ years old
- Child 2 _____ years old
- Child 3 _____ years old
- Child 4 _____ years old
- Child 5 _____ years old
- Child 6 _____ years old
- Child 7 _____ years old
- Child 8 _____ years old

11. How many dependent elders do you have?

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8 or more

12. Have you experienced a loss of friends or family members in the past six months?

- Yes
- No

13. Which of the following best describes your employment status?

- Full time (35 hours a week or more)
- Part time (1-34 hours a week)
- Self-employed

14. How many years have you been employed in your current field of work?

_____years

15. What type of job do you currently hold?

- Service (e.g., sales, fast food, retail, etc.)
- Clerical
- Trade/Labor/Craft
- Managerial
- Professional
- Armed Forces
- Other (Please Specify) _____

16. What industry do you work in?

- Public
- Private
- Other (Please Specify) _____

17. What is your household income?

- <\$10,000
- \$10,000 - \$19,999
- \$20,000 - \$29,999
- \$30,000 - \$39,999
- \$40,000 - \$49,999
- \$50,000 - \$59,999
- \$60,000 - \$69,999
- \$70,000 - \$79,999
- \$80,000 - \$89,999
- \$90,000 - \$99,999
- \$100,000+

18. On average, how many hours (including overtime) do you work each week?

_____hours

19. On average, how many hours each week do you use devices such as cell phones, tablets or computers to do work-related tasks outside of normal work hours? _____hours

APPENDIX B

WORK-RELATED COMMUNICATION TECHNOLOGIES SCALE

Using the scale below, please indicate the extent to which each statement applies to you.

- 1 = Never
- 2 = Rarely
- 3 = Sometimes
- 4 = Often
- 5 = Always

1. When I fall behind in my work during the day, I work hard at home at night or on weekends to get caught up by using my cell phone.
2. I leave my cell phone or tablet turned off and do not use my laptop or computer for work-related tasks when I return home from work at night.
(R)
3. I perform job-related tasks at home at night or on weekends using my cell phone, tablet, laptop or computer.
4. I feel my cell phone, tablet, laptop or computer is helpful in enabling me to work at home at nights or on weekends.
5. When there is an urgent issue or deadline at work, I tend to bring work-related tasks from home at night or on weekends and use my cell phone, tablet, laptop or computer to perform work-related tasks.

Fenner, G. H., & Renn, R. W. (2009). Technology-assisted supplemental work and work-to-family conflict: The role of instrumentality beliefs, organizational expectations and time management. *Human Relations*, 63(1), 63–82. doi: 10.1177/0018726709351064

APPENDIX C
WORK-LIFE CONFLICT SCALE

Using the scale below, please indicate the frequency with which you have felt each statement during the past three months.

- 1 = Not at all
- 2 = Very Rarely
- 3 = Rarely
- 4 = Sometimes
- 5 = Often
- 6 = Very Often
- 7 = All the time

Work Interference with Personal Life (WIPL)

- 1. My personal life suffers because of work.
- 2. My job makes my personal life difficult.
- 3. I neglect personal needs because of work.
- 4. I put my personal life on hold for work.
- 5. I miss personal activities because of work.
- 6. I struggle to juggle work and non-work.
- 7. I am happy with the amount of time I have for non-work activities. R

Personal Life Interference with Work (PLIW)

- 1. My personal life drains me of energy for work.
- 2. I am too tired to be effective at work.
- 3. My work suffers because of my personal life.
- 4. It is hard to work because of personal matters.

Work/Personal Life Enhancement (WPLE)

- 1. My personal life gives me energy for my job.
- 2. My job gives me energy to pursue personal activities.
- 3. I am in a better mood at work because of my personal life.
- 4. If you are reading this item, please respond with sometimes.
- 5. I am in a better mood because of my job.

Hayman, J. (2005). Psychometric Assessment of an Instrument Designed to Measure Work Life Balance. *Research and Practice in Human Resource Management*, 13(1), 85-91.

APPENDIX D
BURNOUT SCALE

Using the scale below, please indicate the extent to which each statement applies to you. Please note that the responses are reversed for this scale.

- 1 = Always/To a very high degree
- 2 = Often/To a high degree
- 3 = Sometimes/Somewhat
- 4 = Seldom/To a low degree
- 5 = Never/Almost never/To a low degree

Personal Burnout

1. How often do you feel tired?
2. How often are you physically exhausted?
3. How often are you emotionally exhausted?
4. How often do you think: "I can't take it anymore"?
5. How often do you feel worn out?
6. How often do you feel weak and susceptible to illness?

Work-Related Burnout

1. Do you feel worn out at the end of the working day?
2. Are you exhausted in the morning at the thought of another day at work?
3. Do you feel that every working hour is tiring for you?
4. Do you have enough energy for family and friends during leisure time? R
5. Is your work emotionally exhausting?
6. Does your work frustrate you?
7. Do you feel burnt out because of your work?

Kristensen, T. S., Borritz, M., Villadsen, E., & Christensen, K. B. (2005). The Copenhagen burnout inventory: A new tool for the assessment of burnout. *Work & Stress, 19*(3), 192–207. doi: 10.1080/02678370500297720

APPENDIX E

MEDIA AND TECHNOLOGY USAGE AND ATTITUDES SCALE

Please indicate the extent to which you agree with each of the following statements:

- 1 – Strongly Disagree
- 2 – Disagree
- 3 – Neither Agree or Disagree
- 4 – Agree
- 5 – Strongly Agree

Positive attitudes

- 1. I feel it is important to be able to find any information whenever I want online.
- 2. I feel it is important to be able to access the Internet any time I want.
- 3. I think it is important to keep up with the latest trends in technology.
- 4. Technology will provide solutions to many of our problems.
- 5. If you are reading this item, please respond with strongly agree.
- 6. With technology anything is possible.
- 7. I feel that I get more accomplished because of technology.

Negative attitudes

- 8. New technology makes people waste too much time.
- 9. New technology makes life more complicated.
- 10. New technology makes people more isolated.

Anxiety/dependence

- 11. I get anxious when I don't have my cell phone.
- 12. I get anxious when I don't have the Internet available to me.
- 13. I am dependent on my technology.

Preference for task switching

- 14. I prefer to work on several projects in a day, rather than completing one project and then switching to another.
- 15. When doing a number of assignments, I like to switch back and forth between them rather than do one at a time.
- 16. I like to finish one task completely before focusing on anything else. R
- 17. When I have a task to complete, I like to break it up by switching to other tasks intermittently.

Rosen, L., Whaling, K., Carrier, L., Cheever, N., & Rökkum, J. (2013). The Media and Technology Usage and Attitudes Scale: An empirical investigation. *Computers in Human Behavior*, 29(6), 2501–2511. doi: 10.1016/j.chb.2013.06.006

APPENDIX F
SATISFACTION WITH LIFE SCALE

Please indicate the extent to which you agree with each of the following statements:

- 1 - Strongly Disagree
- 2 - Disagree
- 3 - Slightly Disagree
- 4 - Neither Agree Nor Disagree
- 5 - Slightly Agree
- 6 - Agree
- 7 - Strongly Agree

- 1. In most ways, my life is close to my ideal.
- 2. The conditions of my life are excellent.
- 3. I am satisfied with my life.
- 4. So far, I have gotten the important things I want in life.
- 5. If I could live my life over, I would change almost nothing.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49, 71-75.

APPENDIX G
LIFE-ROLE SALIENCE SCALE

Please indicate the extent to which you agree with each of the following statements:

- 1 – Strongly Disagree
- 2 – Disagree
- 3 – Neither Agree or Disagree
- 4 – Agree
- 5 – Strongly Agree

Occupation Role Reward Value

- 1. Having a job that is interesting and exciting to me is my most important life goal.
- 2. I expect my job to give me more real satisfaction than anything else I do.
- 3. Building a name and reputation for myself through a job is not one of my life goals. R
- 4. It is important to me that I have a job in which I can achieve something of importance.
- 5. It is important to me to feel successful in my job.
- 6. If you are reading this item, please respond with strongly disagree.

Occupation Role Commitment

- 7. I want to work, but I do not want a demanding job. R
- 8. I expect to make as many sacrifices as are necessary in order to advance in my job.
- 9. I value being involved in a job and expect to devote the time and effort needed to develop it.
- 10. I expect to devote a significant amount of time to building my career and developing the skills necessary to advance in my career.
- 11. I expect to devote whatever time and energy it takes to move up in my job.

Amatea, E., Cross, E., Clark, J., & Bobby, C. (1986). Assessing the Work and Family Role Expectations of Career-Oriented Men and Women: The Life Role Salience Scales. *Journal of Marriage and Family*, 48(4), 831-838.
doi:10.2307/352576

APPENDIX H
PSYCHOLOGICAL CAPITAL QUESTIONNAIRE

Below are statements that describe how you may think about yourself right now. Use the following scales to indicate your level of agreement or disagreement with each statement.

- 1 - Strongly Disagree
- 2 - Disagree
- 3 - Somewhat Disagree
- 4 - Somewhat Agree
- 5 - Agree
- 6 - Strongly Agree

1. I feel confident analyzing a long-term problem to find a solution.
2. I feel confident in representing my work area in meetings with management.
3. I feel confident contributing to discussions about the company's strategy.
4. I feel confident helping to set targets/goals in my work area.
5. I feel confident contacting people outside the company (e.g., suppliers, customers) to discuss problems.
6. I feel confident presenting information to a group of colleagues.
7. If I should find myself in a jam at work, I could think of many ways to get out of it.
8. If you are reading this item, please respond with strongly agree.
9. At the present time, I am energetically pursuing my work goals.
10. There are lots of ways around any problem.
11. Right now I see myself as being pretty successful at work.
12. I can think of many ways to reach my current work goals.
13. At this time, I am meeting the work goals that I have set for myself.
14. When I have a setback at work, I have trouble recovering from it, moving on. R
15. I usually manage difficulties one way or another at work.
16. I can be "on my own," so to speak, at work if I have to.
17. I usually take stressful things at work in stride.
18. I can get through difficult times at work because I've experienced difficulty before.
19. I feel I can handle many things at a time at this job.
20. When things are uncertain for me at work, I usually expect the best.
21. If something can go wrong for me work-wise, it will. R
22. I always look on the bright side of things regarding my job.
23. I'm optimistic about what will happen to me in the future as it pertains to work.
24. In this job, things never work out the way I want them to. R
25. I approach this job as if "every cloud has a silver lining."

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APPENDIX I
SELF-CONCEPT CLARITY SCALE

Please indicate the extent to which you agree with each of the following statements:

- 1 – Strongly Disagree
- 2 – Disagree
- 3 – Neither Agree or Disagree
- 4 – Agree
- 5 – Strongly Agree

1. My beliefs about myself often conflict with one another. R
2. On one day I might have one opinion of myself and on another day I might have a different opinion. R
3. If you are reading this item, please respond with neither agree or disagree.
4. I spend a lot of time wondering about what kind of person I really am. R
5. Sometimes I feel that I am not really the person that I appear to be. R
6. When I think about the kind of person I have been in the past, I'm not sure what I was really like. R
7. I seldom experience conflict between the different aspects of my personality.
8. Sometimes I think I know other people better than I know myself. R
9. My beliefs about myself seem to change very frequently. R
10. If I were asked to describe my personality, my description might end up being different from one day to another day. R
11. Even if I wanted to, I don't think I could tell someone what I'm really like. R
12. In general, I have a clear sense of who I am and what I am.
13. It is often hard for me to make up my mind about things because I don't really know what I want. R

Campbell, J. D., Trapnell, P. D., Heine, S. J., Katz, I. M., Lavalley, L. F., & Lehman, D. R. (1996). Self-concept clarity: Measurement, personality correlates, and cultural boundaries. *Journal of Personality and Social Psychology*, 70(1), 141-156. doi: [10.1037/0022-3514.70.1.141](https://doi.org/10.1037/0022-3514.70.1.141)

APPENDIX J
SUPPLEMENTAL MODERATION ANALYSIS FOR BURNOUT

SPSS Output for Moderation Effect of Age on CT use and Burnout with Covariates

Model : 1
 Y : Burnout_
 X : CTScale
 W : AGE

Covariates:

MTUASPSc MTUASDSc MTUASNSc MTUASTSc LifeSatS ORRVScal ORCScale PsyCapSc
 SelfScal

Sample
 Size: 168

OUTCOME VARIABLE:

Burnout_

Model Summary

| | R | R-sq | MSE | F | df1 | df2 | p |
|--|-------|-------|-------|---------|---------|----------|-------|
| | .6794 | .4615 | .4115 | 11.0708 | 12.0000 | 155.0000 | .0000 |

Model

| | coeff | se | t | p | LLCI | ULCI |
|----------|--------|-------|---------|-------|--------|--------|
| constant | 4.9662 | .8417 | 5.8999 | .0000 | 3.3034 | 6.6290 |
| CTScale | .1662 | .1925 | .8631 | .3894 | -.2142 | .5465 |
| AGE | .0033 | .0154 | .2132 | .8315 | -.0272 | .0337 |
| Int_1 | -.0012 | .0048 | -.2467 | .8055 | -.0106 | .0083 |
| MTUASPSc | -.1141 | .1152 | -.9901 | .3237 | -.3417 | .1135 |
| MTUASDSc | .0259 | .0610 | .4247 | .6717 | -.0946 | .1464 |
| MTUASNSc | .0500 | .0574 | .8706 | .3853 | -.0635 | .1635 |
| MTUASTSc | -.0732 | .0849 | -.8627 | .3896 | -.2408 | .0944 |
| LifeSatS | -.2718 | .0570 | -4.7670 | .0000 | -.3844 | -.1592 |
| ORRVScal | .2192 | .0918 | 2.3868 | .0182 | .0378 | .4006 |
| ORCScale | -.1060 | .0882 | -1.2009 | .2316 | -.2803 | .0683 |
| PsyCapSc | -.2714 | .1173 | -2.3126 | .0221 | -.5032 | -.0396 |
| SelfScal | -.2116 | .0604 | -3.5041 | .0006 | -.3310 | -.0923 |

Product terms key:

Int_1 : CTScale x AGE

Test(s) of highest order unconditional interaction(s):

| | R2-chng | F | df1 | df2 | p |
|-----|---------|-------|--------|----------|-------|
| X*W | .0002 | .0609 | 1.0000 | 155.0000 | .8055 |

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:

95.0000

APPENDIX K
SUPPLEMENTAL MODERATION ANALYSIS FOR WORK-LIFE
CONFLICT

SPSS Output for Moderation Effect of Age on CT use and WLC with Covariates

Model : 1
 Y : WIPLScal
 X : CTScale
 W : AGE

Covariates:
 MTUASPSc MTUASDSc MTUASNSc MTUASTSc LifeSatS ORRVScal ORCScale PsyCapSc
 SelfScal

Sample
 Size: 168

OUTCOME VARIABLE:
 WIPLScal

| Model Summary | R | R-sq | MSE | F | df1 | df2 | p |
|---------------|-------|-------|--------|---------|---------|----------|-------|
| | .6774 | .4589 | 1.1872 | 10.9529 | 12.0000 | 155.0000 | .0000 |

| Model | coeff | se | t | p | LLCI | ULCI |
|----------|--------|--------|---------|-------|--------|--------|
| constant | 3.2917 | 1.4297 | 2.3023 | .0226 | .4674 | 6.1160 |
| CTScale | .8438 | .3270 | 2.5801 | .0108 | .1978 | 1.4898 |
| AGE | .0287 | .0262 | 1.0946 | .2754 | -.0231 | .0804 |
| Int_1 | -.0087 | .0081 | -1.0702 | .2862 | -.0247 | .0073 |
| MTUASPSc | -.5756 | .1957 | -2.9408 | .0038 | -.9623 | -.1890 |
| MTUASDSc | .1494 | .1036 | 1.4419 | .1513 | -.0553 | .3541 |
| MTUASNSc | .1742 | .0976 | 1.7850 | .0762 | -.0186 | .3669 |
| MTUASTSc | .1535 | .1441 | 1.0649 | .2886 | -.1312 | .4382 |
| LifeSatS | -.2968 | .0968 | -3.0654 | .0026 | -.4881 | -.1056 |
| ORRVScal | .2740 | .1560 | 1.7562 | .0810 | -.0342 | .5821 |
| ORCScale | -.0608 | .1499 | -.4054 | .6858 | -.3568 | .2353 |
| PsyCapSc | -.1503 | .1993 | -.7541 | .4519 | -.5441 | .2434 |
| SelfScal | -.2718 | .1026 | -2.6495 | .0089 | -.4745 | -.0692 |

Product terms key:
 Int_1 : CTScale x AGE

| Test(s) of highest order unconditional interaction(s): | R2-chng | F | df1 | df2 | p |
|--|---------|--------|--------|----------|-------|
| X*W | .0040 | 1.1453 | 1.0000 | 155.0000 | .2862 |

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
 95.0000

APPENDIX L
INSTITUTIONAL REVIEW BOARD APPROVAL



Allison Loreg <006703834@coyote.csusb.edu>

IRB-FY2020-188 - Initial: Psych Reviewers Admin/Exempt Approval Letter

mgillesp@csusb.edu <mgillesp@csusb.edu>
 To: 006703834@coyote.csusb.edu, Ken.Shultz@csusb.edu

Tue, Feb 25, 2020 at 4:25 PM



February 25, 2020

CSUSB INSTITUTIONAL REVIEW BOARD
 Administrative/Exempt Review Determination
 Status: Determined Exempt
 IRB-FY2020-188

and Kenneth Shultz
 Department of CSBS - Psychology
 California State University, San Bernardino
 5500 University Parkway
 San Bernardino, California 92407

Dear Kenneth Shultz :

Your application to use human subjects, titled "Work-Related Communications After Hours: The Influence of Communication Technologies and Age on Work-Life Conflict and Burnout" has been reviewed and approved by the Chair of the Institutional Review Board (IRB) of California State University, San Bernardino has determined that your application meets the requirements for exemption from IRB review Federal requirements under 45 CFR 46. As the researcher under the exempt category you do not have to follow the requirements under 45 CFR 46 which requires annual renewal and documentation of written informed consent which are not required for the exempt category. However, exempt status still requires you to attain consent from participants before conducting your research as needed. Please ensure your CITI Human Subjects Training is kept up-to-date and current throughout the study.

Your IRB proposal is approved. You are permitted to collect information from **[300]** participants for **[\$2 Compensation]** from **[MTURK]**. This approval is valid from 2/25/2020

The CSUSB IRB has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval notice does not replace any departmental or additional approvals which may be required.

Your responsibilities as the researcher/investigator include reporting to the IRB Committee the following three requirements highlighted below. Please note failure of the investigator to notify the IRB of the below requirements may result in disciplinary action.

- Submit a protocol modification (change) form if any changes (no matter how minor) are proposed in your study for review and approval by the IRB before implemented in your study to ensure the risk level to participants has not increased,
- If any unanticipated/adverse events are experienced by subjects during your research, and

<https://mail.google.com/mail/u/27?ik=052e1b92a3&view=pt&search=all&permmsgid=msg-f%3A1659556816348868037&siml=msg-f%3A16595568163...> 1/2

4/22/2020

CoyoteMail Mail - IRB-FY2020-188 - Initial: Psych Reviewers Admin/Exempt Approval Letter

- Submit a study closure through the Cayuse IRB submission system when your study has ended.

The protocol modification, adverse/unanticipated event, and closure forms are located in the Cayuse IRB System. If you have any questions regarding the IRB decision, please contact Michael Gillespie, the Research Compliance Officer. Mr. Michael Gillespie can be reached by phone at (909) 537-7588, by fax at (909) 537-7028, or by email at mgillesp@csusb.edu. Please include your application approval identification number (listed at the top) in all correspondence.

If you have any questions regarding the IRB decision, please contact Dr. Jacob Jones, Assistant Professor of Psychology. Dr. Jones can be reached by email at Jacob.Jones@csusb.edu. Please include your application approval identification number (listed at the top) in all correspondence.

Best of luck with your research.

Sincerely,

Donna Garcia

Donna Garcia, Ph.D., IRB Chair
CSUSB Institutional Review Board

DG/MG

<https://mail.google.com/mail/u/2?ik=052e1b92a3&view=pt&search=all&permmsgid=msg-f%3A1659556816348868037&siml=msg-f%3A16595568163...> 2/2

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