

Computer-Mediated Communication in Intimate Relationships: Associations of Boundary  
Crossing, Intrusion, Relationship Satisfaction, & Partner Responsiveness

Aaron M. Norton

*Texas Woman's University*

Joyce Baptist

*Kansas State University*

Bernie Hogan

*University of Oxford*

## Abstract

This study examined the impact of technology on couples in committed relationships through the lens of the couple and technology framework. Specifically, we used data from 6,756 European couples to examine associations between online boundary crossing, online intrusion, relationship satisfaction, and partner responsiveness. The results suggest that participants' reports of online boundary crossing were linked with lower relationship satisfaction and partner responsiveness. Also, lower relationship satisfaction and partner responsiveness were associated with increased online boundary crossing. The results suggest that men, but not women, who reported greater acceptability for online boundary crossing were more likely to have partners who reported lower relationship satisfaction in their relationships. Implications for clinicians, relationship educators, and researchers are discussed.

Technology has enabled new forms of communication that has transformed the way that we connect with those closest to us. Individuals are now using mobile devices on a daily basis to share and communicate in many ways, such as through text messaging, sharing photos through Instagram, sharing experiences through Twitter, posting on Facebook, and video chatting. Communicating through technology, or computer-mediated communication (CMC), has created a new form of connectedness for families and couples that is based on remote digital interactions and shared experiences (Kennedy, Smith, Wells, & Wellman, 2008).

While many researchers and scholars have examined CMC, the vast majority of the research has been published in the fields of communication, retail, and business, which focus primarily on the characteristics of Internet users and reasons for media use (Hertlein & Webster, 2008). Few empirical articles have been published in family therapy journals. A content analysis of couple and family therapy journals from 1996 to 2010, which included 13,274 articles from 17 journals over a fifteen year period, revealed that less than one percent pertained to Internet-related issues (Blumer, Hertlein, Allen, & Smith, 2013). The analysis revealed the 79 articles were limited to seven topics: clinical practice (28 articles; 35%); cybersex and couples (18 articles; 23%); education and training (17 articles; 22%); online support and resources (seven articles; 9%); teenager and child usage (four articles; 5%); administrative and the business of therapy (three articles; 4%); and cyber addiction (two articles; 2%). Between 1996 and 2010 only 20 articles, which is only 0.0015% of the total research in family therapy, have been focused on CMC in couple relationships. Moreover, the number of published articles in family therapy-related journals has not been increasing along with the increased use of CMC (Blumer et al., 2013). Since 2010, there have been studies on online gaming, dating, and infidelity that have been published mostly in communications journals (e.g., Hertlein, 2012; Zhong, 2011). In a

review of the research for Internet infidelity, Vossler (2016) found that what is most missing from research is empirical validation of internet-related vulnerabilities and current models, which can help to strengthen the explanatory power of current factors and models.

This study seeks to add to the existing empirical literature in family therapy by examining two specific internet-related vulnerabilities through the lens of the couple and family technology framework, which considers the effects of CMC on couple and family systems (Hertlein & Blumer, 2013). Through the application of this model, we examined the associations of two specific internet-related factors, online intrusion and acceptability for online boundary crossing, with couples' relationship satisfaction and their responsiveness to each other.

### **The Couple and Family Technology Framework**

In order to conceptualize how CMC impacts couples and families, Hertlein (2012) proposed a multitheoretical model, the couple and family technology (CFT) framework. This theoretical model assumes that CMC has both positive and negative influences on couple and family relationships through the ways that technology impacts the roles, rules, and boundaries of relationships as well as how they are formed, maintained, and dissolved (Hertlein & Ancheta, 2014). The CFT framework conceptualizes this by pulling together three broad perspectives -- the ecological perspective, structural-functional perspective, and interaction-constructionist perspective (see Figure 1).

The family ecology perspective, developed by Urie Bronfennbrenner and later expanded by numerous theoreticians and researchers, centers on how the environment affects individuals (Chibucos, Leite, & Weis, 2005). One of its greatest strengths is its emphasis on the impact of macro-societal forces and influences, such as policy, contextual issues, and institutions, on couples and families. The ecological perspective views couple relationships as “a behavior

system embedded within a larger network” (Huston, 2000, p. 317). The growth in CMC over the past two decades has introduced a dynamic, complex system that created a new network for close relationships. Hertlein and Stevenson (2010) proposed seven *ecological influences* that promote changes in couple relationships: accessibility, affordability, anonymity, acceptability, approximation, ambiguity, and accommodation (see Hertlein & Stevenson, 2010). These seven ecological influences are theorized to then promote change in relationship structures and processes (Hawkins & Hertlein, 2013; see Figure 1). The structural-functional perspective describes the changes in relationship structures and the interaction-constructionist perspective identifies relationship processes.

*Insert Figure 1 here*

The structural-functional perspective consists of two pieces, namely how relationships are organized (i.e., the structure) and how relationships meet the needs of each partner (i.e., functions; Johnson, 1971; Hertlein & Blumer, 2013). It is concerned with the roles, rules, and boundaries that couples and families create to function as a separate system (Johnson, 1971). For example, this structural-functional perspective considers the rules that couples ascribe to their relationship that specify its boundaries, such as what is private and what is shared between the couple. In the context of the CFT framework, the structural-functional perspective is applied to consider the ways that technology redefines rules, changes boundaries, alters roles, and changes communication (Hertlein, 2012). These structural changes are then theorized to affect relationship processes (see Figure 1).

The interaction-constructionist perspective is focused primarily on the way that couples interact with one another, how relationships develop across time, and the meaning that they construct around gestures, rituals, and behaviors (Berger & Kellner, 1970). Essentially, this

perspective brings in the subjective experience of couples in their relationships. For instance, when a partner has an extramarital relationship, the meaning of that relationship may be different for each partner. The individual may ascribe a sense of friendship and support from his or her friend while the partner may ascribe anxiousness and fear, perceiving the extramarital friendship as a threat to the intimacy of their marriage. In the context of the CFT framework, this perspective is applied to the ways in which ecological influences and structural changes impact relationship processes, such as intimacy, satisfaction, and trust. It also applies to the pace of relationships across time, with applications to relationship initiation, formation, and development.

### **Ecological Influence: Acceptability for Online Boundary Crossing**

Acceptability, one of the ecological influences described by Hertlein & Stevenson (2010), represents the approved use and role of technology in couple relationships. This factor refers to both the place of technology in relationship formation, maintenance, and dissolution as well as the acceptability of behaviors, such as online gaming, gambling, sexual activities, and socializing. At the beginning of the social networking boom, the Internet was found to have an indispensable and integral place in most people's lives (Hoffman, Novak, & Venkatesh, 2004). With the proliferation of social networking and smartphones, technology has only come to have an even more central and accepted role in people's lives. We often take our phones with us everywhere we go and use them throughout our day. It is not only common, but normative, for couples to text each other during the day, tweet about how a date went, or share pictures about their relationship through social networking (Kennedy, et al., 2008, Pew Research Center, 2014). The small and oftentimes mundane ways that people use technology to communicate, share, and connect make it integral to people's lives (Hoffman, et al., 2004; Perrin, 2015). While the

increased acceptability has shown to be associated with increased feelings of connectedness (Kennedy et al., 2008; Leggett & Rossouw, 2014), it has conversely been shown to be associated with increased relationship distress, decreased family satisfaction, increased negative work-to-family spillover, and increased negative family-to-work spillover (Chesley, 2005; King, 1999; McDaniel & Coyne, 2016). Essentially, the impact of technology on couple relationships grows along with its increased acceptability.

While there are many ways that increased acceptability is associated with issues in romantic relationships, one specific area that is little understood is acceptability for online socialization. One of the challenges for couple relationships is to establish boundaries and rules that define who participates in the couple's lives and more specifically how that interaction occurs (Minuchin, 1974). To do so, couples implicitly and explicitly identify what kinds of socializing behaviors are considered acceptable to maintain the fidelity of the relationship. Boundaries regulate couples' interactions to prohibit actions that would betray trust (Peterson, 1992). There are two ways that boundaries can be affected, namely through violations and crossings.

While boundary violations are clear breaches of trust and fidelity (Peterson, 1992), boundary crossings are acts or conduct that may be considered inappropriate or upsetting by one or both partners (Cravens & Whiting, 2014; Lamb & Catanzaro, 1998; Rosenbloom, 2003). This can occur when a friendship begins to cross the boundaries of fidelity, such as when a partner begins to seek comfort from a friend through sharing details of relationship troubles, begins to disclose intimate personal details to another, or exhibits flirtatious behavior towards another. Online pornography is one of the few boundary crossing behaviors that has been previously studied. Viewing pornography online has become more acceptable among men than women

(Carroll, et al., 2008; Helsper & Whitty, 2010; King, 1999). Previous research has shown that women have reported relationship distress, feelings of helplessness, lower relationship quality, and decreased intimacy when they viewed their partner's online pornography usage as heavy (Bergner & Bridges, 2002; Poulsen, Busby, & Galovan, 2013; Stewart & Szymanski, 2012). So, while viewing pornography may not be an explicit violation of fidelity, the research supports that it does negatively impact the couple relationship and that women, more than men, find it unacceptable behavior.

Thus far, only two studies have examined acceptability for online socialization. In a survey of 6,012 married individuals from the United Kingdom, Helsper & Whitty (2010) found that couples generally agree that they would be unhappy if their partner exhibited the following boundary crossing behaviors: flirted online with someone other than their exclusive partner, shared personal information about their partner to someone else, or discussed relationship troubles with someone of the opposite sex. Likewise, Norton (2014) found in a survey of 205 married, older adults that they agreed that partners should not flirt online. Increased acceptability for behaviors that could be deemed inappropriate by one partner, such as online boundary crossing, can have deleterious effects on romantic relationships. The following example from the first author's own clinical work illustrates how online boundary crossings can negatively impact relationships (all names and identifying information have been changed to maintain confidentiality):

Earl and Beth, a couple in their early thirties, presented with a disagreement about Beth's former boyfriend, Larry, who abandoned Beth and her three children without notice or explanation more than seven years ago. Beth and Larry's relationship took place several years before Earl and Beth even met. Several weeks prior to the initiation of therapy,



Larry had contacted Beth via Facebook. Hoping for an apology and explanation of his previous abandonment, Beth began chatting with Larry through Facebook's instant messenger app. Some of Larry's exchanges were flirtatious. When Earl learned of the messages, he was incensed and hurt that Beth did not discuss Larry reaching out to her or forwarding the messages to him and that she was flirting with a former romantic partner.

In therapy, Earl was clear that he did not believe Beth's behavior violated the fidelity of their marriage, but that he was concerned about what may have happened had he not learned of the messages. For Earl, Beth's behavior was an online boundary crossing, an inappropriate relationship that he found distressing and that could have led to a boundary violation. Many researchers have theorized that increased acceptability for boundary crossings will cause significant changes to relationship boundaries and dynamics, but these hypotheses have not yet been tested (see Hertlein & Blumer, 2013).

### **Structural Influence: Online Intrusion**

The continuous communication enabled by the Internet has resulted in increased permeability between the boundaries of work and home life as well as the boundaries for privacy (Chesley, 2005; Dutton, 2005; Kennedy et al., 2008; Nam, 2014). Technology, in a sense, makes all of a person's activities much more readily available and reconfigures his or her partner's accessibility (Dutton, et al., 2009). The choices that individuals make in regards to how they access information and what they do with it has the capacity transform people's relationships (Dutton, 2005; Reed, Tolman, & Safyer, 2015). Online intrusion is when a partner monitors an individual's use of social networking sites, blogs, and other technologies to gain greater information, awareness, and knowledge of their partner's online and offline activities (Reed, et al., 2015).

Online intrusion has been associated with increased jealousy (Muise, Christofides, & Desmarais, 2009; 2014), decreased trust (Tokunaga, 2011; Norton, 2014), and perceived uncertainty in relationships (Stewart, Dainton, & Goodboy, 2014). It may be that technological intrusion is harmful in the beginning phases of relationships, where it is used as a form of surveillance (Gibbs, Ellison, & Lai, 2011; Muise, et al., 2009; Reed, et al., 2015), whereas in later stages of relationship development, it is used as a form of openness and expression of trust (Tokunaga, 2011; Norton, 2014). However, further research on this particular boundary change is necessary in order to more fully understand how CMC is reconfiguring relationships.

### **Process Influences: Relationship Satisfaction and Partner Responsiveness**

The bulk of the research on relationship processes has been limited to studies on online dating and clinical cyber-issues, such as pornography consumption, online affairs, and online gaming (see Bird, Butler, & Fife, 2007; Blumer et al., 2013; Byun et al., 2009) leaving us with little understanding of how CMC impacts couples in committed romantic relationships. However, there is some preliminary evidence that CMC is associated with relationship satisfaction, partner responsiveness, and other relationship processes. For instance, using media more frequently to express affection is associated with more relationship satisfaction, feelings of connectedness, and partner responsiveness to their needs (Coyne et al., 2011; Kennedy et al., 2008). Online self-disclosure has found to increase trust and intimacy (Yum & Hara, 2005; Park, Jin, & Jin, 2011; Norton, 2014). Perry and Wilson (2011) found that couples find face-to-face and technology-mediated communication equally satisfying for resolving conflict. More broadly, CMC has been found to give couples a new and beneficial sense of connectedness (Kennedy et al., 2008). Further research that investigates the impact of CMC on relationship

processes is needed. Specifically, this paper will attempt to better understand how online intrusion and the acceptability for boundary crossing each impact couple relationship processes.

### **Other Influential Factors**

#### **Demographic Variables**

There are several common demographic variables that have been shown to impact technology use, relationship satisfaction, and partner responsiveness, including: participants' age, education level, household income, number of children they have, and the length of their relationship. Age, income, and education have been shown to impact the type of social networking sites used, the likelihood of owning a smartphone, and the knowledge of technology's features, where younger, wealthier and higher educated individuals report more use, ownership and knowledge (Smith & Duggan, 2014; Zickuhr & Smith; 2012). In addition, there have been many studies that have shown participants' age, having children, household income, and relationship length influence and impact relationship satisfaction (see Brown, 2004; Brown & Booth, 1996; Cohan & Kleinbaum, 2002; Durtschi, 2012; Dush, Cohan, & Amato, 2003; Kluwer, 2010; Nock, 1995). Consequently, the influence of each of these variables will be controlled for in the current study.

#### **Accessibility: General Use of Computer-Mediated Communication**

Accessibility refers to the ease and many locations that the Internet can be used and accessed by individuals to connect with others (Cooper, Morahan-Martin, Mathy, & Maheu, 2002). Accessibility has two chief influences that are both a source of empowerment and vulnerability in couple relationships. On the one hand, accessibility gives individuals increased access to materials, content, and people. This gives individuals greater choice, control, and influence over their environment (Hertlein, 2012). On the other hand, accessibility also provides

increased access by outside people and entities (Hertlein & Blumer, 2013). This means that individuals can be accessible to their partners, coworkers, and even outside parties (e.g., former romantic partners, estranged family members), which can create increased conflict and blurred boundaries between different areas of life.

The more that technology is accessible to use as a means of communication, the greater the impact it will have on couple relationships (Hertlein & Stevenson, 2010). Where CMC was once limited to desktop computers, it has now been expanded to texting, instant messaging, blogging, social networking, and online gaming through cell phones, tablets, and laptops. As of October 2014, 64% of American adults own a smartphone, 90% own a cell phone, 42% own a tablet, and 57% have a laptop (Pew Research Center, 2014; Zickuhr & Smith, 2012). Moreover, the rate of Internet access through cell phones has risen from 31% in 2009 to 63% in 2013 (Zickuhr & Smith, 2012). The Internet has become nearly ubiquitous, accessible in many ways, and used for connection and communication. While these effects can be negative, such as through increased conflict, relationship dissatisfaction, and blurred boundaries, it can have positive effects, as one might be able to settle old relationships, seek out support and protection from an abusive relationships, and keep tabs on others who might need social support. Therefore, it is important to account for the varied impact of technology on couples from the amount that they use it in their daily lives.

### **The Current Study**

Using the CFT framework, we examined the associations of one ecological influence (acceptability for online boundary crossing), one structural influence (online intrusion), and two relationship processes (relationship satisfaction and partner responsiveness) between men and women in matched, opposite sex couples (see figure 2). Furthermore, we examined the

associations within each person (*actor effects*) and between partners (*partner effects*). The following research questions were tested:

### **Actor Effects**

1. In what ways are men's and women's acceptability for online boundary crossing associated with their own reports of online partner intrusion, relationship satisfaction, and perceived partner responsiveness?
2. In what ways are men's and women's online partner intrusion associated with their own reports of relationship satisfaction and perceived partner responsiveness?

### **Partner Effects**

3. In what ways are men's and women's acceptability for online boundary crossing associated with their partner's reports of online partner intrusion, relationship satisfaction, and perceived partner responsiveness?
4. In what ways are men's and women's online partner intrusion associated with their partner's reports of relationship satisfaction and perceived partner responsiveness?

*Insert Figure 2 here*

The results of the study will make several important contributions to the literature. First, this will be one of the first studies to empirically test the proposition that the ecological influence of acceptability is associated with a structural influence (online partner intrusion) and that both are associated with changes to process (relationship satisfaction and partner responsiveness), a key tenant of the CFT framework. Second, this study will examine how participants' relationship satisfaction and perceived partner responsiveness are associated with the use of CMC to check up on their partner's online activities. This piece of the analysis will help researchers, clinicians, and educators to better understand how checking up on one's partner may

affect relationships. Third, this study will conduct a dyadic analysis that will help us to better understand how individuals' use of technology not only impacts their own relationship satisfaction and responsiveness but also their partner's satisfaction and responsiveness. This is a central question that many couple therapists and marital educators ask about relationship behaviors. Ultimately, we are concerned with how partners' behaviors and perceptions impact each other. The dyadic analysis will help to create a better picture of what technology looks like in committed, opposite-sex relationships.

## **Method**

### **Sample**

The current study uses data from the research project, *Me, My Spouse, and the Internet: Meeting, Dating and Marriage in the Digital Age*, which was directed by the Oxford Internet Institute and supported by a grant from eHarmony.com (Hogan, Li, & Dutton, 2011). The purpose of the research project was to investigate the role of the Internet in couple relationships. A professional Internet panel company gathered a total of 23,860 participants across 18 countries. Participants were sent an email by the Internet panel company directing each member within the couple relationship to complete the online survey. Selected participants were at least 18 years old, in a cohabitating or marital opposite-sex relationship with Internet access in the home.

There were two primary waves of data collection. The first was a Pan-European sample consisting of 16 European countries and the second wave was gathered from Brazil and Japan (Hogan, et al., 2011). Selected countries were those with at least 30% Internet penetration and a total population of at least 10 million. The researchers sought to collect a sample of at least 1,200 couples within each country. Furthermore, sampling was focused on gathering a

representative population from each country, such as through setting parameters for age distribution. For instance, samples from each country were gathered where no more than less than 10% and no more than 15% of respondents were between 18 and 25 years old and likewise for participants over 55 years old. The current analysis used a subsample of matched opposite-sex couples from the Pan-European sample. This resulted in a total of 6,756 couples ( $N = 13,512$  individuals), with some couples living in different countries from each other.

## Measures

**Acceptability for online boundary crossing.** Three items were used to measure the level of acceptability for socializing with someone attractive online. Participants were asked how comfortable (1 = *very uncomfortable*, 2 = *somewhat uncomfortable*, 3 = *somewhat comfortable* or 4 = *very comfortable*) they would feel if they discovered their partner had done the following activities since they have been together: talked about everyday life or pop culture online with someone attractive, shared personal information online with someone attractive, and talked about relationship troubles or concerns online with someone attractive. Items were coded such that higher scores represent greater comfort and combined using mean method. Reliability tests suggested adequate internal reliability for both men ( $\alpha = .91$ ) and women ( $\alpha = .89$ ).

**Partner intrusion.** One item was used to assess participants' perception of partner intrusion of their online activities. Participants were asked if their partner has ever checked up on their online activities along a 4-point scale (1 = *yes, I am confident they have*, 2 = *I suspect they have, but I am not sure*, 3 = *I doubt they have, but I am not sure*, and 4 = *I am confident they have not*). The item was reverse coded such that higher scores represent greater perceived intrusion.

**Relationship Satisfaction.** Fifteen items from the 32-item Couple Satisfaction Index (Funk & Rogge, 2007) were used to assess couple satisfaction. Participants were asked to rate how true (1 = *not at all true*, 2 = *a little true*, 3 = *somewhat true*, 4 = *mostly true*, 5 = *almost completely true*, 6 = *completely true*) each statement reflected their relationship. Questions included “our relationship is strong,” “my relationship with my partner makes me happy,” and “I have a warm and comfortable relationship with my partner.” Items were coded such that higher scores represent higher satisfaction and combined using mean method. Reliability tests suggested adequate internal reliability for both men ( $\alpha = .92$ ) and women ( $\alpha = .92$ ).

**Partner responsiveness.** Six items were used to assess how responsive participants felt their partner was when they needed help. Participants were asked to rate how true (1 = *not at all true* to 7 = *very true*) each item described their relationship. Items included “when I need help my partner gives me good advice,” “when I need help my partner tries to listen to my feelings,” “when I need help my partner tries to calm me down,” “when I need help partner tries to do my chores so I can concentrate,” “when I need help my partner does practical things, like driving me to the doctor,” and “when I need help my partner tries to provide best information to help.” Items were coded such that higher scores represented higher responsiveness and combined using mean method. Items assessing partner responsiveness had an alpha of .89 for both men and women.

**Control variables.** Five demographic variables were used as controls in the analysis. First, men ( $M = 42.50$ ,  $SD = 11.92$ ) and women ( $M = 39.99$ ,  $SD = 11.85$ ) were asked in what year they were born, which was then used to compute their age. Second, one item was used to assess the couple’s annual household income ( $M = 3.15$ ,  $SD = 1.32$ ). Participants were asked, “What is your current annual household income, including your partner?” (1 = *less than £12,000*,



2 = £12,500 to £25,000, 3 = £25,000 to £37,500, 4 = £37,500 to £50,000, 5 = £50,000 to £75,000, 6 = more than £75,000). Third, men's ( $M = 4.67$ ,  $SD = 2.32$ ) and women's ( $M = 4.68$ ,  $SD = 2.31$ ) education was measured by asking each participant, "What is the highest level of education that you have attained?" (1 = *primary school*, 2 = *secondary school*, 3 = *sixth form college*, 4 = *technical college*, 5 = *adult college*, 6 = *some college*, 7 = *undergraduate degree*, 8 = *graduate school*, 9 = *Ph.D. or postdoctoral*). Fourth, to measure the number of children in the household participants were asked, "At this time, how many children live with you, from any relationship" ( $M = .98$ ,  $SD = 1.08$ ). Fifth, to measure relationship length participants were asked, "In what year did you and your partner begin living together." This was then used to compute relationship length ( $M = 13.54$ ,  $SD = 11.53$ ) by subtracting the year of data collection from the year reported.

In addition to the demographic control variables, one substantive control variable was measured to assess for participants use of computer-mediated communication generally in their day to day lives. Eight items were used to assess participants' general use of computer-mediated communication. Participants were asked how often (1 = *never*, 2 = *less than monthly*, 3 = *monthly*, 4 = *weekly*, 5 = *daily*, 6 = *more than one times daily*) they used the Internet for the following purposes (including work): send emails, do instant messaging, participate in chat rooms, design or maintain a personal website, send jokes or other humorous content to others, update their status on a social networking site, post pictures or photos on the Internet, and join or post content to an online dating site. Items were coded such that higher scores represent higher Internet use. Reliability tests suggested adequate internal reliability for both men ( $\alpha = .84$ ) and women ( $\alpha = .84$ ).

## **Analysis Plan**

An actor-partner interdependence model (APIM) using MPlus 7 (Muthén & Muthén, 1998-2007) was used to test the research questions. The APIM simultaneously estimates the effect of a person's own variable (actor effect) and the effect of same variable but from the partner (partner effect) on the variable of interest. Missing data were handled using full information maximum likelihood (FIML) because the values for skewness and kurtosis were within acceptable ranges (Chou & Bentler, 1995; Bryne, 2012). Model fit was considered good with a non-significant model chi-square ( $\chi^2$ ), comparative fit index (CFI) and Tucker-Lewis Index (TLI) greater than .95, root mean square error of approximation (RMSEA) less than .05, and standardized root mean square residual (SRMR) less than .10 (Hu & Bentler, 1999; Bryne, 2012).

Prior to selecting the final model, the omnibus test of distinguishability (Olsen & Kenny, 2006) was conducted and demonstrated that men and women were empirically distinguishable. Therefore, the model could be evaluated without equality constraints. However, in order to better evaluate the differences between men and women, corresponding actor and partner paths were constrained to be equal. A Chi-square difference test was evaluated, with a significant Chi-square indicating a significant difference for men and women. In order to increase parsimony, paths that were found to have no significant difference between men and women were then constrained to be equal in the final model (see Table 1). Additionally, we considered that the results may be country specific. Consequently, the final model was tested with several subsamples by country. Differences were negligible to the main model and therefore the total sample was used.

## **Results**

### **Preliminary Analyses**

To begin, preliminary analyses using IBM PASW Statistics Version 18 (IBM Corporation, 2010) were conducted to assess missingness, normality, bivariate relationships, reliability estimates, and mean differences between men and women. All study variables had low missingness (7.1% for acceptability for online boundary crossing and less than 1% for all other variables) and indicated an acceptable range of normality, where skewness was less than 2 and kurtosis less than 7 (Byrne, 2012). In order to determine the fit of developing scales for each variable, a factor analysis using principle components analysis (PCA) was conducted.

The results of the correlation analysis revealed significant associations among variables. As expected, the bivariate relationships for men and women along equivalent variables (e.g., correlation of men's relationship satisfaction with women's relationship satisfaction) were significant, ranging from .47 ( $p < .01$ ) for partner responsiveness to .71 ( $p < .01$ ) for relationship satisfaction. Next, mean differences between men and women were explored using paired sample  $t$ -tests for men's and women's reports on each corresponding variable. Results indicated that men's scores were significantly higher than women's scores on each variable (acceptability for online boundary crossing,  $t(2,497) = 5.67, p < .001$ ; partner intrusion,  $t(2,825) = 7.58, p < .001$ ; relationship satisfaction,  $t(2,825) = 4.11, p < .001$ ; partner responsiveness,  $t(2,824) = 2.55, p < .05$ ). In other words, men reported significantly higher acceptability for online boundary crossing, partner intrusion, relationship satisfaction, and partner responsiveness than did women in the sample.

### **Model Results**

The final model fit the data adequately ( $\chi^2(6) = 8.084, p = .23$ ; CFI = 1.00; TLI = .99; RMSEA = .01 (C.I. .01- .03); SRMR = .01). For men, the model accounted for 10.1% of the explained variance in relationship satisfaction, 5.8% in partner responsiveness, and 9.2% in

partner intrusion. For women, the model accounted for 8.6% of the explained variance in relationship satisfaction, 4.3% in partner responsiveness, and 7.4% in partner intrusion. Generally, the strength of the path coefficients was small in effect size, when judging the standardized betas.

*Insert Table 1 Here*

**Research questions 1 and 3.** First, we examined whether acceptability for online boundary crossing was significantly associated with perceived partner intrusion, while holding all control variables constant (see Table 1 and Figure 1). No significant actor paths were found for men or women. This means that men's acceptability for online boundary crossing was not associated with men's perception of partner intrusion and women's acceptability for online boundary crossing was not associated with women's perception of partner intrusion. However, significant partner paths were found for women's acceptability for online boundary crossing and men's perceived partner intrusion. Women who reported more comfort with their partner speaking online with an attractive woman were significantly less likely to have a partner report confidence that she was checking up on his online activities ( $\beta = -.05, p < .001$ ). The same relationship was not found for men's acceptability for online boundary crossing and women's reported partner intrusion ( $\beta = -.03, p = \text{n.s.}$ ).

Second, we examined whether acceptability for online boundary crossing was significantly associated with relationship satisfaction and partner responsiveness. Men's increased acceptability for online boundary crossing was significantly associated with decreased relationship satisfaction for men ( $\beta = -.13, p < .001$ ) and women ( $\beta = -.07, p < .001$ ). Men's increased acceptability for online boundary crossing was also significantly associated with decreased scores on men's ( $\beta = -.13, p < .001$ ) but not women's ( $\beta = -.02, p = \text{n.s.}$ ) reports for

partner responsiveness. Women's acceptability for online boundary crossing was significantly associated with women's decreased relationship satisfaction ( $\beta = -.07, p < .01$ ), women's reports of partner responsiveness ( $\beta = -.07, p < .01$ ), and men's relationship satisfaction ( $\beta = -.06, p < .01$ ).

**Research questions 2 and 4.** Third, the model examined the association between partner intrusion and relationship satisfaction and partner responsiveness. Men's partner intrusion was significantly associated with decreased relationship satisfaction for men ( $\beta = -.19, p < .001$ ) and women ( $\beta = -.12, p < .001$ ). Men's reports for partner intrusion were also significantly associated with decreased scores on men's reports for partner responsiveness ( $\beta = -.13, p < .001$ ). Women's reports for partner intrusion were significantly associated with decreased relationship satisfaction for women ( $\beta = -.18, p < .001$ ) and men ( $\beta = -.11, p < .001$ ). Women's partner intrusion was also significantly associated with both women's ( $\beta = -.11, p < .001$ ) and men's ( $\beta = -.07, p < .001$ ) reports on partner responsiveness.

**Control variables.** Fourth, the relationships between the control variables and partner intrusion, relationship satisfaction, and partner responsiveness were examined. For men, eleven significant paths were found for the control variables in the analysis. Men's increased relationship satisfaction was significantly associated with less general Internet use by men ( $\beta = -.06, p < .05$ ), greater general Internet use by women ( $\beta = .08, p < .001$ ), lower education for men ( $\beta = -.05, p < .05$ ), and higher education for women ( $\beta = .07, p < .01$ ). Men's partner responsiveness was associated with more general Internet use for women ( $\beta = .12, p < .001$ ), lower education for men ( $\beta = -.05, p < .05$ ), and fewer children in the household ( $\beta = -.10, p < .001$ ). Men's partner intrusion was significantly associated with greater general Internet use by

men ( $\beta = .12, p < .001$ ) and women ( $\beta = .09, p < .001$ ), younger women ( $\beta = -.13, p < .05$ ), and lower education for women ( $\beta = -.05, p < .05$ ).

For women, thirteen significant paths were found for the control variables in the analysis. Women's relationship satisfaction was found to be significantly associated with younger men ( $\beta = -.13, p < .01$ ), higher education for men ( $\beta = .06, p < .05$ ), and lower education for men ( $\beta = -.05, p < .05$ ). Women's partner responsiveness was associated with greater Internet use by men ( $\beta = .05, p < .05$ ), lower income ( $\beta = -.06, p < .01$ ), higher education for women ( $\beta = .09, p < .001$ ), and fewer children in the household ( $\beta = -.08, p < .01$ ). Women's partner intrusion was significantly associated with younger women ( $\beta = -.13, p < .05$ ) and more general Internet use by women ( $\beta = .10, p < .001$ ) and men ( $\beta = .12, p < .001$ ).

*Insert Figure 3 here*

## **Discussion**

The current study used the CFT framework (Hertlein, 2012) to examine the associations between acceptability for online boundary crossing, online partner intrusion, relationship satisfaction, and partner responsiveness while controlling for the use of computer-mediated communication generally, participants' age, annual household income, education, number of children within the household, and how many years the couple has lived together. An APIM was tested using structural equation modeling with 6,756 couples from the pan-European sample of the Oxford Internet Institute's research project, Me, My Spouse, and the Internet: Meeting, Dating and Marriage in the Digital Age. We examined whether increased acceptability for online boundary crossing was associated with perceived partner intrusion and whether each of the prior two were associated with relationship satisfaction and partner responsiveness.

### **Actor Effects: Research Questions 1 & 2**

There were several findings that were common across men and women's actor effects. To determine whether there were significant differences between men and women's actor paths, a difference test using the model Chi-square was conducted between constrained and unconstrained models. Each path was tested one at a time. The results indicated that acceptability for online boundary crossing was not significantly associated with partner intrusion for either partner or actor paths. However, partner intrusion was significantly associated with both partner responsiveness and relationship satisfaction, with no significant differences between men and women for these paths. Moreover, these parameter estimates were among the strongest in the model, with the association between partner intrusion and relationship satisfaction the overall strongest. It may be that individuals feel their online activities are part of their private life, separate from their partner. When their partner checks up on their online activities, it may feel like a violation of privacy or even trust which could lead to decreased relationship satisfaction and feeling that their partner is not responding to their need for privacy.

Acceptability for online boundary crossing was also significantly associated with decreased relationship satisfaction and perceived partner responsiveness for both men and women. However, the relationship was stronger for men than women, where men's reports of relationship satisfaction and partner responsiveness were significantly lower than those of women. So, both men and women feeling less satisfied in their relationship and feeling that their partner is less responsive to their needs was associated with being more accepting of their partner using the Internet to talk with someone attractive about everyday life or pop culture, personal information, and relationship troubles or concerns. Furthermore, men feel that their partners are significantly less responsive to their needs and also feel significantly more dissatisfied in their relationship than do women. What is interesting about this finding is that these behaviors in and

of themselves are not boundary violations for most couples, but are behaviors that begin to cross relational boundaries and could lead to boundary violations (Cravens & Whiting, 2014). This is in line with Whitty's (2005) story completion qualitative research which found that boundary violations, such as emotional infidelity, may be associated with lower levels of relationship satisfaction and partner responsiveness (Whitty, 2005). In this study's analysis, there is evidence that acceptability for online boundary crossing has an association that is similar to that found with online emotional boundary violations in couple relationships.

### **Partner Effects: Research Questions 3 & 4**

There were several findings that were common across men's and women's partner effects. For both men and women, increased feelings that their partner has checked up on their online activities were associated with their partner reporting decreased relationship satisfaction and decreased partner responsiveness. This finding supports previous research that suggests online intrusion can have a deleterious effect, such as increased jealousy, on couple relationships (Muisse, et al., 2009; Elphinston & Noller, 2011).

Interestingly, while the actor paths for acceptability for online boundary crossing to partner intrusion were not significant, the association between women's acceptability for boundary crossing and men's perceived partner intrusion was significant. This finding is particularly interesting as when women reported greater acceptability, men perceived less online intrusion by their partner. This may be due to the purpose of online intrusion. Partners may feel the need to check up on their partner's online activities for reassurance of fidelity. Consequently, it may be that women who are more accepting of online behaviors also feel less need to check up on their partner's activities.



Lastly, participants' increased acceptability for online boundary crossing was significantly associated to decreased relationship satisfaction by their partner. So, participants who reported greater acceptability for their partner to talk with someone attractive about everyday life or pop culture, personal information, and relationship troubles or concerns were more likely to have partners who reported feeling less satisfied in their relationship. It may be that participants' acceptability for online boundary crossing was perceived by their partner as a lack of interest in or care for the relationship. So, when someone ignores the relationship by caring less about whom their partner connects with online, they end up feeling less satisfied.

Additionally, paired sample *t*-tests revealed that men were significantly more accepting of online boundary crossing than were women. This finding is in line with other research, such as that for viewing pornography online, where men report greater acceptability for online behaviors that women find less acceptable and that women also report greater distress about the behavior (Helsper & Whitty, 2010; Whitty, 2003; Whitty, 2005).

### **Control Variables**

There were also some interesting findings from the control variables. First, both men's and women's general use of CMC was associated with greater reports of perceived partner intrusion. In other words, the more that men and women used the Internet to communicate generally, the more that they felt their partner had checked up on their online activities. This suggests that the more couples use CMC, the less they feel their online activities are private from their partner.

Second, men's and women's general use for CMC had opposite associations with men's relationship satisfaction and men's partner responsiveness. This is particularly interesting as paired sample *t*-tests revealed no significant difference between men's and women's general use

of CMC. Men's general use of CMC was associated with *lower* relationship satisfaction for men and men's report of partner responsiveness. Women's general use of CMC was associated with *higher* relationship satisfaction for men and men's report of partner responsiveness. In other words, the more that men used CMC in their life, the less satisfied they felt in their relationships and the less responsive they felt their partner was to their needs while the more that their partner used CMC the more satisfied they felt in their relationships and the more responsive they felt their partner was to their needs. This may be because of the different ways that men and women use the Internet. Women are much more likely to use the Internet for socializing than are men (Smith & Duggan, 2013; Madden & Zickuhr, 2011). It may be that men's use for CMC serves a different purpose, which may pull them away from their relationship whereas women are more likely to use it to connect with their partner. Further research in this area is necessary to uncover the processes behind these online differences.

### **Limitations**

There were several limitations in the current study. First, several of the measures were broad and may be interpreted differently between participants. For example, online intrusion was measured by asking participants if they feel their partners had ever checked up on their online activities. It is possible that the words "checked up" may have been interpreted differently across the sample. Second, the data were collected across sixteen countries which make the findings much more general in scope and difficult to apply to any specific population. Third, acceptability for online boundary crossing was a hypothetical question. It may be that actual boundary crossing impacts relationships differently than acceptability for hypothetical behaviors.

Fourth, the data was collected through online panels. Dillman, Smyth, and Christian (2009, p. 338-339) report that Internet panels are particularly susceptible to self-selection error because “only people who happen across a recruitment advertisement or receive one from a third party via email will have the opportunity to volunteer, and only of portion of those people will actually volunteer.” Dillman, et al. (2009) also note that online panels often to do not mirror the general population well due to the sampling bias aforementioned. However, the Oxford Internet Institute compensated for this bias in their sampling procedures by having the partner of the volunteer also complete the study. While there is likely selection bias in the person who takes surveys, this effect is likely to be muted among the partner of that person.

Fifth, the data used in this study reflected one time point. The ordering of the variables in the model was based on a reflection of theory and therefore the results are cross-sectional in nature. For example, the analysis does not reveal whether participants who are less satisfied in their relationship are more likely to monitor their partner’s online activities or whether online intrusion leads to decreased relationship satisfaction.

Sixth, the effect sizes of all significant variables were small. One of the chief strengths of this analysis is the high number of participants, which allowed for greater power to detect small effect sizes (Kenny, Kashy, & Cook, 2006). This greatly reduced the likelihood of Type II error in the analysis (the failure to reject a false null hypothesis). However, no medium or large effect sizes were found in the model. Consequently, the results need to be kept in context of the small effect sizes found.

### **Implications & Future Research**

The results of this study have important implications for clinicians, educators, and researchers. First, the results showed that the more couples use CMC, the greater online

intrusion they feel from their partner, which then was associated with less relationship satisfaction and perceived responsiveness by their partner. It may be that couples have not clarified with each other what they want to be private or shared. Clinicians and relationship educators can help couples to better navigate the access to information provided by the Internet about their partner's online activities. In particular, clinicians could assess for online monitoring behavior and clarify the meaning and impact of the behavior for the couple.

Relationship educators could benefit from developing a section for CMC in current relationship education courses. Although this analysis alone may not provide enough support for a full section, it does give relationship educators further information about the potential negative effects of online intrusion and online boundary crossing. However, further research is necessary to better understand the effects found in this study and to expand our understanding of the impact of CMC on couple relationships.

There are also several implications for researchers. First, it would be advantageous for future research to investigate more fully the relationship between partner intrusion and couple relationship processes, such as trust and satisfaction. The findings showed that online intrusion negatively impacted both relationship satisfaction and partner responsiveness, but it is unclear why. Future research could benefit from examining the purpose and role of online intrusion in committed relationships. Second, longitudinal data are needed in order to accurately test the temporal ordering of the variables in question. Future longitudinal research could also better account for cohort differences. Third, it appears that acceptability for online boundary crossing has some small effect on couple relationships. It may be that other kinds of online boundary crossings are more impactful on other couple processes, such as trust, commitment, and relationship stability, or that other kinds of boundary crossings are more impactful in general,

such as flirting. Therefore, future research could benefit from continuing to investigate boundary crossings on other relationship processes and other kinds of online behaviors, such as gambling, gaming, and flirting. Finally, this study lends preliminary support for the CFT framework. There were significant relationships found between ecological influences, structural factors, and process factors included in this analysis. These findings need to be replicated with other samples and also with other ecological influences, structural factors, and process factors. We are only beginning to understand the impact of technology on couple relationships and it is important that researchers continue to investigate this newly emerging research domain.

### **Conclusion**

Very little research has been conducted to understand how CMC has changed and impacted couple relationships. This was one of the first studies to examine the impact of CMC on couples using the CFT framework. It was also one of the first studies to use a sample with a normal age and relationship length distribution. Using the APIM, this study examined the impact of technology on couples in committed relationships through the lens of the CFT framework, which considers the ecological changes that CMC has had on couple and family systems (Hertlein, 2012). Through the application of this model, we examined whether increased acceptability for online boundary crossing was associated with perceived partner intrusion and whether each of the prior two were associated with relationship satisfaction and partner responsiveness while controlling for the use of CMC, participants' age, annual household income, education, number of children within the household, and how many years the couple has lived together.

Overall, there were several small, yet significant, effects found. The results suggest that when participants' felt that their partner checked up on their online activities, they also felt

decreased relationship satisfaction and felt that their partner was not responding to their needs.

Also, participants felt less satisfied in their relationship and felt their partner was less responsive to their needs as they became more accepting of their partner using the Internet to talk with someone attractive about everyday life or pop culture, personal information, and relationship troubles or concerns. Lastly, the results suggest that men, but not women, who reported greater acceptability for their partner to talk with someone attractive about everyday life or pop culture, personal information, and relationship troubles or concerns were more likely to have their partner report feeling less satisfied in their relationship.

## References

- Bergner, R. & Bridges, A. (2002). The significance of heavy pornography involvement for romantic partners: Research and clinical implications. *Journal of Sex & Marital Therapy*, 28(3), 193-206.
- Berger, P. & Kellner, H. (1970). Marriage and the construction of reality. In H. Dreitzel (Ed.), *Patterns of communicative behavior: Recent sociology, no. 2* (pp. 50 – 72). New York: Macmillan.
- Bird, M., Butler, M., & Fife, S. (2007). The process of couple healing following infidelity: A qualitative study. *Journal of Couple & Relationship Therapy*, 6(4), 1-25.
- Blumer, M., Hertlein, K., Allen, H., & Smith. (2013). How many bytes does it take? A content analysis of cyber issues in couple and family therapy journals. *Journal of Marital and Family Therapy*, doi:10.1111/j.1752-0606.2012.00332.x
- Brown, S. (2004). Moving from cohabitation to marriage: Effects on relationship quality. *Social Science Research*, 33, 1-19.
- Brown, S. & Booth, A. (1996). Cohabitation versus marriage: A comparison of relationship quality. *Journal of Marriage and the Family*, 58, 668-678.
- Byrne, B. (2012). *Structural equation modeling with Mplus: Basic concepts, applications, and programming*. New York, NY: Routledge.
- Byun, S., Ruffini, C., Mills, J. E., Douglas, A. C., Niang, M., Stepchenkova, S., . . . Atallah, M. (2009). Internet addiction: Metasynthesis of 1996-2006 quantitative research. *CyberPsychology & Behavior*, 12(2), 203-207.

- Carroll, J., Padilla-Walker, L., Nelson, L., Olson, C., McNamara Barry, C., & Madsen, S. (2008). Generation XXX: Pornography acceptance and use among emerging adults. *Journal of adolescent research*, 23(1), 6-30.
- Chesley, N. (2005). Blurring boundaries? Linking technology use, spillover, individual distress, and family satisfaction. *Journal of Marriage and Family*, 67(5), 1237-1248.
- Chibucos, T., Leite, R., & Weis, D. (2005). *Readings in family theory*. (pp. 303- 305). Sage.
- Chou, C. & Bentler, P. (1995). Estimates and tests in structural equation modeling. In Rick H. Hoyle, (Ed.), *Structural equation modeling: Concepts, issues, and Applications* (pp. 37-55). Thousand Oaks, CA: Sage.
- Cohan, C. & Kleinbaum, S. (2002). Toward a greater understanding of the cohabitation effect: Premarital cohabitation and marital communication, *Journal of Marriage and Family*, 64, 180-193.
- Cooper, A., Morahan-Martin, J., Mathy, R. M., & Maheu, M. (2002). Toward an increased understanding of user demographics in online sexual activities. *Journal of Sex & Marital Therapy*, 28(2), 105-129. doi:10.1080/00926230252851861
- Coyne, S., Stockdale, L., Busby, D., Iverson, B., & Grant, D. (2011). "I luv u:)!": A descriptive study of the media use of individuals in romantic relationships. *Family Relations*, 60(2), 150-162.
- Cravens, J. & Whiting, J. (2014). Clinical implications of Internet infidelity: Where Facebook fits in. *The American Journal of Family Therapy*, 42(4), 325-339.
- Dillman, D., Smyth, J., & Christian, L. (2009). *Internet, mail, and mixed-mode surveys: the tailored design method*. (3rd ed.). Hoboken, N.J.: Wiley & Sons.



- Durtschi, J. (2012). *Trajectories of marital quality and behavior across the transition to parenthood*. (Order No. AAI3477220, *Dissertation Abstracts International Section A: Humanities and Social Sciences*, 4772. Retrieved from <http://search.proquest.com.er.lib.k-state.edu/docview/1034511414?accountid=11789>. (1034511414; 2012-99111-049).
- Dush, C., Cohan, C., & Amato, P. (2003). The relationship between cohabitation and marital quality and stability: Change across cohorts?. *Journal of Marriage and Family*, 65(3), 539-549.
- Dutton, W., Helsper, E., Whitty, M., Li, N., Buckwalter, J., & Lee, E. (2009). The role of the Internet in reconfiguring marriages: A cross-national study. *Interpersonal*, 3, 3.
- Dutton, W. 2005. The internet and social transformation: Reconfiguring access, in Dutton, W., Kahin, B., O'Callaghan, R. and Wykoff, A. *Transforming enterprise: Economic and social implications of information technology*, p. 375-394, Cambridge, MA: MIT Press.
- Funk, J. & Rogge, R. (2007). Testing the ruler with item response theory: Increasing precision of measurement for relationship satisfaction with the couples satisfaction index. *Journal of Family Psychology*, 21(4), 572–583. doi: 10.1037/0893-3200.21.4.572
- Gibbs, J., Ellison, N., & Lai, C. (2011). First comes love, then comes google: An investigation of uncertainty reduction strategies and self-disclosure in online dating. *Communication Research*, 38(1), 70-100.
- Hawkins, B., & Hertlein, K. (2013). Treatment strategies for online role-playing gaming problems in couples. *Journal of Couple & Relationship Therapy*, 12(2), 150-167.
- Helsper, E., & Whitty, M. (2010). Netiquette within married couples: Agreement about acceptable online behavior and surveillance between partners. *Computers in Human Behavior*, 26(5), 916-926.

- Hertlein, K. (2012). Digital dwelling: Technology in couple and family relationships. *Family Relations*, 61(3), 374-387.
- Hertlein, K. & Ancheta, K. (2014). Clinical application of the advantages of technology in couple and family therapy. *The American Journal of Family Therapy*, 42(4), 313-324.
- Hertlein, K. & Blumer, M. (2013). *The couple and family technology framework: Intimate relationships in a digital age* Brunner-Routledge.
- Hertlein, K. & Stevenson, A. (2010). The seven “As” contributing to Internet-related intimacy problems: A literature review. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 4(1)
- Hertlein, K. & Webster, M. (2008). Technology, relationships, and problems: A research synthesis. *Journal of Marital and Family Therapy*, 34(4), 445-460.
- Hoffman, D., Novak, T., & Venkatesh, A. (2004). Has the Internet become indispensable? *Communications of the ACM*, 47(7), 37-42.
- Hogan, B., Li, N. & Dutton, W. (2011). *A global shift in the social relationships of networked individuals: Meeting and dating online comes of age*. Oxford Internet Institute, University of Oxford.
- Hu, L., & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55.
- Huston, T. (2000). The social ecology of marriage and other intimate union. In Chibucos, T. R., Leite, R. W., & Weis, D. L. (Eds.). *Readings in family theory*. (pp. 317- 344). Sage.
- IBM Corporation. (2010). *IBM SPSS Statistics 18*. Somers, NY: IBM Corporation.
- Johnson, H. (1971). The structural-functional theory of family and kinship. *Journal of Comparative Studies*, 2, 133 – 144.

- Kennedy, T., Smith, A., Wells, A., & Wellman, B. (2008). Networked families. *Pew Internet & American Life Project*. Retrieved Feb 2014 from [http://www.pewInternet.org/files/old-media/Files/Reports/2008/PIP\\_Networked\\_Family.pdf.pdf](http://www.pewInternet.org/files/old-media/Files/Reports/2008/PIP_Networked_Family.pdf.pdf)
- Kenny, D., Kashy, D., & Cook, W. (2006) *Dyadic data analysis*. Guilford Press.
- King, S. (1999). Internet gambling and pornography: Illustrative examples of the psychological consequences of communication anarchy. *CyberPsychology and Behavior*, 2(3), 175-193.
- Lamb, D. & Catanzaro, S. (1998). Sexual and nonsexual boundary violations involving psychologists, clients, supervisees, and students: Implications for professional practice. *Professional Psychology: Research and Practice*, 29(5), 498.
- Leggett, C. & Rossouw, P. J. (2014). The impact of technology use on couple relationships: A neuropsychological perspective. *International Journal of Neuropsychotherapy*, 2(1), 44-99.
- Madden, M. & Zickuhr, K. (2011). 65% of online adults use social networking sites. *Pew Internet & American Life Project*. Retrieved from <http://www.pewInternet.org/2011/08/26/65-of-online-adults-use-social-networking-sites/>
- McDaniel, B. & Coyne, S. (2016). “Technoference”: The interference of technology in couple relationships and implications for women’s personal and relational well-being. *Psychology of Popular Media Culture*, 5(1), 85.
- Minuchin, S. (1974). *Families and family therapy*. USA: Harvard University Press.
- Muise, A., Christofides, E., & Desmarais, S. (2009). More information than you ever wanted: Does Facebook bring out the green-eyed monster of jealousy? *CyberPsychology & Behavior*, 12(4), 441-444.

- Muise, A., Christofides, E., & Desmarais, S. (2014). "Creeping" or just information seeking? Gender differences in partner monitoring in response to jealousy on Facebook. *Personal Relationships*, 21(1), 35-50.
- Muthén, L. K., & Muthén, B. O. (1998-2012). *Mplus user's guide: Sixth edition*. Los Angeles, CA: Muthén & Muthén.
- Nam, T. (2014). Technology use and work-life balance. *Applied Research in Quality of Life*, 9(4), 1017-1040.
- Norton, A. & Baptist, J. (2014). Couple boundaries for social networking in middle adulthood: Associations of trust and satisfaction. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 8(4).
- Olsen, J. A., & Kenny, D. A. (2006). Structural equation modeling with interchangeable dyads. *Psychological Methods*, 11, 127-141.
- Pew Research Center (2014). *Mobile technology fact sheet*. Retrieved from <http://www.pewinternet.org/fact-sheets/mobile-technology-fact-sheet/>
- Park, N., Jin, B., & Annie Jin, S. (2011). Effects of self-disclosure on relational intimacy in Facebook. *Computers in Human Behavior*, 27(5), 1974-1983.
- Perrin, A. (2015). Social networking usage: 2005-2015. *Pew research center*. Available at: <http://www.pewinternet.org/2015/10/08/2015/Social-Networking-Usage-2005-2015/>
- Perry, M. S., & Werner-Wilson, R. J. (2011). Couples and Computer-Mediated communication: A closer look at the affordances and use of the channel. *Family and Consumer Sciences Research Journal*, 40(2), 120-134.
- Peterson, M. R. (1992). *At personal risk: boundary violations in professional-client relationships*. New York: Norton.

Pew Research Center. (2014). *Couples, the Internet, and social media*. Available at:

<http://pewinternet.org/Reports/2014/Couples-and-the-internet.aspx>

Poulsen, F. O., Busby, D. M., & Galovan, A. M. (2013). Pornography use: Who uses it and how it is associated with couple outcomes. *Journal of sex research*, 50(1), 72-83.

Reed, L. A., Tolman, R. M., & Safyer, P. (2015). Too close for comfort: Attachment insecurity and electronic intrusion in college students' dating relationships. *Computers in Human Behavior*, 50, 431-438.

Rosenbloom, S. J. (2003). *Boundary transgressions in therapeutic relationships* (Doctoral dissertation, Virginia Tech).

Smith, A. & Duggan, M. (2013). Online dating & relationships. *Pew Research Center's Internet & American Life Project*. Retrieved Feb 2014 from

<http://pewInternet.org/Reports/2013/Online-Dating.aspx>

Stewart, D. N., & Szymanski, D. M. (2012). Young adult women's reports of their male romantic partner's pornography use as a correlate of their self-esteem, relationship quality, and sexual satisfaction. *Sex Roles*, 67(5-6), 257-271.

Tokunaga, R. S. (2011). Social networking site or social surveillance site? Understanding the use of interpersonal electronic surveillance in romantic relationships. *Computers in Human Behavior*, 27(2), 705-713.

Vossler, A. (2016). Internet infidelity ten years on: A critical review of the literature. *The Family Journal: Counseling & Therapy for Couples and Families*.

Wood, R. T. A. (2008). Problems with the concept of video game "addiction": Some case study examples. *International Journal of Mental Health and Addiction*, 6(2), 169-178.

doi:10.1007/s11469-007-9118-0

- Whitty, M. T. (2005). The realness of cybercheating men's and women's representations of unfaithful Internet relationships. *Social Science Computer Review*, 23(1), 57-67.
- Whitty, M. T. (2003). Pushing the wrong buttons: Men's and women's attitudes toward online and offline infidelity. *CyberPsychology & Behavior*, 6(6), 569-579.
- Yum, Y., & Hara, K. (2005). Computer-Mediated relationship development: A Cross-Cultural comparison. *Journal of Computer-Mediated Communication*, 11(1), 133-152.
- Zhong, Z. (2011). The effects of collective MMORPG (massively multiplayer online role-playing games) play on gamers' online and offline social capital. *Computers in Human Behavior*, 27(6), 2352-2363.
- Zickuhr, K. & Smith, A. (2012). Digital differences. *Pew Internet & American Life Project*. Retrieved Feb 2014 from <http://pewInternet.org/Reports/2012/Digital-differences.aspx>

Table 1

*Unstandardized, Standardized, and Significance Levels from APIM Structural Equation Model for Independent and Dependent*

*Variables (N = 6,756 Couples)*

<i>Endogenous Variable</i> <i>Exogenous Variable</i>	<i>Actor Paths</i>						<i>Partner Paths</i>					
	<i>Men</i>			<i>Women</i>			<i><sup>c</sup>From Men to Women</i>			<i><sup>d</sup>From Women to Men</i>		
	<i>b</i>	<i>S.E.</i>	$\beta$	<i>b</i>	<i>S.E.</i>	$\beta$	<i>b</i>	<i>S.E.</i>	$\beta$	<i>b</i>	<i>S.E.</i>	$\beta$
Rel Satisfaction												
<sup>ab</sup> Partner Intrusion	-.16	.01	<b>-.19***</b>	-.16	.01	<b>-.18***</b>	-.10	.01	<b>-.12***</b>	-.10	.01	<b>-.11***</b>
Boundary Crossing	-.09	.02	<b>-.09***</b>	-.08	.02	<b>-.07**</b>	-.05	.02	<b>-.07***</b>	-.06	.02	<b>-.06**</b>
Partner Resp												
<sup>ab</sup> Partner Intrusion	-.14	.02	<b>-.13***</b>	-.13	.02	<b>-.11***</b>	-.08	.02	<b>-.07***</b>	-.08	.02	<b>-.07***</b>
<sup>b</sup> Boundary Crossing	-.11	.03	<b>-.13***</b>	-.10	.03	<b>-.07***</b>	-.03	.02	-.02	-.02	.02	-.02
Partner Intrusion												
<sup>a</sup> Boundary Crossing	-.01	.02	-.01	-.01	.02	-.01	-.04	.02	-.03	-.07	.02	<b>-.05***</b>

*Note:* Model Fit Indices are  $\chi^2(6) = 8.084, p = .23$ ; CFI = 1.00; TLI = .99; RMSEA = .01 (C.I. .01- .03); SRMR = .01. Boundary

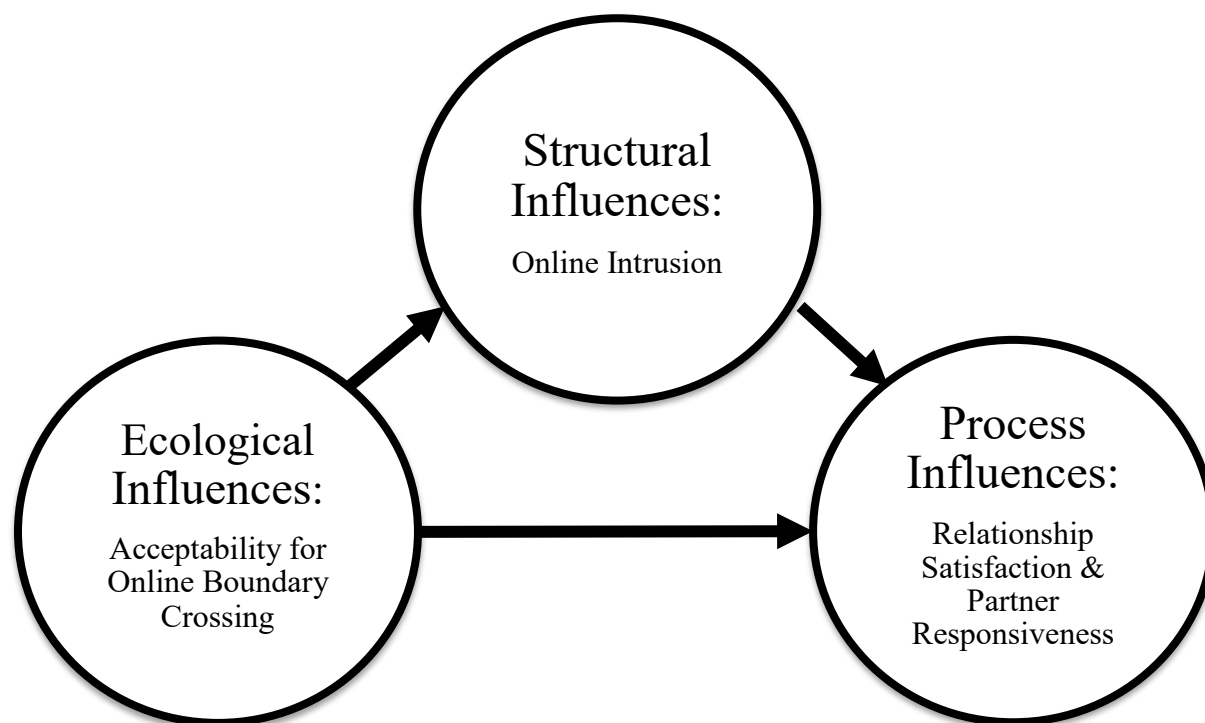
Crossing = Acceptability for Online Boundary Crossing, Rel Satisfaction = Relationship Satisfaction, Partner Resp = Partner

Responsiveness.

<sup>a</sup>Corresponding actor paths constrained to be equal. <sup>b</sup>Corresponding partner paths constrained to be equal. <sup>c</sup>Exogenous variables are

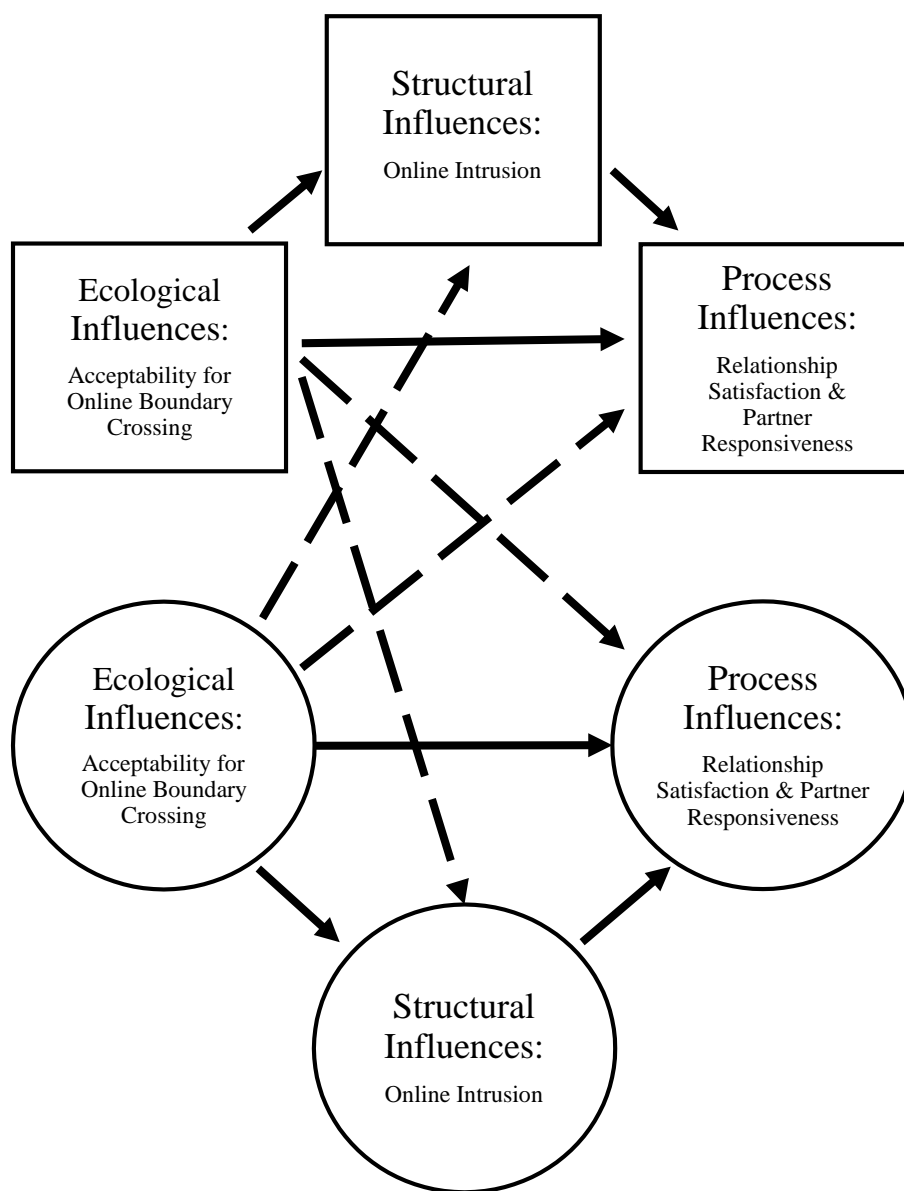
Men and endogenous variables are Women. <sup>d</sup>Exogenous variables are Women and endogenous variables are Men.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$  (two-tailed).



*Figure 1.* Diagram of the CFT framework with study variables.





*Figure 2.* Diagram of the adapted CFT framework with study variables. Circles represent women and squares represent men. Solid lines represent actor effects and dashed lines represent partner effects.

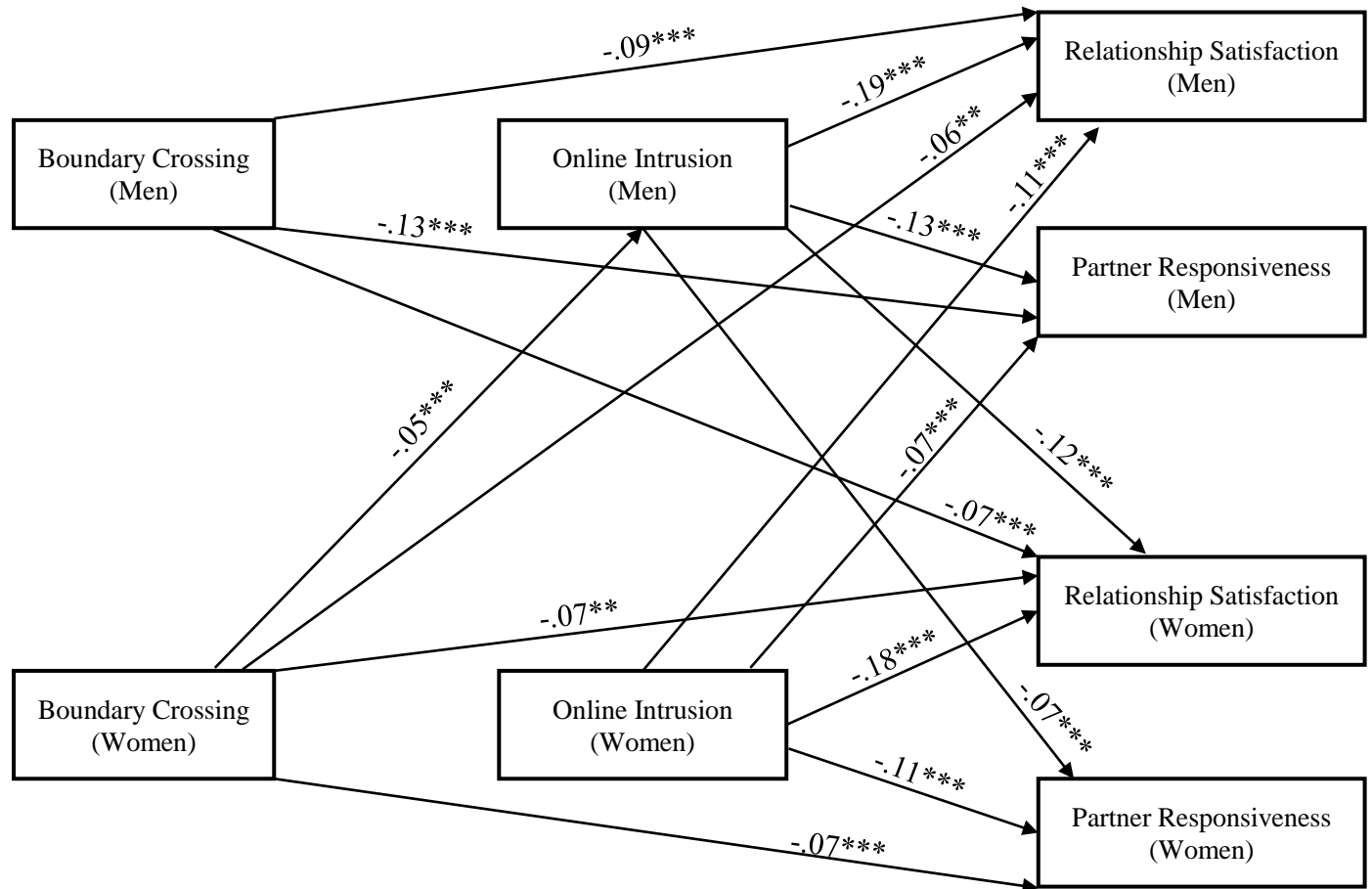


Figure 3. Results for APIM Structural Equation Model ( $N=6,756$  Couples). Model Fit Indices are  $\chi^2(6) = 8.084, p = .23$ ; CFI = 1.00; TLI = .99; RMSEA = .01 (C.I. .01-.03); SRMR = .01. For ease in interpreting primary results, control variables and nonsignificant outcomes were excluded from this figure. All outcome variables in this model were regressed onto all control variables.  $*p < .05$ .  $**p < .01$ .  $***p < .001$  (two-tailed).