ABSTRACT

Allison H. Wu, WORK-LIFE BALANCE: A STUDY OF PERSONALITY FACTORS AS A PREDICTOR OF WORK-LIFE BOUNDARY PERMEABILITY AND USE OF ENTERPRISE SOCIAL MEDIA AND TECHNOLOGY (Under the direction of Dr. John G. Cope) Department of Psychology, April 2017

The purpose of this study was to investigate the relationship between personality, work-home boundary permeability, and the percentage of electronic life intrusions answered (ELT Percent). Results indicated that openness to experience, extraversion, agreeableness, and neuroticism were positively correlated with boundary permeability; however, only extraversion was significant. Agreeableness was also found to be positively correlated with ELT Percent; this relationship was found to be significant. Finally, boundary permeability was found to have a significant positive relationship with ELT Percent. Hierarchical (sequential) linear regression was used to create a model with demographic variables (age, sex, industry, and job tenure), personality factors, and boundary permeability accounting for 19.5% of the variance in the ELT Percent. The theoretical implications of the results, as well as limitations and future directions, are discussed.

WORK-LIFE BALANCE: A STUDY OF PERSONALITY FACTORS AS A PREDICTOR OF WORK-LIFE BOUNDARY PERMEABILITY AND USE OF ENTERPRISE SOCIAL MEDIA AND TECHNOLOGY

A Thesis

Presented to

The Faculty of the Department of Psychology

East Carolina University

In Partial Fulfillment

Of the Requirement for the Degree

Master of Arts in Psychology, General-Theoretic

by

Allison H. Wu

April, 2017

WORK-LIFE BALANCE: A STUDY OF PERSONALITY FACTORS AS A PREDICTOR OF WORK-LIFE BOUNDARY PERMEABILITY AND USE OF ENTERPRISE SOCIAL MEDIA AND TECHNOLOGY

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Acknowledgements

The research presented in this thesis would not have been possible without my thesis chair, Dr. John Cope, as well as my other thesis committee members, Dr. Shahnaz Aziz and Dr. Karl Wuensch. Their expertise and guidance were greatly appreciated throughout this entire thesis process. I would also like to thank Dr. Lisa Baranik, Dr. Jennifer Bowler, Dr. Mark Bowler, and Dr. Alex Schoemann for their contributions to my education as a graduate student at East Carolina University. Lastly, the continuing support and love from Augustine and Lily Wu, Jennifer Wu and Kevin Ngo, Mitch Carr, Alyssa Ghazalie, Alyssa Chiang, and the 2015 and 2016 Industrial/Organizational Psychology program cohorts has always inspired and pushed me to develop and reach my goals, in both my academic and professional lives.

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CHAPTER I: INTRODUCTION

With the advent of the Industrial Revolution, work and home became increasingly considered two distinct, separate places. Traditionally, men spent time at the workplace and came home to their wives and children, where women were the homemakers. As such, the workplace and the family home were considered to not overlap (Clark, 2000). There were, it was argued, hard borders around the two places that kept them functioning independently of each other, rather than a single boundary between them (Clark, 2000; Matthews & Barnes-Farrell, 2010). However, if boundaries are made, they must also be crossed. How do employees navigate these border-crossings on a daily basis?

Work and home borders delineate the point at which certain domain-specific behaviors may begin or end and are created as a means of organizing and clarifying the surrounding environment (Clark, 2000; Ashforth, Kreiner, & Fugate, 2000). These borders can either be temporal, which divide *when* work behaviors and family responsibilities behaviors occur, spatial, which divide *where* work and family responsibilities occur, or psychological, which are mental rules that divide when thought and behavior patterns, as well as emotions, are suitable for one domain but not another (Clark, 2000). Through a process called "enactment," employees take clues or other elements in their environments and arrange them in a logical, clear way (Clark, 2000). These elements help form the boundaries between work and home.

In addition, borders are both permeable and flexible. Border permeability is described as "the degree to which elements from other domains may enter" (Clark, 2000, p. 756), while border flexibility is described as "the extent to which a border may contract or expand, depending on the demands of one domain or another" (Clark, 2000, p. 757). When both permeability and flexibility are high, the boundary between work and home begin to blur

substantially, leading to blending. Thus, an area forms that is not exclusively home nor work, but a unique combination of both. Highly impermeable, inflexible borders that do not allow for blending are considered strong, while highly permeable, flexible borders that allow blending are considered weak (Clark, 2000). However, an individual with strong borders is not necessarily the most satisfied employee.

The modern-day employee continually strives to attain the elusive work-family balance, which can be defined as "satisfaction and good functioning at work and at home with a minimum of role conflict" (Clark, 2001, p.349). Role conflict arises when the role individuals play at work fundamentally clashes with the role they play at home at a time when they are unable to transition cleanly between the two roles, which may cause confusion and stress. Work-family balance is sometimes referred to as work-life balance, with the latter using more inclusive language for employees who may be single or without children but still struggle to reach a comfortable equilibrium with work and non-work time (Clark, 2000). This study will focus on the more inclusive term.

Work-life balance has long been a topic of interest for psychologists and other scientists, but it is of even more interest in the age of rapidly-developing and ever-changing technology. When the topic first arose, work and home/life were considered separate domains that did not influence or interfere with one another. Now, however, because of the growing prevalence of technology in the workplace, more and more employees of all ages and industry are telecommuting (working from home while remotely connected to their company's server) or simply bringing work from the office into the home and elongating the workday from a comfortable seat on the couch, which has drastically changed the way employees interact with their jobs and families alike (Adkins, 2014; Duxbury, Higgins, Smart, & Stevenson, 2014; Elias,

Smith, & Barney, 2012). These changes are not exclusive to Western societies; research in Asian countries has found similar trends (Hayman, 2005). The invention and introduction of handheld and social technologies have irrevocably and unmistakably altered the research approach to studying work-life balance, as well as the employee's approach to attaining it (Elias, Smith, & Barney, 2012; Fleck & Johnson-Migalski, 2015; Van Volkom, Stapley, & Amaturo, 2014). Employees have developed or struggle to develop a strategy to manage their own work-life balance based on their individual needs, desires, and personality differences. The current study sought to investigate personality and work-home boundary permeability as predictors of the proportion of electronic work-related communications individuals received and responded to while physically in other various life domains (electronic life intrusions [ELTs]). Hierarchical linear regression analysis was used to determine if personality was significantly related to boundary permeability and ELT Percent. A correlation analysis was also conducted to determine if boundary permeability and ELT Percent were significantly related.

Brief History of Handheld Technology

In order to understand how technology has affected work-life balance, it is important to first understand how technology has affected employees' relationships and communications with their peers, family, and employers. In 1972, Hewlitt-Packard debuted the HP-35, a scientific calculator (Lake, 2012). This, however, was no ordinary calculator – this was "the world's first pocket scientific calculator" and "arguably the world's first handheld computer" (Lake, 2012, p. 1). With a breakthrough innovation the size of a box of theater candy, technology as we know it today was formed (Lake, 2012). Just seven years later, in 1979, Milton Bradley introduced Microvision, which included interchangeable cartridges, making it the device capable of mobile

gaming system (Lake, 2012). Within a year, the first pocket computer, Tandy, was debuted by Radio Shack (Polsson, 2015).

In 1993, Apple came out with the Newton MessagePad, which sported a pressure-sensitive display screen and handwriting recognition software, but was unfortunately unrecognized for its groundbreaking technology (Lake, 2012). Three years later, the Palm Pilot emerged and with it came the Palm OS, "which provided an effective and affordable platform for PDAs and, later, smartphones, and ushered in the world of ubiquitous handheld computing" (Lake, 2012, p. 8). Then, within twenty years of the HP-35's birth, the first smartphone, Simon, was unveiled by IBM and BellSouth (Aamoth, 2014). After another two years, in August of 1994, Simon was finally available for public consumption (Aamoth, 2014).

Finally, in 2007, Apple's iPhone exploded onto the scene, was "instantly hailed as revolutionary," and "set the standard for the wave of smartphones to come" (Lake, 2012, p. 13). Continuing to capitalize on the success of the iPhone, in 2010, Apple released the iPad, which allowed the average consumer to easily access tablet computing (Lake, 2012). Within the past eight years, after Apple revolutionized the technological market, smartphones and other forms of mobile technology have become ubiquitous in nearly all aspects of daily life and interactions – home, school, and work. In general, social interactions have been irreparably changed by the advent of mobile technology, and the following review of the literature will explore these changes, specifically in the realm of work-nonwork, or work-family, balance and/or conflict (Holmström & Bagga-Gupta, 2013; Van Volkom et al., 2014).

Handheld Technology and Its Effects on Communication

The industry drive to develop newer and more innovative handheld technology has been constant since Apple unveiled the pioneering version of today's smart technology. As a result,

people have become accustomed to a variety of tools that make everyday living easier (Holmström & Bagga-Gupta, 2013). These tools have become so commonplace and universal that barely anyone takes time to think about where this technology came from or even the fact that this level of technology exists (Holmström & Bagga-Gupta, 2013). These mediating tools not only make daily tasks easier, such as refrigerators used for storing fresh food or cars as a means of long- and short-range transportation, but also communication, which includes how one dresses to the variety of languages one uses in various communities (Holmström & Bagga-Gupta, 2013).

Adoption of Social Media and ICTs in the Workplace

Because it is called *social* media, it is not hard to extrapolate that the purpose of these kinds of media is to develop relationships and other human interactions. Social media can help foster more transparency and can help reach those that have traditionally been difficult to reach (Fleck & Johnson-Migalski, 2015). Social networking, in particular, can be used as an invaluable tool for forming and maintaining connections to many other communities outside of one's normal reach (Fleck & Johnson-Migalski, 2015). Thus, social media helps people connect with others across distances that might otherwise be impossible to cross.

Specifically, in the workplace, it is becoming more and more common to find enterprise social media, or ESM, which is defined as:

> web-based platforms that allows workers to (1) communicate messages with specific coworkers or broadcast messages to everyone in the organization; (2) explicitly indicate or implicitly reveal particular coworkers as communication partners; (3) post, edit, and sort text and files linked to themselves or others; and (4) view the messages, connections, text,

> and files communicated, posted, edited, and sorted by anyone else in the organization at any time of their choosing. (Leonardi, Huysman, & Steinfield, 2013, p. 2)

As previously mentioned, ESM, being a subset of social media, can make communications more transparent, as well as easily accessible and available to all employees across the organization. Not only does ESM afford a very easy way for employees to make their communications visible to all others in a particular organization, it also facilitates consistent correspondence that is accessible in the same form as it was originally designed and introduced, even long after the original presentation of information (Leonardi et al., 2013).

In addition to ESM, organizations have begun consistently integrating information and communication technologies (ICTs), which is "an umbrella term that includes any communication device or application…as well as the various services and applications associated with them" in order to quickly disperse communications throughout the company (Rouse, 2005, para. 1). New ICT tasks are those work tasks that include electronic-based interfaces, while Old ICT tasks are work tasks that involve paper-based technologies (Ciccarelli, Straker, Mathiassen, & Pollock, 2013). While ICTs have been adopted mostly in part because they are able to aid in faster transmissions around the world and increase efficiency in work processes, like all mediated communication, they have their limitations (Salanova, Llorens, & Cifre, 2013).

Specifically, users of mobile technology and ICTs may experience the negative effects of "technostress", which is "a specific type of stress related to the use of ICT, mostly resulting from the high speed at which technological change takes place" (Salanova et al., 2013, p. 423). Technostress itself also includes the two separate but connected psychology experiences of technostrain and technoaddiction (Salanova et al., 2013). Those who experience technostrain

experience a mix of anxiety, tiredness, skepticism, and self-doubt in regards to the use of ICTs (Salanova et al., 2013). Anxiety, especially computer anxiety, describes the fear that individuals feel when using or thinking about computers (Salanova et al., 2013). Fatigue is represented by lower levels of psychological activation and can come as a result of weariness from the use of handheld technology and ICTs. Workers can also begin to develop feelings of skepticism, as well as inefficacy of self, toward or because of the growing use of ICTs, which results in cognitively distancing themselves from ICTs, leading to de-motivation of ICT usage (Salanova et al., 2013). Those who experience technostrain are more likely to experience high job demands, as well as a lack of job and personal (mental competence) resources to deal with the demands of their jobs (Salanova et al., 2013).

Additionally, "technoaddiction" is "a specific technostress experience due to an uncontrollable compulsion to use ICTs …for long periods of time in an excessive way… [and] is a behavioral addiction that involves human-machine interaction and usually includes inducing and reinforcing features that may contribute to the promotion of addictive tendencies" (Salanova et al., 2013, p. 424). Salanova, Llorens, & Cifre (2013) cite a few instances in which the previous literature has suggested a link between technoaddiction and the layman's idea of workaholism because of the obvious positive correlation between extensive work hours and a prolonged use of mobile technology and ICTs. Moreover, a related body of research has also posited a negative correlation between levels of technoaddiction and psychological well-being. Those who experience technoaddiction are more likely to experience high job demands with a shortage of personal (emotional competence) resources in order to deal with the demands of their jobs (Salanova et al., 2013).

ICTs and the Work-Home Boundary

With organizations relying more and more heavily on ESM and ICTs, the effects of technostress are becoming an insistent research topic, especially as they are related to work-home balance (Salanova et al., 2013; Yan, Guo, Lee, & Vogel, 2013). As such, it is important to better understand how evolving technologies are affecting employees, both at work and at home. The widespread use of ICTs by companies and the potential accompanying technostress have also drawn increasing attention to the effects these developments have had on the boundaries between work and home life for employees who have shifted towards using these kinds of mediated communications to be available both in and out of the office (Butts, Becker, & Boswell, 2015; Duxbury et al., 2014; Stanko & Beckman, 2015). The boundaries, defined as "the physical, temporal, emotional, cognitive, and/or relational limits that define entities as separate from one another," between work and home are not as easily maintained in today's age of being constantly plugged in to technology (Duxbury, Higgins, Smart, & Stevenson, 2013, p. 571). The ubiquitous nature of these technologies has allowed employees to conduct work at home, to handle personal business at work, and to do both at the same time (Duxbury et al., 2013). Now that employees are able, and often encouraged, to take work home with them on their own schedule, the work-home boundary has become extremely permeable. The effects of this evolution of the workday, both positive and negative, have only just begun to be studied.

The boundaries between work life and home life, therefore, have become undoubtedly blurred, which has made separating work life and home life exceedingly difficult. The hypothesis concerning how employees develop, retain, and maneuver across the boundaires between work and home roles has become known as boundary theory (Duxbury et al., 2013). Because employees play a role at work that is different from their role at home, they hold

multiple role identities, which are "socially constructed definitions of the specific goals, values, norms, interaction styles and time horizons cued by a certain role" (Duxbury et al., 2013, p. 571).

Boundary permeability, or "the degree to which a role allows one to be physically located in one's role domain but psychologically and/or behaviorally involved in another role," is a fundamental tenant of boundary theory (Duxbury et al., 2013, p. 571). Usually, employees still have some measure of control over the level of permeability between work and home boundaries. However, when boundaries are allowed to be permeable to any degree, it is seen to break up the divisions of time and space between work and home, which may increase time spent on work in any domain and conflict between the work and home domains (Duxbury et al., 2013).

The basic premise of boundary theory is that "the greater the dissimilarity between role identities, the greater the difficulty an individual may have making the transition between roles, as people who hold contrasting roles may have problems 'switching cognitive gears'" (Duxbury et al., 2013, p. 571). Because of the prevalence of handheld technology, work-related interruptions can occur at any time in a nonwork setting, and vice versa. When employees cannot easily transition between roles, they cannot fully exit a work role and freely enter a nonwork or home role. This full transition, however, is necessary. Work recovery theory posits that employees need enough rest from job demands to counteract the strain from the job that contributes to negative health outcomes (Barber & Jenkins, 2013). The greater implications of the importance of role transition will be discussed later.

Revisiting Work-Life Balance

Crossing the border between the work and home domains involves changing the role individuals play within the domain they are leaving to the role they play in the domain they are entering. The stronger the border and the more segmented the roles are, the higher the

magnitude and difficulty of the role transition (Ashforth, Kreiner, & Fugate, 2000). Because a higher magnitude transition involves several border crossings, such as temporal, physical, or social borders, the role transition may use more psychological or even physical effort; a smaller magnitude transition that only entails a blurred border crossing decreases the effort that is needed to cross boundaries (Ashforth, Kreiner, & Fugate, 2000). These more energy-consuming transitions across strong borders may leave an employee feeling tired, burnt out, and unsatisfied. The more permeable the boundary, the lower the magnitude of the role transitions and the lower the magnitude of effort required to cross the borders between the domains.

However, because of this increased permeability of work-nonwork boundaries, work-life conflicts are becoming more and more common among workers in the United States, with around seventy percent of workers reporting some kind of interference between work and non-work roles or environments (Kelly et al., 2014). Work-life conflict has been defined multiple times (Harris, Marett, & Harris, 2011; Messersmith, 2007). One definition characterizes work-life conflict as:

> A form of inter-role conflict in which the role pressures from the work and [life] domains are mutually incompatible in some respect… Participation in the work ([life]) role is made more difficult by virtue of participation in the [life] (work) role. (Harris et al., 2011, p. 2077)

Another definition posits, more simply, that work-life conflict is "the extent to which the demands of the workplace are incompatible with family life" (Adkins & Premeaux, 2014, p. 82). Considering that technology has both altered when and where employees can perform their jobs and weakened the boundaries between the work and home domains, it is not surprising that the effects of technostress may cause conflict between an employee's various roles (Butts, et al.,

2015). As previously mentioned, employees are seldom able to be fully psychologically detached from their work, leading to something called "the new night shift," which occurs when employees sign back into work (or never log off in the first place) after their normal business hours to manage the constant stream of incoming electronic communications (Butts et al., 2015). When employees are stuck with an inability to mentally move away from the work domain when they are physically able to do so, there is a definite role conflict, or imbalance (Messersmith, 2007). Thus, work-life conflict and work-life balance are often seen as opposite sides of the same coin.

Effects of Boundary Permeability on Work-Life Balance

There are many ways in which boundary permeability between work and non-work has been found to affect work-life conflict and balance. Particularly, in conjunction with mobile and handheld technology, there has been an increase in work-life boundary permeability, which in turn has promoted "work-family blurring," or the feeling of disorientation or difficulty in differentiating one's work role from one's home roles in a given situation (Duxbury et al., 2013). Popular opinion in previous research has suggested that mobile technology has a negative effect on employees. Work-life conflict escalates because of the increase in time employees spend on work-related tasks during non-work time, the increase in organizational expectations concerning employee productivity, availability, and response time, as well as the increase in difficulty for employees to let go of work, both physically and mentally (Duxbury et al., 2013). These negative effects not only hold immediate consequences, but long-term repercussions as well.

From an organizational perspective, though ICTs were originally implemented to facilitate communication between employees, regardless of time or location, within the company's private network or server, the pervasiveness of handheld technology has also made it

possible for home to invade the workspace. ICTs aid in making connections that are highly advantageous for individuals, their families, and organizations as a whole, but they may also hinder individuals' ability to focus on work (Stanko & Beckman, 2015). As such, a new term must be introduced to understand how companies must approach this new issue.

Traditionally, boundary control has referred to "managers' ability to affect how employees divide their *time* between their work and nonwork spheres of life," including "the various ways in which managers in organizations cajole, encourage, coerce, or otherwise influence the amount of *time* employees physically spend in the workplace" (Stanko & Beckman, 2015, p. 713). Boundary control differs from boundary theory because it takes on the perspective of the organization rather than of the employee, focusing on how the organization should manage the work-home boundary rather than the on the efforts of individuals within the company. Stanko and Beckman (2015) argue, however, that the true focus of boundary control should be in "where individuals place their *attention* in any given moment rather than where individuals spend their *time*" (p. 713). With the advent of social media, ICTs, and the smartphone, it is possible for employees to, while physically in the workplace, mentally be somewhere else. Therefore, it is crucial for employers to understand how to influence their employees' cognizance and ensure that the company has each employee's full attention.

The popular opinion that mobile technology and ICTs negatively influence work-life balance, job satisfaction, and burnout rates has been heavily studied and documented (Adkins & Premeaux, 2014; Fleck & Johnson-Migalski, 2015; Leonardi et al., 2013; Salanova et al., 2013). The presence of work-life conflict has been linked to a variety of negative consequences and effects, such as decreased health, decreased levels of job satisfaction and job performance, diminished career outcomes, as well as higher reported levels of strain, absenteeism, and

employee turnover (Harris, Marett, & Harris, 2011). As previously mentioned, the commonly disputed side effects of workplace mobile technology involve increasing the amount of time employees dedicate to work-related tasks during non-work hours, increasing organizational expectations in terms of employee productivity, availability, and decreased response times, and making it harder for employees to psychologically separate from work (Duxbury et al., 2013). These three effects present their own unique issues when involved with work-life conflict.

Spillover theory. Firstly, by spending time that should be set aside for family and home life on work-related activities instead, employees are taking attitudes and emotions from one life domain and inserting them into another, unrelated life domain. This is referred to as spillover theory (Harris et al., 2011). For individuals who work mostly on computers, technology-related pressure can be felt at home, which can compel workers to be constantly connected to the office, as well as coworkers and superiors, which can cause conflict between one's work roles and home roles (Harris et al., 2011).

Additionally, for technology-related or technology-based occupations, the constant use of technology and ICTs tends to encourage interactions through mediated communication rather than face-to-face, which lowers the number of interpersonal interactions, making it more likely "to result in higher levels of work-family conflict as employees have less social support at work, which spills over to the home as employees may come home more stressed, having fewer positive interpersonal experiences at the workplace" (Harris et al., 2011, p. 2080). The prominent use of ICTs has also been found to increase cross-role interruptions across the work-home boundary (Barber & Jenkins, 2013). When employees are at home and should be operating in their home roles, the invasive presence of mobile technologies and ICTs allows work communications to cross the work-home boundary. This forces the employee to quickly

exit the home role and enter the work role in order to deal with the work communication, leading to a conflict between the two roles. Not only is this problematic for the employee, but also for the employee's family whose role(s) may be dependent on the employee's consistent presence in his or her home role.

Employer expectations. Secondly, expectations for employees from their employers have increased dramatically since the rise of mobile technology and ICTs. Though the majority of employees in the United States report some level of interference between their work and non-work roles, the institution of the workplace still maintains an expectation of that all workers must be dedicated employees who will work full-time (and longer if necessary), according to a schedule set by their organization, with no significant breaks or vacations from work (Kelly et al., 2014). This, however, is no longer feasible. Instances of work-life conflict are growing due to an increased presence of women in the labor force (which means more households have all adults employed) and increasing expectations for fathers' participation in daily child care (Kelly et al, 2014). With organizations maintaining these high expectations for employees, with little regard to how those expectations and subsequent job demands affect employees, work-family conflict inevitably occurs. Not only do the negative effects impact the employees, but over time, the organization will also be adversely impacted by the constant pressure and strain presented by work-family conflict.

Ubiquity of ICTs. Thirdly, the constant presence of ICTs results in an inability to be psychologically free from work. The idea of being psychologically detached from work during non-work time has been loosely defined as "a sense of being away from the work situation;" More specifically, psychological detachment from work involves "not being occupied by work-related duties… and mentally disengaging one's self from work" (Park et al., 2011, p. 458).

Work recovery theory posits that employees need a satisfactory break from job demands to slow down or reverse the job strain process that negatively influences employees' health (Barber & Jenkins, 2013). It should be that after leaving work, employees are able to stop thinking about work so that the functional systems that are usually overworked during work time are needed less and are allowed to recoup (Barber & Jenkins, 2013).

In this psychologically healing process, employees are granted a restorative episode that allows them to recover from work stress; this process allows psychological resources that were depleted at work to be refreshed (Park et al., 2011). When psychological detachment from work is possible, life satisfaction increases, while emotional exhaustion, issues related to sleep quality, and depressive symptoms tend to decrease (Park et al., 2011). Psychological detachment from work has also been shown to cushion the negative effects of increasing job demands (Park et al., 2011). Though these positive health benefits have been empirically evaluated, it is still difficult for organizations to implement a culture of detachment from work when they hold such high expectations of the quality of the ideal employee.

This argument, however, can be made either positive or negative, depending on the level of boundary permeability employees allow in their own, individual lives. Some of the literature has suggested that, instead of freely allowing ICTs to cross the boundary between work and home and highly integrating them into all aspects of daily life, employees should work to limit use of ICTs to more effectively segment work roles and family roles. This is difficult, however, because, as previously mentioned, American employees are expected to work longer and harder, on a schedule dictated by their employer, with no real breaks or vacations. As a result of this institutionalized mentality, the effects of attempting to meet such high expectations creates work-life conflict for employees who have substantial responsibilities in their home domains (Kelly et

al., 2014). Employees may work longer hours because, "unlike manufacturing age assembly line technology… [ICTs] facilitate accomplishment of knowledge work… which is less bound to physical place," enabling them to take work home with them and remain directly connected to coworkers, superiors, and secure work servers (Golden, 2013, p. 104).

However, though the process of work-home boundary creation and segmentation is difficult, it is possible. As previously stated, when employees need to manage multiple roles in multiple domains in their life, they tend to implement boundary theory. When employees put boundary theory into action, they are able to separate or merge the two domains by using individually developed strategies (Park & Jex, 2011). One of the basic assumptions of boundary theory maintains that there are individual differences in preferences between segmenting and integrating the work and home domains, and individuals build their work-home boundaries according to their idiosyncratic preferences (Park & Jex, 2011).

ICTs and Individual Boundary Maintenance Strategies

At the beginning of the adoption of ICTs, concerns were raised that "ICT-enabled work at home will displace family interaction" by "importing workplace values and standards for interaction into the home, replacing an ethic of care with the instrumental ethic of work" (Golden, 2013, p. 104). More recently, however, research by Golden (2013) has found that this is not necessarily true. Although the presence of ICTs is constant, employees are able to develop checks and balances against their employer's influence in their home environment in a manner that best suits the employee and their family unit (Golden, 2013). For example, Golden (2013) interviewed an employee who described using the ICTs provided by his work to communicate with his family, even when they were all sitting in the same room at home together.

After a series of extensive interviews, Golden (2013) found that there are five main ways in which employees tend to use their unique situations and styles to either segment or integrate mobile technology and ICTs to create a work-home boundary that may or may not be selectively permeable:

> (1) Employees and families accept technologically mediated work-at-home but also adapt organizational rules and resources for family interaction; (2) Employees and families delimit work-at-home; (3) Employees' families virtually colonize the organization; (4) Employees selectively delimit families' virtual presence in the organization; and (5) Employees segregate families' virtual presence from the organization. (Golden, 2013, p. 116).

Thus, it is clear that the work-nonwork boundary can be permeable in not just one, but both, directions. The effectiveness of boundary permeability must be tailored to the individual employee's preferences, and the employee must be able to control the permeability of the work-home boundary in order to avoid severe work-family conflict and be allowed the flexibility promised by ICTs and other related mobile technologies.

Within the past 43 years, technology, specifically mobile and handheld technology, has made huge leaps in innovation and in societal significance. With the prevalence of smartphones outside the workplace, coupled with mobile technology and ICTs within the workplace, organizations are faced with new problems with every evolution of smart technology. Some employees, because of technological innovations and the resulting convenience, are more willing to do additional work during their personal time, as well as conduct personal business at work, while others prefer to keep their work and personal lives separate and view intrusions from work as harmful to their personal lives (Nam, 2014). Taking every employee into account while

setting company policies with technology is becoming a bigger and bigger challenge for companies who are also seeking a more diverse, well-rounded collection of talent.

Age as a Predictor of Attitudes towards Technology

The ever-increasing level of boundary permeability may be making work recovery progressively more complicated, if not impossible. One factor that differs from individual to individual is age. The effect that age has on boundary permeability and attitudes toward technology has been of particular interest for researchers since smart technology has become so pervasive in everyday life. Much of today's workforce is comprised of older adults who were already part of the workplace when the HP-35 became available, middle-aged adults who grew up with the concept of the internet and handheld technology as part of the distant future, as well as millennials who have grown up understanding handheld technology as a reality and as a necessary part of life.

Therefore, it is increasingly important to understand how the age of an employee may relate to various work-related attitudes, especially where it concerns companies' newfound reliance on ICTs (Elias, Smith, & Barney, 2012). Age has been found to be potentially significantly affect "an employee's attitude towards technology because older employees are believed to be lacking when it comes to experience with new technologies," such as new operating systems, technological devices, and social medias (Elias et al., 2012, p. 454). On the other hand, it is assumed that younger employees should be better able to adapt to new technologies because they have more experience with technology and already feel more comfortable with, not only the current technology, but also with the constantly changing technologies (Elias et al., 2012). In addition, the younger generation of employees seems to have more positive attitudes about technology than the older, been-in-the-workforce-awhile

generation, while the older population is more likely to report being frustrated with technology (Van Volkom et al., 2014).

It has also been found that older adults are more likely to feel that computers and other related technologies will increase job variety, adding more computer-related tasks to existing job design, and accountability, than their younger counterparts. (Gattiker & Howg, 1990). At the beginning of the technological revolution, there were concerns, mostly among non-users of technology who were older adults, that existing jobs that required a certain level of skill and talent would become "unskilled labor" because they would be replaced by computers (Gattiker & Howg, 1990). However, it was found that employees who worked in advanced manufacturing technology-related occupations actually experienced an increase in skill level (Gattiker & Howg, 1990). The sentiment that job variety and complexity would increase, however, was supported. It has been shown that, along with an increase in skill level, job complexity is also augmented as a result of workflow changes due to the implementation of mobile technologies and ICTs in the organization (Gattiker & Howg, 1990). These generational differences in attitudes towards technology may also affect how different employees manage their work-home boundaries, especially in terms of boundary permeability.

Gender as a Predictor of Attitude towards Technology

Gender has also been found to be a potential predictor of an employee's attitude towards technology (Gokhale, Rabe-Hemp, Woeste, & Machina, 2015; Ong & Lai, 2004; Xu, Frey, Fleisch, & Ilic, 2016). As previously mentioned, the workforce once was comprised almost entirely of male workers while women took care of the home. Now, however, the workforce has become more gender-balanced. This has some implications in terms of how men and women approach technology in the workplace, as well as how they potentially use technology from the

workplace in their homes. As early as the 1980s, research already found a gender gap in the usage of computers, with men reporting more experience with and more positive feelings towards computers and related technology than women (Ong & Lai, 2006). Previous research has also found that women usually exhibit higher levels of computer anxiety and lower levels of computer self-efficacy than men, while men tend to perceive computers as more useful or practical than women (Ong & Lai, 2006). It seems as if women approach computers more cautiously than men, while men focus on the business-like pragmatism that computers afford in one's daily life.

However, much of the previous research has been conducted before millennials made up much of the workforce. Now into their thirties, millennials will soon make up the majority of the workforce as baby boomers retire. Born in the early 1980s, much of today's technology has existed since millennials were born. Generation Z-ers, who are not yet old enough to make up a significant portion of the workforce, have also not lived in a time where computers were not easily accessible and commonly used to teach in schools. As a result, gender differences may decrease, or even disappear, as each successive generation begins to be surrounded by constantly, rapidly advancing technologies from birth.

Personality and Technology Use

Personality is also an individual factor that may affect how individuals manages their work and home/non-work boundaries, specifically in how permeable they allow their boundaries to be. Though it has been found that there are gender differences in personality traits, individuals have a distinct personality that influences how they approach situations and experiences, whether novel or mundane, and how they make decisions (Xu et al., 2016). As such, in order to

understand how employees manage their boundaries, it is important to understand how personality differences between employees may affect their attitude towards technology.

In the past, personality traits have been found to play a very important role in both technology adoption and online trust, or perceived risk or lack of security on the Internet (Wu & Ke, 2015). Differences in personality traits have also been linked to engagement in technology-based distractions, particularly while driving (Chen & Donmez, 2015). Both studies showed that individuals that scored higher in risk-taking tendencies and behaviors were more likely to adopt new technologies, have more positive attitudes towards technology, and, in turn, use technology more frequently. These studies, however, used personality factors such as venturesomeness, impulsiveness, sensation seeking, individual playfulness, and personal innovativeness. The current study will instead focus on the more standardized Big Five factors of personality.

The Five-Factor Model of Personality

The Big Five personality model is a widely used, and heavily agreed upon variation of the five-factor model of personality, and has spawned many alternative measures and inventories (Buchanan, Johnson, & Goldberg, 2005). Though different personality inventories may call them by different names, it is apparent that some or all of the same five dimensions appear again and again, in whole, in part, or broken down into further sub-categories (McCrae & Costa, 1991). The Big Five traits are Openness to experience (O), Conscientiousness (C), Extraversion/Surgency (E), Agreeableness (A), and Neuroticism/Emotional stability (N). These five domains and their sub-facets are depicted in Appendix A. These five traits have been studied and applied in many different areas, including clinical psychology, counseling, and of course, the conventional workplace (Buchanan et al., 2005; Costa & McCrae, 1992; Costa et al., 1991; Judge, Rodell, Klinger, Simon, & Crawford, 2013; McCrae & Costa, 1991). In the current

study, they will be correlated with the degree to which an individual's boundary is permeable and their tendency to allow technological interruptions across the work-life boundary.

Openness to Experience (O). Individuals who are open to experiences are typically described as having active imaginations, being open-minded, self-sufficient, and willing to try and seek out new and different experiences (Xu et al., 2016). Thus, individuals high in O tend to be early adopters of technology and other innovative services. On the other hand, individuals low in O tend to be extremely practical, routine-following, and have a narrow range of emotions, and therefore, are less likely to adopt unfamiliar technologies. Traditionally, Western societies have depicted men as being guided by reason and logic while women are guided by emotions. Thus, men are more likely to display Openness to Ideas, whereas women are more likely to exhibit Openness to Aesthetics and Feelings (Costa, Terracciano, & McCrae, 2001).

Overall, O has been found to be positively related to job performance, but depending on the sub-facet, the relationship may be positive or negative (Judge et al., 2013). Actions, Aesthetics, and Fantasy were found to be negatively correlated to job performance while Feeling, Ideas, and Values were found to be positive correlated to job performance (Judge et al., 2013). Being open to ideas, feelings, and values may help individuals work well with others, while being open to aesthetics and fantasies may be more suited to professions that do not involve teamwork or working under a supervisor. However, O was found to be positively related to task performance (Judge et al., 2013). Individuals high in O may be more receptive to unconventional ideas that aid in completing a task more effectively or efficiently, or in a way that is unique, interesting, and more beneficial to their employer than conventional pathways to completing the same task.

Conscientiousness (C). Individuals who are conscientious tend to be self-disciplined and internally driven to succeed. Conscientiousness is conceptualized as having both proactive and inhibitive aspects, with proactive C involving a need for achievement and committed work ethic and inhibitive C involving moral fastidiousness and a careful nature (Costa, McCrae, & Dye, 1991). C and its sub-facets have also been shown to have the strongest relationship of any of the five factors with both job performance and task performance (Judge et al., 2013). Individuals high in C may be more intrinsically motivated to succeed, which may lead to these higher correlations with job performance. Increased job performance may also mean spending more time on work-related matters, regardless of which life domain individuals move through, which may translate to an increase in the number of work-related communications individuals receive and respond to throughout the day. Intrinsic motivation may also explain why individuals high in C tend to have higher levels of task performance. These individuals are high in achievement striving, which bolsters them to perform assigned tasks to their best ability.

Individuals high in C are more likely to gravitate towards technology that helps them plan better and be more organized (Xu et al., 2016). On the other hand, individuals low in C are more likely to adopt social network-oriented technologies that allows them to connect with other online rather than in person. (Xu et al., 2016). There have been few studies that delve into differences in the aspects and facets of C based on gender, but women tend to score higher than men on the facet of order (Costa, McCrae, & Dye, 2001). This may mean that women are more likely to accept technologies that help them plan and maintain order in their lives and busy schedules.

Surgency [Extraversion (E)]. Extraversion is one side of the spectrum of surgency, with introversion at the other end, and is one of the interpersonal traits. E encompasses a large group

of traits, including "sociability, activity, and the tendency to experience positive emotions such as joy and pleasure" (Costa & McCrae, 1992, p. 5). Research has found E to be positively related to both job and task performance (Judge et al., 2013). Individuals high in E are more likely to be comfortable working with others and to assert their ideas and feelings about how to approach a project or task. Those high in E are also more likely to exhibit positive affect, or emotional cues, which will be received positively by coworkers and supervisors who evaluate those individuals' job and task performance.

Individuals high in E tend to be very social, as well as very active and outgoing. Individuals low in E, however, tend to be more asocial, less active, and more isolated. Xu et al. (2016) found that individuals tend to use mobile apps that reflect their levels of E. Those high in E trend towards social mobile apps while those low in E trend toward technologies that are individual activities, such as mobile and computer games.

Agreeableness (A). Agreeableness is the other interpersonal trait, and while E is a measure of the preferred *amount* of social interaction and stimulation, A represents the *quality* of interaction on a spectrum of tolerance and compassion to callousness and aggression (Costa, McCrae, & Dye, 1991). A has been found to be a reliable predictor of job performance, though the relationship is not as strong as the relationship between C and job performance (Judge et al., 2013). The sub-facets of tender-mindedness and compliance were individually found to be good predictors of job performance (Judge et al, 2013). These sub-facets may contribute to the overall positive relationship between A and job performance because individuals high in these sub-facets are more likely to follow procedures set forth by their employers, as well as interact well and politely with coworkers, which fosters a pleasant work environment that is conducive to productivity. The sub-facet of compliance has also been shown to have a positive relationship

with task performance (Judge et al, 2013). This may be a result of individuals being assigned a task and adhering to procedure in order to do so.

Individuals high in A are characterized as tolerant, trusting, polite, and altruistic, while individuals low in A are characterized as intolerant, distrustful, and less willing to help others. Thus, individuals high in A tend to "accept new technologies and spend more time online," as well as persist in using non-user-friendly technologies (Xu et al., 2016, p. 247). On the other hand, individuals low in A tend to accept social network technologies that allow them to form relationships that they may not otherwise be able to form in the real world (Xu et al., 2016).

Emotional Stability [Neuroticism (N)]. Neuroticism has previously been featured heavily in clinical psychology because it encompasses a broad range of negative affect, including "predispositions to experience anxiety, anger, depression, shame, and other distressing emotions" and "represents the individual's tendency to experience psychological distress" (Costa, Terracciano, & McCrae, 2001; Costa & McCrae, 1992). Individuals high in N tend to be anxious, easily frustrated, hopeless, impulsiveness, and vulnerable, while individuals low in N tend to be relaxed, even-tempered, poised, self-controlled, and resilient (McCrae & Costa, 1991). Thus, it has been found that N is negatively correlated with job performance (Judge et al., 2013).

It has also been found that women usually exhibit higher overall levels of N than men, but men typically display higher levels of the sub-facet of hostility than women (Costa, Terracciano, & McCrae, 2001). Individuals high in N tend to be distrustful of new technologies, regarding them as unsafe or threatening, which slows their acceptance of unfamiliar technologies. This, in turn, reduces their Internet use. However, empirical studies have found that individuals high in neuroticism spend more time using social networking sites and apps to avoid loneliness (Xu et al., 2016).

Current Study and Hypotheses

There has been little to no research into how personality factors relate to work-life boundary management strategies, but as previously discussed, personality factors have been shown to relate to how individuals approach and accept new and/or different types of technology (Xu et al., 2016). These attitudes toward technology should translate into how permeable an individual allows their work-home boundary to be. Having a better understanding of how personality affects technology use may be helpful in the field of I/O psychology research and in practical HR settings to better predict the fit of employees for a specific job or to more accurately select for employees who are most suitable to a position.

As previously mentioned, individuals who are high in O, A, and N are more likely to accept new technologies, as well as use familiar technologies more frequently (Xu et al., 2016). It is hypothesized that O, A, and N will have a positive relationship with boundary permeability. It is also hypothesized that boundary permeability will have a positive relationship with ELT Percent. Thus, the following hypotheses are presented:

Hypothesis 1a (H1a): Openness to experience will be positively correlated with the permeability of an individual's work-life boundary, and in turn,

Hypothesis 1b (H1b): Openness to experience will also be positively correlated with the number of electronic life intrusions an individual allows to cross their work-home boundary.

Hypothesis 2a (H2a): Agreeableness will be positively correlated with the permeability of an individual's work-life boundary, and in turn,

Hypothesis 2b (H2b): Agreeableness will be positively correlated with the number of electronic life intrusions an individual allows to cross their work-home boundary.

Hypothesis 3a (H3a): Neuroticism will be positively correlated with the permeability of an individual's work-life boundary, and in turn,

Hypothesis 3b (H3b): Neuroticism will be positively correlated with the number of electronic life intrusions an individual allows to cross their work-home boundary.

On the other hand, those low in E are more likely to accept new technologies while individuals high in C and E are more likely to prefer face-to-face interactions over virtual interactions, so they are less likely to use ICTs and the Internet for communication purposes (Xu et al., 2016). Accordingly, it is predicted that C and E will be negatively related with boundary permeability. It is also hypothesized that boundary permeability will have a positive relationship with ELT Percent. Thus, the following hypotheses are presented:

Hypothesis 4a (H4a): Conscientiousness will be negatively correlated with the permeability of an individual's work-life boundary, and in turn,

Hypothesis 4b (H4b): Conscientiousness will be negatively correlated with the number of electronic life intrusions an individual allows to cross their work-home boundary.

Hypothesis 5a (H5a): Extraversion will be negatively correlated with the permeability of an individual's work-life boundary, and in turn,

Hypothesis 5b (H5b): Extraversion will be negatively correlated with the number of electronic life intrusions an individual allows to cross their work-home boundary.

Because of the prevalence of technology in today's workplace, boundary permeability, or the degree to which one can physically be within one role's borders but psychologically or behaviorally engaged in another role, has now become irrevocably linked to technology use (Duxbury et al., 2013). As presented in the previous hypotheses, it is predicted that boundary

permeability will be positively correlated with technology use outside of the workplace. Thus, the following hypothesis is presented:

> **Hypothesis 6 (H6):** The permeability of an individual's work-life boundary is positively correlated with the number of electronic life intrusions an individual allows to cross their work-home boundary.

CHAPTER II: METHODS

Participants

The sample consisted of 339 working professionals recruited through Amazon Mechanical Turk and the author's social media and professional networks (Facebook and LinkedIn). Amazon Mechanical Turk is a marketplace for work that involves human intelligence tasks, or HITs, which are contained tasks for which a Worker can select a task, submit answers, and be rewarded for completing it ("FAQ > Overview", n.d.). The link to the survey, administered through Qualtrics, was uploaded to MTurk, and was made available to Workers who could complete the survey for a small monetary award of fifteen cents (15¢). The first 300 Workers who completed the survey (correctly answered all five validity checks, and logically answered the ELT questions so that a percentage could be calculated from their replies) were paid and their responses were recorded. The link was also made available to the author's connections and friends (n = 39) on LinkedIn and Facebook, who were asked to complete the survey (see Appendix B) and share it with their connections and friends.

The same survey was administered to both groups of participants. Each survey began with an overview of the survey, along with an informed consent request (See Appendix B). To ensure that participants under the age of 18 were not surveyed, the next page asked participants for their age. If they chose "Under 18," they were automatically directed to the end of the survey and thanked for their participation. A total of 58 items were presented to be completed, which included six items measuring boundary permeability, 41 items measuring personality, two items measuring ELT Percent, four demographic information questions, and five validity/attention checks. The survey made available to MTurk Workers included an extra survey page which presented a random code for them to submit their HIT. After reviewing each participant's

responses to the survey, the author matched the codes from Qualtrics and MTurk and either approved or rejected payment for the HIT. Data were downloaded from Qualtrics and analyzed with IBM SPSS Statistics 22 software.

Demographics

The final sample consisted of 339 participants. Men (n = 209) accounted for 61.7% of participants while women (n = 129) accounted for 38.1% (one participant chose not to identify) and all participants ranged in age from 19 to 68 (M = 32.47, SD = 9.14). On average, participants had been working in their current job for seven years (M = 7.03, SD = 5.61). The most frequently reported job industries included information technology (n = 39), education (n = 36), and computers (n = 31) (see Appendix C for frequency table). The demographic questions can be found in the survey in Appendix B.

Measures

Boundary Permeability. The 12-item scale for boundary permeability was developed by Clark (2002) as part of a larger study involving communication across the work-home boundary. The scale measures both permeability of the work domain to family/life events and permeability of the family/life domain to work events; however, in this study, only the permeability of the family/life domain to work events is of interest. Each item uses a five-point scale with anchor responses of "never" and "always." The six items that measure permeability of the family domain to work events include items such as "I receive work-related calls while I am at home" and "I stop in the middle of my home activities to address a work concern." Clark (2002) conducted a factor analysis for the characteristics of the border around the family domain and found that the internal consistency reliability value, or Cronbach's alpha, for the implied scale was $\alpha = .89$.

Five-Factor Model of Personality. The International Personality Item Pool (IPIP) was originally created by Costa & McCrae (1992) and was adapted and modified from a paper-and-pencil survey to an online version by Buchanan et al. (2005) to ensure that reliability is maintained across both methods of survey distribution. Using Saucier's (1994) strictest definition of a factor-pure item for factor analysis, where a factor must have its highest loading on the expected factor *and* the highest loading must be at least twice as much as the loadings on any other factor, Buchanan et al. (2005) eliminated nine items from Costa & McCrae's original 50-item scale. Each item is based on a five-point scale, with anchors responses of "very inaccurate" and "very accurate." Instructions asked participants to look at the items describing people's behaviors and to use the rating scale to indicate how accurately each statement described the participant. Examples of items, along with the factor the item is associated with, are "Am the life of the party" (E+), "Seldom feel blue" (N-), "Make plans and stick to them" (C+), "Insult people" (A-), and "Avoid philosophical discussions" (O-).

The final 41 items, however, are not divided evenly across the five personality domains. The revised items for openness to experience include two items measuring O+ and five items measuring O-, for a total of seven items and an internal consistency reliability of $\alpha = .74$. The revised items for conscientiousness include five items measuring C+ and 5 items measuring C-, for a total of 10 items and an internal consistency reliability of $\alpha = .84$. No items from the original conscientiousness scale were deleted during Buchanan et al.'s factor analysis. The revised items for surgency include five items measuring E+ and four items measuring E-, for a total of nine items and an internal consistency reliability of $\alpha = .88$. The revised items for agreeableness include four items measuring A+ and three items measuring A-, for a total of seven items and an internal consistency reliability of $\alpha = .76$. The revised items for emotional

stability include five items measuring N+ and three items measuring N-, for a total of eight items and an internal consistency reliability of $\alpha = .83$. These reliability estimates are nearly identical with the reliability estimates of the original scale which were, respectively, .82, .81, .86, .77, and .86. The internal consistency reliabilities were somewhat lower for the E and O measures, which may be a function of omitting the items with problematic factor-loadings.

Electronic life intrusions. Electronic life intrusions (ELTs) are here defined as any work-related electronic communications that are received during non-work hours. These can come in the form of emails, phone calls, video calls, pager/beeper messages, texts, ESM messages, faxes, etc. The survey included two items asking participants to estimate, on average, how many of these intrusions they receive each day, as well as, on average, how many of these intrusions they actually take non-work (unpaid) time to answer (Appendix B). Non-work hours are here defined as unpaid time spent outside of the office or other work domain. This excludes on-call hours during which employees are not able to use their time freely and/or are constrained to the office or work domain (Society for Human Resource Management, 2012). The number of ELTs answered was divided by the total number of ELTs received and multiplied by 100 to calculate the standardized measure of ELT Percent for each participant.

CHAPTER III: RESULTS

Results

Descriptive statistics. Items for each personality factor and the boundary permeability construct were individually averaged for each participant for an overall score on that construct or factor. Person-mean imputation was used in instances of missing data, but each participants' responses for each scale contained at least four non-missing items. The percentage of ELTs answered was also calculated for each participant. Age and job tenure were transformed to normalize the data and reduce skewness by taking the log of each variable and using the resulting transformed data in all subsequent analyses. A table of job industries from the Harvard Business School with assigned numbers for data analysis can be found in Appendix D. Three participants did not provide their job industry so the median of numerical assignments was substituted for those three values to reflect the average job industry of the total respondents. The 53 total job industries were then grouped into 10 broader categories and dummy coded for further analysis (See Appendix C). Means, standard deviations, and correlations were calculated for all variables and can be found in Table 1.

Table 1.

Descriptive Statistics, Correlations, and Alpha Coefficients of Variables.

	M	SD	ELT	AGE	SEX	TEN	IND_1	IND_2	IND_3	IND_4	IND_5	IND_6	IND_7	IND_8	IND_9	E	N	C	A	O	BP
ELT	65.598	37.357	----																		
AGE	1.497	.335	-.029	----																	
SEX	1.390	.494	-.075	-.020	----																
TEN	.724	.335	.079	.539**	-.005	----															
IND_1	.090	.293	-.115*	-.022	.054	.013	----														
IND_2	.110	.309	-.066	.032	.060	.074	-.111*	----													
IND_3	.090	.289	.067	-.076	.125*	-.046	-.102	-.109*	----												
IND_4	.100	.301	-.083	.064	-.043	.058	-.108*	-.115*	-.106	----											
IND_5	.010	.108	.047	.060	.025	.053	-.035	-.038	-.035	-.036	----										
IND_6	.060	.241	.027	.012	-.053	-.076	-.083	-.089	-.082	-.086	-.028	----									
IND_7	.020	.132	.037	-.022	-.014	-.103	-.043	-.046	-.043	-.045	-.015	-.034	----								
IND_8	.180	.382	.016	.085	.075	.008	-.150**	-.160**	-.147**	-.155**	-.051	-.119*	-.062	----							
IND_9	.290	.454	.077	-.121*	.157**	-.062	-.206**	-.220**	-.202**	-.213**	-.070	-.164**	-.086	-.296**	----						
E	3.239	.691	.072	-.022	.054	.073	.001	.043	.064	-.050	.002	.031	-.014	-.047	-.027	-.799					
N	2.507	.737	-.009	-.169**	.061	-0.163**	-.073	.068	.067	-.099	.069	.021	-.024	.078	-.039	-.302**	-.792				
C	3.639	.612	.001	.141**	.108*	.168**	.026	.003	-.060	.010	-.034	-.031	-.034	-.012	.046	.408**	-.565**	-.776			
A	3.932	.571	.093	.086	.050	.116*	-.017	-.013	-.069	.136*	-.124*	-.051	.023	-.075	-.040	.225**	-.408**	.395**	-.658		
O	3.635	.699	.013	.074	.114*	.006	.045	.044	.097	-.129*	-.155**	-.063	.038	.088	-.058	.133*	-.163**	.192**	.250**	-.708	
BP	3.012	.957	.408**	-.069	-.050	.142**	-0.134*	.026	.105	-.085	.080	.020	.057	.049	-.013	.110*	.041	.000	.078	-.048	-.876

*$p \leq .05$, **$p \leq .01$, sig (2-tailed)

Note: ELT = ELT Percent, TEN = Job tenure, IND_1 = service, IND_2 = finance_legal, IND_3, entertainment_media, IND_4 = engineering_manufacturing, IND_5 = agri_travel, IND_6 = home_auto, IND_7 = beauty_fashion, IND_8 = health_edu, IND_9 = public_human_relations, E = Extraversion, N = Emotional Stability, C = Conscientiousness, A = Agreeableness, O = Openness to Experience, BP = Boundary Permeability.

Reliability Alpha Coefficients are listed on the diagonal.

Reliability analyses were conducted on each of the five personality factor scales as well as the boundary permeability scale to determine the internal consistency of each scale. As seen in Table 1, the scale for boundary permeability in this sample ($\alpha = .876$) demonstrated acceptable levels of internal consistency and was comparable to the original scale's reliability (Cronbach, 1951). Although the scale for agreeableness only demonstrated low internal consistency ($\alpha = .658$) and openness to experience bordered on low internal consistency ($\alpha = .708$), surgency ($\alpha = .799$), emotional stability ($\alpha = .792$), and conscientiousness ($\alpha = .776$) all demonstrated acceptable levels of internal consistency in this sample (Cronbach, 1951). If item 42 on the agreeableness scale ("I get back at others.") were deleted, the scale's internal consistency would increase slightly ($\alpha = .693$) but would still fall below the acceptable level of internal consistency (Cronbach, 1951). If item 43 on the openness to experience scale ("I believe in the importance of art.") were deleted, the scale's internal consistency would increase to acceptable levels of internal consistency ($\alpha = .723$) but would then only include one item measuring positive openness to experience.

Predicting electronic life intrusions through multiple regression. Hierarchical (sequential) linear regression analysis was used to develop a model for predicting participants' ELT Percent from their score on each personality factor (openness to experience, conscientiousness, extraversion, agreeableness, and emotional stability) as well as their score on the boundary permeability construct. Basic descriptive statistics and regression coefficients for the final model are shown in Table 2.

Table 2.

Predicting ELT Percent with Personality and Boundary Permeability

	Zero-Order *r*																					
Variable	**AGE**	**SEX**	**TEN**	**IND_1**	**IND_2**	**IND_3**	**IND_4**	**IND_5**	**IND_6**	**IND_7**	**IND_8**	**IND_9**	**E**	**N**	**C**	**A**	**O**	**BP**	**ELT**	***β***	***sr*²**	***b***
BP																			.408**	.374	.122	14.614
O																		-.048	.013	.026	.001	1.389
A																	.250**	.078	.093*	.082	.005	5.364
C																.395**	.192**	.000	.001	-.042	.001	-2.594
N															-.565**	-.408**	-.163**	.041	-.009	-.002	.000	-.099
E														-.302**	.408**	.225**	.133**	.110*	.072	.023	.000	1.225
IND_9													-.027	-.039	.046	-.040	-.058	-.013	.077	.018	.000	1.518
IND_8												-.296**	-.047	.078	-.012	-.075	.088	.049	.016	-.037	.000	-3.623
IND_7											-.062	-.086	-.014	-.024	-.034	.023	.038	.057	.037	.003	.000	.949
IND_6										-.034	-.119*	-.164**	.031	.021	-.031	-.051	-.063	.020	.027	.002	.000	.324
IND_5									-.028	-.015	-.051	-.070	.002	.069	-.034	-.124*	-.155**	.080	.047	.021	.000	7.111
IND_4								-.036	-.086	-.045	-.155**	-.213**	-.050	-0.099*	.010	.136*	-.129**	-.085	-.083	-.082	.002	-10.125
IND_3							-0.106*	-.035	-.082	-.043	-.147**	-.202**	.064	.067	-.060	-.069	0.097*	0.105*	.067	.006	.000	.732
IND_2						-.109*	-.115*	-.038	-.089	-.046	-.160**	-.220**	.043	.068	.003	-.013	.044	.026	-.066	-.095	.003	-11.545
IND_1					-.111*	-0.102*	-.108*	-.035	-.083	-.043	-.150**	-.206**	.001	-.073	.026	-.017	.045	-.134**	-.115*	-.082	.003	-10.443
TEN				.013	.074	-.046	.058	.053	-.076	-0.103*	.008	-.062	.073	-.163**	.168**	.116*	.006*	.142**	.079	.046	.001	5.184
SEX			-.005	.054	.060	.125*	-.043	.025	-.053	-.014	.075	.157**	.054	.061	.108*	.050	.114	-.050	-.075	-.049	.002	-3.717
AGE		-.020	.539**	-.022	.032	-.076	.064	.060	.012	-.022	.085	-.121*	-.022	-.169**	.141**	.086	.074	-.069	-.029	-.021	.000	-6.955
																				Intercept = 16.206		
Mean	1.497	1.390	.724	.090	.110	.090	.100	.010	.060	.020	.180	.290	3.239	2.507	3.639	3.932	3.635	3.012	65.598			
SD	.110	.494	.335	.293	.309	.289	.301	.108	.241	.132	.382	.454	.691	.737	.612	.571	.699	.957	37.357		R^2 = .195	

*$p \leq .05$, **$p \leq .01$, sig (1-tailed)

Note: ELT = ELT Percent, TEN = Job tenure, IND_1 = service, IND_2 = finance_legal, IND_3, entertainment_media, IND_4 = engineering_manufacturing, IND_5 = agri_travel, IND_6 = home_auto, IND_7 = beauty_fashion, IND_8 = health_edu, IND_9 = public_human_relations, E = Extraversion, N = Emotional Stability, C = Conscientiousness, A = Agreeableness, O = Openness to Experience, BP = Boundary Permeability.

A three-stage hierarchical regression was conducted with ELT Percent as the dependent variable. The demographics variables – age, sex, job tenure, job industry – were entered at stage one of the regression to control for these individual respondent characteristics. The five personality factors were entered at stage two, and the boundary permeability variable at stage three. Regression statistics are presented in Table 3.

Table 3.
Summary of Hierarchical Regression Analysis for Variables Predicting ELT Percent

Variable	β	*t*	sr^2	*R*	R^2	ΔR^2
***Step* 1**				.239	.057	.057
AGE	-.103	-1.591	.007			
SEX	-.073	-1.316	.005			
TEN	.156	2.401*	.017			
IND_1	-.108	-1.236	.004			
IND_2	-.066	-.733	.002			
IND_3	.066	.754	.002			
IND_4	-.083	-.941	.003			
IND_5	.045	.762	.002			
IND_6	.032	.402	.000			
IND_7	.047	.755	.002			
IND_8	.020	.193	.000			
IND_9	.040	.333	.000			
Step 2				.271	.073	.016
AGE	-.094	-1.429	.006			
SEX	-.078	-1.382	.005			
TEN	.145	2.208*	.014			
IND_1	-.103	-1.186	.004			
IND_2	-.068	-.758	.002			
IND_3	.066	.754	.002			
IND_4	-.094	-1.057	.003			
IND_5	.058	.955	.003			
IND_6	.032	.411	.000			
IND_7	.043	.679	.001			
IND_8	.011	.101	.000			
IND_9	.045	.379	.000			

Variable	β	*t*	sr^2	*R*	R^2	ΔR^2
E	.058	.961	.003			
N	.026	.377	.000			
C	-.051	-.715	.001			
A	.129	2.051*	.012			
O	.002	.030	.000			
Step 3				.442	.195	.122
AGE	-.021	-.329	.000			
SEX	-.049	-.934	.002			
TEN	.046	.740	.001			
IND_1	-.082	-1.005	.003			
IND_2	-.095	-1.132	.003			
IND_3	.006	.069	.000			
IND_4	-.082	-.977	.002			
IND_5	.021	.363	.000			
IND_6	.002	.029	.000			
IND_7	.003	.057	.000			
IND_8	-.037	-.378	.000			
IND_9	.018	.166	.000			
E	.023	.400	.000			
N	-.002	-.030	.000			
C	-.042	-.639	.001			
A	.082	1.385	.005			
O	.026	.476	.001			
BP	.374	6.957	.122			

*$p \leq .05$, **$p \leq .01$

Note: ELT = ELT Percent, TEN = Job tenure, IND_1 = service, IND_2 = finance_legal, IND_3, entertainment_media, IND_4 = engineering_manufacturing, IND_5 = agri_travel, IND_6 = home_auto, IND_7 = beauty_fashion, IND_8 = health_edu, IND_9 = public_human_relations, E = Extraversion, N = Emotional Stability, C = Conscientiousness, A = Agreeableness, O = Openness to Experience, BP = Boundary Permeability.

The hierarchical multiple regression showed that at stage one, the demographics variables accounted for 5.8% of the variance and did not significantly contribute to the regression model, $F(12, 326) = 1.644$, $p = .078$, $R^2 = .057$, 90% *CI*[.000, .173]. Introducing the personality factors at stage two explained an additional 1.3% of the variance and also did not significantly contribute to the regression model, $F(5, 321) = 1.138$, $p = .340$, $\Delta R^2 = .016$, 90% *CI*[.000, .130]. Finally, the addition of the boundary permeability measure to the regression model explained an additional 12.4% of the variance and this change in R^2 was significant, $F(1, 320) = 48.401$, $p <$

.000, ΔR^2 = .122, 90% *CI*[.000, .866]. The most important predictor of ELT Percent was boundary permeability, which uniquely explained more than 12% of the variance in ELTs percentage.

Relationship between ELTs and boundary permeability. A correlational analysis was conducted between ELT percentage and the boundary permeability scale, without the effects of personality or demographics parceled out. This analysis was employed to determine whether there was a significant relationship between the permeability of one's work-home boundary and the percentage of ELTs answered. The two constructs were found to be significantly correlated, $r = .408$, $p < .001$ (See Table 2). Thus, the more permeable one's family domain is to work, the higher percentage of ELTs one will answer of those received.

CHAPTER IV: DISCUSSION

Contribution to Literature

The purpose of this study was to extend the existing body of literature surrounding personality and attitudes toward technology. While previous research looked at the effects of personality on attitudes toward technology and smartphone application use, the current study was meant to widen those findings to attitudes toward work technology, such as ESMs and ICTs. In addition, the current study aimed to study the effects of personality on boundary permeability. As discussed earlier, employees have idiosyncratic differences in boundary maintenance techniques which can be grouped into five broader categories (Golden, 2013). As such, another purpose of the current study was to see if individuals with similar personality traits could also be grouped by their boundary maintenance techniques, specifically the extent of the permeability of their work-life boundaries. Lastly, the introduction of ELTs into this study was to create a more quantifiable method of measuring the permeability of the home/life boundary to work events and communications.

Implications of Results

Demographically, individuals with more job tenure and employees who worked in industries related to entertainment and media (advertising, communications, entertainment & recreations, fine arts, information, journalism & news, and media & broadcasting) had more permeable work-home boundaries. As individuals spend more time in a position, they take on increased responsibilities, which may force them to allow work-related intrusions across their work-home boundary into their home/non-work domain. On the other hand, employees who worked in industries related to service (accommodations, apparel & accessories, and food &

beverage) had significantly less permeable work-home boundaries and answered a significantly smaller percentage of ELTs. It seems as if the permeability of employees' boundaries and the percentage of ELTs answered may be a function of industry, but there may not be a sufficient distribution of industries in the current sample to make that claim.

In contrast with this study's hypotheses, individuals high in E had home-domain boundaries that were more permeable to work intrusions than their more introverted counterparts. In turn, though the correlation was weak, individuals with higher levels of E answered a higher percentage of the ELTs they received than individuals with lower levels of E. Previous research suggested that individuals high in E are more likely to prefer face-to-face interactions due to the social and outgoing nature of these individuals, so it was predicted that they would be less likely to use ICTs in favor of in-person communications. However, other studies found that those high in E were more likely to use social media apps while those low in E were more likely to use mobile gaming or other individual activity apps. Although the present study's hypotheses were not supported, the current research suggests that the method of communication for individuals high in E is inconsequential; they are comfortable with communication and social contact even when the contact is mediated through an app or the Internet. Conversely, it is possible to interpret these results as individuals low in E still exhibiting asocial behaviors, even when communicating through an asynchronous, impersonal medium such as email or other social medias.

Agreeableness was found to be positively correlated, though not statistically significantly, to the permeability of individuals' work-life boundary, as predicted. Agreeableness was also found to be significantly positively correlated to ELT Percent, as predicted. These findings partially and fully support past research which suggested that

individuals high in A are more likely to accept new technologies into their lives, such as ESMs and ICTs from their employer, as well as spend more time online. The more time agreeable individuals spend online, the more likely they are to respond to work-related correspondences, especially if they accept ESMs and ICTs into their home/non-work domains.On the other hand, partial support for the prediction that A would be positively correlated to boundary permeability may come from a mismatch between respondents' perception of their boundary permeability and their actual technology use. Respondents may have answered the boundary permeability items with their ideal way of managing the work-home boundary in mind; however, when asked to quantify the number of ELTs received and answered each day, respondents may have answered more objectively. This may explain why the strength of the relationship between agreeableness and boundary permeability is not as strong as the relationship between A and ELT Percent.

The finding that border permeability is positively correlated to ELT Percent also supports claims from previous research. As previously mentioned, border permeability is to extent to which aspects from one life domain are able to enter another domain (Clark, 2000). As the measure of individuals' border permeability increased, a larger percentage of ELTs was allowed to enter the home/non-work domain. Though this study focused only on the permeability of the home/non-work domain's boundary to work-related intrusions, the findings nevertheless supported the previous body of literature on the subject.

Contrary to previous research, individuals high in O were less likely to have permeable work-life boundaries. Being open to different experiences did not affect how individuals viewed work technologies such as ESMs and ICTs in the home/non-work domain. This may be because work technologies are not new experiences for the participants in this study; however, individuals high in O answered a higher percentage of ELTs, as predicted. This may be because

individuals high in O are more likely to use familiar technologies more frequently (Xu et al., 2016). Indeed, if work technologies are not new to these individuals, they may use them more often in the home domain and, thus, answer more ELTs.

It was predicted that individuals high in C, who tend to prefer face-to-face interactions, would have less permeable work-home boundaries and would, in turn, answer a lower proportion of ELTs. However, there was no correlation between C and boundary permeability or between C and ELT Percent. However, the negative beta weight calculated from the hierarchical regression analysis suggests that individuals lower in C were more likely to have permeable work-home boundaries and respond to more ELTs This indicates that classical suppression is taking place, which implies that C is more useful as a predictor of ELT Percent in the regression model than as a zero-order predictor by itself. . This may because, as suggested by Xu et. al (2016), individuals low in C are more likely to use technologies that allow them to connect with others virtually rather than in-person.

Likewise, it was predicted that individuals high in N would have more permeable work-home boundaries. Though the correlation was not significant, it was in the expected direction. However, the correlation between N and ELT percentage was in the opposite direction as predicted. This study found that individuals low in N were the ones who were more likely to answer a higher proportion of ELTs. This was unexpected, especially since it was found that boundary permeability and ELT percentage are significantly positively related. These results may be explained because individuals high in N tend to be more anxious and impulsiveness. They may be more likely to allow work-related affairs to affect their home domain and vice versa whenever the urge to check up on things or are stressed over matters in one domain while physically present in the other. Conversely, individuals low in N tend to be more even-tempered

and self-controlled, so they may be more comfortable or more systematic in communicating about work-related issues outside of the work domain. The organizational implications from the results suggest that there may be personality differences in how employees maintain their work-life boundaries, of which managers should be cognizant and aware. Whether formally or informally, it may benefit managers to understand their employees' individual personality factors and the way those factors may affect how they handle work communications during non-work hours and outside the work domain. This could help supervisors adjust their managerial styles accordingly, decreasing the amount of role conflict that may occur when employees are not able to maintain their work-home boundaries to their own satisfaction. This would, in turn, decrease work-life conflict and work demands, which would increase work-life balance and may also increase job satisfaction.

The topic of job satisfaction has been of increasing interest in the field of Industrial/Organizational (I/O) psychology. With the entrance of millennials into the workforce, unconventional benefits, such as increased programs to facilitate work-life balance, have become more popular to attract and satisfy the additional needs and desires of a three-generation workforce (Clark, 2007). The needs of employees from different backgrounds and generations vary, of which managers need to be aware. Though it may not be possible for managers to give individualized consideration to each employees' idiosyncratic boundary maintenance strategies, recognition of those strategies may increase job satisfaction, which will make an employee less likely to leave the company (Rife & Hall, 2015). Managers must be familiar with these challenges in order to maximize employee productivity and minimize behaviors that will be detrimental to the organization as a whole. With the introduction and growing use of ESMs and ICTs in the workplace, it is imperative to continue research into this issue to inform managers

and help implement organizational change within industries. The foundation from the current study's research can be built upon to probe this matter further, as discussed below.

Limitations and Future Research

The purpose of the current study was to examine the relationship of personality with boundary permeability and electronic life intrusions, but most of the results were not congruent with previous research. One reason for this may be that MTurk is a global service that is available for anyone with an internet connection to access. The results of the current study encompass a global sample; however, much of the previous research compiled and reviewed earlier was not conducted on a similar sample. Different countries may have different work cultures that confounded the results of the current study. Employer expectations, a key factor that has been theorized to enhance the increasing levels of work-life conflict, was only studied in the context of American employers and their employees (Kelly et al., 2014). Though literature exists studying these effects in other regions outside of the United States, it is limited. This study may serve as a stepping stone for future research to study the growing effects of technology on work-life conflict and work-life balance in a variety of different cultures and to be able to see where other cultures compare or contrast to the United States.

Another issue with this study is that the sample is not representative of the average American labor force, to which these results were meant to be generalized. In this sample, there were 129 women (38.1%), the median age was 30 years (M = 32.47, SD = 9.142), and the median job tenure was five years (M = 7.03, SD = 5.608). Individuals aged 25 to 54 made up 84.1% of the sample and individuals aged 55 and older made up 4.4% of the sample. Comparatively, in the United States in 2014, women made up 46.8% of the labor force and individuals 55 years and older made up 21.7% of the labor force, while individuals aged 25 to 54

made up 64.6% of the labor force (Bureau of Labor Statistics, 2015). It is projected that in 2024, the American labor force will be made up of 47.2% women, 63.9% of those aged 25 to 54, and 24.8% of those aged 55 and older (Bureau of Labor Statistics, 2015). Men were overrepresented in this study's sample and the 25 to 54 age group was disproportionately large. However, job tenure in this sample (*median* = 5.00) was greater than that reported by the Bureau of Labor Statistics (*median* = 4.20) (Bureau of Labor Statistics, 2016). These non-representative statistics may have contributed to this study's results not being consistent with those of previous researchers.

For more in-depth analysis of ELTs, it may be fruitful for future research to use more objective methods of measuring such communications. Due to the nature of this study, the measurement was a self-reported estimate of the average number of ELTs respondents received each day and the average number of those ELTs that are answered. From these responses, the variable ELT Percent was calculated. Future research may consider using an app tracker or similar technology to objective track how many ELTs are received each day. Future research may also consider the effect that technoaddiction may have on individuals' boundary permeability and how that would, in turn, affect the number of ELTs received and answered.

Conclusions

The current research investigated the relationship between personality, boundary permeability, and percentage of ELTs responded to of those received. Although not all hypotheses were supported and not all relationships were statistically significant or in the predicted directions, this study added to the slowly expanding body of literature revolving around technology and work-home boundaries and domains. The results showed boundary permeability and agreeableness to be the strongest predictors of ELT Percent. A model

including all demographic variables, all personality factors, and boundary permeability was created and accounted for 19.5% of the variance in ELT Percent.

References

Aamoth, D. (2014). First smartphone turns 20: Fun facts about Simon. Retrieved from http://time.com/3137005/first-smartphone-ibm-simon/

Adkins, C. L. & Premeaux, S. A. (2014). The use of communication technology to manage work-home boundaries. *Journal of Behavioral & Applied Management, 15*, 82-100.

Ashforth, B.E., Kreiner, G.E., & Fugate, M. (2000). All in a day's work: Boundaries and micro role transitions. *Academy of Management Review*, *25*, 172-491.

Barber, L. K. & Jenkins, J. S. (2014). Creating technological boundaries to protect bedtime: Examining work–home boundary management, psychological detachment and sleep. *Stress Health, 30,* 259-264.

Buchanan, T., Johnson, J.A., & Goldberg, L.R. (2005). Implementing a five-factor personality inventory for use on the internet. *European Journal of Psychological Assessment*, *21,* 115-127. doi: 10.1027/1015-5759.18.1.115

Bureau of Labor Statistics (2015). *Labor force projections to 2024: The labor force is growing, but slowly.* Retrieved from https://www.bls.gov/opub/mlr/2015/article/labor-force-projections-to-2024-1.htm

Bureau of Labor Statistics (2016). *Employee tenure summary.* Retrieved from https://www.bls.gov/news.release/tenure.nr0.htm

Butts, M. M., Becker, W. J., & Boswell, W. R. (2015). Hot buttons and time sinks: The effects of electronic communication during nonwork time on emotions and work-nonwork conflict. *Academy of Management Journal, 58,* 763-788. doi:10.5465/amj.2014.0170

Chen, H.-Y. W. & Donmez, B. (2016). What drives technology-based distractions? A structural equation model on social-psychological factors of technology-based driver distraction

engagement. *Accident Analysis and Prevention, 91,* 166-174. doi: 10.1016/j.aap.2015.08.015

Ciccarelli, M., Straker, L., Mathiassen, S. E., & Pollock, C. (2013). Variation in muscle activity among office workers when using different information technologies at work and away from work. *Human Factors, 55,* 911-923. doi:10.1177/0018720813485788

Clark, A. D. (2007). The new reality: Using benefits to attract and retain talent. *Employee Relations Today,* 47-53.

Clark, S.C. (2000). Work/family border theory: A new theory of work/family balance. *Human Relations, 53,* 747-770.

Clark, S.C. (2001). Work cultures and work/family balance. *Journal of Vocational Behavior, 58,* 348-365. doi: 10.1006/jvbe.2000.1759

Clark, S.C. (2002). Communicating across the work/home border. *Community, Work & Family, 5*(1), 23-48. doi: 1080/13668800020006802

Costa, P.T., Jr. & McCrae, R.R. (1992). Normal personality assessment in clinical practice: The NEO personality inventory. *Psychological Assessment, 4,* 5-13.

Costa, P.T., Jr., McCrae, R.R., & Dye, D.A. (1991). Facet scales for agreeableness and conscientiousness: A revision of the NEO personality inventory. *Personality and Individual Differences, 12,* 887-898.

Costa, P.T., Jr., Terracciano, A., & McCrae, R.R. (2001). Gender differences in personality traits across cultures: Robust and surprising findings. *Journal of Personality and Social Psychology, 81,* 322-331. doi: 10.1037//0022-3514.81.2.322

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16,* 297-334.

Duxbury, L., Higgins, C., Smart, R. & Stevenson, M. (2014). Mobile technology and boundary permeability. *British Journal of Management, 25*, 570-588. doi:10.1111/1467-8551.12027

Elias, S.M., Smith, W.L, & Barney, C. E. (2012). Age as a moderator of attitude towards technology in the workplace: Work motivation and overall job satisfaction. *Behaviour & Information Technology, 31*, 453-467. doi:10.1080/0144929X.2010.513419

FAQ > Overview (n.d.). Retrieved from https://www.mturk.com/mturk/help?helpPage=overview&state=Sy9BbEpsWkRRWjQxVCsvcU4xeWNjbmFxVWF3PTIwMTcwNDMwMTgyMVVzZXIudHVya1NlY3VyZX50cnVlJQ--

Fleck, J. & Johnson-Migalski, L. (2015). The impact of social media on personal and professional lives: An Adlerian perspective. *The Journal of Individual Psychology, 71*, 135-142.

Gattiker, U. E., & Howg, L. (1990). Information technology and quality of work life: Comparing users with non-users. *Journal of Business and Psychology, 5*, 237-260.

Gokhale, A.A., Rabe-Hemp, C., Woeste, L., & Machina, K. (2015). Gender differences in attitudes toward science and technology among majors. *Journal of Science, Education, & Technology*, *24*, 509-516. doi: 10.1007/s10956-014-9541-5

Golden, A. G. (2013). The structuration of information and communication technologies and worklife interrelationships: Shared organizational and family rules and resources and implications for work in a high-technology organization. *Communication Monographs, 80*, 101-123. doi:10.1080/03637751.2012.739702

Harris, K. J., Kent Marett, K., Harris, R. B. (2011). Technology-related pressure and work–family conflict: Main effects and an examination of moderating variables. *Journal of Applied Social Psychology, 41*, 2077-2103.

Hayman, J. (2005). Psychometric assessment of an instrument designed to measure work life balance. *Research and Practice in Human Resource Management*, *13*, 85-91.

Holmström, I. & Bagga-Gupta, S. (2013). Technologies at work: A sociohistorical analysis of human identity and communication. *Deafness & Education International*, *15*, 2-28. doi:10.1179/1557069X12Y.0000000012

Judge, T.A., Rodell, J.B., Klinger, R.L, Simon, L.S., & Crawford, E.R. (2013). Hierarchical representations of the Five-Factor Model of Personality in predicting job performance: Integrating three organizing frameworks with two theoretical perspectives. *Journal of Applied Psychology*, *98*, 875-925. doi: 10.1037/a0033901

Kelly, E. L., Moen, P., Oakes, J. M., Fan, W., Okechukwu, C., Davis, K. D., … Casperi, L. M. (2014). Changing work and work-family conflict: Evidence from the work, family, and health network. *American Sociological Review*, *79*, 485-516. doi:10.1177/0003122414531435

Lake, M. (2012). Pocket marvels: 40 years of handheld computers. Retrieved from http://www.computerworld.com/article/2474281/mobile-wireless/pocket-marvels--40-years-of-handheld-computers.html

Leonardi, P. M., Huysman, M., Steinfield, C. (2013). Enterprise social media: Definition, history, and prospects for the study of social technologies in organizations. *Journal of Computer-Mediated Communication, 19*, 1-19. doi:10.1111/jcc4.12029

Matthews, R.A. & Barnes-Farrell, J.L. (2010). Development and initial evaluation of an enhanced measure of boundary flexibility for the work and family domains. *Journal of Occupational Health Psychology, 15*, 330-346. doi: 10.1037/a0019302

McCrae, R.R. & Costa, P.T., Jr. (1991). The NEO personality inventory: Using the five-factor model in counseling. *Journal of Counseling & Development, 69*, 367-372.

Messersmith, J. (2007). Managing work-life conflict among information technology workers. *Human Resource Management, 46*, 429-451. doi: 10.1002/hrm.20172

Nam, T. (2014). Technology use and work-life balance. *Applied Research Quality Life*, *9*, 1017-1040. doi: 10.1007/s11482-013-9283-1

Ong, C.-S. & Lai, J.-Y. (2006). Gender differences in perceptions and relationships among dominants of e-learning acceptance. *Computers in Human Behavior, 22*, 816-829. doi: 10.1016/j.chb.2004.03.006

Park, Y. & Jex, S. M. (2011). Work-home boundary management using communication and information technology. *International Journal of Stress Management, 18*, 133-152. doi:10.1037/a0022759

Park, Y., Fritz, C., & Jex, S. M. (2011). Relationships between work-home segmentation and psychological detachment from work: The role of communication technology use at home. *Journal of Occupational Health Psychology, 16*, 457-467. doi:10.1037/a0023594

Polsson, K. (2015). Chronology of handheld computers. Retrieved from http://handheldtimeline.info/hand1993.htm

Rife, A.A. & Hall, R.J. (2015). *Work-Life Balance* [White paper]. Retrieved 17 April 2017 from Society for Industrial Organizational Psychology: http://www.siop.org/WhitePapers/WorkLifeBalance.pdf

Rouse, M. (2005). What is ICT (information and communications technology - or technologies)? Retrieved from http://searchcio.techtarget.com/definition/ICT-information-and-communications-technology-or-technologies

Salanova, M., Llorens, S., & Cifre, E. (2013). The dark side of technologies: Technostress among users of information and communication technologies. *International Journal of Psychology, 48*, 422-436. doi:10.1080/00207594.2012.680460

Saucier, G. (1994). Mini-markers: A brief version of Goldberg's unipolar Big-Five markers. *Journal of Personality Assessment, 63*, 506-516.

Society for Human Resource Management (2012). *Time worked on call: How should we pay on-call, nonexempt employees for the time they are not actually working when on call?* Retrieved from https://www.shrm.org/resourcesandtools/tools-and-samples/hr-qa/pages/cms_020208.aspx

Stanko, T. L. & Beckman, C. M. (2015). Watching you watching me: Boundary countrol and capturing attention in the context of ubiquitous technology use. *Academy of Management Journal, 58*, 712-738.

Van Volkom, M., Stapley, J. C., & Amaturo, V. (2014). Revisiting the digital divide: Generational differences in technology use in everyday life. *North American Journal of Psychology, 16*, 557-574.

Wagner, L. A. (2015). When your smartphone is too smart for your own good: How social media alters human relationships. *The Journal of Individual Psychology, 71*, 114-121.

Wu, W.-Y. & Ke, C.-C. (2015). An online shopping behavior model integrating personality traits, perceived risk, and technology acceptance. *Social Behavior and Personality, 43*(1), 85-98. doi: 10.2224/sbp.2015.43.1.85

Xu, R., Frey, R.M., Fleisch, E., & Ilic, A. (2016). Understanding the impact of personality traits on mobile app adoption – Insights from a large-scale field study. *Computers in Human Behavior*, *62*, 244-256. doi: 10.1016//j.chb.2016.04.011

Yan, Z., Guo, X., Lee, M.K.O., & Vogel, D.R. (2013). A conceptual model of technology features and technostress in telemedicine communication. *Information Technology & People, 26*, 283-297. doi: 10.1108/ITP-04-2013-0071

APPENDIX A: FIVE-FACTOR PERSONALITY FACTORS AND SUB-FACETS

Table A1.

Definition of NEO Facets

NEO facet	Description
	Conscientiousness
Competence	Sense that one is adept, prudent, and sensible
Order	Neat, tidy, and well-organized; methodical
Dutifulness	Governed by conscience; ethical; fulfill moral obligations
Achievement striving	High aspirations and work hard to achieve goals; driven to succeed
Self-discipline	Ability to begin and carry out tasks, self-motivating; persistent
Deliberation	Ability to think carefully before acting; cautious and deliberate
	Agreeableness
Trust	Belief that others are honest and well intentioned; not skeptical
Straightforwardness	Sincere; unwilling to manipulate through flattery or deception
Altruism	Active concern for others' welfare; helpful, generous, and considerate
Compliance	Cooperative; seek to inhibit aggression; forgiving; mild-mannered
Modesty	Humble and self-effacing
Tender-mindedness	Sympathy for human side of social policies; concerned for others
	Neuroticism (Emotional Stability)
Anxiety	Apprehensive, fearful, prone to worry, tense, jittery
Angry hostility	Quick to anger; easily frustrated and irritated by others; bitter
Depression	Depressive affect, guilt, sadness, hopelessness; prone to dejection
Self-consciousness	Shame and embarrassment, sensitive to ridicule
Impulsiveness	Inability to control cravings or urges; susceptible to temptation
Vulnerability	Susceptibility to experience stress; easily panicked
	Openness to Experience
Fantasy	Active imagination; tendency toward daydreaming; lost in thought
Aesthetics	Appreciation for art and beauty, moved by poetry and music
Feelings	Receptive to inner feelings and emotions; empathetic
Actions	Willingness to try different activities; preference for variety to the routine
Ideas	Intellectual curiosity; willingness to consider new ideas
Values	Readiness to reexamine values; liberal; antitradition and antiauthority
	Extraversion (Surgency)
Warmth	Affectionate and friendly; informal and unreserved around others
Gregariousness	Sociable; preference for company of others; "the more the merrier"
Assertiveness	Dominant, forceful, and socially able; take charge and assume leadership
Activity	Prefer fast-paced life; high energy level; vigorous
Excitement-seeking	Crave excitement and stimulation; sensation-seeking
Positive emotions	Experience joy; laugh easily; cheerful and optimistic; high-spirited

Note: Adapted from "Hierarchical representations of the Five-Factor Model of Personality in predicting job performance: Integrating three organizing frameworks with two theoretical perspectives," by Judge, T. A., Rodell, J. B., Klinger, R. L, Simon, L. S., & Crawford, E. R. (2013), *Journal of Applied Psychology* ,*98* (6), 875-925.

APPENDIX B: INFORMED CONSENT, DEMOGRAPHICS, AND ELT SURVEY QUESTIONS

Informed Consent

You are being invited to participate in a **research study** titled "Personality Factors as a Predictor of Work-Life Boundary Permeability and Use of Enterprise Social Media and Technology" being conducted by Allison Wu, a graduate student at East Carolina University in the Department of Psychology. The goal is to survey 300 individuals online. The survey will take approximately 10 minutes to complete. With your participation in this study, the information collected is expected to assist in a deeper understanding of the correlations between personality factors, work-life boundary permeability, and the frequency of electronic work communications attended to by an individual during non-work time. The survey is anonymous, so please do not write your name. You will also not be asked for any identifying information at any time. Your participation in this research is **completely voluntary**. You may choose not to answer any of all questions, and you may withdraw your participation at any time. There is **no penalty** for not taking part in this study. Please complete this survey **by February 28th.** Please contact Allison Wu at (678) 687-2199 for any research-related questions or the Office of Research Integrity & Compliance (ORIC) at East Carolina University at (252) 744-2914 for questions about your rights as a research participant.

❍ Yes, I agree and would like to participate in this research.

❍ No, I do not agree and do not want to participate in this research.

Demographics

Please check the box that best reflects your answer to each of the following questions.

What is your age (in years)? _____

Sex: ☐ Male ☐ Female ☐ Choose not to identify

How long have you been in your current job (in years)? _____

Which industry to you work in? ☐ Accommodations ☐ Accounting ☐ Advertising ☐ Aerospace ☐ Agriculture & Agribusiness ☐ Air Transportation ☐ Apparel & Accessories ☐ Auto ☐ Banking ☐ Beauty & Cosmetics ☐ Biotechnology ☐ Chemical ☐ Communications ☐ Computer ☐ Construction ☐ Consulting ☐ Consumer Products ☐ Education ☐ Electronics ☐ Employment ☐ Energy

☐ Entertainment & Recreation ☐ Fashion ☐ Financial Services ☐ Fine Arts

☐ Food & Beverage ☐ Health ☐ Information ☐ Information Technology

☐ Insurance ☐ Journalism & News ☐ Legal Services ☐ Manufacturing

☐ Media & Broadcasting ☐ Medical Devices & Supplies ☐ Motion Pictures & Video

☐ Music ☐ Pharmaceutical ☐ Public Administration ☐ Public Relations

☐ Publishing ☐ Real Estate ☐ Retail ☐ Service ☐ Sports ☐ Technology

☐ Telecommunications ☐ Tourism ☐ Transportation ☐ Travel ☐ Utilities

☐ Video Games ☐ Web Services

Electronic Life Intrusions

For the following questions, please consider the following definitions:

"Electronic life intrusions" is defined as "any work-related electronic communications that are received during non-work hours"

"Non-work hours" is defined as "unpaid time spent outside of the office or other work domain." This should exclude on-call hours during which employees are not able to use their time freely and/or are constrained to the office or work domain.

Item

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1. On average, how many electronic life intrusions do you receive every day?
2. On average, how many of the electronic life intrusions that you receive each day do you actually answer?

APPENDIX C: FREQUENCY TABLES

Table 1.

Frequencyof ELT percentages

ELT Percent	Frequency	Percent	Valid Percent	Cumulative Percent
.00	51.00	15.00	15.00	15.00
6.67	1.00	.30	.30	15.30
12.50	1.00	.30	.30	15.60
16.67	1.00	.30	.30	15.90
20.00	7.00	2.10	2.10	18.00
21.43	1.00	.30	.30	18.30
25.00	3.00	.90	.90	19.20
30.00	1.00	.30	.30	19.50
33.33	19.00	5.60	5.60	25.10
40.00	12.00	3.50	3.50	28.60
42.86	1.00	.30	.30	28.90
46.67	1.00	.30	.30	29.20
50.00	32.00	9.40	9.40	38.60
60.00	16.00	4.70	4.70	43.40
62.50	1.00	.30	.30	43.70
66.67	12.00	3.50	3.50	47.20
70.00	2.00	.60	.60	47.80
71.43	2.00	.60	.60	48.40
75.00	6.00	1.80	1.80	50.10
77.78	1.00	.30	.30	50.40
80.00	7.00	2.10	2.10	52.50
83.33	5.00	1.50	1.50	54.00
86.67	1.00	.30	.30	54.30
86.96	1.00	.30	.30	54.60
87.50	1.00	.30	.30	54.90
90.00	3.00	.90	.90	55.80
91.67	1.00	.30	.30	56.00
100.00	149.00	44.00	44.00	100.00
Total	339.00	100.00	100.00	

APPENDIX D: TABLE OF INDUSTRIES AND DUMMY CODED VARIABLES

Table 1.

List of job industries and dummy-coded categories

Number	Industry	Dummy Coded Variable	Label
1	Accommodations	IND_1	service
2	Accounting	IND_2	finance_legal
3	Advertising	IND_3	entertainment_media
4	Aerospace	IND_4	engineering_manufacturing
5	Agriculture & Agribusiness	IND_5	agri_travel
6	Air Transportation	IND_4	engineering_manufacturing
7	Apparel & Accessories	IND_1	service
8	Auto	IND_6	home_auto
9	Banking	IND_2	finance_legal
10	Beauty & Cosmetics	IND_7	beauty_fashion
11	Biotechnology	IND_4	engineering_manufacturing
12	Chemical	IND_4	engineering_manufacturing
13	Communications	IND_3	entertainment_media
14	Computer	IND_9	comp_elec
15	Construction	IND_6	home_auto
16	Consulting	IND_10	public_human_relations
17	Consumer Products	IND_7	beauty_fashion
18	Education	IND_8	health_edu
19	Electronics	IND_9	comp_elec
20	Employment	IND_10	public_human_relations
21	Energy	IND_4	engineering_manufacturing
22	Entertainment & Recreation	IND_3	entertainment_media
23	Fashion	IND_7	beauty_fashion
24	Financial Services	IND_2	finance_legal
25	Fine Arts	IND_3	entertainment_media
26	Food & Beverage	IND_1	service
27	Health	IND_8	health_edu
28	Information	IND_3	entertainment_media
29	Information Technology	IND_9	comp_elec
30	Insurance	IND_2	finance_legal
31	Journalism & News	IND_3	entertainment_media
32	Legal Services	IND_2	finance_legal
33	Manufacturing	IND_4	engineering_manufacturing
34	Media & Broadcasting	IND_3	entertainment_media
35	Medical Devices & Supplies	IND_8	health_edu

Number	Industry	Dummy Coded Variable	Label
36	Motion Pictures & Video	IND_3	entertainment_media
37	Music	IND_3	entertainment_media
38	Pharmaceutical	IND_8	health_edu
39	Public Administration	IND_10	public_human_relations
40	Public Relations	IND_10	public_human_relations
41	Publishing	IND_3	entertainment_media
42	Real Estate	IND_6	home_auto
43	Retail	IND_1	service
44	Service	IND_1	service
45	Sports	IND_3	entertainment_media
46	Technology	IND_9	comp_elec
47	Telecommunications	IND_10	public_human_relations
48	Tourism	IND_5	agri_travel
49	Transportation	IND_5	agri_travel
50	Travel	IND_5	agri_travel
51	Utilities	IND_6	home_auto
52	Video Game	IND_9	comp_elec
53	Web Services	IND_9	comp_elec

Note: Categories established by Harvard Business School

APPENDIX E: IRB APPROVAL DOCUMENTATION

EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board Office
4N-70 Brody Medical Sciences Building· Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284** · **www.ecu.edu/irb**

Notification of Exempt Certification

From: Social/Behavioral IRB
To: Allison Wu
CC:
John Cope
Date: 2/9/2017
Re: UMCIRB 17-000081
A STUDY OF PERSONALITY FACTORS AS A PREDICTOR OF WORK-LIFE BOUNDARY PERMEABILITY AND USE OF ENTERPRISE SOCIAL MEDIA AND TECHNOLOGY

I am pleased to inform you that your research submission has been certified as exempt on 2/9/2017. This study is eligible for Exempt Certification under category #2.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The UMCIRB office will hold your exemption application for a period of five years from the date of this letter. If you wish to continue this protocol beyond this period, you will need to submit an Exemption Certification request at least 30 days before the end of the five year period.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.