

TECHNOLOGY MEDIATED COMMUNICATION IN INTIMATE RELATIONSHIPS

by

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B.S., University of Utah, 2009

M.S., Kansas State University, 2011

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Family Studies and Human Services  
College of Human Ecology

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

2014

## **Abstract**

Very little research has been conducted to understand how the technology revolution has changed and impacted couple relationships. The proposed study examined the impact of technology on couples in committed relationships through the lens of the couple and technology framework. Specifically, this study used data from 2,826 European couples to examine associations between online boundary crossing, online intrusion, relationship satisfaction, and partner responsiveness. The results suggest that when participants' reported that their partner checked up on their online activities more frequently that this was linked with lower scores on relationship satisfaction and partner responsiveness. Also, decreased scores for relationship satisfaction and partner responsiveness were associated with increased acceptance for 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 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.

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## Chapter 1 - Introduction

*“The Internet advances freedom of expression in a manner and to an extent that dwarfs all other modes of communication.”* -Dr. Stephen Wicker, Professor of Electrical & Computer Engineering, Cornell University

This year, 2014, marks the twenty-fifth anniversary of the creation of the World Wide Web and the twentieth anniversary of the first publically available web browser (Fox & Rainie, 2014). Over the course of its young life, the web has transformed from a “geeky data-transfer system embraced by specialists and a small number of enthusiasts into a mass-adopted technology easily used by hundreds of millions around the world” (Fox & Rainie, 2014, p. 4). Notably, most of the mass-adoption of the Internet has taken place in just the past decade alone. At the end of its first decade the web had 360,000 world-wide Internet users, but by the end of the second decade that number grew by 566% to more than two *billion* (Internet World Stats, 2011). Currently, 97% of American young adults and 87% of all American adults use the Internet (Fox & Rainie, 2014).

The past decade also witnessed the birth of social media and the transfer of Internet access from desk-top computers to mobile devices. Facebook, which launched in February of 2004, grew from a few hundred college students to 1.23 billion users after just eight years; with 945 million users accessing it from mobile devices. In the United States, 68% of adults connect to the Internet primarily through phones and tablets (Fox & Rainie, 2014). Hoffman, Novak, and Venkatesh, (2004, p.37) reported that the “pace of social change resulting from the diffusion of this technology, both in the U.S. and globally is, by many accounts, dramatic.” In other words, the speed and magnitude at which these modern technologies have become a new medium for communication and connectivity across the globe dwarfs all previous communication

advancements and has resulted in societal changes that we are only beginning to understand (Hannemyr, 2003).

The technology revolution has certainly had a major role in global change, such as through the critical role of social media in the revolutions and demonstrations in Tunisia, Egypt, Libya, and many other Middle Eastern and African countries. However, it is through the small, daily changes to communication that has made technology such an integral and indispensable part of the people's lives (Hoffman, Novak, and Venkatesh, 2004). Technology has afforded a new form 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 technology mediated communication, 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). Through technology mediated communication, the technology revolution has afforded couples and families to stay more connected to each other than ever before, even though our lives have become more structured, demanding, and independent.

Scholars and researchers do not yet understand how the technology revolution is impacting and changing couple relationships. The vast majority of the research on technology mediated communication has been limited to the fields of communication, retail, and business which focus primarily on the characteristics of Internet users and reasons for media use (Hertlein & Webster, 2008). The research in family therapy journals remains miniscule. 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 only 0.006% (79 articles) 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%). Therefore, between 1996 and 2010 only 20 articles, which is only 0.0015% of the total research in family therapy, have been focused on technology and couple relationships. What is even more alarming is that the number of published articles has not been increasing along with the increased use of technology mediated communication (Blumer, Hertlein, Allen, & Smith, 2013). Since 2010, there have been a handful of studies on online gaming, dating, and infidelity that have been published mostly in communications journals (e.g., Hertlein, 2012; Zhong, 2011; Wood; 2008). Clearly there is a dearth of research in family therapy on this much needed topic area.

In the field of psychology, there has been more attention given to the technology revolution, but the majority of the research has focused on best practices for providing online therapy and supervision, with a more recent shift to addressing cyber issues in adolescence. For example, a metasynthesis of research on Internet addiction in psychology journals published from 1996 to 2006, which consists of many more journals and articles than the smaller field of family therapy, resulted in only 39 published articles (Byun, et al., 2009). The analysis found that the majority of research focused on identifying antecedents for internet addiction rather than how it impacts family systems. However, since 2006 the number of publications on this subject has increased dramatically. I was able to find 72 publications on Internet addiction in 2013 alone through a search in the database PsychINFO, which includes 2,540 professional journals. Yet, the vast majority of these publications were focused on Internet addiction in adolescence or

emerging adulthood with college freshmen samples. Very little research has been conducted to understand how the technology revolution has changed and impacted couple relationships, and even less has been devoted to studying this topic outside of clinical populations and specific clinical issues. In essence, we know very little about how this dramatic and pervasive social change has altered couple relationships.

This study seeks to broaden our understanding of the impact of technology mediated communication on couple relationships. In order to focus these questions, the current study will use a recently developed multitheoretical model, the couple and technology framework, which considers the effects of technology mediated communication on couple and family systems. Through the application of this model, I will examine how two specific factors of technology mediated communication, online intrusion and acceptability for online boundary crossing, impact couples' relationship satisfaction and their responsiveness to each other.

## Chapter 2 - Literature Review

### The Couple and Family Technology Framework

In order to conceptualize how the technology revolution impacts couple and families Hertlein (2012) proposed a multitheoretical model, the couple and family technology framework (see Figure 1). The model pulls together three broad perspectives -- the ecological perspective, structural-functional perspective, and interaction-constructionist perspective. First, the family ecology perspective, developed by Urie Bronfenbrenner 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 couple and family relationships. The ecological perspective views couple relationships as “a behavior system embedded within a larger network of close relationships” (Huston, 2000, p. 317). The technology revolution introduced a new dynamic, complex system that created a new network for close relationships. In order to conceptualize the environmental influences specific to technology, the couple and family technology framework identifies *ecological influences*, or properties of technology that promote changes in couple relationships.

Second, 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 couple and family technology framework, the

structural-functional perspective is applied to consider the ways that technology redefines rules, changes boundaries, alters roles, and changes communication (Hertlein, 2012).

Third, 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 husband has a relationship with a woman, the meaning of that relationship may be different for each partner. The husband may ascribe a sense of friendship and support from his female friend while his wife may ascribe anxiousness and fear that the female friend is a threat to the fidelity of their marriage. In the context of the couple and family technology 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.

### **Acceptability for Online Boundary Crossing**

Acceptability, one of the ecological influences described by Hertlein & Blumer (2013), 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, Smith, Wells, & Wellman, 2008). The small and oftentimes mundane ways that people use technology to communicate, share, and connect make it integral to people's lives (Hoffman, Novak, & Venkatesh, 2004). The constant accessibility of the Internet although more acceptable, has been associated with increased relationship distress, decreased family satisfaction, increases in negative work-to-family spillover, and increases in negative family-to-work spillover (King, 1999; Chesley, 2005). 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.

Boundary violations can be defined as acts that clearly breach the trust and fidelity of the couple relationship, such as through emotional and physical infidelity (Peterson, 1992). Online boundary violations have been one of the most studied areas of technology. Research on online infidelity has found that cybersex is equal in effect to offline sexual infidelity, even though the two individuals may never actually physically touch each other through the act of cybersex

(Whitty, 2005). Simply because of how much cybersex actually approximates real world sexual infidelity, participants report no differences in the level of betrayal for offline and online sexual infidelity. Whitty reported that the same was found for emotional infidelity, where online emotional infidelity has been reported to be just as distressing as offline emotional infidelity, online sexual infidelity, and offline sexual infidelity.

Boundary crossings, on the other hand, are acts that can lead to violations or conduct that may be considered inappropriate or upsetting by one or both partners. 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 (Helsper & Whitty, 2010; King, 1999). Previous research has shown that women have reported relationship distress, feelings of helplessness, and decreased intimacy when they viewed their partner's online pornography usage as heavy (Bergner & Bridges, 2002). 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 man, 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 (2011) 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. Many researchers have hypothesized 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).

### **Online Intrusion**

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. The continuous communication afforded 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; Kennedy et al, 2008). Technology, in a sense, makes all of a person's activities much more readily available and accessible to their partner. Online intrusion has been associated with increased jealousy (Muise, Christofides, & Desmarais, 2009) as well as decreased trust (Tokunaga, 2011; Norton, 2011). 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, Christofides, & Desmarais, 2009), whereas in later stages of relationship development, it is used as a form of openness and expression of trust (Tokunaga, 2011; Norton, 2011). However, further research on this particular boundary change is necessary in order to more fully understand how technology mediated communication is changing relationships.

### **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 addiction, online affairs, and gaming

addiction (see Bird, Butler, & Fife, 2007; Blumer, Hertlein, Allen, & Smith, 2013; Byun et al., 2009) leaving us with little understanding of how technology mediated communication impacts couples in committed romantic relationships. However, there is some preliminary evidence that it is associated with relationship satisfaction, partner responsiveness, and other relationship processes. For instance, using media more frequently to express affection is associated with increased relationship satisfaction and increased 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, 2011). Perry and Wilson (2011) found that couples find face-to-face and technology-mediated communication equally satisfying for resolving conflict. More broadly, technology mediated communication has been found to give couples a new and beneficial sense of connectedness (Kennedy et al., 2008). Further research that investigates the impact of technology mediated communication on relationship processes is needed. Specifically, we need to better understand how online intrusion and the acceptability for boundary crossing each impact couple relationship processes.

### **Other Influential Factors**

There are several other key factors that are related to the variables outlined above, including: demographic variables, accessibility to technology mediated communication, and the use of technology to communicate explicitly within the relationship.

#### **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 (Duggan & Smith, 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; Kamp 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 Technology 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 following example from my own clinical work illustrates the vulnerability and empowerment of accessibility (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. Earlier that week, Larry had contacted Beth via Facebook while Beth was at work. His message stated that he was driving through town and would like to meet with her. Beth chose to meet with Larry that afternoon, hoping for an apology and explanation of his previous abandonment. She arranged the meeting through Facebook's instant messaging service, without discussing the event with Earl. Earl was incensed and hurt that Beth did not discuss the meeting with him, even though she could have through social networking. Furthermore, Earl expressed apprehension that an old boyfriend could contact Beth seemingly from nowhere and at virtually any time.

The accessibility afforded by Beth's social network accessed through her cell phone while at work permitted an outside person, known to Beth and unknown to Earl, to impact their relationship. It allowed Beth access to information about Larry and eventually get closure on an old emotional wound. For Beth, accessibility provided a source of empowerment where she could resolve a deeply personal issue with a former romantic partner. From Earl's perspective, accessibility made their relationship vulnerable to men that he did not know and Beth knew intimately. Larry became a symbol of the threat afforded by Beth's accessibility to other men from technology mediated communication.

The more that technology is accessible to use as a means of communication across a greater variety of settings, the greater the impact it will have on couple relationships (Hertlein &

Stevenson, 2010). Where technology mediated communication was once limited to desktop computers, technology mediated communication has been expanded to texting, instant messaging, blogging, social networking, and online gaming through cell phones, tablets, and laptops. Today, 88% of American adults have a cell phone, 57% have a laptop, and 19% have tablets (Zickuhr & Smith, 2012). Moreover, the rate of Internet access through cell phones has risen from 31% in 2009 to 63% in 2013. The Internet has become nearly ubiquitous and has afforded many ways to be accessed and used for technology mediated communication. Therefore, it would be important to control for the varied impact of technology on couples from the amount that they use it in their daily lives.

### **The Current Study**

The proposed study will examine the impact of technology on couples in committed relationships through the lens of the couple and technology framework. The following research questions will be tested:

1. In what ways are acceptability for online boundary crossing associated with partner intrusion, relationship satisfaction, and perceived partner responsiveness?
  - 1a. In what ways are men's acceptability for online boundary crossing associated with women's partner intrusion, relationship satisfaction, and perceived partner responsiveness?
  - 1b. In what ways are women's acceptability for online boundary crossing associated with men's partner intrusion, relationship satisfaction, and perceived partner responsiveness?
2. In what ways are partner intrusion associated with relationship satisfaction and perceived partner responsiveness?

2a. In what ways are men's perceived partner intrusion associated with women's relationship satisfaction and perceived partner responsiveness?

2b. In what ways are women's perceived partner intrusion associated with men's relationship satisfaction and perceived partner responsiveness?

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 portions of the couple of family technology framework. Specifically, this study will examine the impact of the acceptability on online boundary crossing while controlling for accessibility. Second, this study will examine how participants' relationship satisfaction and perceived partner responsiveness are associated with the use of technology mediated communication 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 benefits or harms 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 between men and women in committed relationships.

## Chapter 3 - 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 relationship and 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, Li, & Dutton, 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 heterosexual couples from the Pan-European sample. This resulted in a total of 2,826 couples ( $N = 5,652$  individuals), with some couples living in different countries from each other: from Germany ( $N = 1,089$  individuals), France ( $N = 623$  individuals), the United Kingdom ( $N = 633$  individuals), Italy ( $N = 987$

individuals), Spain ( $N = 775$  individuals), Netherlands ( $N = 491$  individuals), Greece ( $N = 169$  individuals), Portugal ( $N = 250$  individuals), Belgium ( $N = 60$  individuals), Sweden ( $N = 251$  individuals), Austria ( $N = 85$  individuals), Switzerland ( $N = 51$  individuals), Denmark ( $N = 5$  individuals), Finland ( $N = 44$  individuals), Norway ( $N = 79$  individuals), and Ireland ( $N = 50$  individuals).

## 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. Reliability tests suggested adequate internal reliability for both men ( $\alpha = .91$ ) and women ( $\alpha = .90$ ).

### Partner Intrusion

One item will be 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 will be reverse coded such that higher scores represent greater perceived intrusion.

### **Relationship Satisfaction**

Fifteen items from the 32-item couple satisfaction index will be used to assess couple satisfaction (Funk & Rogge, 2007). 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 will be coded such that higher scores represent higher satisfaction. Reliability tests suggested adequate internal reliability for both men ( $\alpha = .96$ ) and women ( $\alpha = .96$ ).

### **Partner Responsiveness**

Six items were used to assess how responsive participants felt their partner was when they needed help. Participants were asked how well each item describes their relationship. Items included (1) when I need help, my partner gives me good advice, (2) when I need help, my partner tries to listen to my feelings, (3) when I need help, my partner tries to calm me down, (4) when I need help, partner tries to do my chores so I can concentrate, (5) when I need help my partner does practical things, like driving me to the doctor, and (6) when I need help my partner tries to provide best information to help. Responses ranged from 1 = *not at all well* to 7 = *very true*. Items will be coded such that higher scores represent higher responsiveness. Items assessing partner responsiveness had an alpha of .90 for men and .89 for women.

### **Control Variables**

Five demographic variables were used as controls in the analysis. First, men and women were asked what year they were born in, which was then used to compute their age. Second, one item was used to assess the couple’s annual household income. 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 and women's 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." 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 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 technology mediated communication generally in their day to day lives. Eight items were used to assess participants general use of technology 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 ( $\alpha = .86$ ) and women ( $\alpha = .85$ ).

### **Analysis Plan**

An actor partner interdependence path analysis using MPlus 6 (Muthén & Muthén, 1998-2007) was used to test the research questions. Missing data were handled using full information maximum likelihood (FIML) because the values for skewness and kurtosis were within recommended 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 3).

## Chapter 4 - 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 (see Table 1 and Table 2). All study variables had low missingness (8.1% for acceptability for online boundary crossing and less than 1.1% 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 yielded one factor for each variable.

### Correlation Analysis and Mean Differences

The results of the correlation analysis revealed significant associations among the independent and dependent variables (see Table 2). As expected, the bivariate relationships for men and women along corresponding variables were significant, ranging from .48 for Pearson's  $r$  ( $p < .01$ ) for partner responsiveness to .75 ( $p < .01$ ) for relationship satisfaction. Men's acceptability for online boundary crossing was significantly associated with each of the outcome variables for both men (partner intrusion,  $r = .07$ ,  $p < .01$ ; relationship satisfaction,  $r = -.14$ ,  $p < .01$ ; partner responsiveness,  $r = -.13$ ,  $p < .01$ ) and women (partner intrusion,  $r = .06$ ,  $p < .01$ ; relationship satisfaction,  $r = -.10$ ,  $p < .01$ ; partner responsiveness,  $r = -.05$ ,  $p < .01$ ). However, women's acceptability for online boundary crossing was significantly associated only with men's relationship satisfaction ( $r = -.07$ ,  $p < .01$ ) and women's partner intrusion ( $r = .11$ ,  $p < .01$ ). Men's partner intrusion was significantly associated each of the outcome variables for both men (relationship satisfaction,  $r = -.20$ ,  $p < .01$ ; partner responsiveness,  $r = -.12$ ,  $p < .01$ ) and women

(relationship satisfaction,  $r = -.17, p < .01$ ; partner responsiveness,  $r = -.15, p < .01$ ). Women's partner intrusion was likewise significantly associated with each of the two outcome variables for women (relationship satisfaction,  $r = -.18, p < .01$ ; partner responsiveness,  $r = -.16, p < .01$ ) and men (relationship satisfaction,  $r = -.15, p < .01$ ; partner responsiveness,  $r = -.09, p < .01$ ). Men's relationship satisfaction was significantly related with partner responsiveness for both men ( $r = .61, p < .01$ ) and women ( $r = .50, p < .01$ ). Women's relationship satisfaction was also significantly related with partner responsiveness for both women ( $r = .63, p < .01$ ) and men ( $r = .47, p < .01$ ).

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 ( $\chi^2(6) = 13.43, p < .05$ ; CFI = .99; TLI = .98; RMSEA = .02 (C.I. .01- .04); SRMR = .01). For men, the model accounted for 9.6% of the explained variance in relationship satisfaction, 6.4% in partner responsiveness, and 13.9% in partner intrusion. For women, the model accounted for 7.4% of the explained variance in relationship satisfaction, 4.7% in partner responsiveness, and 12.2% in partner intrusion.

Generally, the strength of the path coefficients was small in effect size, when judging the standardized betas.

First, I examined whether acceptability for online boundary crossing was significantly linked with perceived partner intrusion, while holding all control variables constant (see Table 3 and Figure 2). No significant actor paths were found for men or women. However, significant partner paths were found for both men and women. Women who reported more comfort with their partner speaking online with an attractive woman were significantly less likely to have a male partner reporting confidence their partner was checking up on their online activities ( $\beta = -.08, p < .001$ ). The same relationship was found for men's acceptability for online boundary crossing and women's reported partner intrusion ( $\beta = -.05, p < .01$ ).

Second, I examined whether acceptability for online boundary crossing was significantly related to 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 ( $\beta = -.08, p < .001$ ). 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 ( $\beta = -.01, p = \text{n.s.}$ ) reports for partner responsiveness. Women's acceptability for online boundary crossing was significantly associated with women's decreased relationship satisfaction ( $\beta = -.06, p < .01$ ) and women's reports of partner responsiveness ( $\beta = -.06, p < .01$ ).

Third, the model examined the association between partner intrusion and the two outcome variables, relationship satisfaction and partner responsiveness. Men's partner intrusion was significantly associated with decreased relationship satisfaction for men ( $\beta = -.18, p < .001$ ) and women ( $\beta = -.10, p < .001$ ). Men's reports for partner intrusion was also significantly

associated with decreased scores on men's ( $\beta = -.13, p < .001$ ) reports for partner responsiveness. Women's reports for partner intrusion was significantly associated with decreased relationship satisfaction for women ( $\beta = -.16, p < .001$ ) and men ( $\beta = -.09, p < .001$ ). Women's partner intrusion was also significantly associated with both women's ( $\beta = -.10, p < .001$ ) and men's ( $\beta = -.06, p < .001$ ) reports on partner responsiveness.

Fourth, in order to examine potential mediating effects of partner intrusion on the associations between acceptability for online boundary crossing and the two outcome variables (relationship satisfaction and partner responsiveness), bootstrapping procedures were used with 2,000 bootstraps (see Table 5). No significant indirect effects were found among the actor paths while eight significant indirect effects were found among the partner paths. The indirect effects from men's acceptability for online boundary crossing  $\rightarrow$  women's reports on partner intrusion  $\rightarrow$  men's relationship satisfaction ( $\beta = .01, p < .01, CI = .001, .01$ ) was significant. In other words, for every 1 standard deviation unit increase in men's acceptability for online boundary crossing, men's relationship satisfaction was predicted to decrease .01 standard deviation units, via its previous effect on women's reports on partner intrusion, while controlling for general technology use, age, annual household income, education, number of children, and relationship length. The remaining seven significant indirect effects were: women's acceptability for online boundary crossing  $\rightarrow$  men's reports on partner intrusion  $\rightarrow$  men's relationship satisfaction ( $\beta = .02, p < .001, CI = .01, .03$ ); men's acceptability for online boundary crossing  $\rightarrow$  women's reports on partner intrusion  $\rightarrow$  men's partner responsiveness ( $\beta = .01, p < .05, CI = .001, .01$ ); women's acceptability for online boundary crossing  $\rightarrow$  men's reports on partner intrusion  $\rightarrow$  men's partner responsiveness ( $\beta = .01, p < .001, CI = .01, .02$ ); women's acceptability for online boundary crossing  $\rightarrow$  men's reports on partner intrusion  $\rightarrow$  women's reports on relationship

satisfaction ( $\beta = .01, p < .001, CI = .01, .02$ ); men's acceptability for online boundary crossing → women's reports on partner intrusion → women's reports on relationship satisfaction ( $\beta = .01, p < .01, CI = .01, .02$ ); women's acceptability for online boundary crossing → men's reports on partner intrusion → women's reports on partner responsiveness ( $\beta = .01, p < .01, CI = .001, .01$ ); and men's acceptability for online boundary crossing → women's reports on partner intrusion → women's report on partner responsiveness ( $\beta = .01, p < .01, CI = .001, .01$ ).

Fifth, the relationships between the control variables and partner intrusion, relationship satisfaction, and partner responsiveness were examined (see Table 4). For men, twelve significant paths were found for the control variables in the analysis. Men's higher relationship satisfaction was significantly associated with less general Internet use by men ( $\beta = -.05, p < .05$ ), greater general Internet use by women ( $\beta = .09, p < .001$ ), higher education for men ( $\beta = .05, p < .05$ ), and fewer children in the household ( $\beta = -.09, p < .001$ ). Men's partner responsiveness was associated with less general Internet use for men ( $\beta = -.07, p < .05$ ), more general Internet use for women ( $\beta = .11, p < .001$ ), fewer children in the household ( $\beta = -.10, p < .001$ ), and younger relationships ( $\beta = -.12, p < .001$ ). Men's partner intrusion was significantly associated with greater general Internet use by men ( $\beta = .13, p < .001$ ) and women ( $\beta = .11, p < .001$ ), younger men ( $\beta = -.13, p < .05$ ), and less household income ( $\beta = -.04, p < .05$ ).

For women, thirteen significant paths were found for the control variables in the analysis. Women's relationship satisfaction was found to be significantly associated younger women ( $\beta = -.18, p < .01$ ), higher education for men ( $\beta = .06, p < .05$ ), and fewer children in the household ( $\beta = -.08, p < .001$ ). Women's partner responsiveness was associated with older men ( $\beta = .20, p < .001$ ), less education for women ( $\beta = -.05, p < .05$ ), higher education for men ( $\beta = .06, p < .01$ ), and fewer children in the household ( $\beta = -.09, p < .001$ ). Women's partner intrusion was

significantly associated with greater general Internet use by men ( $\beta = .11, p < .001$ ) and women ( $\beta = .13, p < .001$ ), younger women ( $\beta = -.15, p < .05$ ), less household income ( $\beta = -.05, p < .05$ ), and more children in the household ( $\beta = .04, p < .05$ ).

## Chapter 5 - Discussion

The current study used the Couple and Family Technology 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 technology 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 actor-partner interdependence model was tested using structural equation modeling with 2,826 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*. I 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. Furthermore, I examined both actor (*within* dyads) and partner (*between* dyads) effects within the analysis.

### Actor Effects

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 linked with partner intrusion for both men and women. 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 feel less satisfied in their relationship and feel their partner is less responsive to their needs as they become 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 boundaries and could lead to boundary violations. Boundary violations, such as emotional infidelity, lead to significantly lower levels of relationship satisfaction and partner responsiveness (Whitty, 2005). In this analysis, there is evidence that online boundary crossing has an effect that is similar, yet smaller, to that found with online emotional boundary violations in couple relationships (Whitty, 2005).

### **Partner Effects**

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, Christofides, & Desmarais, 2009; Elphinston & Noller, 2011).

Interestingly, while the actor paths for acceptability for online boundary crossing to partner intrusion were not significant the partner paths were. This may be due to how the questions were asked, where the partner intrusion item asked about how participants viewed their partner's behavior rather than each item simply asking about participants own behavior. Nonetheless, for men and women their own increased acceptability for online boundary crossing was associated with their partner reporting decreased perceptions of online intrusion. However, the association was significantly stronger for women than. This finding is particularly interesting as when a participant reported greater acceptability, they 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 participants who are more accepting of online behaviors also feel less need to check up on their partner's activities.

Lastly, men's increased acceptability for online boundary crossing was significantly related to decreased relationship satisfaction by their partner. The same partner path was not significant for women's acceptability on their partner's relationship satisfaction. So, men 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 men's acceptability for online boundary crossing was perceived by women as men's lack of interest in

or care for the relationship. So, when men ignore the relationship by not caring about who their partner connects with online, women feel 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 technology mediated communication 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 technology mediated communication, the less they feel their online activities are private from their partner.

Second, men's and women's general use for technology mediated communication 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 technology mediated communication. Men's general technology use was associated with *lower* relationship satisfaction for men and men's report of partner responsiveness. Women's general technology use was linked with *higher* relationship satisfaction for men and men's report of partner responsiveness. In other words, the more that men used technology mediated communication 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 technology mediated communication 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 (Duggan & Smith, 2013; Madden & Zickuhr, 2011). It may be that men's use for technology mediated communication serves a different purpose, which may pull them away from their family whereas women are more likely to use it to connect with their partner. However, 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 makes 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.” The researchers also note that online panels often do not mirror the general population well due to the sampling bias aforementioned.

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. In other words, it seems that the role of the independent variables on the dependent variables is small, yet important.

### **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 technology mediated communication, the greater online intrusion they feel from their partner, which then leads to 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 technology mediated communication 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 technology mediated communication on couple relationships.

There are also several implications for researchers. First, it would be advantageous for future research to investigate more fully the link 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 couple and family technology 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 the technology revolution has changed and impacted couple relationships. This was one of the first studies to examine the impact of technology mediated communication on couples using the couple and technology framework. It was also one of the first studies to use a sample with a normal age and relationship length distribution. Using the actor-partner interdependence model this study examined the impact of technology on couples in committed relationships through the lens of the couple and technology framework, which considers the ecological changes that technology mediated communication has had on couple and family systems (Hertlein, 2012). Through the application of this model, I 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 technology mediated communication, 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 participant's 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.

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## Appendix A - Tables

Table 1

*Participant Reports for Independent, Dependent, and Control Variables: Descriptive Statistics*

*(N = 2,826 Couples)*

Variables	<i>M</i>	<i>SD</i>	Skewness	<i>Kurtosis</i>	Range	$\alpha$
<b>Men</b>						
Boundary Crossing	1.96	.91	.65	-.59	1-4	.91
Partner Intrusion	1.95	1.13	.80	-.84	1-4	
Relationship Satisfaction	4.91	.95	-.96	.36	1-6	.96
Partner Responsiveness	5.32	1.25	-.83	.58	1-7	.90
<b>Women</b>						
Boundary Crossing	1.85	.87	.83	-.17	1-4	.90
Partner Intrusion	1.81	1.03	1.01	-.28	1-4	
Relationship Satisfaction	4.86	.98	-.96	.27	1-6	.96
Partner Responsiveness	5.26	1.29	-.82	.45	1-7	.89
<b>Control Variables</b>						
Men's General Internet Use	2.55	1.10	.90	.40	1-6	.86
Women's General Internet Use	2.53	1.11	.81	.27	1-6	.85
Men's Age	43.70	13.25	.40	-.67	19-85	
Women's Age	41.10	13.17	.42	-.71	19-83	
Relationship Length	15.87	12.61	.96	-.01	1-60	
<sup>a</sup> Annual Household Income	3.18	1.36	.28	-.71	1-6	
<sup>b</sup> Men's Education	4.72	2.32	.13	-1.29	1-9	
<sup>b</sup> Women's Education	4.58	2.33	.20	-1.32	1-9	
Number of Children in Household	.88	1.01	1.10	1.82	0-9	

<sup>a</sup>Annual Household Income: 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. <sup>b</sup>Education: 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.

Table 2

*Correlations among Independent and Dependent Study Variables (N = 2,826 Couples)*

Variables	1	2	3	4	5	6	7	8
1. Boundary Crossing (men)	-							
2. Partner Intrusion (men)	.07**	-						
3. Rel Satisfaction (men)	-.14**	-.20**	-					
4. Partner Resp (men)	-.13**	-.12**	.61**	-				
5. Boundary Crossing (women)	.52**	.02	-.07**	-.03	-			
6. Partner Intrusion (women)	.06**	.58**	-.15**	-.09**	.11**	-		
7. Rel Satisfaction (women)	-.10**	-.17**	.75**	.47**	-.02	-.18**	-	
8. Partner Resp (women)	-.05*	-.15**	.50**	.48**	-.02	-.16**	.63**	-

Note: Boundary Crossing = Acceptability for Online Boundary Crossing, Rel Satisfaction = Relationship Satisfaction, Partner Resp = Partner Responsiveness.

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

Table 3

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

*Variables (N = 2,826 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	-.15	.01	<b>-.18***</b>	-.15	.01	<b>-.16***</b>	-.08	.01	<b>-.10***</b>	-.09	.01	<b>-.09***</b>
Boundary Crossing	-.13	.02	<b>-.13***</b>	-.07	.02	<b>-.06**</b>	-.09	.02	<b>-.08***</b>	-.04	.02	-.04
Partner Resp												
<sup>ab</sup> Partner Intrusion	-.13	.02	<b>-.12***</b>	-.13	.02	<b>-.10***</b>	-.07	.02	<b>-.07***</b>	-.07	.02	<b>-.06***</b>
<sup>b</sup> Boundary Crossing	-.17	.03	<b>-.13***</b>	-.10	.03	<b>-.06***</b>	-.02	.02	-.01	-.02	.02	-.01
Partner Intrusion												
<sup>a</sup> Boundary Crossing	-.01	.02	-.01	-.01	.02	-.01	-.06	.02	<b>-.05**</b>	-.11	.02	<b>-.08***</b>

*Note:* Model Fit Indices are  $\chi^2(6) = 13.43, p < .05$ ; CFI = .99; TLI = .98; RMSEA = .02 (C.I. .01- .04); 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).

Table 4

*Unstandardized, Standardized, and Significance Levels from APIM Structural Equation Model for Control Variables (N = 2,826 Couples)*

<i>Endogenous Variable</i> <i>Exogenous Variable</i>	<i>Men</i>			<i>Women</i>		
	<i>b</i>	<i>S.E.</i>	$\beta$	<i>b</i>	<i>S.E.</i>	$\beta$
<b>Rel Satisfaction</b>						
Men's Gen Use	-.06	.02	<b>-.05*</b>	.03	.03	.04
Women's Gen Use	.07	.02	<b>.09***</b>	.01	.03	.01
Women's Age	-.01	.01	-.11	-.01	.01	<b>-.18**</b>
Men's Age	.01	.01	.01	.01	.01	-.01
Income	.01	.02	.01	.02	.02	.03
Women's Education	-.01	.01	-.02	-.02	.01	-.04
Men's Education	.02	.01	<b>.05*</b>	.02	.01	<b>.06*</b>
Children	-.09	.02	<b>-.09***</b>	-.08	.02	<b>-.08***</b>
Relationship Length	-.01	.01	-.06	.01	.01	.01
<b>Partner Resp</b>						
Men's Gen Use	-.08	.03	<b>-.07*</b>	.02	.03	.02
Women's Gen Use	.12	.03	<b>.11***</b>	-.02	.03	-.02
Women's Age	.01	.01	.02	-.01	.01	<b>-.13*</b>
Men's Age	.01	.01	.04	.02	.01	<b>.20***</b>
Income	-.01	.02	-.01	.01	.02	.02
Women's Education	.01	.01	.02	-.03	.01	<b>-.05*</b>
Men's Education	.01	.01	.01	.04	.01	<b>.06**</b>
Children	-.13	.03	<b>-.10***</b>	-.11	.03	<b>-.09***</b>
Relationship Length	-.01	.01	<b>-.12***</b>	-.01	.01	-.07
<b>Partner Intrusion</b>						
Men's Gen Use	.13	.03	<b>.13***</b>	.10	.03	<b>.11***</b>
Women's Gen Use	.11	.03	<b>.11***</b>	.12	.03	<b>.13***</b>
Women's Age	-.01	.01	-.10	-.01	.01	<b>-.15**</b>
Men's Age	-.01	.01	<b>-.13*</b>	-.01	.01	-.10
Income	-.04	.02	<b>-.04*</b>	-.04	.02	<b>-.05*</b>
Women's Education	.01	.01	.02	-.02	.01	-.03
Men's Education	-.02	.01	-.03	.01	.01	.02
Children	.04	.02	.04	.04	.02	<b>.04*</b>
Relationship Length	-.01	.01	.03	.01	.01	.07

*Note:* Model Fit Indices are  $\chi^2(6) = 13.43, p < .05$ ; CFI = .99; TLI = .98; RMSEA = .02 (C.I. .01-.04); SRMR = .01. Rel Satisfaction = Relationship Satisfaction, Partner Resp = Partner Responsiveness, Gen Use = General Internet Use, Rel Use = Relationship Internet Use.

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

Table 5

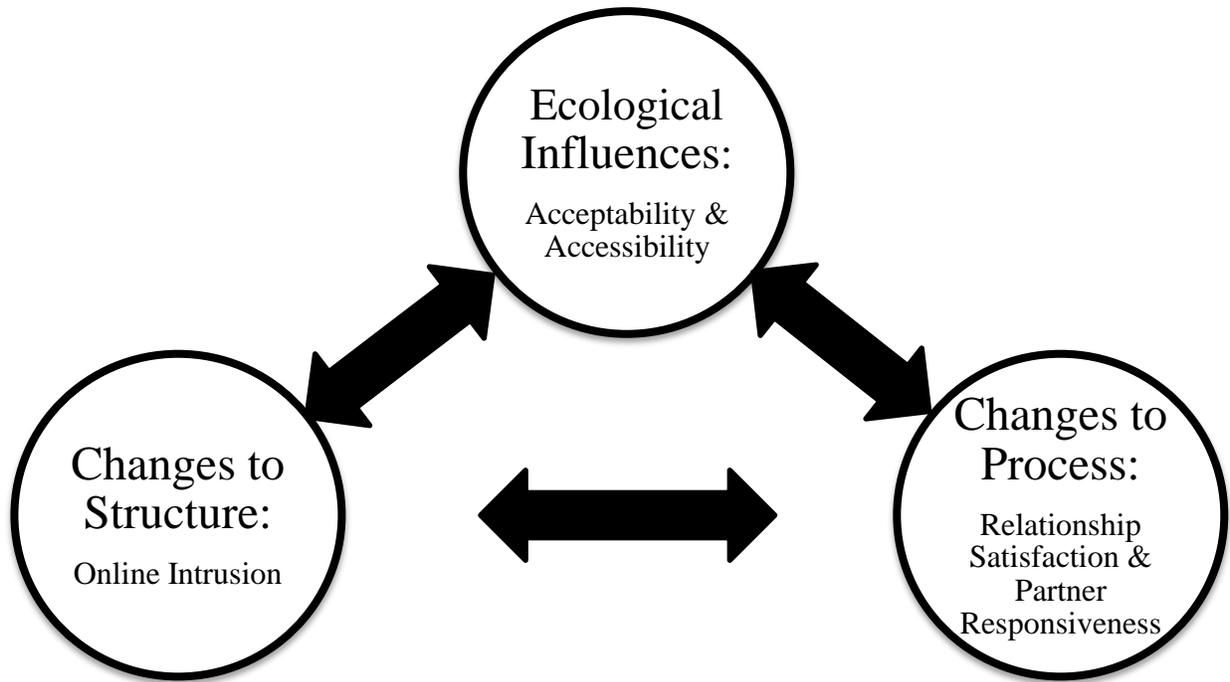
*Standardized, Significance Levels, and Confidence Intervals from APIM Structural Equation Model for Significant Indirect Effects (N = 2,826 Couples)*

Indirect Parameter Estimate	$\beta$	Confidence Interval	
		Lower .5%	Upper .5%
Men's acceptability for boundary crossing → Women's reports on partner intrusion → Men's relationship satisfaction	.01**	.001	.01
Women's acceptability for boundary crossing → Men's reports on partner intrusion → Men's relationship satisfaction	.02***	.01	.03
Men's acceptability for boundary crossing → Women's reports on partner intrusion → Men's partner responsiveness	.01*	.001	.01
Women's acceptability for boundary crossing → Men's reports on partner intrusion → Men's partner responsiveness	.01***	.01	.02
Women's acceptability for boundary crossing → Men's reports on partner intrusion → Women's reports on relationship satisfaction	.01***	.01	.02
Men's acceptability for boundary crossing → Women's reports on partner intrusion → Women's reports on relationship satisfaction	.01**	.01	.02
Women's acceptability for boundary crossing → Men's reports on partner intrusion → Women's reports on partner responsiveness	.01**	.001	.01
Men's acceptability for boundary crossing → Women's reports on partner intrusion → Women's report on partner responsiveness	.01**	.001	.01

*Note:* Only significant indirect paths were included in this table. For a full list of path coefficients for all indirect paths, please contact the author.

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

## Appendix B - Figures



*Figure 1.* The Couple and Family and Technology Framework (Hertlein, 2012).

Men

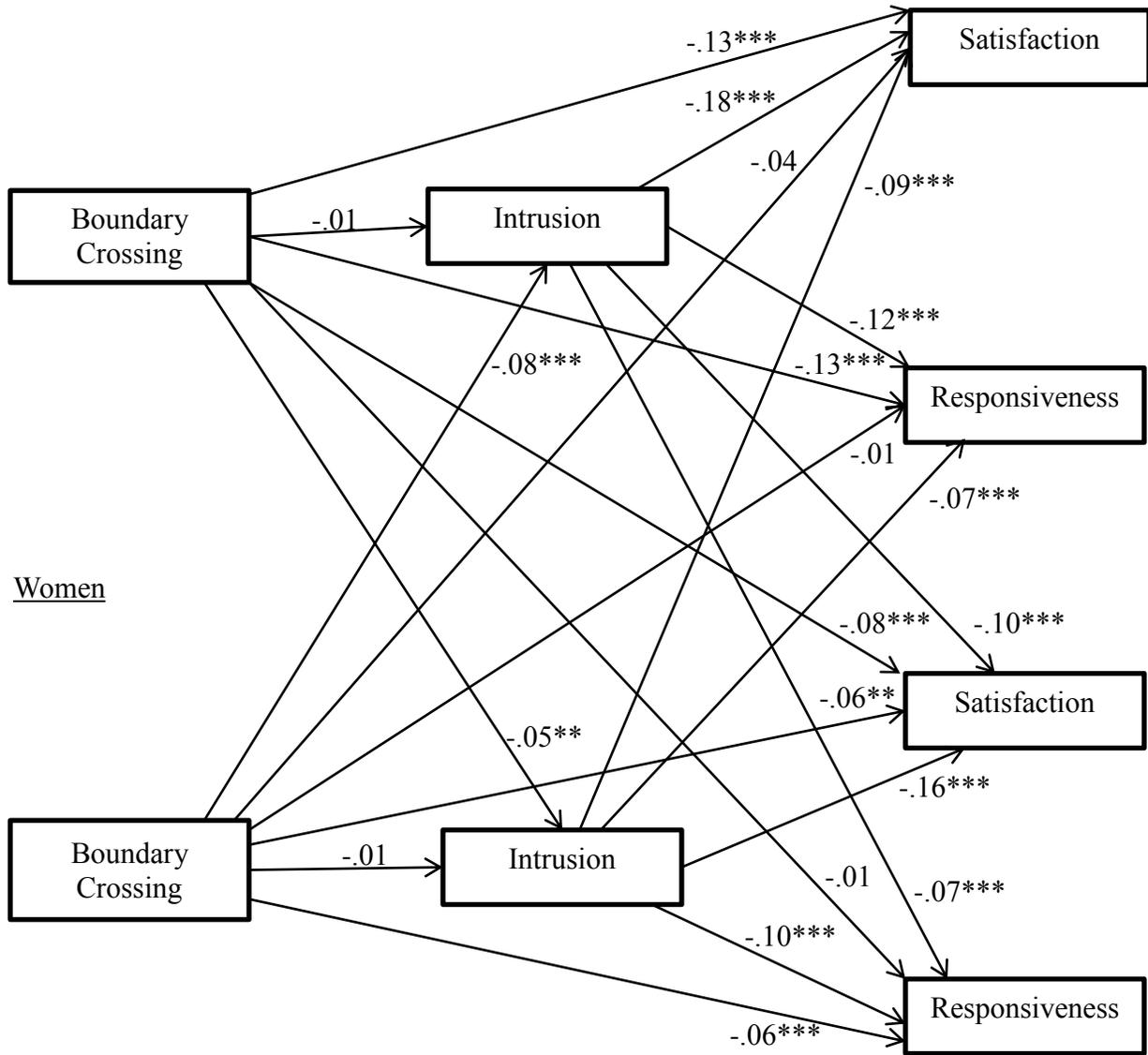


Figure 2. Results for APIM Structural Equation Model ( $N = 2,826$  Couples). Model Fit Indices are  $\chi^2(6) = 13.43, p < .05$ ; CFI = .99; TLI = .98; RMSEA = .02 (C.I. .01- .04); SRMR = .01. For ease in interpreting primary results, excluded from this figure were the control variables (general technology use, age, annual household income, education, number of children, and relationship length). All outcome variables in this model were regressed onto all control variables.

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