Managing Invisible Boundaries:

How "Smart" is Smartphone Use as a Boundary Management Tactic?

Elizabeth M. Boyd

Sarah E. Chatfield

Beth A. Livingston

Abstract

This two-wave study examined work-family boundary permeations via smartphone, testing and extending the current theoretical model of boundary management. First, we demonstrated that preferences for integration and identity centrality predicted smartphone boundary management style (SBMS). Second, we demonstrated that SBMS was a predictor of work-family conflict, which then predicted family and work satisfaction. However, SBMS in the direction of family-to-work was not predictive of family-to-work conflict, indicating that integrating one's family into one's work via smartphone does not increase conflict as would be expected. This finding has interesting implications for organizational policies regarding smartphone use. Also, although perceived control over SBMS did relate directly to work-family conflict, it did not moderate the relationship between SBMS and outcomes as expected. Theoretical and practical implications of these findings are discussed, as well as suggestions for future research on boundary theory and smartphone use. By exploring tangible boundary management behaviors, the present study offers interesting implications that could ultimately assist organizations in developing policies regarding smartphone use both at home and at work.

Keywords: work and family, work-life issues, work attitudes, technology

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Communication technologies such as smartphones and tablet personal computers have become increasingly affordable and available in recent years, resulting in a steep increase in communication technology product ownership (Google, 2012; Muller & Pope, 2011; Smith, 2012). The increased prevalence of technology ownership and use in society has been influential in altering the physical, temporal and psychological nature of work and home domains (Major & Germano, 2006; Valcour & Hunter, 2005). Specifically, the boundaries between work and home domains have increasingly blurred as a result of communication technology use. This blurring of boundaries potentially threatens the delicate balance between life roles, introducing more possibilities for interrole conflict through increased integration of roles. Although the overall framework of boundary theory offers insight into how individuals manage role transitions, (e.g., Ashforth, Kreiner, & Fugate, 2000; Kossek & Lautsch, 2012) it has thus far lacked direct application to specific behaviors or communication media. Given the growing prevalence of smartphones and other technology, doing so is essential to fully understand how boundary management techniques play out in the daily lives of real people.

Therefore, the present study seeks to specifically examine the impact of smartphone technology in permeating the boundaries between individuals' work and family domains. The first goal will be to explore predictors of the boundary management styles people use with respect to smartphones (i.e., how individuals use smartphones to manage the boundaries between work and home domains). The second goal will be to examine outcomes in the work and family domains that could result from these varying smartphone use boundary management styles. Toward this end, relevant communication technology trends will be presented, followed by a

discussion of WFC and boundary theory. Boundary management styles will then be introduced, followed by the presentation of an integrative model for smartphone use and boundary management. Finally, a two-wave study of working adults testing the proposed model will be described.

By exploring the role of technology in managing boundaries, the present study will test and extend the current theoretical model of boundary management styles. Whereas previous models have focused specifically on antecedents (e.g., segmentation/ integration preferences) or consequences (e.g., WFC, psychological distress, job performance) of permeation behaviors, the present study will incorporate both predictors and outcomes. In addition, the present study focuses on a specific permeation behaviors enacted via smartphone use. In order to do so, the present study uses a model from Kossek and Lautsch's (2012) recent work on boundary management and flex-styles, which allows for more specificity in predicting behaviors than do previous models of boundary management. This understanding could ultimately assist organizations in developing policies regarding communication technology use both at home and at work (e.g., telecommuting, cyberloafing, and off-the-clock labor).

Communication Technologies

As communication technology becomes more affordable, and thus available, more consumers have reported owning these products. Specifically, more than half of Americans (58%) report smartphone ownership (Pew Research Center, 2014). Tablet personal computers have also become popular in recent years; since 2010, 200 million iPads have been sold (Elmer-DeWitt, 2014). It is important to note that the growing prevalence of these products is not a linear trend. For instance, tablet ownership nearly doubled between December 2011 and January 2012 (Rainie, 2012).

Not only are more consumers choosing to buy communication products, but also the frequency of use is increasing. For instance, many individuals report checking their email immediately upon waking up in the morning, as well as frequently throughout the day (e.g., while driving, during meetings; Karlson, Meyers, Jacobs, Johns, & Kane, 2009; Middleton & Cukier, 2006). Additionally, 66% of smartphone owners report accessing the internet daily, with 73% of them doing so to check email and 60% of them doing so to use a social networking site (Google, 2012). Communication technologies have become broad and diverse, with wide-ranging implications for the work-family interface. For example, the extensive literature on telecommuting (e.g., Gajendran, Harrison, & Delaney-Klinger, 2014) would not exist in the absence of communication technologies. However, different types of communication technology have different implications for the work-family interface, and thus should be considered separately. In this paper we will focus specifically on smartphones, one of the most ubiquitous forms of communication technology.

Smartphones are mobile phones that include software functions (e.g., email, internet browser). This type of technology is important to consider because of its prevalence; the use of smartphone technology is rapidly increasing and projected to increase even more in the near future (Google, 2012). Besides this evidence for its prevalence, the size of the product and its ease of use make it convenient to use both at home and at work. In fact, according to Google (2012), 62% of smartphone users have used the product every day in the past week, and 80% of users will not leave their home without their smartphone. Particularly of interest, 97% of users reported using their smartphone at home, and 71% reported using it at work (Google, 2012). Other popular locations for smartphone use included on the go (83%), in a store (78%), in a restaurant (71%), at a social gathering (60%), at the doctor's office (56%), and at a café or coffee

shop (50%; Google, 2012). The prevalence and convenience of smartphones has undoubtedly influenced the way individuals navigate the boundaries between work and home domains. In order to provide context for how smartphone use impacts the work-family interface, the next section briefly reviews the literature on work-family conflict (WFC) and boundary theory.

The Work-Family Interface

WFC describes interference between one domain (e.g., work) and another domain (e.g., family). Specifically, WFC is experienced when an individual is unable to fully participate in one domain as a result of participating in another domain (Greenhaus & Beutell, 1985). Work-to-family (W-to-F) conflict and family-to-work (F-to-W) conflict are distinct, yet related, forms of interrole conflict (O'Driscoll, Ilgen, & Hildreth, 1992). W-to-F conflict occurs when the work domain interferes with the family domain, whereas F-to-W conflict occurs when the family domain interferes with the work domain. W-to-F conflict has been more popular in the literature (Netemeyer, Boles, & McMurrian, 1996), possibly because of the more visible effects of such conflict. That is, individuals are more likely to blame the work domain for invading the family domain when making attributions for WFC (Poposki, 2011), and W-to-F conflict is more strongly associated with negative consequences (Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005). However, it is important to include both F-to-W conflict and W-to-F conflict in research, as interference between domains can undoubtedly occur in both directions (O'Driscoll et al., 1992).

Boundary Theory

Boundary theory (also referred to as "border theory") is a relatively recent model for understanding the intangible lines that mark the scope of responsibilities and behaviors for family and work domains (Ashforth et al., 2000; Clark, 2000). Boundaries between domains can

be conceptualized much like borders between countries on a globe. As such, they demarcate the territories of separate domains, creating limits to the size of each domain in the overall life-space. Boundaries can be described by their degree of flexibility and permeability. Boundary flexibility refers to the degree to which a boundary can contract or expand, depending on the demands of each domain (Clark, 2000). Boundary permeability refers to the extent to which elements from other domains can enter (Clark, 2000).

Importantly, boundary theory acknowledges that individuals are proactive in establishing and maintaining the borders between the two domains, rather than simply reacting to their context (Clark, 2000). That is, although contextual factors (e.g., organizational norms, family expectations) do have some influence in how individuals create and maintain boundaries, boundary management is also an active process in which individuals make decisions about the flexibility and permeability of boundaries according to their own preferences and situations. This autonomy is important to recognize, given the influence of boundary management on individuals' experience of WFC (Ashforth et al., 2000).

Boundary Management Style

Kossek & Lautsch's (2012) work on boundary management styles offers a nuanced and multi-dimensional perspective on how people manage boundaries. The approach an individual adopts to maintain and negotiate boundaries between two domains is referred to as his or her BMS. The various styles are most often described as segmentation or integration. The BMS used influences the nature and frequency of cross-role permeation behaviors, which describe how individuals allow the responsibilities of one role (e.g., employee) to permeate the boundary of another role (e.g., parent). For example, a permeation behavior could include a phone call from a sick child while the parent is at work. The nature of these behaviors can be described by the

directionality (e.g., F-to-W) and type of permeation (e.g., phone call). Additionally, these behaviors can be described by their frequency (e.g., once or twice a year) and duration (e.g., 30 min).

Individuals who adopt a segmenting BMS typically maintain highly differentiated roles with inflexible boundaries, resulting in very few boundary permeations (Ashforth et al., 2000). An example of an individual who strongly segments roles would be an exotic dancer who chooses not to discuss her profession with her family, or vice versa (Ashforth et al., 2000). In contrast, domains are highly integrated when the two roles are weakly differentiated and boundaries are very flexible, resulting in frequent boundary permeations (Ashforth et al., 2000). For example, a mother who writes a blog about motherhood would frequently draw upon her family experience to help in the work context. Work and family domains are rarely as highly segregated or integrated as the above examples, but rather they vary in their degree of segmentation and integration.

BMS is said to be predicted by an individual's boundary crossing preferences. Boundary crossing preferences refer to individual differences reflecting one's inclination for the degree of flexibility and permeability of boundaries, as well as the preferred directionality of permeations. Individuals with high segmentation preferences typically engage in boundary management practices that allow them to psychologically detach from work when they are at home (Park, Fritz, & Jex, 2011). Typically, the preference for a certain BMS is considered an individual characteristic, which is usually determined by the degrees of flexibility and permeability that an individual desires between domains. Additionally, some individuals may prefer for F-to-W permeations to occur more often than W-to-F permeations, or vice versa. This is referred to

asymmetrical boundary-crossing preferences. Others may prefer symmetrical boundary crossings, such that they experience roughly equal permeations from F-to-W and from W-to-F.

An individual's work and family centrality is also an important antecedent to boundary management styles. Identity centrality refers to how central a role is to one's self-concept relative to other roles. The degree to which people place importance on their respective roles varies among individuals. For instance, a family-centric individual strongly identifies with a family role (e.g., parent, sibling, spouse), reflecting the salience of the family domain within his or her life space. Conversely, a work-centric individual has a highly salient career, thus identifying with his or her professional position more strongly than with other roles. Identity centrality is determined by where an individual falls along two separate continua (i.e., work-centrality continuum, family-central continuum). That is, an individual's family centrality is independent from his or her work centrality. Thus, some individuals experience equal centrality in both the work and home domains (i.e., dual-centrality).

Ashforth, Kreiner, and Fugate (2000) posit that the role with which one highly identifies will likely have a less flexible and permeable boundary than roles with less centrality. Additionally, these central roles will take precedence in a situation of conflict or stress, such that individuals tend to focus available resources on the role with which they most strongly identify (Thoits, 1991). This evidence supports the idea that identity centrality plays a role in determining which BMS is adopted by an individual.

Outcomes of BMS

Segmenting or integrating roles is not inherently good or bad, but rather the degree of segmentation between domains is only one factor among many in determining WFC. For instance, the benefit of segmentation is that roles are clearly demarcated, thus decreasing

confusion or ambiguity and clarifying the nature of the transition. Kossek, Lautsch, and Eaton (2006) found that BMS predicts F-to-W conflict and that a segmentation BMS is a strong predictor of well-being. Furthermore, creating a sense of segmentation can help people mentally detach from work and recover from work stress (Park et al., 2011). However, the cost of segmentation is that transitioning between roles is more psychologically demanding than it would be with more integrated roles (Ashforth et al., 2000). On the other hand, the benefit of integration is that it affords simple transitions with minimal effort when navigating between domains. However, highly integrated domains can often be confusing and interruptions are common (Ashforth et al., 2000). Individuals must balance these costs and benefits when segmenting and integrating work and family domains.

Although BMS influences key outcomes in the work and home domains (Ashforth et al., 2000; Park et al., 2011), a more complex relationship has recently been detected (Kossek & Lautsch, 2012). That is, the BMS an individual uses (i.e., segmenting, integrating) may be less influential than whether he or she feels control over the BMS s/he is using (Kossek & Lautsch, 2012). The relationship between perceived boundary control and work/ family outcomes will be explored next.

Perceived Boundary Control

Perceived boundary control is a relatively new construct proposed by Kossek and Lautsch (2012) in their model of BMS. The notion behind perceived control is that individuals who believe that they can control the timing, frequency, and direction of boundary crossings have higher perceived control. In contrast, individuals with lower perceived control believe that they are not able to control boundary crossings. Unlike the individual differences described above

(i.e., cross-role permeation behaviors, identity centrality), perceived control of boundaries describes one's psychological interpretation of situational and environmental factors.

It is important to note that an individual's perceived control is independent of his or her BMS. That is, four possible combinations of BMS (i.e., segmentation, integration) and perceived control (i.e., high, low) exist. For example, consider a school teacher who is also a father. If he separates his school responsibilities from his paternal responsibilities (i.e., high segmentation BMS), but only does so because of the strong influence of the school principal (i.e., standardized work environment), he could feel powerless to choose his own BMS (i.e., low perceived boundary control). Similarly, relationships between BMS, perceived boundary control, and outcomes could be observed with other combinations.

Outcomes of Perceived Boundary Control

Aside from the consequences of one's actual BMS, Kossek et al. (2006) found that individuals' perceived control over boundaries predicted decreased negative outcomes such as W-to-F conflict, turnover intentions, and depression. In fact, further research revealed that low control in boundary management is related to lower individual effectiveness outcomes, including: job satisfaction, work engagement, work schedule fit, time adequacy, psychological distress, WFC, and turnover intentions (Kossek, Pichler, Bodner, & Hammer, 2011). Furthermore, higher perceived control has been linked with positive work-family outcomes and lower job stress (Karasek, 1979). Therefore, although BMS allows us to better understand and predict an individual's WFC (Kossek et al., 2006), whether a person has control over the BMS they enact is a crucial moderator of such relationships. For instance, consider the example of the schoolteacher mentioned above. The lack of control he perceives may exacerbate negative outcomes (e.g., high WFC; see Figure 1). Although initial findings regarding boundary control

(Kossek et al., 2006, 2011) are theoretically consistent with previous WFC research (Karasek, 1979), these findings have not yet been replicated.

In conclusion, previous research regarding boundary management focused primarily upon segmentation and integration choices as a central predictor for work and family outcomes. Kossek and Lautsch's (2012) model offers a richer explanation for outcomes in work and family domains, including antecedents of BMS (i.e., preferences, identity centrality) and the important influence of perceived control. Although Kossek and Lautsch's (2012) model provides a more sophisticated and thorough understanding of BMS, boundary management research up to this point has been primarily abstract and theoretical, rather than behaviorally focused. Therefore, the use of communication technology can be explored as one tangible venue through which boundaries are managed.

Smartphone Boundary Management

Understanding smartphone use is not only important because of its prevalence, but also because there is evidence that it is continually changing the nature of work and home domains (Boswell & Olson-Buchanan, 2007; Valcour & Hunter, 2005). For instance, individuals often report using smartphones at home for work purposes, allowing the home boundary to be permeated by work responsibilities. Examples of such W-to-F permeations include checking email and answering phone calls from co-workers or clients while at home (Boswell & Olson-Buchanan, 2007; Diaz, Chiaburu, Zimmerman, & Boswell, 2012). Similarly, F-to-W permeations are very common, with reports of emailing and calling family members being the most frequent home-related activities done on the job (D'Abate & Eddy, 2007).

These boundary permeations have strong implications for the work-family interface. First, smartphone use has increasingly blurred the physical, temporal and psychological

boundaries between domains, creating more flexible and permeable boundaries. A Canadian survey found that although 25% of respondents believe that technology has increased their ability to balance the work and life domains, roughly the same amount of respondents reported that smartphone use decreased their experience of work-family balance (Duxbury, 2004). Recent work by Makinson, Hundley, Feldhaus, and Fernandez (2012) suggests that employees' part-time or full-time status might moderate the influence of smartphone use on experienced stress. Specifically, when smartphone usage surpassed one hour a day, significantly more part-time employees reported increased stress (from 5% to 28%). However, fewer full-time employees reported increased stress when smartphone usage surpassed one hour (from 37% to 30%). This could indicate that smartphone use is more helpful in balancing work and family roles for full-time employees than it is for part-time employees.

Very little research has been done involving other factors associated with smartphone boundary management. However, preliminary research suggests that communication technologies are a common avenue through which individuals navigate the boundaries between work and family roles (e.g., Diaz et al., 2012). Thus, it follows that smartphone boundary management style (SBMS) would have consistent outcomes with those of individuals' broader BMS (e.g., Boswell & Olson-Buchanan, 2007). Therefore, Kossek and Lautsch's (2012) model provides an excellent theoretical framework for viewing smartphone use in the context of boundary theory.

The Present Study

The present study will test a model of SBMS based on the model by Kossek and Lautsch (2012; see figure 1). In order to apply this model specifically to smartphone use, the proposed model will use a narrow focus on SBMS and perceived boundary control. However, a broad

scope will be used for antecedents and outcomes of SBMS (e.g., general integration preferences, overall WFC). By using this combined approach, the present study will be able to establish that SMBS is consistent with general BMS tendencies and that SBMS can be associated with the same outcomes as general BMS.

Predictors

As was previously discussed, BMS refers to the degree of integration between an individual's work and family domains. This concept can be understood as a continuum ranging from complete segmentation (i.e., no integration) to complete integration. SBMS is thus a continuum ranging from complete segmentation to complete integration regarding using one's smartphone to connect work and family domains. Complete segmentation would be either having a smartphone designated for work only, with no family related apps or communications (or vice versa). Examples of integration would involve receiving all work and family related communications on the same device. Similarly to BMS, it is proposed that both preferences and centrality will predict SBMS.

Boundary crossing preferences. As described above, individual preferences for boundary crossing can be described by the preferred flexibility and permeability of the boundaries (i.e., degree of integration), as well as the directional symmetry of the permeations (i.e., W-to-F, F-to-W). The literature has shown that individuals' general preferences for segmentation or integration influence the degree of segmentation between work and family domains (Diaz et al., 2012; Olson-Buchanan & Boswell, 2006; Park & Jex, 2011). For instance, individuals who are more flexible (i.e., integration preference) using smartphones report engaging in more smartphone use at home for work (i.e., W-to-F integration; Olson-Buchanan & Boswell, 2006; Diaz et al., 2012).

Hypothesis 1: General boundary crossing preferences will be positively related to SBMS such that (a) higher W-to-F integration preferences will be associated with higher W-to-F SBMS integration, and (b) higher F-to-W integration preferences will be associated with higher F-to-W SBMS integration.

Identity centrality. The role with which one most strongly identifies also contributes to an individual's BMS. Individuals can be work-centric or family-centric. Ashforth et al. (2000) argue that a role with which one highly identifies will have more rigid and impermeable boundaries compared to those of other roles. Additionally, these salient roles will take precedence in a situation of conflict or stress, such that individuals tend to focus available resources on the role with which they most strongly identify (Thoits, 1991).

Hypothesis 2: Identity will be related to SBMS such that (a) work-centric individuals will have greater W-to-F than F-to-W SBMS integration, and (b) family-centric individuals will have greater F-to-W than W-to-F SBMS integration.

Mediators and Moderators

The present study seeks to examine positive and negative outcomes in the work, home, and personal domains. WFC will be measured in the home domain (i.e., W-to-F conflict) and the work domain (i.e., F-to-W conflict). Satisfaction will be measured in multiple domains (i.e., job satisfaction, family satisfaction, life satisfaction). SBMS will be explored as a mediating mechanism, and perceived boundary control will be explored as a moderator, predicting these two key outcomes.

Boundary management style. Individuals' boundary management styles have been found to relate to key outcomes in the work and family domains. Furthermore, preliminary research on technology use suggests that individuals' use has consistent outcomes with those of

their broader BMS (e.g., Boswell & Olson-Buchanan, 2007; Diaz et al., 2012; Park & Jex, 2011). For instance, segmentation has been found to help people mentally detach from work and recover from work stress (Park et al., 2011). Thus, SBMS for segmentation (e.g., not answering communications from domain A while participating in domain B) should reduce one's experience of WFC. Furthermore, integration is associated with confusion and common interruptions, and has been associated with higher F-to-W conflict (Ashforth et al., 2000; Kossek et al., 2006).

Hypothesis 3: SBMS will be positively related to WFC such that (a) higher W-to-F SBMS integration will be associated with higher W-to-F conflict, and (b) higher F-to-W SBMS integration will be associated with higher F-to-W conflict.

Perceived boundary control. As was discussed more thoroughly in above sections, the degree to which an individual feels control over his or her BMS is a critical factor in determining outcomes in the work, home, and personal domains. Individuals' perceived control over boundaries has been found to be a strong predictor of WFC and individual effectiveness (Kossek et al., 2006, 2011). That is, the degree to which an individual feels autonomy in determining his or her BMS impacts his or her experience at work and home. This can occur in one of two ways: First, high perceived control can ameliorate the negative impact of integration by reducing WFC. For instance, Kossek et al. (2006) found that individuals' perceived control over boundaries predicted decreased negative outcomes such as W-to-F conflict, turnover intentions, and depression.

Consistently, low perceived control can heighten the negative effects of integration. Specifically, further research revealed that low control in boundary management is related to lower individual effectiveness outcomes, including: work schedule fit, time adequacy,

psychological distress, WFC, and turnover intentions (Kossek et al., 2011). Low perceived control can also reduce the positive effects of integration, such as job satisfaction and work engagement (Kossek et al., 2011).

Hypothesis 4: Perceived control over SBMS will be related to key outcomes such that high perceived control will be associated with lower levels of WFC in both directions.

Hypothesis 5: Perceived control over SBMS will moderate the relationship between SBMS and key outcomes such that the lower the control, the stronger the relationship between SBMS and WFC in both directions.

Mediation and conditional effects. As shown in the path model in Figure 1, we propose not only moderation (as in hypothesis 5) but also mediation. Specifically of interest in this study is how SMBS will mediate the relationship between the aforementioned preferences and centrality and WFC. Specifically, we expect that the ways in which individuals manage boundaries between work and family using smartphones will explain how and why individuals higher in work centrality report higher W-to-F conflict and why those individual higher in family centrality will report higher F-to-W conflict. Likewise how and why those with stronger preferences for boundary crossing will report stronger conflict. We also examine whether this mediation is conditional upon perceived control over smartphone use across boundaries, as posited above.

Hypothesis 6: SBMS integration will mediate the relationship between (a) preferences & centrality and W-to-F conflict, and between (b) preferences & centrality and F-to-W conflict, conditional on perceived control over smartphone use.

Outcomes

Finally, we expect that WFC will predict satisfaction with both work and family. As demonstrated in meta-analytic reviews (e.g., Allen, Herst, Bruck & Sutton, 2000; Kossek & Ozeki, 1998), WFC is negatively related to job and life satisfaction. However, further research has suggested that WFC is more strongly related to composites of job satisfaction, and that the form and type of conflict matters (Bruck, Allen & Spector, 2002). Although some work suggests that the type of satisfaction that will be affected by conflict is in the role that is being impeded (i.e., reduced job satisfaction when family interferes with work; Judge, Ilies & Scott, 2006), we suggest something a bit different. As suggested in Greenhaus and Beutell (1985), the decision of who to "blame" for the perceived source of the conflict is likely of great importance (e.g., Poposki, 2011). Indeed, to whom—or what—the conflict can be attributed can predict the strength of one's response to the conflict itself (Carlson, Kacmar & Stepina, 1995), consistent with attribution theory (Weary, Stanley & Harvey, 1989). Thus, we expect in this context, particularly regarding smartphone boundary integration, that W-to-F conflict will result in lowered work satisfaction due to the attribution of blame to the work role, and that F-to-W conflict will result in lowered family satisfaction due to attribution of blame to the family role.

Hypothesis 7: WFC will be significantly related to satisfaction such that (a) W-to-F conflict will lead to lower work satisfaction and (b) F-to-W conflict will lead to lower family satisfaction.

Methods

Participants and Procedures

Our sample consisted of workers from Amazon Mechanical Turk (MTurk), an online labor market that provides low cost access to a diverse sample pool (Mason & Suri, 2012). In order to be included in the present study, respondents were required to be United States citizens,

speak English, use a smartphone on a daily basis, have a full-time paid position, and live with a spouse/partner and at least one child. Additionally, in order to control for confounding influences on smartphone use, individuals who worked from home more than 50% of the time were excluded from the present study.

The data were collected at two different points in time. At Time 1, 507 MTurk workers received $1.50 to complete the survey. At Time 2, approximately two weeks after Time 1, 243 of these MTurk workers chose to complete the same survey for an additional $3.00, resulting in a 47.9% response rate. Five methods were employed to ensure that MTurk workers responded honestly and accurately. First, MTurk workers were required to have a Human Intelligence Task (HIT) approval rate of 97 or higher, indicating a history of satisfactory MTurk performance. Second, MTurk workers were required to complete a short qualification survey before the full survey to determine if they were eligible for the study (i.e., met inclusion criteria listed above). Third, three validation items were included to disqualify MTurk workers whose responses indicated that they were not paying full attention to the survey. Fourth, responses were individually reviewed for careless response patterns. Finally, in order to assess whether or not participants in an online survey panel paid adequate attention to the survey, we ensured that all participants took longer than five minutes to complete each of the two surveys. In total, eight participants were disqualified for providing incorrect responses to validation items and/or showing evidence of careless responding.

After listwise deletion for all key study variables, our final sample included 135 workers (46.7% female, 53.3% male), ranging in age from 21-59 years. The sample was 76.8% White, 7.1% Black, 8.4% Hispanic, 4.5% Asian, and 3.2% other. A majority of the participants had a

college degree or higher (73.5%), and earned a yearly salary between $25,000 and $74,999 (74.2%).

Measures

Demographics. The survey included questions concerning the participants' (1) age, (2) gender, (3) income, (4) race/ethnicity, (5) education, (6) spouse/partner, (7) children, and (8) occupation. Additional demographic items included (9) the availability of organizational policies for work-life balance, and (10) a question assessing the "ownership" of the participant's smartphone (i.e., owned by organization or self).

Predictors

General boundary crossing preferences. We assessed preferences for boundary crossing with an eight-item scale with two subscales: W-to-F integration preferences (T1 $\alpha = .90$; T2 $\alpha = .91$) and F-to-W integration preferences (T1 $\alpha = .86$; T2 $\alpha = .88$; Adapted from Kreiner, 2006). Each item was answered with a Likert-type scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). The two subscales featured identical items, and only differed in the directionality of integration. For instance, "I don't like to have to think about [work, family] while I'm at [home, work]," was reverse scored so that higher scores on the scale indicated higher integration preferences.

General identity centrality. We assessed identity centrality with an eight-item scale with two subscales: work centrality (T1 $\alpha = .71$; T2 $\alpha = .76$) and family centrality (T1 $\alpha = .86$; T2 $\alpha = .88$). The scale was developed by adapting items from previous identity centrality scales (Kossek, Ruderman, Braddy, & Hannum, 2012; Wayne, Randel, & Stevens., 2006). Each item was answered with a Likert-type scale ranging from 1 (Strongly disagree) to 5 (Strongly agree), with higher scores indicating higher centrality in the domain. The two subscales featured

identical items, and only differed in the domain of centrality. For instance, "People see me as highly focused on my [work, family]."

SBMS. The survey assessed SBMS (i.e., smartphone use across boundaries) with an eight-item scale with two subscales: W-to-F integration (T1 $\alpha = .79$; T2 $\alpha = .81$) and F-to-W integration (T1 $\alpha = .80$; T2 $\alpha = .87$). The scale was developed by adapting items from a previous BMS scale (Kossek et al., 2012). Each item was answered with a Likert-type scale ranging from 1 (Strongly disagree) to 5 (Strongly agree), with higher scores indicating higher integration. The two subscales featured similar items, and differed in the direction of integration. For instance, "I respond to [work-related, personal] smartphone communications (e.g., emails, texts, phone calls) during [my personal time away from work, work]."

Perceived boundary control. Three items were used to assess perceived control (T1 $\alpha = .87$; T2 $\alpha = .88$; adapted from Kossek et al., 2012). Each item was answered with a Likert-type scale ranging from 1 (Strongly disagree) to 5 (Strongly agree), with higher scores indicating higher perceived control. For instance, "When I use my smartphone, I can control to what extent I keep my work and personal life separate."

Outcomes

Conflict. The survey assessed WFC with a ten-item scale with two subscales: W-to-F conflict (T1 $\alpha = .92$; T2 $\alpha = .93$) and F-to-W conflict (T1 $\alpha = .93$; T2 $\alpha = .94$; Netemeyer, Boles, & McMurrian, 1996). Each item was answered with a Likert-type scale ranging from 1 (Strongly disagree) to 5 (Strongly agree), with higher scores indicating higher conflict. The two subscales featured similar items, and differed in the direction of conflict. For instance, "The demands of my [work, family] interfere with [my home and family life, work-related activities]."

Satisfaction. Three subscales, totaling 15 items, were used to assess satisfaction: work satisfaction (T1 α = .91; T2 α = .92), family satisfaction (T1 α = .91; T2 α = .93), and life satisfaction (T1 α = .90; T2 α = .90; adapted from Diener, Emmons, Larsen, & Griffin, 1985). Each item was answered with a Likert-type scale ranging from 1 (Strongly disagree) to 5 (Strongly agree), with higher scores indicating higher satisfaction. For instance, "In most ways my [job, family, life] is close to ideal."

Results

Correlations among study variables are presented in Table 1. To test our hypotheses, we examined the entirety of the model presented in Figure 1 in Mplus 7 (Muthén & Muthén, 2011), in addition to the control variables of gender, age, and number of children under age 13. Mplus allowed us to test the model simultaneously, using bootstrapped standard errors (5,000 samplings), and to calculate and test conditional indirect effects (Preacher, Rucker & Hayes, 2007) for our mediation hypotheses. We entered the model as presented, also freeing covariances between the WFC constructs and the preferences constructs (due to similarity in wording stems in the survey). Due to issues of power, we did not estimate a measurement model and use structural equation modeling—rather, we used Mplus to test a path model after we checked scale reliabilities and factor structures to assure measurement appropriateness.

The model fit the data relatively well, even without a posited measurement model (CFI = .84, TLI = .77, SRMR = .08, RMSEA = .06, $p > .05$), and modification indices did not indicate any theoretical paths had been omitted from the model. The estimates of path coefficients, and the bootstrapped standard errors, are presented in Table 2. To control for gender age, and number of children, we included them as predictors of preferences and centrality at the outset of the model. As shown in Table 2, gender was significantly related to boundary crossing preferences

from F-to-W, but not to W-to-F, and for family centrality but not for work centrality. Specifically, men were slightly more likely to report preferences for F-to-W integration and family centrality. Additionally, the older the participant, the less family centrality they reported. The number of children under 13 was not significantly predictive of preferences or centrality.

To test hypotheses 1a and 1b, we included a path from boundary management preferences to SBMS based on directionality. We find support for both hypothesis 1a and hypothesis 1b, such that the higher the preferences for boundary crossing for W-to-F, the more integrative styles used by individuals in that direction ($\beta = .32$, $p < .01$) and similarly for F-to-W ($\beta = .30$, $p < .01$). Likewise, we found support for hypothesis 2a, such that work centrality is significantly positively related to SBMS integration for W-to-F ($\beta = .54$, $p < .01$) but not for F-to-W ($\beta = .01$, $p > .05$). We also found support for hypothesis 2b, such that family centrality is more strongly related to F-to-W SBMS integration ($\beta = .61$, $p < .01$) than to W-to-F SBMS integration ($\beta = -.26$, $p < .10$).

To test hypothesis 3, we examined the path between SBMS and WFC, based on directionality. We find support for hypothesis 3a, such that W-to-F SBMS integration is significantly positively related to W-to-F conflict ($\beta = .27$, $p < .01$) but did not support hypothesis 3b, such that F-to-W SBMS integration did not lead to higher F-to-W conflict ($\beta = .00$, $p>.05$).

For hypotheses 4 and 5, we examined the effects of perceived boundary control, finding support for hypothesis 4, such that control was significantly negatively related to both directions of WFC (W-to-F $\beta = -.21$, $p < .01$; F-to-W $\beta = -.16$, $p < .05$), controlling for smartphone frequency of usage. We did not find a significant interaction coefficient in the model to support

hypothesis 5 for either direction of WFC, however the conditional effects run to test hypothesis 6 do lend some support to hypothesis 5.

To test hypothesis 6, we ran conditional indirect effects (with bootstrapped standard errors) via Preacher, Rucker, and Hayes' (2007) Model 3 (a 'second stage' model by Edwards and Lambert [2007]). We found support for hypothesis 6a for preferences and work centrality. Specifically, we observed that W-to-F preferences predicted W-to-F conflict via SBMS, such that, among those low in perceived boundary control, there was a positive indirect effect of preferences on conflict ($\beta = .10$, $p < .05$) via SBMS integration, but there was no relationship of W-to-F preferences on W-to-F conflict when control was high ($\beta = .07$, $p > .05$). Additionally, we observed that when control was low, work centrality positively affected W-to-F conflict via SBMS integration ($\beta = .17$, $p < .01$) but not when control was high ($\beta = .12$, $p > .05$). However, hypothesis 6b was not supported, as no indirect effects—conditional or otherwise—predicted F-to-W conflict via SBMS. This provides partial support to our mediation hypotheses.

Finally, as expected in hypotheses 7a and 7b, W-to-F and F-to-W conflict significantly predicted work and family satisfaction, respectively ($\beta = -.21$, $p > .05$; $\beta = -.30$, $p < .01$). A summary model with significant paths represented as solid lines and non-significant paths as dashed lines is presented in Figure 2.

Discussion

Although researchers have made progress in explaining general trends and preferences for boundary permeations, research on boundary management is still in its infancy. In addition, although the recent Kossek and Lautsch (2012) BMS model provides an integrated perspective on how personal characteristics and boundary management behaviors affect subsequent conflict and outcomes, prior to this study the model had not been empirically tested. Thus, our study

contributes to the extant literature by providing evidence of boundary theory's direct application to specific technology-related behaviors, testing and extending the current theoretical model of BMS. By exploring tangible boundary management behaviors, the present study offers interesting implications that could ultimately assist organizations in developing policies regarding the use of communication technologies both at home and at work. In the following section, the findings of the present study will be reviewed in more depth with a focus on discussing their theoretical and practical implications. Additionally, limitations of the present study and suggestions for future research will be presented.

Summary of Findings

First, the overall model fit the data well, indicating support for the proposed model of SBMS, and thereby also for Kossek and Lautsch's (2012) more general model of BMS. Specifically, we found support for both preferences and centrality for both the W-to-F and F-to-W directions of SBMS. These results indicate that overall, one's preferences and centrality tend to have an influence over the degree to which one uses smartphone technology to integrate work and family roles.

Previous research has indicated that work and family boundaries are differentially permeable in that the family boundary is more permeable than is the work boundary (e.g., Frone, Russell, & Cooper, 1992). Following this logic, an individual who prefers to integrate family into work might not be able to act on these preferences. Interestingly, however, the present study suggests that this might not necessarily be true for smartphone use (i.e., F-to-W preferences predicted F-to-W SBMS). Given the nature of smartphone behavior, however, this finding likely makes sense. That is, because smartphone behavior is highly personal and domain permeations may not even be detected by others, it makes sense that individuals are better able to act on their

preferences. For example, even in the most restrictive of workplaces, perhaps highly family-centric people or those who prefer to integrate family with work may quickly check text messages from home under their desk without others noticing, or even check Facebook during a bathroom break.

With respect to the effect of SBMS on WFC, although our results in the direction of W-to-F conflict were in line with what was expected (i.e., greater integration of roles was associated with greater conflict; e.g., Ashforth et al., 2000; Greenhaus & Powell, 2006), in the direction of F-to-W, we did not find support for this prediction. Instead, our findings suggest that F-to-W smartphone use does not have a negative impact. This finding aligns with recent trends pointing to differential effects depending on the direction of permeations (i.e., W-to-F, F-to-W; e.g., Allen, Johnson, Kiburz, & Shockley, 2013). Much of the work-family interface literature suggests that employees should segment roles to reduce WFC (e.g., Park et al., 2011; Ashforth et al., 2000). However, other research suggests that increased integration of roles helps transfer positive resources from one domain to the other (Greenhaus & Powell, 2006). Thus, our data provide an interesting argument for allowing F-to-W smartphone use (e.g., contact with family members while employees are at work), yet limiting W-to-F smartphone use (e.g., emailing co-workers after hours or during vacation).

Regarding perceived control, we found the predicted direct negative effect on both directions of WFC. That is, lower perceptions of boundary control predicted higher WFC in both directions. We did not, however, find support for the predicted moderation based on the Kossek and Lautsch (2012) model.

Additionally, we found that for those low in control, the relationship between preferences (and centrality) and WFC was mediated by SBMS. These results do not provide support for the

role of perceived control as an important moderator between WFC and outcomes, as is predicted in the original Kossek and Lautsch (2012) model. However, they do support previous findings that empowering employees with control over how they use CT to permeate boundaries yields more positive outcomes (e.g., Kossek et al., 2006; 2011). Specifically, for individuals with low perceived control, there was a positive indirect effect of W-to-F preferences on conflict. However, individuals with high control did not experience this indirect effect. This might have less to do with *whether* permeations occur, but rather the *nature* of the permeation itself. That is, even if a work-centric individual technically prefers to integrate, the constant push from work to abuse that constant integration may simply become too much, wherein individuals underestimate the toll of their W-to-F smartphone use. Interestingly, in the F-to-W direction, these patterns do not emerge, offering more support for the idea that F-to-W smartphone permeations do not have the same negative effects as do W-to-F smartphone permeations. Consistently, we found that individuals reporting low control experienced more negative effects from work centrality (i.e., W-to-F conflict).

Finally, to round out the model and replicate past results regarding WFC and boundary theory, we also proposed relationships between WFC and outcomes in this study, and found additional support for the notion that W-to-F and F-to-W conflict predicted family and work satisfaction, respectively. This finding re-emphasizes the importance of understanding WFC, as it is a critical component of employees' psychological well-being.

Practical Implications

Organizational policies regarding the use of smartphones or other communication technology are an important issue facing managers today. One the one hand, employees who spend time texting with family and friends or catching up with acquaintances on social

networking sites are spending work time doing nonwork tasks. On the other hand, research has demonstrated that employees who disengage occasionally (even via so-called cyberloafing) throughout the workday may be less stressed and experience fewer negative emotions than those who do not engage in these activities (e.g., Fritz, Ellis, Demsky, Lin, & Guros, 2013; Lim & Chen, 2012). Similarly, many employees struggle with the fact that due to smartphone technology, their work email is now accessible to them around the clock, and they are often expected to respond almost instantaneously regardless of the hour or day.

As a result of these nuances and pressures, organizations and their employees are in need of evidence-based guidance on how best to manage communication technologies in the work-family interface. Perhaps the most relevant contribution of this study to the overall phenomenon is the finding that using a smartphone to integrate one's work into the family domain increases WFC as expected, whereas using a smartphone to integrate one's family into the work domain does not increase WFC.

The implications of this finding for individuals are clear: taking the occasional text message from family is not a problem, but removing work email from one's smartphone may be a desirable goal. In light of our mediation findings, it is also important to note that individuals who prefer W-to-F smartphone integration and/or consider themselves to be work-centric should take extra care to ensure that they remain in control of how they use smartphones across boundaries, perhaps by designating certain hours to "unplug" and detach from work-related smartphone communications.

At the organizational level, managers and policy makers should also consider these findings, as they are consistent with literature showing increased F-to-W integration to be associated with work-family enrichment, which thereby improves satisfaction and even

productivity (Odle-Dusseau, Britt, & Greene-Shortridge, 2012). Thus, allowing employees the freedom to deal with family issues or connect with family via smartphone during work hours may be a valuable workplace strategy.

Exceptions to this rule undoubtedly exist. For example, extremely stressful situations such as divorce, severe illness, or home foreclosure (Ragins, Lyness, Williams, & Winkel, 2014) may be situations where taking communications from home via smartphone could be quite distracting or stressful, and may thus increase family-interfering-with-work conflict. On the other hand, expecting employees to answer communications from work at all hours of the day may increase productivity (or at least perceived productivity) but our results show that it may also increase WFC, which has been associated with a host of negative consequences for individuals and organizations (e.g., Eby et al., 2005). Because of the personal nature of smartphone use and the clear impact on work and family outcomes, managing employees' smartphone role permeations is a complicated endeavor. However, such an endeavor is increasingly unavoidable given the ubiquity of smartphones. Our findings are hopeful in that they indicate the potential for benefits for both employees and employers, if intrusions via smartphone are properly managed.

Limitations and Future Directions

The method of data collection used in this study made it impossible to measure outcomes of co-workers and family members as they related to participants' smartphone use. It is becoming well known within the work-family literature that one's work-family interface affects not only his or her own well-being, but also spousal relationships, attitudes, and behaviors (e.g., Andres, 2014; Pedersen & Minnotte, 2012). Thus, future research should examine how individuals' SBMS influences those around them. Such research could draw on the cell phone

etiquette and smartphone addiction literature, and could have implications for both home and work domains.

In order to participate in the present study, individuals were required to own a smartphone that they frequently use. Although smartphones are increasingly prevalent and affordable (Google, 2012), they are still a luxury item that is unavailable to many individuals. Thus, the focus of the present study inherently limited the population of interest as one with relatively high socioeconomic status. Although this likely cannot be corrected in future research, it is important to be aware of the limited generalizability of the present study's results.

Although the subject pool of MTurk is very diverse, the MTurk community is still limited to a small subset of the general population (Mason & Suri, 2011). It is likely that the participants in the present study, although diverse in many ways, could have a stronger affinity for technology than other individuals. Although we have no reason to believe that MTurkers' smartphone use would differ from that of other individuals, future research should replicate this study with a non-MTurk sample to ensure that the smartphone behaviors are generalizable outside of the MTurk community.

In this study we did not assess organizational climate for customization, a key construct in the Kossek and Lautsch (2012) model, because we had single-level data and could not adequately assess a higher-level construct. Future research should include measures of outside pressures, such as organizational policies for smartphone use, which are likely influential in determining individuals' experiences of conflict and enrichment. Besides smartphone policies, other organizational factors likely influence employees' perceptions of boundary control regarding smartphone use. For instance, whether the device is purchased by the organization or

by the employee could determine the employee's expectations regarding W-to-F and F-to-W permeations.

We know that supervisor support for work-family issues is a key determinant of employee work-family well-being (Kossek et al., 2011). Perhaps future research should examine supportiveness of supervisors regarding the use of smartphones to connect with family and friends during work hours. It would also be interesting to assess leader family permeations via smartphone, as we know that the family lives of leaders affect their work (Ten Brummelhuis, Haar, & Roche, 2013). A potentially interesting angle on this issue could be whether leader behavior changes immediately following a permeation via smartphone (e.g., after a positive or negative communication from family via smartphone).

Conclusion

In summary, the present study focused on the role of smartphone technology in managing boundaries between work and family domains. In so doing, boundary theory was enlisted to explain how boundaries between work and family are created, managed and permeated. By exploring the role of smartphones in managing boundaries, the present study tested and extended the current theoretical model of boundary management styles. Results were largely supportive of the current model of boundary management. Practical applications were offered to assist organizations in developing policies regarding smartphone use both at home and at work.

References

Allen, T. D., Herst, D. E., Bruck, C. S., & Sutton, M. (2000). Consequences associated with work-to-family conflict: A review and agenda for future research. *Journal of Occupational Health Psychology, 5,* 278-308. doi:10.1037/1076-8998.5.2.278

Allen, T. D., Johnson, R. C., Kiburz, K. M. & Shockley, K. M. (2013), Work–family conflict and flexible work arrangements: Deconstructing flexibility. *Personnel Psychology, 66*, 345–376. doi:10.1111/peps.12012

Andres, M. (2014). Distress, support, and relationship satisfaction during military-induced separations: A longitudinal study among spouses of Dutch deployed military personnel. *Psychological Services, 11*(1), 22-30. doi:10.1037/a0033750

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*, 472-491. doi:10.5465/AMR.2000.3363315

Boswell, W. R., & Olson-Buchanan, J. B. (2007). The use of communication technologies after hours: The role of work attitudes and work-life conflict. *Journal of Management, 33*, 592- 610. doi:10.1177/0149206307302552

Bruck, C. S., Allen, T. D., & Spector, P. E. (2002). The relation between work–family conflict and job satisfaction: A finer-grained analysis. *Journal of Vocational Behavior*, *60*(3), 336-353. doi:10.1006/jvbe.2001.1836

Carlson, D. S., Kacmar, K. M., & Stepina, L. P. (1995). An examination of two aspects of work-family conflict: Time and identity. *Women in Management Review*, *10*(2), 17-25. doi:10.1108/09649429510084603

Clark, S. C. (2000). Work/family border theory: A new theory of work/family balance. *Human Relations, 53*(6), 747-770. doi:10.1177/0018726700536001

D'Abate, C. P., & Eddy, E. R. (2007). Engaging in personal business on the job: Extending the presenteeism construct. *Human Resource Development Quarterly, 18*(3), 361-383. doi:10.1002/hrdq.1209

Diaz, I., Chiaburu, D. S., Zimmerman, R. D., & Boswell, W. R. (2012). Communication technology: Pros and cons of constant connection to work. *Journal of Vocational Behavior, 80*, 500-508. doi:10.1016/j.jvb.2011.08.007

Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*(1), 71-75. doi:10.1207/s15327752jpa4901_13

Duxbury, L. (2004). Dealing with work-life issues in the workplace: Standing still is not an option. Presented at the Don Wood Lecture in Industrial Relations, Ontario, Canada.

Eby, L. T., Casper, W. J., Lockwood, A., Bordeaux, C., & Brinley, A. (2005). Work and family research in IO/OB: Content analysis and review of the literature (1980–2002). *Journal of Vocational Behavior, 66*(1), 124-197. doi:10.1016/j.jvb.2003.11.003

Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderation and mediation: A general analytical framework using moderated path analysis. *Psychological Methods*, *12*(1), 1. doi:10.1037/1082-989X.12.1.1

Elmer-DeWitt, P. (2014, June 2). Apple's WWDC 2014 by the numbers. *Fortune.* Retrieved from http://fortune.com/2014/06/02/apples-wwdc-12014-by-the-numbers/

Fritz, C., Ellis, A. M., Demsky, C. A., Lin, B. C., & Guros, F. (2013). Embracing work breaks: Recovering from work stress. *Organizational Dynamics, 42*(4), 274-280. doi:10.1016/j.orgdyn.2013.07.005

Frone, M. R., Russell, M., & Cooper, M. L. (1992). Prevalence of work–family conflict: Are work and family boundaries asymmetrically permeable? *Journal of Organizational Behavior, 13,* 723–729. doi: 10.1002/job.4030130708

Gajendran, R. S., Harrison, D. A. and Delaney-Klinger, K. (in press). Are telecommuters remotely good citizens? Unpacking telecommuting's effects on performance via i-deals and job resources. *Personnel Psychology*. doi:10.1111/peps.12082

Google. (2012, May). Our mobile planet: United States. Retrieved from http://www.thinkwithgoogle.com/mobileplanet/en/

Greenhaus, J. H., & Powell, G. N. (2006). When work and family are allies: A theory of work-family enrichment. *Academy of Management Review, 31*(1), 72-92. doi: 10.5465/AMR.2006.19379625

Greenhaus, J., & Beutell, N. (1985). Sources of conflict between work and family roles. *Academy of Management Review, 10,* 76-88. doi: 10.5465/AMR.1985.4277352

Judge, T. A., Scott, B. A., & Ilies, R. (2006). Hostility, job attitudes, and workplace deviance: Test of a multilevel model. *Journal of Applied Psychology*, *91*(1), 126. doi: 10.1037/0021-9010.91.1.126

Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administration Science Quarterly*, *24*, 285– 307.

Karlson, A., Meyers, B., Jacobs, A., Johns, P., & Kane, S. (2009). Working overtime: Patterns of smartphone and PC usage in the day of an information worker. In H. Tokuda, M. Beigl,

A. Friday, A. Brush, and Y. Tober (Eds.), Pervasive Computing (pp. 398-405). Heidelberg: Springer Berlin.

Kossek, E. E., & Lautsch, B. A. (2012). Work–family boundary management styles in organizations: A cross-level model. *Organizational Psychology Review, 2*(2), 152-171. doi:10.1177/2041386611436264

Kossek, E. E., & Ozeki. C. (1998). Work-family conflict, policies, and the job-life relationship: A review and directions for organizational behavior-human resources research. *Journal of Applied Psychology, 83*, 139-149. doi: 10.1037/0021-9010.83.2.139

Kossek, E. E., Lautsch, B. A., & Eaton, S. C. (2006). Telecommuting, control, and boundary management: Correlates of policy use and practice, job control, and work family effectiveness. *Journal of Vocational Behavior, 68*(2), 347-367. doi: 10.1016/j.jvb.2005.07.002

Kossek, E. E., Pichler, S., Bodner, T., & Hammer, L. B. (2011). Workplace social support and work-family conflict: A meta-analysis clarifying the influence of general and work-family-specific supervisor and organizational support. *Personnel Psychology, 64*(2), 289-313. doi: 10.1111/j.1744-6570.2011.01211.x

Kossek, E. E., Ruderman, M. N., Braddy, P. W., & Hannum, K. M. (2012). Work-nonwork boundary management profiles: A person-centered approach. *Journal of Vocational Behavior, 81*(1), 112-128. doi: 10.1016/j.jvb.2012.04.003

Kreiner, G. E. (2006). Consequences of work-home segmentation or integration: A person-environment fit perspective. *Journal of Organizational Behavior, 27*(4), 485-507. doi: 10.1002/job.386

Lim, V. G., & Chen, D. Q. (2012). Cyberloafing at the workplace: Gain or drain on work? *Behaviour & Information Technology, 31*(4), 343-353. doi:10.1080/01449290903353054

Major, D. A., & Germano, L. M. (2006). The changing nature of work and its impact on the work-home interface. In F. Jones, R. Burke, & M. Westman (Eds.), Work-life balance: A psychological perspective (pp. 13-38). London: Psychology Press.

Makinson, P., Hundley, S., Feldhaus, C., & Fernandez, E. (2012). "Mobile communications anytime, anywhere: The impact on work-life balance and stress," FIE, pp.1-6, Frontiers in Education Conference Proceedings.

Mason, W., & Suri, S. (2012). Conducting behavioral research on Amazon's Mechanical Turk. *Behavior Research Methods, 44*(1), 1-23. doi: 10.3758/s13428-011-0124-6

Middleton, C. A., & Cukier, W. (2006). Is mobile email functional or dysfunctional? Two perspectives on mobile email usage. *European Journal of Information Systems, 15,* 252-260. doi: 10.1057/palgrave.ejis.3000614

Muller, T., & Pope, S. (2011, 09 10). Apple launches iPad 2. Apple Press Information, Retrieved from http://www.apple.com/pr/library/2011/03/02Apple-Launches-iPad-2.html

Muthén, L. K., & Muthén, B. O. (2011). Mplus User's Guide. Sixth Edition. Los Angeles, CA: Muthén & Muthén.

Netemeyer, R. G., Boles, J. S., & McMurrian, R. (1996). Development and validation of work-family conflict and family-work conflict scales. *Journal of Applied Psychology, 81,* 400-409. doi: 10.1037/0021-9010.81.4.400

O'Driscoll, M. P., Ilgen, D. R., & Hildreth, K. (1992). Time devoted to job and job activities, interrole conflict and affective experiences. *Journal of Applied Psychology, 77,* 272-279. doi: 10.1037/0021-9010.77.3.272

Odle-Dusseau, H. N., Britt, T. W., & Greene-Shortridge, T. M. (2012). Organizational work–family resources as predictors of job performance and attitudes: The process of work–family conflict and enrichment. *Journal of Occupational Health Psychology, 17*(1), 28-40. doi:10.1037/a0026428

Olson-Buchanan, J. B., & Boswell, W. R. (2006). Blurring boundaries: Correlates of integration and segmentation between work and nonwork. *Journal of Vocational Behavior, 68,* 432-445. doi: 10.1016/j.jvb.2005.10.006

Park, Y., & Jex, S. M. (2011). Work-home boundary management using communication and information technology. *International Journal of Stress Management, 18*(2), 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*(4), 457-467. doi:10.1037/a0023594

Pedersen, D. E., & Minnotte, K. (2012). Self- and spouse-reported work–family conflict and dual-earners' job satisfaction. *Marriage & Family Review, 48*(3), 272-292. doi:10.1080/01494929.2012.665015

Pew Research Center. (2014, January). Cell phone and smartphone ownership demographics. *Pew Research Center Internet Project Survey*. Retrieved from http://www.pewinternet.org/data-trend/mobile/cell-phone-and-smartphone-ownership-demographics/

Poposki, E. M. (2011). The blame game: Exploring the nature and correlates of attributions following work–family conflict. *Group & Organization Management, 36*(4), 499-525. doi:10.1177/1059601111408898

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, *42*(1), 185-227. doi:10.1080/00273170701341316

Rainie, L. (2012). Tablet and e-book reader ownership nearly double over the holiday gift-giving period. *Pew Internet and American Life Project*. Retrieved from http://www.pewinternet.org/Reports/2012/E-readers-and-tablets.aspx

Ragins, B. R., Lyness, K. S., Williams, L. J. and Winkel, D. (2014). Life spillovers: The spillover of fear of home foreclosure to the workplace. *Personnel Psychology*. Early view published online: doi:10.1111/peps.12065.

Smith, A. (2012). 46% of American adults are smartphone owners. *Pew Internet and American Life Project*. Retrieved from http://www.pewinternet.org/~/media//Files/Reports/2012/Smartphone ownership 2012.pdf

Ten Brummelhuis, L. L., Haar, J. M. and Roche, M. (2013). Does family life help to be a better leader? A closer look at crossover processes from leaders to followers. *Personnel Psychology***.** Early view published online: doi:10.1111/peps.12057.

Thoits, P. A. (1991). On merging identity theory and stress research. *Social Psychology Quarterly*, 101-112. doi:10.2307/2786929

Valcour, P. M., & Hunter, L. W. (2005). Technology, organizations, and work-life integration. In E. E. Kossek & S. J. Lambert's (Eds.), Work and life integration: Organizational, cultural, and individual perspectives: 61-84. Mahwah, NJ: Lawrence Erlbaum.

Wayne, J. H., Randel, A. E., & Stevens, J. (2006). The role of identity and work–family support in work–family enrichment and its work-related consequences. *Journal of Vocational Behavior, 69*(3), 445-461. doi:10.1016/j.jvb.2006.07.002

Weary, G., Stanley, M. A., & Harvey, J. H. (1989). *Attribution*. Springer-Verlag Publishing.

Table 1

Intercorrelations among Study Variables

	1	2	3	4	5	6	7	8	9	10	11
1. Work centrality	1										
2. Family centrality	-.16**	1									
3. W-to-F integration preferences	.12**	-.21**	1								
4. F-to-W integration preferences	-.30**	.25**	.06	1							
5. W-to-F SBMS	.32**	-.15**	.28**	-.15**	1						
6. F-to-W SBMS	-.15**	.29**	-.13**	.18**	.06	1					
7. Perceived boundary control	.04	.17*	-.10	-.00	-.18*	.18*	1				
8. Frequency of smartphone use	.12**	.09*	.08	.06	.18**	.15**	-.05	1			
9. W-to-F conflict	.11	-.21**	.16	-.10	.43**	-.08	-.30**	.15	1		
10. F-to-W conflict	.09	-.25**	.06	-.13	.27**	-.05	-.26**	.08	.54**	1	
11. Work satisfaction	.14	.14	.054	.08	-.04	.11	.15	.05	-.34**	-.28**	1
12. Family satisfaction	.07	.29**	-.14	.15	-.19*	.15	.27**	.02	-.28**	-.47**	.35**

Notes: † p<.10; * p<.05; ** p<.01.

Table 2

Path Coefficients from Bootstrapped Model

	Estimate	SE	Estimate	SE
	Preferences: F→W		Preferences: W→F	
Gender	.36*	.15	-.03	.12
Number of kids under 13	.00	.14	-.09	.10
Age	-.02†	.01	.01	.01
	Work Centrality		Family Centrality	
Gender	-.05	.11	.21*	.09
Number of kids under 13	-.21	.14	.14†	.08
Age	-.02†	.01	-.02*	.01
	BMS: W→F			
Preferences: W→F	.32**	.11		
Family Centrality	-.26†	.14		
Work Centrality	.54**	.11		
	BMS: F→W			
Preferences: F→W	.30**	.09		
Family Centrality	.61**	.17		
Work Centrality	.01	.12		
	Smartphone Frequency			
BMS: W→F	.12**	.04		
BMS: F→W	.12**	.04		
Age	-.02**	.01		
	Conflict: W→F			
BMS: W→F	.27**	.07		
Control of use	-.21**	.08		
BMS W→F X Control	-.05	.07		
Smartphone Frequency	.09	.17		
	Conflict: F→W			
BMS: F→W	.00	.07		
Control of use	-.16*	.06		
BMS F→W X Control	-.01	.07		
Smartphone Frequency	.08	.12		
	Family Satisfaction		Work Satisfaction	
Conflict: W→F	-.05	.05	-.21*	.10
Conflict: F→W	-.30**	.08	-.18	.13
Work Hours	.07	.06	-.02	.15

Notes: † p<.10; * p<.05; ** p<.01. Reported standard errors have been estimated from 5,000 bootstrapped iterations.

Figure 1

Hypothesized Model

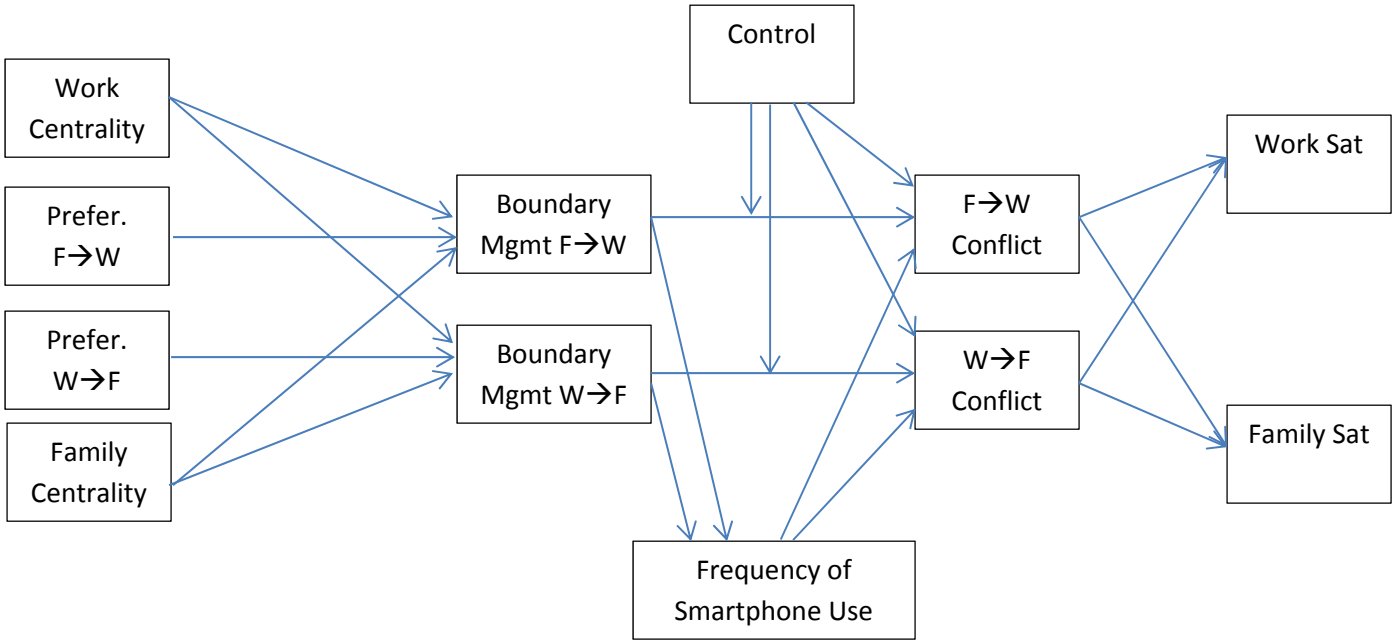

Figure 2

Model with Significant and Non-Significant Paths