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The Moderating Effect of Gender on the Relationship Between a Communication Technology and Work-Life Balance
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Abstract

The purpose of this research is to study the relationship among Communication Technologies (CT), gender, and Work-Life Balance (WLB). Due to the proliferation of smart phones, a type of CT, in the United States workforce, there are now multiple opportunities to “work” anywhere at any time. The increase in technology aids in the use of telecommunication efforts by those employees who perform work outside of the “typical” work hours. The study hypothesized a a negative relationship between the number of times respondents indicate smart phones enable performance of their duties and Work-Life Balance, and that gender would moderate the proposed relationship, such that women’s WLB would be more affected by smart phones as required for their jobs than men’s. The archival data set, containing both survey and open-ended responses from 1898 employees, was originally collected by a multi-national organization. The results of the first hypothesis showed that the correlation, although in the expected direction, was not significant ($r (279) = -.09, p = .15$). The proposed moderation was not significant either ($\Delta R^2 = .001, F(1, 261) = .27, p = .12$). Exploratory analyses were conducted and revealed a potential difference between how smart phones (as a specific technology) affect WLB, and how technology in general might affect WLB. Recommendations for future research are offered.
Chapter I

Review of the Literature

A “smart phone” is any cellular telephone that offers users both built-in and purchasable applications and access to the internet (“Definition of Smart Phones,” 2011). Due to the proliferation of smart phones in the United States workforce, there are now multiple opportunities to “work” anywhere at any time (Boswell & Olson-Buchanan, 2007). Smart phones may provide some or all of the following: digital voice service, text messaging, e-mail, Web browsing, still and video cameras, MP3 player, video viewing, and video calling. Organizations are pressured to undergo fundamental changes due to globalization, increased competition, and advanced technologies which have promoted a “24-7” work environment (Fenner & Renn, 2010). Smart phones, and more generally the expansion of the internet, have contributed to the rapid spread of this change.

According to Boswell and Olson-Buchanan (2007) the increase in technology aids in the use of telecommunication efforts by those employees who perform work outside of the “typical” work hours. Technology facilitates an employee’s continued connection to the job even after their scheduled work hours. These described relationships support the necessity to study the effects of the constantly-evolving communication technologies found in current work settings. The purpose of this study is to further study the potential effects of a communication technology (specifically, a smart phone) on an employee’s work-life balance and to determine if there are gender differences in this interaction. The
potential intrusiveness of technology could affect an employee's work-life balance and, also, adversely affect females. Therefore, the three key literatures that will be examined are (1) work-life balance, (2) communication technology and smart phones, and (3) gender.

Work-Life Balance

Work-Life Balance (WLB) is a term used in many different contexts and with multiple connotations. Research on the topic has considered it under a number of different labels, such as Work-Family Conflict, Work-Life Balance, role conflict, and Work-Life Conflict. Research is diverse on the language used for the construct of WLB, but I will be focusing on a narrow aspect of this construct. Due to the umbrella-like nature of the WLB construct, terms will shift to one of the multiple construct names depending on the specific author. It is important to describe and differentiate these in order to establish the framework for the current study.

Work-Family Conflict (WFC) is, as the name would suggest, a term used to refer to an employee's feelings of conflict between their work and family. WFC can occur in two directions—work interference with family and family interference with work. The focus on conflict and directionality tend to be central for researchers interested in WFC. Work-Life Balance (WLB), on the other hand, is used when referring to an employee balancing work and non-work roles, which may not include a family setting. Although the focus in WLB research is semantically and, potentially, psychologically different than that in WFC research, the terms are often used almost interchangeably. Role conflict is a more broad term that can be used to discuss the idea behind WLB. The role conflict approach suggests that a woman's historically social roles, regardless of other factors
such as work commitment and egalitarian gender beliefs, will interrupt careers (O’Connell, Bertz, & Kurth, 1989). Although using WFC, WLB, and role conflict interchangeably is not strictly appropriate, based on the clear underlying differences in assumptions (e.g., a focus on “conflict” as opposed to “balance”), it is also the case that substantial overlap exists across studies of the three areas based on their common underlying concern with work to non-work issues. Work-Life Conflict (WLC) is another term used to discuss the same underlying concept of WLB but focuses more on the conflict between the two aspects, work and life, rather than the balance of the two. The difference between WFC and WLC is that in the former, the conflict is family-specific, whereas in the latter, it can focus on any non-work domain.

In the present research, I will be using past studies that examine all four domains (WFC, role conflict, WLB, and WLC) to help support hypotheses related specifically to WLB. The decision to focus on WLB rather than WFC, role conflict, or WLC is based on the idea that the work force is made up of both family and non-family-oriented employees; focusing on family issues alone would potentially restrict the generalizability of the study’s results, and focusing on balance allows emphasis to be put on something employees can actually pursue, rather than focusing on the potential for conflict to which they must react. Future research should look at using the term WLB more often as to incorporate employees who do not have explicit family responsibilities in their samples.

**Origins of WLB.** It is important to discuss the past research and theory related to the construct of WFC in order to understand where future research must continue to seek answers. In order to understand and build the case for WLB, we must first understand how research in this broad area developed, beginning with WFC research. Greenhaus and
Beutell (1985) originally suggested that WFC exists when all three of the following are present: (a) time devoted to the requirements of one role (e.g., work or family) makes it difficult to fulfill requirements of another; (b) strain from participation in one role makes it difficult to fulfill requirements of another; and (c) specific behaviors required by one role make it difficult to fulfill the requirements of another. This phenomenon can also exist within the lives of those workers who have responsibilities other than family obligations. WFC has manifested in multiple theories and constructs, such as boundary theory and time management theory.

In the past, the construct of WLB and its similar constructs were not perceived as a necessity to study. For example, research found that between 1980 and the late 1990s, practices of unfriendly, inflexible work schedules remained in place, reflecting that time period’s work and societal culture (Saari & Judge, 2004). The question is “Why WLB now?” which Fleetwood (2007) answers by arguing the construct’s importance is due to the new challenges we face. These include increased competition and the changing times we live in, especially changes in hours of business, organizations, families, and labor markets. Businesses now need employees to be more flexible in travelling in order to keep up with competition and to meet other global business’s needs (Fenner & Renn, 2010). Many businesses are now purchasing smart phones and giving them to employees with the expectation that these will keep them connected to customers and co-workers anytime and anywhere (Fenner & Renn). The need for flexible employees in response to the globalization of businesses means that there are requirements for more flexible work schedules. Previous research has considered multiple theories that are related to or support the WFC construct discussed above.
According to Judge and Watanabe (1993) (as cited by Saari & Judge, 2004), job satisfaction spills into life satisfaction and vice versa, as a $r = .44$ correlation was found between these variables. Saari and Judge found that 68 percent of U.S. employees experienced spillover between their work and non-work lives. This can become a problem because low job satisfaction was also found to be related to negative outcomes such as depression. The relationship between job satisfaction and life satisfaction should be a concern to psychologists and businesses alike. If employees are unsatisfied with their non-work life, they are likely to be dissatisfied with the job experience, and show a likelihood to be clinically depressed. It is imperative for organizations to be aware of the implications of an employee’s potential spillover. As a business cannot control an employee’s life satisfaction, and since there is a reciprocal relationship between job and life satisfaction, the company should find ways to heighten an employee’s job satisfaction and, consequently, his or her well-being. Supporting the importance of further research in WFC, it is clear that an organization should be conscious of the possible spillover effect that are connected to a potential depression state by having work impact personal lives. The impact this has on employee’s lives could result in blurred boundaries and/or an imbalance in time management. Consequently, two other perspectives help explain WFC’s derivation, these being boundary and time management theories.

**Boundary theory and WLC.** Boundary theory suggests that individuals will vary how much time they choose to dedicate to their various roles in life. Boundaries are helpful in structuring and separating the different roles an individual has across domains of their lives. This theory suggests that the use of communication technologies can potentially blur the lines between work and personal life roles (Boswell & Olson-
Buchanan, 2007; Sullivan & Lewis, 2001). Boswell and Olson-Buchanan (2007) examined the use of Communication Technology (CT) of employees at a university through a self-report survey. The survey asked for participants to rate their frequency of specifically using CTs in after-work hours and assess if that they felt an expectation to use CT during non-work times. The researchers found that 13 percent of the participants felt an expectation to use CT after hours. Employees felt that showing their commitment to the company by being available after work hours gave them a more positive image within the company. This was more likely to occur for employees that showed higher levels of job involvement (when an employee centers his or her world around work, because they find it to be the most important aspect of life) and ambition. Job involvement and ambition will be discussed in more detail in the topic of communication.

Expectations from an organization to use communication technologies or to engage in other supplemental/non-required tasks can influence an employee to do work tasks during non-work hours in order to receive the perceived positive reinforcement. Fenner and Renn (2010) reported that boundary theory helps in explaining supplemental work as a contributor to the personal conflict found in WLC. The conflict is due to the proximity of one's roles, which can create interruptions and confusion about when to engage in each role. Boundary theory states that if an employee is participating in two conflicting and confusing roles, there is a high chance of dissatisfaction within one's job and life (Saari & Judge, 2004). Research by Saari and Judge supported that “a happy employee is a productive employee” (p. 395). Using communication technologies (e.g., smart phones) to sustain employee engagement in technology-assisted supplemental work (TASW) can lead to effects on WLC. One possible negative effect is an imbalance
between one’s personal life and professional life. Therefore, if employees have an imbalance in their roles, they will be more likely to be unhappy or stressed and will be less productive, as supported by the spill-over effect previously discussed (Saari & Judge, 2004). The focus on the aforementioned imbalance makes the connection between Fenner and Renn’s approach (emphasizing WLC) and the WLB domain and label easily applied to the WLB domain. Technology and the WLB theories and perspectives discussed have influential and reciprocal ties to one another. These ties are inevitable considering the flood of technology into the corporate world to facilitate business effectiveness.

**Time management theory and WLC.** According to Fenner and Renn (2010), time management theory hypothesizes that time management skills can mitigate the possible negative relationship between TASW and an individual’s WLC. Examples of time management skills include setting goals and priorities, scheduling and planning activities, and generally keeping life well-organized.

It is possible that lacking time management skills will create conflict and spillover in many aspects of an individual’s life. Those who excel in these skills are able to self-set deadlines, consistently monitor time usage, and accomplish more objectives in a given time to improve personal efficiency. If individuals have effective time management skills they tend to manage their work tasks within the given day-to-day time allotted. By being more aware of time management needs, an employee is less likely to engage in TASW, thereby keeping a more balanced life than those without those resources (Fenner & Renn, 2010). According to Fenner and Renn (2010), results show an interaction between TASW and goal-setting (one dimension of time management) which accounted for significant variance above and beyond the control variables and the main effect. As the researchers
predicted, the WLC and TASW relationship was found to be stronger when employees
had low goal setting skills. This research supports that the conflict felt when balancing
one’s work and life had a stronger relationship to TASW when that individual had low
goal setting and priority skills, or one aspect of bad time management skills. Further, it is
inferred that effective time management may aid boundary management by reducing the
need for TASW and helping to segment work behaviors more effectively from one’s
personal time (Fenner & Renn, 2010). Although research on time management theory,
like boundary theory, has focused on variables identified with the “conflict” tag, it is
again clear that issues of balance become central to understanding and coping with such
challenges, and it makes sense to consider the findings to reflect issues relating to WLB
as well as WLC. In the next section, the ideas relating to TASW are expanded upon
based on the literature describing communication technology.

Communication Technology

Demands for increased flexibility in uncertain environments have promoted
organizational changes and redefined how work is performed (Fenner & Renn, 2010).
Communication technologies (CT) represent a broad class of tools, including but not
limited to smart phones, that are used when an employee engages in telework. Businesses
are now purchasing smart phones and giving them to employees with the expectation that
these will keep the employees connected to customers and co-workers anytime and
anywhere (Fenner & Renn, 2010). Telework is defined as the remote use of CT outside of
a work setting, often not necessarily restricted to an employee’s home (Sullivan & Lewis,
2001). Types of telework are home-based (the classic “work from home” option), part-
time or full-time (or other variations on flexible work schedules), or mobile-based
telework, (including but not limited to TASW) (Gareis, 2003). Similar to the construct of WLB, the research related to CTs includes many different forms to the multiple types of possible work structures, I am focusing on the implications of smart phones as potential enablers or barriers to performance, rather than any other possible technology. The construct of CTs will ultimately be reflected in the extent to which smart phones are viewed as barriers or enablers to performance by employees. Recently companies have increased an emphasis on the use of smart phones for such purposes (Boswell & Olson-Buchanan, 2007; Fenner & Renn, 2010).

The related issue of technology-assisted supplemental work (TASW), introduced previously, has no formal contract or compensation agreement between the employee and place of business. Rather it is unofficial and often-uncompensated work that is conducted beyond the employee’s traditional agreed-upon work tasks (Fenner & Renn, 2010). TASW, a specific kind of telework, has the potential to affect an individual’s WLC due to the regular use of advanced informational outlets, such as the internet and CTs. For example, if an employee consistently used CTs in performing TASW without extra compensation for the work done outside of their typical 8-hour day, this could lead to WLC for an employee who is now doing over 40 hours of work for 40 hours of pay.

The U.S. Labor Department (2010) reported statistics that support TASW affecting WLC and called for further research on the potential effects. Findings show that 13.7 million wage and salary workers did some work at home, but approximately three out of four employees were not compensated for their extra hours. There is limited insight as to what exactly motivates an employee to engage in TASW activities (Fenner & Renn, 2010).
What motivates an employee to engage in TASW. Working extra hours beyond the mandated time may benefit an employee’s career by showing a willingness to go above and beyond what is expected (Fenner & Renn, 2010). The cost of working those extra hours could be an imbalance between career and personal lives. According to the U.S. Labor Department (2010), 56 percent of individuals surveyed said “catching up on work” was the leading cause of working at home after normal work hours with 32 percent saying that was “the nature of the job”. Eighty percent of management-level participants felt that CT use had facilitated working from home (U.S. Labor Department, 2010). Even though there is opportunity for flexibility with employees who receive work-related smart phones, there are also potential problems. Boswell and Olson-Buchanan (2007) surveyed nonacademic staff at a university, as well as their significant others (e.g. romantic partner or spouse) about the use of CTs after work hours and corresponding WLC score. Boswell and Olson-Buchanan proposed that three constructs affect why an employee will choose or not choose to engage with CTs for non-work hour tasks. These three constructs are: (1) affective commitment, (2) ambition, and (3) job involvement.

Affective commitment. Affective commitment reflects an individual’s attachment to the organization and how he/she identifies with the work role (Boswell & Olson-Buchanan, 2007). This construct predicts how an employee will identify with the organization’s values and beliefs, and plays a role in that employee’s engagement to work-related behaviors beyond expectation. Employees who are highly engaged in their work and believe in the values instilled by their organization are more likely to reciprocate with pro-social behaviors. Boswell and Olson-Buchanan (2007) found that affective commitment was not correlated with the use of CTs after work hours. The
researchers speculated that this finding could be due to a burnout or frustration due to working after hours. It was suggested that the employee may work after hours due to aspirations and career goals rather than affective commitment.

_Ambition._ Ambition is defined as the desire to succeed at work and place professional success very highly (Boswell & Olson-Buchanan, 2007). This construct suggests that an employee may be motivated to do whatever is necessary in order to advance even if it means a negative spillover into one’s personal time. According to Boswell and Olson-Buchanan, CT use after work hours was positively and significantly correlated to ambition ($r = .24, p < .01$).

_Job involvement._ Job involvement is identified by the importance of one’s work role to an individual’s self-concept (Boswell & Olson-Buchanan, 2007). Employees can use CT and TASW as a way to confirm who they are as a person and as an employee, and to craft an image that fits with how they view themselves. The employees with high job involvement will often use CT to extend their work day because they believe work is essential to existence. Boswell and Olson-Buchanan found that job involvement and the use of CTs after work hours were positively and significantly correlated. Research (Boswell & Olson-Buchanan, 2007) results show that job involvement and ambition ($r = .23, p < .01$) is positively related to the conflict between work and life but did not find a significant relationship between affective commitment and WLC. This suggests that employees work after hours for their own aspirations and own perceptions of their work’s worthiness. Interestingly, these results support the cultural belief that you cannot get anywhere unless you work hard and work long hours.
TASW and WLB. Telework is increasingly studied due to the need for flexibility in the workplace. There are many forms of telework opportunities, some with contractual payment plans and some which are informal and non-compensated by nature. There are potential negative implications to participating in telework efforts such as TASW that do not compensate the employee. Employees may have different motivations for why they participate in TASW. Employees may have an ambitious disposition or feel strongly connected to their work and work effort which is in turn a reflection of themselves.

This mindset could make the conflict that results from WLC stressful and potentially harmful to the personal side of life. The use of TASW indicates that were may be a sense of conflict between an employees’ personal and work lives. To alleviate feelings of stress, conflict, or negative consequences, an employee must balance time and effort between work and personal responsibilities. If an employee can focus on balancing their life across the two main aspects they may be able to remove the negative outcomes. All such conclusions are of course speculative, because the research conducted to date has generally been correlational and does not lend itself to strong causal inferences. For example, Boswell and Olson-Buchanan (2007) found that the use of CT after work hours, which I will measure with respect to smart phones, was positively correlated with the employee’s perception of WLC. Moreover, the relationship was still significant (β = .15, p < .05) after controlling for both hours spent working during non-work hours and demographic variables such as family demands and gender. Gender in particular bears further exploration, and will be taken up next.
Gender and WLB

Past research has considered gender in many contexts, including by focusing on the two variables of interest in this study (Gerson, 1985; O’Connell, Betz, & Kurth, 1989). These researchers looked at gender effects on role conflict, which is very similar to the concept of WLB. Gerson (1985) examined two groups of women, students and housewives, and found that students, but not housewives, reported increased negative consequences from their roles, such as having more stressful lives. Gerson (1985) suggested the outcome was a result of the time period; the finding could be due to the confounding variable of sexism in this society, and there was a need to change the way organizations motivated and encouraged women to enter the workforce which, in the long term, would solve the problem of public sexism. Over 25 years ago there was an understanding that women, in general, have multiple roles in life. These roles included spouse, homemaker, child care giver, and now successful employee. Today, these expected multiple roles have not particularly changed (other than perhaps expanding) and should be considered when researchers are considering WLB.

Researchers have reported relationships between women’s roles, the conflict between those roles, and the potential stress such conflict can create (Gerson, 1985; O’Connell et al., 1989). Role conflict is central to the idea of WFC and WLC in that the role demands of one domain interfere with the demands of a role in another domain (Boswell & Olson-Buchanan, 2007; Greenhaus & Beutell, 1985). All of these roles have increased as the need for dual income families has increased; such households now make up more than two times as many households as one income families (Population Reference Bureau, 2003). Extrapolating these findings to WLB, research suggests the
issues that arise from having a feeling of role conflict and suggests that an employee should focus on balancing work and personal lives to alleviate the negative consequences.

Gender and CT

Junco, Merson, and Salter (2010) examined the use of CT in a university setting to find what groups are more likely to use and own CTs for communication purposes. The demographic variables used to determine differences between students were gender, ethnicity, and income. An important result from this survey is that females and Caucasians were more likely than any other demographic to use and own a cell phone for CT purposes. Thus it is necessary to further study gender differences in CT use. This study also indirectly supported that cell phones, especially smart phones, have become convenient “mobile computers” and can be used “24-7” if so chosen by the individual (Junco et al., 2010).

According to prior research (Jackson, Gardner, Gavin, & Schmitt, 2001), there are significant gender differences in types of internet usage but not in overall internet use. Males reported using the internet for information searching and entertainment whereas females use the internet for communication purposes, specifically interpersonal communication. Other research, however, has found significant gender differences in the overall internet use where males used the internet more and used it for more entertainment purposes (Joiner et al., 2005). Joiner et al. (2005) found no gender differences for internet usage in regards to communication purposes. Due to the inconsistencies of past research, it is necessary to understand what true relationship exists between gender and CTs. Joiner, Littleton, Chou, and Morahan-Martin (2006) agree that
the relationship between gender and technology is complex, and that further research is needed to understand the relationship.
Chapter II

Rationale and Hypotheses

The purpose of this research is to study the relationship among CTs, gender, and WLB. To begin understanding the connections between all three aspects of this proposed research it is important to discuss and interpret past research involving these constructs.

The types of technologies used for supplemental work include smart phones, PDAs, laptops, and many more. All of these advancements have the potential to affect WLB. Research has identified WLC/WFC as a form of inter-role conflict whereby the role demands of one domain interfere with the demands of a role in another domain (Boswell & Olson-Buchanan, 2007; Greenhaus & Beutell, 1985). More specifically, the roles of work and non-work (i.e., life) activities interfere with each other, which create conflict within an individual, who will seek out balance between the two roles to relieve this conflict. Boswell and Olson-Buchanan (2007) state that the increase in affordable and sophisticated technologies, smart phones in particular, allows the feasibility for employees to stay connected to work outside of the office and during “non-work” hours. Some employees may engage in TASW that are not facilitated by CTs, such as preparing a project proposal on a Sunday night for a Monday morning meeting. CTs have helped revolutionize and define the new workplace due to the ease and flexibility of an individual’s availability during and after work hours. Findings suggest that CT plays an important role for after-hours work in regards to WLB. The concern with this flexibility
is that an employee might find using CTs to lead to problems such as stress and burnout if WLB is not maintained. This set of research leads to the first hypothesis.

H1: There will be a negative relationship between the number of times respondents indicate smart phones enable performance of their duties and Work-Life Balance (assessed by the organization’s Work Life Effectiveness (WLE) scale).

Communication Technology, Gender, and WLB

Previous research (Junco et al., 2010) considered students’ use of CTs, specifically cell phones, and what demographics may affect an individual’s overall usage and availability. A self-report survey found that female and Caucasian students were more than twice as likely to own a cell phone as men and African American students, respectively. In fact, schools have recognized the benefits and reality of the high use of smart phones by offering students the opportunity to use the technology for electronic lectures and use of security and safety information through instant text messages. Past research (Jackson et al., 2001) found gender differences in type of CT use where females were significantly more likely to use the internet for interpersonal communication purposes (i.e., e-mail). Other research (Joiner et al., 2005) shows that males tend to use the internet more than females, with no significant gender difference in using the internet for interpersonal reasons. Joiner et al. (2006) put out a call to all researchers to extend the research on gender and the use of CT in order to clear up any inconsistencies from past and conflicting research. Overall, there is research (e.g., Jackson et al., 2001; Joiner et al., 2005) looking at the gender differences and CT usage, but there is a need to further the research to determine the current status of this relationship.
Anton (2009) defines role conflict as “an individual’s experience of receiving incompatible or conflicting requests” (p. 187), such as being a parent, employee, spouse, and more. Research has studied the connection between gender differences and the number of roles in life and has suggested that women have more roles than men which may be a possible reason for women showing more role conflict during their lives (Gerson, 1985). Gerson suggested that as women enter the workforce, they struggle with conflicting roles of mother, wife, and employee. O’Connell et al. (1989) found that approximately one-third of women in traditional careers felt as though they were not equipped to balance their lives between work and taking care of preschool-aged children. Other statistics show that, in 2003 in the United States, 31 percent of families are dual income versus the traditional one income family which represents only 7 percent of the workforce (Populations Reference Bureau, 2003). These results and statistics suggest that women have to balance more roles in life than in the past, and may feel stress by doing so. Past research (e.g., Junco et al., 2010; O’Connell et al., 1989) examining both CT and gender, and WLB and gender leads to the second hypothesis in regards to gender affecting the relationship between the extent to which smart phones are viewed as enablers of performance and that employee’s work and non-work life.

H2: Gender will moderate the relationship between the number of times respondents indicate smart phones enable performance of their duties and Work-Life Balance (as assessed by WLE scale), such that women’s WLB will be more affected by smart phones as required for their jobs than will men’s.

Exploratory analyses. Given that the data are archival, there are potentially interesting exploratory analyses that could be undertaken to maximize the use of the data.
and to best answer the questions of interest. Beyond the questions on WLE scale, the
dataset also includes questions on flexible work arrangements (FWA) and personal well-
being (PWB) that can enhance and provide alternate means of evaluating the assessment
of WLB. Moreover, although only smart phones as enablers of performance are included
as part of the testing of Hypothesis 1, data also exist on the extent to which various forms
of technology are viewed as barriers to performance, and on forms of technology that
either should or should not be changed to maximize work performance. More detail on
the construction of the variables is provided in the relevant portion of the Methods
chapter.
Chapter III

Method

Participants

Participants in this study were employees at a large multi-national organization who completed an annual employee attitude survey typically administered in April or May of 2011. This dataset was part of a larger survey done at the organization and was administered electronically on a global scale. The purpose of the overarching survey is to look at key workplace outcomes, such as engagement, retention, performance, and the organization’s culture. The subsets of questions used to create this dataset were used to determine factors driving/impacting the workplace outcomes mentioned above. This survey is voluntary to all who receive it, but organization representatives report a response rate of 90%. Access to the dataset was granted by a representative of the organization, following established organizational protocols for the sharing of archival data. A total of 1,898 employees are included in the dataset, whose tenure spans less than a year to twenty plus years. No identifying information was included in the dataset utilized for the present study.

Materials

The current study included data on participant demographics, Personal Well-Being, Work Life Effectiveness, Flexible Work Arrangements, and technology usage in the workplace.
Demographics. One section of the survey asked for a self-report on each participant’s demographics as characteristics by gender, country, function, level, company tenure, employee status (full/part time), percentage of time employee works from home, and race/ethnicity. Demographic characteristics of the sample are reported in Table 1.

Personal well-being. Participants were asked four questions regarding their personal well-being. These questions were measured with an agreement-based five-point Likert-type scale. There is one reverse-scored question within the PWB scale. The items were developed by the company in which the data were collected. The reliability for the closed items in this scale was $\alpha = 0.57$.

Work-life effectiveness. Participants were asked a set of questions that reflect the measurement of work-life effectiveness (WLE). These questions were measured by an agreement five point Likert-type scale. The reliability for the close-ended WLE scale was $\alpha = 0.71$. There is one question that is reverse coded within WLE scale. The variable of WLE, the primary indicator for WLB in this data set, was created by adding the questions into a total scale score.

Flexible work schedule. Participants were asked to answer a question that reflects the participant’s use of flexible work schedules. These potential arrangement options are categorized into 11 options (e.g., flex-time and job sharing).

Technology usage. There were five variables created from the archival data and used to measure and analyze the perceived positive and negative effects of technology usage in the work place. These variables of interest were enablers, barriers, change, not change, and total smartphone.
Table I

Percentage of Demographic Variables (N=1898)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Percentage</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country/Marketplace*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>2.4</td>
<td>45</td>
</tr>
<tr>
<td>Brazil</td>
<td>1.8</td>
<td>35</td>
</tr>
<tr>
<td>Canada</td>
<td>2.4</td>
<td>46</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>1.6</td>
<td>30</td>
</tr>
<tr>
<td>France</td>
<td>1.2</td>
<td>23</td>
</tr>
<tr>
<td>Germany</td>
<td>3.7</td>
<td>71</td>
</tr>
<tr>
<td>India</td>
<td>1.1</td>
<td>21</td>
</tr>
<tr>
<td>Japan</td>
<td>2.2</td>
<td>41</td>
</tr>
<tr>
<td>Mainland China</td>
<td>2.0</td>
<td>38</td>
</tr>
<tr>
<td>Mexico</td>
<td>4.0</td>
<td>75</td>
</tr>
<tr>
<td>Philippines</td>
<td>2.5</td>
<td>48</td>
</tr>
<tr>
<td>Poland</td>
<td>1.9</td>
<td>36</td>
</tr>
<tr>
<td>Russian Fed.</td>
<td>1.2</td>
<td>23</td>
</tr>
<tr>
<td>Singapore</td>
<td>1.2</td>
<td>22</td>
</tr>
<tr>
<td>Switzerland</td>
<td>4.8</td>
<td>91</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>5.6</td>
<td>107</td>
</tr>
<tr>
<td>United States</td>
<td>45.4</td>
<td>862</td>
</tr>
<tr>
<td>All Others</td>
<td>14.2</td>
<td>269</td>
</tr>
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</table>
### Table 1 (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Percentage</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>21.2</td>
<td>733</td>
</tr>
<tr>
<td>Female</td>
<td>78.8</td>
<td>1043</td>
</tr>
<tr>
<td><strong>Full/Part time</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Time</td>
<td>97</td>
<td>1842</td>
</tr>
<tr>
<td>Part Time</td>
<td>1.8</td>
<td>35</td>
</tr>
<tr>
<td><strong>Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managerial level</td>
<td></td>
<td>1244</td>
</tr>
<tr>
<td>Non- Managerial level</td>
<td>65.6</td>
<td>380</td>
</tr>
<tr>
<td>Other</td>
<td>20</td>
<td>118</td>
</tr>
<tr>
<td>I prefer not to answer</td>
<td>6.2</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>Percentage</td>
<td>N</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------</td>
<td>----</td>
</tr>
<tr>
<td>Ethnicity (U.S. Only**)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>7.3</td>
<td>57</td>
</tr>
<tr>
<td>American Indian</td>
<td>1.1</td>
<td>9</td>
</tr>
<tr>
<td>Asian</td>
<td>5.2</td>
<td>41</td>
</tr>
<tr>
<td>Hispanic</td>
<td>6.6</td>
<td>52</td>
</tr>
<tr>
<td>Caucasian</td>
<td>79.5</td>
<td>625</td>
</tr>
<tr>
<td>Other</td>
<td>0.3</td>
<td>2</td>
</tr>
<tr>
<td>Company tenure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 1 year</td>
<td>5.0</td>
<td>94</td>
</tr>
<tr>
<td>1 to 3 yrs</td>
<td>14.2</td>
<td>270</td>
</tr>
<tr>
<td>4 to 5 yrs</td>
<td>11.3</td>
<td>214</td>
</tr>
<tr>
<td>6 to 10 years</td>
<td>16.1</td>
<td>306</td>
</tr>
<tr>
<td>11 to 15 years</td>
<td>19.4</td>
<td>369</td>
</tr>
<tr>
<td>16 to 20 years</td>
<td>10.1</td>
<td>191</td>
</tr>
<tr>
<td>20+ years</td>
<td>15.8</td>
<td>299</td>
</tr>
<tr>
<td>I prefer not to answer</td>
<td>3.8</td>
<td>72</td>
</tr>
</tbody>
</table>

Note: * = Only countries with at least 20 respondents are listed individually; countries with fewer respondents are presented as the aggregated “All Others” category in order to prevent potential issues of identifiability.

** = Percent only applies to the U.S. respondents
**Enablers.** The variable "Enablers" was created by searching the archival data for specific technology-related keywords (found in Appendix A). These enablers were derived from open-ended questions collected as part of the organizational survey initiative; the question dealt with factors that enabled successful performance of the job. Each of the 26 enabler variables was dummy-coded variables where a value of "1" indicated that the word or phrase was included when the respondent described the things that enabled successful job performance, and a "0" indicated that the technology word or phrase was not used.

**Barriers.** The "Barriers" variable was created in a similar fashion to "Enablers," but references things employees felt would be barriers to successful performance. As with "Enablers," all of the individual barrier variables were dummy-coded where a value of "1" indicated that the word or phrase was included when the respondent described the things that were barriers to successful job performance, and a "0" indicated that the word or phrase was not used.

**Change.** This variable was created by following the procedures outlined above, utilizing open-ended questions from the archival data. The question asked the employee what they would change in order to allow for their best possible performance. The purpose of this variable was to see if participants mentioned technology (or smartphones) in such a way that they would want the amount of technology use to be changed.

**Not change.** This variable was created by again following the procedures outlined above; utilizing open-ended questions from the archival data. The question asked the employee what they would not change in order to allow for their best possible performance. The purpose of this variable was to see if participants mentioned
technology (or smartphones) in such a way that they would not want the amount of technology use to be changed.

*Total smartphone.* The “smartphone” variable was created by adding the enabler variables that used the four terms “Droid,” “Blackberry,” “Smartphone,” and “iPhone.” As such, scores on this variable potentially ranged from zero to four, depending on how many different ways respondents described smartphones as factors that enabled their performance.

**Procedure**

Xavier University’s IRB reviewed this study, which was submitted in the Exempt category due to its archival nature, prior to any data being analyzed. The IRB approval letter is included as Appendix B.
Chapter IV

Results

The first hypothesis was to test the correlation between Work-Life Effectiveness (WLE) and the respondents’ indication of smart phones enabling performance. The results of the first hypothesis show that the correlation, although in the expected direction, was not significant \( r (279) = -.09, p = .15 \). The second hypothesis suggested that gender would moderate the relationship between smart phones enabling performance and WLE. The results show that the proposed moderation was not significant \( \Delta R^2 = .001, F(1, 261) = .27, p = .12 \). Please see Table 2 for the test of the regression model. Although the expected hypotheses were not found to be significant, some interesting findings emerged from the exploratory analysis.

Exploratory/supplemental analyses

A large number of participants \( n = 281 \) referenced smart phones in describing factors that enabled their work performance, but there were also a large number of participants who used the more general term “technology” in their responses. It therefore made sense to re-run hypotheses one and two utilizing the “technology” response in place of “smart phone” responses. The correlation between technology as an enabler and WLE shows significance \( r (279) = .12, p < .05 \) in the opposite direction from that expected in
Table 2. Hierarchical Regression Testing Hypothesized Moderation

<table>
<thead>
<tr>
<th></th>
<th>$\Delta R^2$</th>
<th>df</th>
<th>$F$</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>0.02</td>
<td>262</td>
<td>2.80</td>
<td></td>
</tr>
<tr>
<td>Total Smartphone</td>
<td>-0.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-0.07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>0.00</td>
<td>261</td>
<td>0.27</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-0.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Smartphone</td>
<td>-0.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender*Smartphone</td>
<td>0.11</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: DV = Work-Life Effectiveness
hypothesis one. The second hypothesis was run with technology, WLE, and gender, and was again non-significant ($\Delta R^2 = .00$, $F(1, 261) = .02, p = .04$).

There were more exploratory analyses done based on the richness of the archival data. A correlation matrix of all continuous study variables, along with their means, standard deviations, and internal consistency reliabilities, is provided in Table 3.
Table 2
Descriptive Statistics, Intercorrelations, and Reliabilities of Scales Utilized

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. FWA Scale</td>
<td>.97</td>
<td>.95</td>
<td>(-)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Total Smartphone</td>
<td>.50</td>
<td>.52</td>
<td>.01</td>
<td>(-)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Smartphone (change)</td>
<td>.30</td>
<td>.53</td>
<td>.01</td>
<td>.58</td>
<td>(-)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Smartphone (no change)</td>
<td>.18</td>
<td>.40</td>
<td>.05</td>
<td>.60**</td>
<td>-††</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. WLE Scale</td>
<td>3.47</td>
<td>.81</td>
<td>.11†</td>
<td>-.09</td>
<td>.03</td>
<td>.04</td>
<td>(71)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. PWB Scale</td>
<td>3.81</td>
<td>.61</td>
<td>.03</td>
<td>-.14**</td>
<td>-.03</td>
<td>.07</td>
<td>.51†</td>
<td>(57)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Gender</td>
<td>1.41</td>
<td>.49</td>
<td>.15†</td>
<td>.08</td>
<td>.06</td>
<td>-.06</td>
<td>-.01</td>
<td>.01</td>
<td>(-)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Technology (enabler)</td>
<td>.25</td>
<td>.43</td>
<td>.01</td>
<td>-.34†</td>
<td>-.29</td>
<td>.04</td>
<td>.12*</td>
<td>.19†</td>
<td>-.01</td>
<td>(-)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Technology (barrier)</td>
<td>.27</td>
<td>.45</td>
<td>-.24</td>
<td>-††</td>
<td>-††</td>
<td>-††</td>
<td>.40</td>
<td>.25</td>
<td>-.09</td>
<td>-††</td>
<td>(-)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Technology (change)</td>
<td>.63</td>
<td>.48</td>
<td>.02</td>
<td>-.63</td>
<td>-.47†</td>
<td>.12</td>
<td>.02</td>
<td>.00</td>
<td>.03</td>
<td>.50†</td>
<td>-††</td>
<td>(-)</td>
<td></td>
</tr>
<tr>
<td>11. Technology (no change)</td>
<td>.65</td>
<td>.47</td>
<td>-.12</td>
<td>.13</td>
<td>-††</td>
<td>-.53†</td>
<td>-.09</td>
<td>.08†</td>
<td>-.06</td>
<td>.55*</td>
<td>-††</td>
<td>.78**</td>
<td>(-)</td>
</tr>
</tbody>
</table>

Note: * = p < .05, ** = p < .01, † = p < .001, -†† = Insufficient Response
Numbers in parentheses are coefficient reliabilities.
Total Smartphone = Totaled Smartphone Enablers, FWA = Flexible Work Arrangement, WLE = Work Life Effectiveness, PWB = Personal Well Being, Gender coded 1 = Male, 2 = Female; Sample sizes for correlations ranged from n=9 to n=1896
Chapter V

Discussion

The purpose of this study was to analyze the effects of smartphones on WLB, and to see if gender would moderate that relationship. Overall, the study is a starting point for more research into how smartphones are affecting work, employees, and employers. This result may have been due to using the dataset variable by enabler; where the employee was describing the smartphone usage variable through much more positive terms. By nature, the enabler variables are “positive” rather than negative, whereas the barriers variable was looking at the smartphone usage variable in a more negative perception or form. The barrier variable might have captured the expected relationships better, and the findings may be a result of using positive perceptions toward smartphone usage rather than examining the negative. It was expected that viewing the smartphone enabler the correlation would show a negative relationship to WLE; however it would also make sense to hypothesis that a relationship between smartphone usage through terms of “barriers”. Unfortunately, out of the substantial number of respondents only eight reported viewing smartphones as barriers to performing their job. Even though the hypotheses did not attain significance, some interesting findings emerged from the exploratory analyses. The technology enabler variable (reflecting mentions of “technology” as a keyword when responding to what enables the performance of their jobs) in particular proved useful for further analysis of the research hypotheses. For
example, in regards to the first hypothesis, the correlation between the technology enabler variable and the WLE variable shows significant results, in the opposite direction from what was originally stated. Participants reporting that technology was an enabler of performance tended to have higher scores on work-life effectiveness, rather than having the technology impede their perceived WLB. This correlation makes sense considering that many employees in this company are working with international clients and co-workers. The participants are more likely, especially since working for an international organization, to be doing work at hours that correspond with other countries’ time zones. Even though the results did not show significance in the direction expected, this may be an important effect on WLB for technology in general. The difference between the “technology” and “smartphone” enabler variables could be due to the whole of technology making work for employees easier to juggle time with their family and work, whereas smartphones may, specifically, distract the employee during “non-work” hours. Further research targeting the specific effects of smartphones in particular and technology in general on WLB should be undertaken so that it can be determined whether the observed relationships can be replicated.

Although the data did not result in significant hypothesis tests, there were some exploratory analysis that did show findings that should be further studied. For example, the FWA scale (that is, the number of Flexible Work Arrangements the employee reported having taken advantage of) was related to gender ($t (1774) = -6.54, p < .05$). The results show that females ($M = 1.18, SD = 1.00$) took advantage of more Flexible Work Arrangements than males ($M = 0.88, SD = 0.91$). This result could be due to the importance of being able to stay connected to family while at work. The multiple work
arrangement options may be more appealing to females, and used more by females, due
to feeling perceptual pressure from also being a homemaker and mother along with
employee. Whatever the reason, it is clear that in this sample at least, women took
greater advantage of options designed to allow increased work-life balance than did men.

Considering the data set was so large and consisted of many different groups of
employees located in different countries, it seemed worthwhile to repeat the hypothesis
testing on United States (U.S.) employees alone. Of the total sample, there were 862 U.S.
employees who responded to the survey and provided technology-relevant responses. The
hypothesis tests were re-run on the U.S. employees.

Hypothesis one was to see if there was a significant correlation between
smartphones as enablers and the WLE scale. This correlation was not significant \( r (279) = -.06, p = .43 \). When the WLE scale was replaced with the PWB scale there was a
significant correlation in the expected direction \( r (159) = -.16, p < .05 \). This suggests that
U.S. employees find that smartphones are negatively affecting their personal well-being.
No correlation was found between technology as an enabler of performance and WLE,
although, in the opposite direction expected \( r (159) = .08, p = .27 \), but a significant
correlation, also in the opposite direction from that hypothesized, \( r (159) = .17, p < .05 \.)
did emerge between technology as an enabler and PWB. U.S. employees find that
technology enables their personal well-being in the same fashion as the overall sample.

The second hypothesis was also re-run with the U.S. employee group, utilizing
the moderated regression methodology described previously, with WLE as the dependent
variable. The product term testing moderation was not significant \( \Delta R^2 = .00, F(1, 147) = .76, p = .50 \). It would be in the best interest of researchers and practitioner alike to
further this research including the aspect of cultural differences, and to consider whether
cultural norms in other countries may differ substantially enough to allow more detailed
consideration of cross-cultural influences technology may have on work-life balance
issues.

The moderation effect that was hypothesized did not occur in the original
hypothesis or the exploratory analysis. This could be due to the lack of respondents for
the barrier variable, as mentioned previously. This variable is more “negative” by nature
than the enabler variable and could be a reason why the proposed moderation was unable
to be found. The choice of utilizing the possible wrong open-ended variable to examine
the smartphone and WLE relationship; especially considering that this studies purpose
was to investigate the darker side of smartphone usage could have affected the
moderation of interest.

Contributions

This study serves as a starting point for more researchers to further study the
effects, good and bad, of technology on employee perceptions of WLB. More research
should be done in regards to how technology does and will continue to affect how work
will look and feel for all kinds of employees. This is a building block for those who
recognize that technology is both a fast-growing concern and blessing/challenge to
organizations, clients, and employees all over the world. I foresee the future needing
more research on these topics in order to have a deeper understanding of how all types of
technology can help and hurt their productivity overall. The impact of cultural norms, as
noted previously, is just one of the areas in which research may make a contribution to
our understanding of the effects increasingly prevalent and sometimes invasive
technologies may have on our lives. At a more “micro” level, it will be important to explore individual differences that potentially have an impact on our ability to balance work and non-work activities. There is a possibility that could be explored in regards to the differences of the employee’s personality traits, such as conscientiousness or neuroticism. Future research should look at conscientious and neurotic personality traits out of the Big Five traits because they make initial, logical sense to study. Conscientious employees may be more aware of their WLB than those who score low on conscientiousness. The neurotic personality trait may manifest within the employee in such that they show less WLB due to high amounts of anxiety or lack of emotional stability. There should be future research to test if different personalities will affect one’s perception of WLB. I think this could also interact with the tenure or age of the employee. The correlation between age and WLB could go in a few different ways depending on certain situational factors. One’s young age may give a perception of fewer non-work responsibilities, leading co-workers and supervisors to conclude that employee may be given more responsibilities that would disrupt the life of someone who has a family or any of the other responsibilities that become increasingly salient as individuals progress through their careers. In another way, an older more tenured employee may be given more responsibilities based on the mere fact that they are qualified to do so or possibly have been promoted with more responsibilities. There is a need to further study the possibility that age and/or tenure could affect WLB.

There is some information in this current study that can be useful in a practical way more than in a research setting. The topic of technology, especially smartphones, and WLB is one that many practitioners are being forced to confront. The underlying purpose
of this study has some potential for practical significance for employees and organizations especially in this period of high use of technology – which shows no signs of abating in the foreseeable future. Practitioners may want and need this research more so than the researcher side due to its practical implications within the organization in today’s business world. Understanding the relationship between how technology and smartphones are viewed by employees and a variety of metrics of work-life balance offers insights into how I-O psychologists may consider how to keep employees satisfied or motivated when they are faced with the reality of constant electronic contact with their employer. Technology, in general, has been an aspect of life that has enabled not only employees but people as a whole because it allows for the ability of communication at any point of time anywhere in the world. This has impacted the business world and society in a huge way that truly allows companies to become 24/7 organizations. This allows for a higher amount of customer service for those who need it outside of a typical “work day.” As for society, the ability to Skype, FaceTime, blog, or upload pictures from anywhere allows an amount of communication that society has never seen before. For example, when military personnel have to go overseas for duty they are able to call, video chat, and otherwise communicate with those back at home.

The difference between smartphones and technology as a whole may be the fact that there is some aspect that makes a person feel compelled to be connected in a way that is almost seen as addictive. There seems to be some feeling of needing to stay connected 24/7 in parallel to the world’s capability but as human beings this is not physically possible. The compelling, addictive feeling of wanting and needing to be
connected at all times could possibly affect more than an employee’s WLB. I think there is a lot more research that needs to be done in the realm of Smartphones and WLB.

Past research conducted by AOL and Opinion Research Corporation (Hu, Wong, Cheah, & Wong, 2006) showed 59 percent of PDA users check every single time an e-mail arrives and 83 percent check e-mail every day even while on vacation. Other research (Turel, Serenko, & Bontis, 2011) has found that technologies can contribute to increased productivity, but they can also drive addictive behaviors and negative consequences. Turel et al. (2011) looked at 241 mobile e-mail users. The research showed that the participant’s levels of addiction to mobile e-mail increased their perceived work overload and technology-family conflict. The researchers felt that there is a possibility that technology-family conflict diminishes the perceived usefulness of mobile e-mail to those who become or feel addicted to the devices that allow mobile e-mail. An interesting possibility raised by this study is that perhaps we ought to be considering “technology-family” and “work-family” conflict as two separate but interrelated domains. As much attention as work-family issues have received in recent years, relatively little seems to have been devoted to technology-family issues. There is some concern for possible technology addictive focusing on more mobile technology, such as smartphones. This amount of constant capability to connect and communicate with others has potential benefits but can, also, become a distraction to life outside of work.

These empirical research studies (e.g., Turel et al., 2011) show that an addiction to technology can affect one’s life in and outside of work; this is the darker side to technology advancement. It is important that researchers continue to study the effects of
technology, both as a whole and in terms of their individual components, for both work and non-work lives.

**Limitations and Future Research Directions**

Although this data set was quite rich, its archival nature may have limited the ability to test the research hypotheses with precision. That is, the present research may have been constrained by the manner in which questions were already asked by the organization providing data. Because the items were not written with this study in mind, they may not represent a perfect fit to the research questions being asked. That being said, they do provide interesting insights into effects technology in general and smartphones in particular may (or may not) have, and as such the value of the dataset is extremely high. Future research can adopt a more targeted approach based on the questions asked, and included more targeted explorations of cultural and individual difference factors that may influence the effects technology has on our lives.

A limitation of the present study is an inability to explore the context of the effects technology has on work-life balance issues. It would be best to do an expansion on the present study with a focus on issues such as the perception of WLB through the perspective of the employee’s significant other or family. The full impact of technology may not be felt by the employee so much as it is by those around them, who find their friend/loved one distracted by work during non-work hours.

This study should be replicated with the consideration that males may now have more roles than they used to due to the need for more dual income families and some households being run by a single father. Culture and society are changing and it may be useful to look to see if there are any male-specific effects with respect to the use of
smartphones, or technology, on employee WLB. Males may experience a different kind of perception or expectation than females and therefore there should be further research looking into if there are any technology-WLB effects for males in particular.

Additionally, this research should be looked at for those at different levels of organizations (e.g., entry level vs. upper management). As an employee grows and takes promotional opportunities, there tends to be more responsibility that could change or affect the person’s WLB capabilities. On the other hand, certain levels of employment may allow more flexibility for employees to spend with friends, family, and significant others, allowing this research direction to tie in with that which was mentioned previously. Therefore, it would make logical sense to test this research in a similar organization. The effect of an employee’s level within the organization could also be affected by cultural differences, again tying multiple future research directions together.

This data set was interesting because of the presence of responses from so many different countries. In some respects, such multi-national data collection may reflect how organizations increasingly think about and aggregate data in the coming years, because the business world is flattening more based on technological capabilities. Further research should consider how this topic manifests within other cultural differences. I believe there will be differences based on cultural variables and lifestyles but I feel strongly that foundational research in the U.S., based on its unique demographic mix, is appropriate. There have been a lot of historical and cultural changes throughout the U.S. that could affect the way males and females handle technology and their WLB but, also, how they perceive other’s WLB. Once this research has been conducted in such a way that it has been established some general principles for the domain, there should be continual
research in other contexts to see if cultural differences moderate any observed effects. That being said, there is certainly nothing wrong with researchers in different parts of the globe pursuing this topic simultaneously. We certainly have the technology to make this possible, after all.
Chapter VI

Summary

There is an increase in manufacturing and use of smartphones in the United States (U.S.). Due to the increase of smartphones throughout the world, there are now multiple opportunities to “work” anywhere at any time (Boswell & Olson-Buchanan, 2007). Due to globalization of business, and increased competition from that globalization, organizations are pressured to undergo fundamental changes. Technology can enable and aid in the globalization of business. These advancements in technology can further promote a “24-7” work environment (Fenner & Renn, 2010).

Smart phones, and more generally the expansion of the internet, have contributed to the rapid spread of this change. A “smart phone” is any cellular telephone that offers users both built-in and purchasable applications and access to the internet (“Definition of Smart Phones,” 2011). Smart phones may provide some or all of the following: digital voice service, text messaging, e-mail, Web browsing, still and video cameras, MP3 player, video viewing, and video calling.

Boswell and Olson-Buchanan (2007) found that the increase in technology can enable telecommunication efforts by those employees who perform work outside of the “typical” work day. Additionally, technology facilitates an employee’s continued connection to the job even after their scheduled work hours. There is a necessity to study the effects of the constantly-evolving communication technologies found in current work
settings. The purpose of this study is to further study the potential effects of a communication technology (specifically, a smart phone) on an employee's work-life balance and to determine if there are gender differences in this interaction. The three key literatures that will be examined are (1) work-life balance, (2) communication technology and smart phones, and (3) gender.

Research has identified WLC/WFC as a form of inter-role conflict whereby the role demands of one domain interfere with the demands of a role in another domain (Boswell & Olson-Buchnan, 2007; Greenhaus & Beutell, 1985). More specifically, the roles of work and non-work (i.e., life) activities interfere with each other, which create conflict within an individual. Some employees may engage in TASW (technology-assisted supplemental work) that are not facilitated by CTs (communication technology), such as preparing a project proposal on a Sunday night for a Monday morning meeting. CTs have helped revolutionize and define the new workplace due to the ease and flexibility of an individual's availability during and after work hours. The concern with this flexibility is that an employee might find using CTs to lead to problems such as stress and burnout if WLB is not maintained. This set of research leads to the first hypothesis.

H1: There will be a negative relationship between the number of times respondents indicate smart phones enable performance of their duties and Work-Life Balance (assessed by the organization's Work Life Effectiveness (WLE) scale).

Past research (Joiner et al., 2005) shows that males tend to use the internet more than females, with no significant gender difference in using the internet for interpersonal reasons. Similar research (Jackson et al., 2001) found gender differences in type of CT
use. Specifically, the study found that females were significantly more likely to use the internet for interpersonal communication purposes (i.e., e-mail). Joiner et al. (2006) put out a call to all researchers to extend the research on gender and the use of CT in order to clear up any inconsistencies from past and conflicting research. Overall, there is research on gender and CTs, but there is a need to further the research to determine the current status of this relationship.

Role conflict is defined as “an individual’s experience of receiving incompatible or conflicting requests” (Anton, 2009, p. 187), such as being a parent, employee, spouse, and more. O’Connell et al. (1989) found that approximately one-third of women in traditional careers felt as though they were not equipped to balance their lives between work and taking care of preschool-aged children. Other research about gender differences and the number of roles in life and has suggested that women have more roles than men (Gerson, 1985). Further, Gerson suggested that as women enter the workforce, they struggle with conflicting roles of mother, wife, and employee. Further statistics show that, in 2003 in the United States, 31 percent of families are dual income versus the traditional one income family which represents only 7 percent of the workforce (Populations Reference Bureau, 2003). These results and statistics suggest that women have to balance more roles in life than in the past, and may feel stress by doing so. Past research (e.g., Junco et al., 2010; O’Connell et al., 1989) examining both CT and gender, and WLB and gender leads to the second hypothesis in regards to gender affecting the relationship between the extent to which smart phones are viewed as enablers of performance and that employee’s work and non-work life.
H2: Gender will moderate the relationship between the number of times respondents indicate smart phones enable performance of their duties and Work-Life Balance (as assessed by WLE scale), such that women’s WLB will be more affected by smart phones as required for their jobs than will men’s.

Given that the dataset used is archival data, an exploratory analyses was undertaken to maximize the use of the data and to best answer the questions of interest. The dataset includes questions on work life effectiveness (WLE), flexible work arrangements (FWA) and personal well-being (PWB). These scales can enhance and provide alternate means of evaluating the assessment of WLB. There was, also, the opportunity to test the hypothesis in a U.S. dataset of employees only to see if there was a cultural affect.

Method

Participants

Participants in this study were employees at a large multi-national organization who completed an annual employee attitude. Access to the dataset was granted by a representative of the organization, following established organizational protocols. A total of 1,898 employees are included in the dataset. There are 733 self-identified females and 1043 self-identified males. No identifying information was included in the dataset utilized for the present study. Demographic information is provided in Table 1.

Materials

The current study included data on participant demographics, Personal Well-Being, Work Life Effectiveness, Flexible Work Arrangements, and technology usage in
the workplace. The items were developed by the company in which the data were collected.

Demographics. The survey asked for a self-report on each participant’s demographics as characteristics by gender, country, function, level, company tenure, employee status (full/part time), percentage of time employee works from home, and race/ethnicity.

Personal well-being. Participants were asked four questions regarding their personal well-being. These questions were measured with an agreement-based five-point Likert-type scale one reverse-scored question. The reliability for this scale was $\alpha = 0.57$.

Work-life effectiveness. Participants were asked a set of questions that reflect the measurement of work-life effectiveness (WLE). The reliability for the WLE scale was $\alpha = 0.71$. These questions were measured by an agreement five point Likert-type scale; with two open-ended questions for the participants to fill out with any written response that they feel reflects their thoughts and opinions on the specific question and one reverse coded question. These open-ended questions were utilized by flagging specific key words that reflect the kinds of comments that gave insight to the positive and negative context to the research question at hand. The open-ended questions were analyzed and coded. The WLE is the primary scale that was used to indicate the measure of the employee’s WLB for the purpose of this study.

Flexible work schedule. Participants were asked to answer a question that reflects the participant’s use of flexible work schedules. These potential arrangement options are categorized into 11 options such as, flex hours, job sharing, working from home, etc.
Technology usage. There are five variables created by the archival data that was used to measure and analyze the perceived positive and negative effects of technology usage in the work place. These variables of interest are enablers, barriers, change, not change, and total smartphone.

*Enablers.* The variable “Enablers” was created by searching the archival data for specific technology-related keywords (found in Appendix A). These enablers are derived from open-ended questions collected as part of the organizational survey initiative. Each of the 26 enabler variables were dummy-coded variables where a value of “1” indicates that the technology word or phrase was included when the respondent described the things that enable successful job performance, and a “0” indicates that the technology word or phrase was not used. The overall score for “Enablers” was computed by summing the 26 dummy-coded variables.

*Barriers.* The “Barriers” variable was created in a similar fashion to “Enablers,” but references things employees felt would be barriers to successful performance. As with “Enablers,” of the individual barrier variables were dummy-coded variables where a value of “1” indicates that the technology word or phrase was included when the respondent described the things that are barriers to successful job performance, and a “0” indicates that the technology word or phrase was not used. The overall score for “Barriers” was computed by summing the 26 of dummy-coded variables.

*Change.* This variable was created by following the procedures outlined above, utilizing open-ended questions from the archival data. The same dummy-coding procedures previously described were used to create the overall “Change” variable.
Not change. This variable was created by again following the procedures outlined above; utilizing open-ended questions from the archival data. The same dummy-coding procedures previously described were used to create the overall “Not Change” variable.

Total smartphone. The “smartphone” variable was created by adding the enabler variables that used the three terms “Droid,” “Blackberry,” “Smartphone,” and “iPhone.” The variable of WLE, the primary indicator for WLB in this data set, was created by adding the questions into a total scale score.

Results

The first hypothesis was to test the correlation between Work-Life Balance (WLB) and the respondents’ indication of smart phones enabling performance. The results of the first hypothesis show that the correlation, although in the expected direction, was not significant \( r(279) = -.09, p = .15 \). The second hypothesis suggested that gender would moderate the relationship between smart phones enabling performance and WLE. The results show that the proposed moderation was not significant \( (\Delta R^2 = .001, F(1, 261) = .27, p = .12) \). A large number of participants \((n = 281)\) referenced smart phones in describing factors that enabled their work performance, but there were also a large number of participants who used the more general term “technology” in their responses. It therefore made sense to re-run hypotheses one and two utilizing the “technology” response in place of “smart phone” responses. The correlation between technology as an enabler and WLE shows significance \( r(279) = .12, p < .05 \) in the opposite direction from that expected in hypothesis one. The second hypothesis was run with technology, WLE, and gender, and was again non-significant \( (\Delta R^2 = .00, F(1, 261) = .02, p = .04) \).
Discussion

Overall, the study is a starting point for more research into how smartphones are affecting work, employees, and employers. Even though the hypotheses did not attain significance, some interesting findings emerged from the exploratory analyses. The technology enabler variable (reflecting mentions of “technology” as a keyword when responding to what enables the performance of their jobs) in particular proved useful for further analysis of the research hypotheses. Participants reporting that technology was an enabler of performance tended to have higher scores on work-life effectiveness, rather than having the technology impede their perceived WLB. This correlation makes sense considering that many employees in this company are working with international clients and co-workers. The participants are more likely, especially since working for an international organization, to be doing work at hours that correspond with other countries’ time zones. Even though the results did not show significance in the direction expected, this may be an important effect on WLB for technology in general. The difference between the “technology” and “smartphone” enabler variables could be due to the whole of technology making work for employees easier to juggle time with their family and work, whereas smartphones may, specifically, distract the employee during “non-work” hours. Further research targeting the specific effects of smartphones in particular and technology in general on WLB should be undertaken so that it can be determined whether the observed relationships can be replicated.

Although the data did not result in significant hypothesis tests, there were some exploratory analysis that did show findings that should be further studied. For example, the FWA scale (that is, the number of Flexible Work Arrangements the employee
reported having taken advantage of) was related to gender ($t (1774) = -6.54, p < .05$). The results show that females ($M = 1.18, SD = 1.00$) took advantage of more Flexible Work Arrangements than males ($M = 0.88, SD = 0.91$). This result could be due to the importance of being able to stay connected to family while at work. The multiple work arrangement options may be more appealing to females, and used more by females, due to feeling perceptual pressure from also being a homemaker and mother along with employee.

Of the total sample, there were 862 U.S. employees who responded to the survey and provided technology-relevant responses. The hypothesis tests were re-run on the U.S. employees. Hypothesis one was to see if there was a significant correlation between smartphones as enablers and the WLE scale. This correlation was not significant ($r (159) = .08, p = .27$). When the WLE scale was replaced with the PWB scale there was a significant correlation in the direction from that hypothesized ($r (159) = -.16, p < .05$). This suggests that U.S. employees find that smartphones are negatively affecting their personal well-being. No correlation was found between technology as an enabler of performance and WLE, although in the expected direction ($r (159) = .08, p = .27, ns$), but a significant correlation, also, in the opposite direction from that hypothesized ($r (159) = .17, p < .05$) did emerge between technology as an enabler and PWB. U.S. employees find that technology enables their personal well-being in the same fashion as the overall sample.

The second hypothesis was then re-run with the U.S. employee group, utilizing the moderated regression methodology described previously, with WLE as the dependent variable. The product term testing moderation was not significant ($\Delta R^2 = .00, F(1, 147) = \ldots$
.76, p = .50, ns). The moderation effect that was hypothesized and expected did not occur in the original hypotheses or the exploratory analysis. The analyses were not able to be done with the barrier variable but rather the enabler variable. The barrier variable is more “negative” by nature than the enabler variable and could be a reason why this moderator was unable to be found. This is especially true for the hypothesis and exploratory analysis when the correlational analysis was run and found not significant.

It would be in the best interest of researchers and practitioner alike to further this research including the aspect of cultural differences, and to consider whether cultural norms in other countries may differ substantially enough to allow more detailed consideration of cross-cultural influences technology may have on work-life balance issues.

Contributions

This study serves as a starting point for more researchers to further study the effects, good and bad, of technology on employee perceptions of WLB. More research should be done in regards to how technology does and will continue to affect how work will look and feel for all kinds of employees. This is a building block for those who recognize that technology is both a fast-growing concern and blessing/challenge to organizations, clients, and employees all over the world. I foresee the future needing more research on these topics in order to have a deeper understanding of how all types of technology can help and hurt their productivity overall. The impact of cultural norms, as noted previously, is just one of the areas in which research may make a contribution to our understanding of the effects increasingly prevalent and sometimes invasive technologies may have on our lives. At a more “micro” level, it will be important to
explore individual differences that potentially have an impact on our ability to balance work and non-work activities.

Understanding the relationship between how technology and smartphones are viewed by employees and a variety of metrics of work-life balance offers insights into how I-O psychologists may consider how to keep employees satisfied or motivated when they are faced with the reality of constant electronic contact with their employer. Technology, in general, has been an aspect of life that has enabled not only employees but people as a whole because it allows for the ability of communication at any point of time anywhere in the world. This has impacted the business world and society in a huge way that truly allows companies to become 24/7 organizations. This allows for a higher amount of customer service for those who need it outside of a typical “work day.” As for society, the ability to Skype, FaceTime, blog, or upload pictures from anywhere allows an amount of communication that society has never seen before. For example, when military personnel have to go overseas for duty they are able to call, video chat, and otherwise communicate with those back at home.

The difference between smartphones and technology as a whole may be the fact that there is some aspect that makes a person feel compelled to be connected in a way that is almost seen as addictive. There seems to be some feeling of needing to stay connected 24/7 in parallel to the world’s capability but as human beings this is not physically possible. The compelling, addictive feeling of wanting and needing to be connected at all times could possibly affect more than an employee’s WLB. I think there is a lot more research that needs to be done in the realm of Smartphones and WLB.

Limitations and Future Research Directions
Although this data set was quite rich, its archival nature may have limited the ability to test the research hypotheses with precision. That is, the present research may be constrained by the manner in which questions were already asked by the organization providing data. Because the items were not written with this study in mind, they may not represent a perfect fit to the questions being asked. That being said, they do provide interesting insights into effects technology in general and smartphones in particular may (or may not) have, and as such the value of the dataset is extremely high. Future research can adopt a more targeted approach based on the questions asked, and included more targeted explorations of cultural and individual difference factors that may influence the effects technology has on our lives.

A limitation of the present study is an inability to explore the context of the effects technology has on work-life balance issues. It would be best to do an expansion on the present study with a focus on issues such as the perception of WLB through the perspective of the employee’s significant other or family. The full impact of technology may not be felt by the employee so much as it is by those around them, who find their friend/loved one distracted by work during non-work hours.

Additionally, this research should be looked at for those at different levels of organizations (e.g., entry level vs. upper management). As an employee grows and takes promotional opportunities, there tends to be more responsibility that could change or affect the person’s WLB capabilities. On another hand, certain levels of employment may allow a more flexibility for employees to spend with friends, family, and significant others, allowing this research direction to tie in with that which was mentioned previously. Therefore, it would make logical sense to test this research in a similar
organization. The effect of an employee’s level within the organization could also be affected by cultural differences, again tying multiple future research directions together.

This data set was interesting because of the presence of responses from so many different countries. In some respects, such multi-national data collection may reflect how organizations increasingly think about and aggregate data in the coming years, because the business world is flattening more based on technological capabilities. Further research should consider how this topic manifests within other cultural differences. I believe there will be differences based on cultural variables and lifestyles but I feel strongly that foundational research in the U.S., based on its unique demographic mix, is appropriate. There have been a lot of historical and cultural changes throughout the U.S. that could affect the way males and females handle technology and their WLB but, also, how they perceive other’s WLB. Once this research has been conducted in such a way that it has been established some general principles for the domain, there should be continual research in other contexts to see if cultural differences moderate any observed effects. That being said, there is certainly nothing wrong with researchers in different parts of the globe pursuing this topic simultaneously. We certainly have the technology to make this possible, after all.
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Appendix A

Keywords list for determining enablers, barriers, change, and not change variable

1. technology
2. mobile
3. 3g phone
4. 4g phone
5. droid
6. tablet
7. cellular
8. cellular phone
9. satellite telephone
10. netphone
11. telephone
12. webphone
13. crackberry
14. electronic leash
15. camera phone
16. blackberry
17. calls from home
18. cellphone
19. electronic mobility
20. ipad
21. iphone
22. livemeeting
23. mobile phone
24. smart phone
25. VOIP
26. Webex
Appendix B

IRB approval letter.

March 29, 2012

Tara Goodlander
7192 Cindy Dr.
West Chester, OH 45069

Dear Ms. Goodlander:

Re: Protocol #1157. The Moderating Effect of Gender on the Relationship between Communication Technology and Work-life Balance

The IRB has reviewed the revised materials regarding your study, referenced above, and has determined that it meets the criteria for the Exempt from Review category under Federal Regulation 45CFR46. Your protocol is approved as exempt research, and therefore requires no further oversight by the IRB.

If you wish to modify your study, including the addition of data collection sites, it will be necessary to obtain IRB approval prior to implementing the modification. If any adverse events occur, please notify the IRB immediately.

Please contact our office if you have any questions. We wish you success with your project!

Sincerely,

[Signature]

Kathleen J. Hart, Ph.D., ABPP
Vice Chair, Institutional Review Board
Xavier University

KJH

C: Morell Melfina, Advisor