Dissertations   UMSL Graduate Works

8-5-2016

The Relationship Between Mobile Device Usage and Couple Satisfaction

Emily Kathryn Oliveira
University of Missouri-St. Louis, emilyoliveira@umsl.edu

Follow this and additional works at: https://irl.umsl.edu/dissertation

Part of the Education Commons

THE RELATIONSHIP BETWEEN MOBILE DEVICE USAGE AND COUPLE

SATISFACTION

by

EMILY K. OLIVEIRA

Ed.S., Counseling Education, Southeast Missouri State University, 2011
M.A., Community Counseling, Southeast Missouri State University, 2009
B.S., Business Administration: Marketing Management, Southeast Missouri State University,
2006

A DISSERTATION

Submitted to The Graduate School of the

UNIVERSITY OF MISSOURI – ST. LOUIS

In partial fulfillment of the requirements for the Degree

DOCTOR OF PHILOSOPHY

in

EDUCATION

With an emphasis in Counseling

August 2016

Advisory Committee

R. Rocco Cottone, Ph.D.
Chairperson

Susan Kashubeck-West, Ph.D.

Keith Miller, Ph.D.

Carl Hoagland, Ed.D.

ABSTRACT

Mobile technology has become a consistent part of the everyday lives of the majority of Americans. The effect that the constant presence of mobile devices can have on a relationship has yet to be addressed in either the couples counseling or the technology literature. This study addressed an identified gap in the literature on the presence and usage of mobile devices and couple relationship satisfaction. A quantitative design was used in order to study the constructs of: usage of a mobile device during wake time spent together with one's partner, relationship satisfaction, physical affection, conflict related to mobile device usage, rules related to mobile device usage, and relationship interference due to mobile device usage. Two hundred and thirty-four adults in coupled relationships completed an online survey related to these variables. Results indicated that relationship satisfaction negatively correlated with participant and partner reported mobile device usage during wake time spent together, conflict over mobile device usage, and interference due to mobile device usage. Additionally, conflict over mobile device usage and interference due to mobile device usage both mediated the relationship between mobile device usage, both participant and partner, and relationship satisfaction. Finally, partner mobile device usage was found to negatively correlate with physical affection. These results provide evidence of a relationship between the presence of a mobile device during wake time spent with one's partner and relationship satisfaction and physical affection. Counseling implications and areas for future research are addressed and discussed.

Keywords: Mobile devices, relationship satisfaction, couples counseling, conflict.

DEDICATION

This dissertation is dedicated to my husband, Kris, who has introduced me to the vast array of technological devices available for use and who has provided insight and support during the process of this dissertation. Without his support these past four years I would not have been able to complete this process; from quitting my full-time job to moving our life to a new city he was always there cheering me on.

I also dedicate this dissertation to my parents, Bruce and Michelle, and my sister, Sarah. They have been there every step of the way to encourage and push me as I pursued degree after degree. I promise this is my last! I am grateful to them for always believing in me and supporting me as I completed my higher education journey as a student and finished this dissertation.

Finally, I want to dedicate this dissertation to my unborn children and to acknowledge the one on the way. Being pregnant during the last push of this dissertation journey gave me the final motivation that I needed to complete this final step in earning my doctorate. I have been so happy to carry you with me on the last leg of my doctoral journey! I hope that someday this dissertation and my journey inspires them to push themselves to do what makes them happy.

ACKNOWLEDGEMENTS

Thank you to all of the partners who took the time to participate in this study and share their experiences with me. Your willingness to complete my survey helped to make this dissertation possible.

I'd like to thank my colleagues and fellow students in the doctoral programs in the College of Education, specifically the Department of Counseling and Family Therapy. I cannot list you all by name, as that would take too much space. However, the support and feedback that you have provided to me these past four years have changed my life in ways that I cannot always put into words. Whether it was helping with data collection or brainstorming ideas for a research area, I always knew that my fellow students supported me. I would like to specifically acknowledge my fellow, lone cohort member Tara Vossenkemper for keeping me on track and always checking in to see how the process was coming along. I will miss our time together as students but look forward to being faculty colleagues!

Thank you to Dr. R. Rocco Cottone for your time, guidance, and encouragement during this dissertation process. I have valued your feedback and support throughout the dissertation process as well as your advisement throughout the program. This past year you have been invaluably supportive as I worked to complete this dissertation, finish my time as a doctoral candidate, and transition to a full-time faculty member. Thank you to Dr. Susan Kashubeck-West for all of the meetings and discussions around quantitative research methods and taking the time to guide me through this process. I cannot express enough how beneficial it was to be able to knock on your door and ask for assistance with questions around data collection, analysis, and pulling it all together in the write-up. Thank you to Drs. Keith Miller and Carl Hoagland for providing invaluable insight into the world of

technological research. I would also like to thank Amy Banken from the Graduate School for being available to answer all of my questions along the way and for reconnecting after graduation so many years ago! Finally, thank you to all of the faculty and staff that have provided support to me along the way.

Lastly I would like to thank my family. Without the support and encouragement of my husband and my parents this would not have been possible. Thank you to Kris for supporting my three year commute to complete the coursework for this degree and for relocating to St. Louis and starting a new job so that I could finish my dissertation and work as a full-time faculty. Thank you for your patience and understanding as I worked to complete this degree and dissertation. I am infinitely grateful for your support and love throughout this process. Finally, thank you to my parents who have supported me through every academic and personal journey I have embarked on. I will forever be grateful for your support and your unconditional love.

Thank you!

TABLE OF CONTENTS

LIST OF TABLES & FIGURES

CHAPTER I

INTRODUCTION

Mobile devices have become a permanent fixture in the majority of Americans' daily lives. According to a 2015 PEW Research Center study of a nationally representative sample, 92% of U.S. adults own a cell phone, with 68% owning a smart phone (Anderson). In the same study, 45% of U.S. adults reported owning a tablet computer and 73% reported owning a laptop or desktop computer (Anderson, 2015). It is no surprise that mobile devices, as a form of technology, have imprinted themselves on multiple areas of individual's lives, including couple relationships. However, limited research exists related to the effect that mobile devices have on a couple's relationship. The current research related to the area of technology and couple relationships primarily is related to addiction (e.g., gaming, pornography, Internet), issues of infidelity, communication (e.g., texting, email, or social media), or development of relationships online. Therefore, an emerging area of technology-related research is the effect that technological devices, such as mobile devices, have on interpersonal relationships, specifically between partners in committed relationships.

The research area of technology and couple relationships has broadened with the advent of new forms of technology. With that being said, an understanding of how the act of using a mobile device in everyday life relates to couple relationship satisfaction is an area yet to be explored. This study is one of the first of its kind to investigate the relationship between the use of mobile devices and areas of relationship satisfaction, physical affection, relationship conflict, mobile device interference, and rules of usage.

The theory being used to guide this dissertation study is the Gottman Method of Couple Therapy, a relationship theory that frames how relationships work, how couples

experience conflict, and relationship satisfaction/dissatisfaction (Gottman & Gottman, 2008). Conflict is viewed as an inevitable part of any couple relationship. According to Gottman, the best predictors for relationship dissatisfaction are "The Four Horsemen of the Apocalypse" which include criticism, defensiveness, contempt, and stonewalling (Gottman & Gottman, 2008). In particular, stonewalling involves emotional disengagement from interaction with one's partner (Gottman & Gottman, 2008), which could explain the use of a mobile device as a barrier while spending time with a partner.

Statement of Problem

The primary problem of this study titled "The Relationship Between Mobile Device Usage and Couple Satisfaction" was to examine the uncharted relationship between the amount of wake time spent on a mobile device and couple relationship satisfaction. The main purpose of this study was to identify if a relationship exists between the amount of mobile device usage during wake time spent together and couple relationship satisfaction. The secondary purpose of this study was to identify if conflict, mobile device interference, or the presence of rules related to mobile device usage moderate or mediate the relationship between the amount of mobile device usage and couple relationship satisfaction. A final purpose of the study was to explore if a relationship exists between physical affection, specifically related to amount and satisfaction, and the amount of wake time spent together on a mobile device.

For this study, a mobile device was operationalized as any communication or electronic device that can be used in a mobile setting without being tethered to a specific location. Therefore a mobile device could include a cell phone, tablet, personal gaming

system, or personal laptop computer. Additionally, wake time spent together was operationalized as the amount of time that a couple spends together while awake.

Significance of the Study

Currently few research studies address the direct effect that mobile devices have on couple relationships offline. As previously stated, literature exists on topics such as Internet addiction, cybersex, technology in general, acceptable online behavior, and developing a relationship online. This dissertation proposed to address the gap in the couples literature related to usage of technology, specifically mobile devices. The impact that technology has on families and individuals is continually being researched, however a gap remains related specifically to couple relationships. A call from many researchers has already gone out for researchers studying interpersonal communication and relationships to take into account the impact of mobile devices; however, research evidence continues to be sparse (Ling & Campbell, 2011; Helsper & Whitty, 2010; Hertlein, 2012; Przybylski & Weinstein, 2012).

Mobile devices can be used for more than simply communicating or connecting to the Internet. More and more they are being used to listen to music, watch videos, access news articles, complete surveys, connect on social media, and read books. The list of tasks that can be completed with a mobile device continues to expand and includes much more than what is listed here. As the functionality of mobile devices continues to increase, the amount of use of devices has the potential to continue to grow, thus affecting the intrusive nature of devices in everyday interactions. According to Fox, Osborn, and Warber (2014), the full extent of the benefits and drawbacks of advances in technology, and even the increased use of mobile devices, might not be known at this time. Although mobile devices are typically used for

connection, it is an artificial connection that could have a negative effect on in-person interactions and relationships.

A limited number of studies have examined the relationship between technology or mobile device usage and the area of couple relationship satisfaction. Additionally, no studies have been found to examine the relationship between technology usage and physical affection among couples. Przybylski and Weinstein (2012) conducted an experimental study with the purpose of identifying if the presence of a mobile phone influenced relationship quality in a face-to-face, dyadic setting. The results of the study indicated that the presence of a mobile phone interfered with the development of closeness and trust in the interpersonal relationship, as well as reduced the development of understanding and intimacy between the participants (Przybylski & Weinstein, 2012). This study is one of the first that laid the groundwork for the concept that the very devices that are meant to enhance interpersonal communication and connection could paradoxically disrupt the face-to-face experience of interpersonal bonding and intimacy. McDaniel and Roberts (2014), in a study comprised of all female participants, found that interruptions or interference due to technology led to more conflict over use of technology and negatively impacted relationship satisfaction. In a more recent study, Roberts and David (2016) found that interruptions and distractions caused by the use of a cell phone by one's partner increased conflict and decreased relationship satisfaction among a sample of partnered adults.

Hypotheses

Hypothesis 1: The following relationships are expected to exist: (a) a negative relationship between the amount of time spent on devices during partners' wake time spent together (mobile device usage) and couple relationship satisfaction; (b) a negative

relationship between interference of a mobile device and couple relationship satisfaction; and (c) a negative relationship between conflict over mobile device usage and couple relationship satisfaction.

Hypothesis 2: Interference due to a mobile device will mediate the relationship between mobile device usage and couple relationship satisfaction. Specifically, as mobile device usage increases, interference due to a mobile device will increase and couple relationship satisfaction will decrease.

Hypothesis 3: Conflict over mobile device usage will mediate the relationship between mobile device usage and couple relationship satisfaction. Specifically, as mobile device usage increases, conflict over mobile device usage will increase and couple relationship satisfaction will decrease.

Hypothesis 4: The existence of rules related to mobile device usage will moderate the relationship between mobile device usage and couple relationship satisfaction such that when rules related to mobile device usage are present the relationship between mobile device usage and couple relationship satisfaction will be weaker.

Research Question

Research Question: Will a relationship exist between physical affection and amount of time spent on devices during partners' wake time spent together?

Delimitations of the Study

The study being proposed will examine the relationship between mobile devices and couple relationship satisfaction for individuals in a self-identified couple relationship. The areas of conflict related to mobile device usage, interference of mobile devices during time spent together, rules related to mobile device usage, and physical affection will also be

examined. Specifically, the relationships of dating, committed, married, domestic partnered, or cohabitating couples will be included for participation in the study. A nationwide sample is being proposed. Additional criteria for participation will be that one or both of the partners in the relationship own a mobile device, as previously defined.

Chapter Conclusion

The study was organized into five chapters. Chapter Two presents a review of the literature related to technology, mobile devices, and relationship satisfaction. Chapter Three provides an overview of the research design and methodology of the study. Also included in Chapter Three are the instruments that for use to gathering data, the procedures, and a description of the sample. Chapter Four includes an analysis of the data and findings and Chapter Five provides conclusions, limitations, implications for counseling, and recommendations for further study.

CHAPTER II

REVIEW OF THE LITERATURE

Literature related to various aspects of technology and the development and impact on interpersonal relationships has expanded since the advent of the Internet and mobile technologies. However, limited research exists related to the relationship between the presence and usage of mobile devices and the different aspects of couple relationships. Literature exists related to the areas of technology or the Internet and couple relationships, specifically in the areas of addiction (e.g., gaming, pornography, Internet), dealing with infidelity, communication (e.g., texting, email, or social media), and the development of relationships online. Therefore, an emerging area of technology related research is the effect that technological devices, such as mobile devices, have on interpersonal relationships, specifically couples and families.

Overview of Couple Relationship Theory

Theoretically based research on the relationship between technology and couple relationships is scarce. Some theories that have been used to explain the relationship between technology and interpersonal couple relationships include Bowlby's Attachment Theory (Roberts & David, 2016; Leggett & Rossouw, 2014), the Sociotechnological Family Model (Lanigan, 2009), and Hertlein's multitheoretical model for understanding technology in couple and family life (Hertlein, 2012). For this study, Gottman's Method of Couples Therapy will be used as it provides theoretical guidance on relationship satisfaction, withdrawal from the relationship through stonewalling, how couples experience and navigate conflict, and shared meaning among couples (Gottman & Gottman, 2015).

Relationship Satisfaction

In his research, Gottman studied what he identified to be the masters and disasters of relationships among couples. The "masters of relationships" were couples who remained relatively happy and stable while the "disasters of relationships" were couples that were unhappy or eventually broke up (Gottman & Gottman, 2015). Partners who were happy were found to have lower rates of physical ailments or psychological concerns when compared to unhappy couples. Additionally, partners who were unhappy in their relationship or dissatisfied tend to experience increased levels stress and emotional distress (Gottman & Silver, 2015). Gottman went beyond studying what didn't work in relationships and studied what it looked like when a relationship did work (Gottman & Gottman, 2015).

The following variables were found to be important in predicting marital satisfaction: complaint/criticism, defensiveness, disgust and contempt, and withdrawal from interaction (Gottman, 1994). Gottman (1994) referred to these four components as the "Four Horsemen of the Apocalypse" and proposed that they are sequential in their order. Thus, complaining and criticizing leads to contempt, contempt leads to defensiveness, and defensiveness leads to stonewalling or withdrawal from interaction (Gottman, 1994). In turn, these four horsemen eventually lead to dissolution of a marital or committed relationship (Gottman, 1994).

"The Four Horsemen of the Apocalypse." Gottman (1999) identified four negative behaviors that can be most corrosive to couple relationships, which he termed "the four horsemen of the apocalypse," criticism, defensiveness, contempt, and stonewalling. Criticism is the starting point and can lead to defensiveness, contempt and stonewalling. All relationships experience criticism, defensiveness, and stonewalling while only unhappy, unstable relationships experience some level of contempt (Gottman, 1999).

Criticism is any statement that broadly implies that something is globally wrong with one's partner. It could be a permanent aspect of the partner's personality or a blanketed statement related to a one-time offense (Gottman, 1999). For example, stating that one's partner never takes responsibility for anything or is always on edge would be considered criticisms instead of complaints. By adding the words always or never the complaint has been transformed into a criticism (Gottman, 1999).

Defensiveness involves an attempt to defend against a perceived attack from one's partner and is typically used in response to a complaint or a criticism (Gottman, 1999). Defensiveness is a form of self-protection that can manifest as whining or counterattacking against one's partner (Gottman & Gottman, 2015). It can be detrimental to respond with defensiveness because it can lead to a victim mentality and can make the other partner the guilty party (Gottman, 1999).

The most common predictor of divorce is contempt or putting oneself on a higher level than one's partner (Gottman, 1999). Contempt can take the form of sarcasm, direct insults, or even putdowns or name-calling (Gottman & Gottman, 2015). The level of contempt in happy relationships was found by Gottman (1999) to be zero.

When one partner, known as the listener, withdraws from interaction this is known as stonewalling (Gottman, 1999). Stonewalling is a communication barrier that involves the listener blocking or presenting a "stone wall" to the speaker. The listener does not provide the speaker with the normal cues that they are listening, which can lead to a negative emotional reaction for the speaker (Gottman, 1994). Stonewalling can take the form of looking away or down, hardly vocalizing or providing active listening cues, brief glances, disengaging from conversation, or leaving (Gottman, 1999). Gottman (1994) found that men

are more likely to engage in stonewalling than women; about 85% of the individuals

observed to stonewall were males. Since women are less likely to stonewall, when a woman

stonewalls it is highly indicative of withdrawal from the relationship or relationship

termination (Gottman, 1994). This supports the hypothesis that individuals in relationships

who use a mobile device during wake time spent together to withdraw from the relationship

could report a decrease in satisfaction with their relationship.

Perception. Another aspect of Gottman's Method of Couples Therapy related to

relationship satisfaction that is relevant to this study is Gottman's theory of how partners

interpret positive and negative behavior, statements, and actions. A happy couple will tend to

perceive negative interactions as situational and fleeting, that the interaction is not the norm

and that it is external to the relationship. In an unhappy relationship, the partner will perceive

a negative interaction as internal to the partner and a stable or unchanging part of the

relationship (Gottman, 1999).

As this relates to the current study, partners in unhappy relationships may perceive

mobile devices as negative. Therefore, when a partner is not satisfied with the relationship

the excessive use of mobile technology in the presence of their partner could be interpreted

as a problem within the partner and a permanent problem within the relationship. The use of

mobile devices during time spent together could be perceived as a disengaging trait of the

partner using the device.

Conflict

Gottman also provided guidance on relationship conflict as a predictor of relationship

satisfaction or stability in his research (Gottman, 1994). Gottman particularly studied the way

that a couple resolves conflict as opposed to the areas of conflict itself. Accordingly, conflict

in a relationship is not considered a solvable part of a relationship but a perpetual part of any

given relationship (Gottman & Gottman, 2015). If a problem becomes destructively perpetual

it becomes gridlocked, meaning that each partner becomes entrenched in their position and

refuses to engage with the partner (Gottman, 1999). Gridlock can eventually lead to

disengagement from the relationship if the perpetual problem or conflict is not addressed.

Perpetual problems that become gridlocked can lead to an unstable, unhappy relationship and

can eventually lead to an end to the relationship (Gottman & Silver, 2015).

When a couple experiences perpetual conflict related to mobile device usage or

becomes gridlocked, this could have an effect on relationship satisfaction. Additionally, if a

partner is disengaging from the relationship by using a mobile device during time spent

together, this could be an indication of a perpetual problem within the relationship that has

resulted in gridlock.

Shared Meaning

A final part of Gottman's theory involves building a "shared meaning by establishing

formal and informal rules of connection" (Gottman & Gottman, 2015, p. 133). According to

Gottman and Gottman (2015), all couples engage in intentionally or unintentionally building

a shared meaning system in order to create connection and maintain positive affect.

Construction of a shared meaning system can ultimately lead to happiness and stability

within the relationship (Gottman & Gottman, 2015).

Shared meaning systems can be established related to time spent together as a couple

by determining the way that time is spent, the established priorities of that time, and rituals of

connection. An example of a ritual of connection is the way that partners interact during

dinnertime by sharing the details of their day. When this ritual of connection is interrupted by

an outside factor such as a mobile device, this can lead to a break down of the happiness and stability that has been established within the relationship.

Mobile Devices

Mobile devices are utilized in the everyday lives of the majority of American adults with approximately 92% owning a cell phone, 73% owning a laptop computer, 45% owning a tablet, 19% owning an e-reader, and 14% owning a portable gaming device (Anderson, 2015). Technology has become more and more accessible even with the digital divide that plagues the more rural and low-income parts of America. As the technology behind mobile devices advances, the variety of uses for mobile technology continues to grow and so does the variety of distractions that it can have during interpersonal interactions. Currently a limited amount of research studies address the direct effect that mobile devices have on couples relationships offline or face-to-face.

Approximately 82% of adults in a PEW Research Center poll reported that the use of a cell phone in a group setting hurts the conversation while 89% reported using their cell phone during an event (Rainie & Zickuhr, 2015). In the same study, Rainie and Zickuhr (2015) found that about a quarter of the participants reported using a cell phone in a public space in order to avoid interacting with others. When asked about acceptable use of a cell phone at a restaurant, 38% of American adults reported that it is OK to use a phone. Of those who reported it was acceptable, about 50% were young adults ages 18 to 29. Additionally, men were more likely than women to report that it was ok to use a cell phone in a restaurant, 44% versus 33% (Rainie & Zickuhr, 2015).

It's no wonder that the following scenario is experienced so often in American culture:

I was sitting a local coffee shop observing my surroundings. I noticed a man sitting

alone with nothing but the company of his mobile tablet. I continued to scan the room

and came upon a group of three women engrossed in conversation. Then I noticed the

couple sitting across from each other with their favorite cups of coffee with their

heads looking down, not making eye contact with one another but making contact

with the device in their hands, their mobile cell phones.

This is becoming an all too familiar scenario as couples spend time together in the presence

of one another without really being present with one another due to a mobile device.

How individuals used different forms of technology to connect with their romantic

partner was the focus of a study that involved mobile devices (Coyne, Stockdale, Busby,

Iverson, & Grant, 2011). The technology that the study focused on included cell phones, text

messaging, e-mail, instant messenger, social networking sites, blogs, and webcams. The

participants in the study consisted of 1,039 heterosexual individuals in a serious dating

relationship, engaged, or married (Coyne et al., 2011). Although Coyne et al. (2011)

primarily focused on how individuals used technology to connect with their partner, they did

investigate how media was used to connect with others while with one's partner. They found

that 38% of participants reported using technology to connect with someone other than their

partner while interacting with their partner (Coyne et al, 2011). Coyne et al (2011) posited

that a relationship could exist between technology usage and overall relationship quality,

though a cause could not be formed.

Relationship Satisfaction

Relationship satisfaction is a common topic of study in marital and couple

relationship literature. As previously discussed, a partner in a happy or satisfying relationship

tends to be more physically, mentally, and emotionally healthy when compared to unhappy partners (Gottman & Silver, 2015). One factor of relationship satisfaction not yet discussed is the quantity and quality of the time that partner's spend together.

Couple Time Spent Together

The time that a couple spends together has been found to be essential to relationship maintenance and quality (Guldner & Swensen, 1995). Glorieux, Minnen and van Tienoven (2011) studied the reported time spent together among 4,043 couples in Belgium. It was found that on average the couples surveyed spent over half of their time together. The majority of time that couples spend together happened either during meal times or during the evening or weekends (Glorieux et al., 2011).

Guldner and Swensen (1995) suggested that the quality of time spent together is more central to relationship satisfaction as opposed to the quantity or amount of time spent together. Therefore, it is imperative that couples make time to eat together and participate in activities together on weekends and during other time together in a quality way without distractions, such as mobile devices.

Mobile Devices and Relationship Satisfaction

The intersection of mobile devices and relationship satisfaction has shown itself to be an up-and-coming research topic in recent years. More and more studies are starting to focus on the interaction that mobile devices have within relationships. Some of the emerging areas of research related to mobile devices and relationship satisfaction include being present with one's partner while together, the presence of mobile devices creating a barrier to connection, rules for mobile device usage, and interference or distraction due to mobile device usage.

Being Present Together, Technology, and Relationship Satisfaction

Similar to the proposed study, Leggett and Rossouw (2014) studied the impact of technology use on couple relationships, specifically on relationship satisfaction, by investigating the maintenance of being present together. Leggett and Rossouw (2014) posed the question, "if presence is not maintained due to technological distraction, how long can couples remain satisfied in their relationships without feeling heard or connected?" (p. 49). In order to study this question a questionnaire was administered to a sample of 21 heterosexual couples to elicit information about relationship satisfaction and technology use. Couples participated in the survey by sharing a matching code name at the end of the survey along with questions related to anniversary date and length of relationship (Leggett & Rossouw, 2014). Leggett and Rossouw (2014) found a linkage between laptop use during time spent together with a partner without engaging with the partner and negative perception of the relationship (i.e. relationship dissatisfaction). A significant relationship was not found for any of the other forms of technology studied (e.g. computers, TV, or mobile phones), though a reason for this finding was not clear (Leggett & Rossouw, 2014).

A limitation of Leggett and Rossouw's (2014) study was that they had a small sample size, 42 participants or 21 couples. They used a coding system in order to match partners completing the online questionnaire, which limited their number of participants due to one partner not completing the questionnaire or not providing the correct code (Leggett & Rossouw, 2014).

In a dissertation on the use of Blackberry's, a type of a mobile device, and the impact on relationships, it was found that when one partner owned a Blackberry, the constant distraction of the device adversely impacted the relationship (Czechowsky, 2008). Czechowsky (2008) conducted a qualitative study and found that the prominent theme

amongst the participants related to "presence" of partners during face-to-face interaction. Non-Blackberry users were found to express resentment toward the partner who used the device and a preference for their partner to be more present during face-to-face interactions. One participant stated "there have been times when we've been out for a meal together and I'm talking to him and he's on the Blackberry" (Czechowsky, 2008, p. 29). Being present in the here and now was an important finding of the study. "Presence" versus "being present" with the partner was addressed as an issue when partners discussed the perception of quality of time spent together and not being preoccupied by technology or something else (Czechowsky, 2008).

Presence of Mobile Devices

The presence of mobile devices or mobile device usage as a relationship variable has received little attention in the literature. Przybylski and Weinstein (2012) conducted an experimental study with the purpose of identifying if the presence of a mobile device affected relationship quality in dyadic settings. In their study, Przybylski and Weinstein (2012) conducted two experiments to study their hypothesis of the barrier to human interaction that may be presented by mobile technology.

For the first experiment, 74 participants were assigned to dyads in which they were directed to discuss a topic for 10 minutes (Przybylski & Weinstein, 2012). Participants were randomly assigned to either a mobile phone absent or mobile phone present condition for the discussion. The condition in which a mobile phone was present involved the placement of a mobile phone on a book on a desk that was within both participants' visual field. For the mobile phone absent condition a notebook replaced the mobile phone. The variables of relationship quality and partner closeness were measured for this experiment (Przybylski &

Weinstein, 2012). Przybylski and Weinstein (2012) found that when the dyads were expected

to get to know each other in the presence of a mobile device, the participants reported lower

relationship quality and less closeness to their partner.

For the second experiment, Przybylski and Weinstein (2012) manipulated the content

of the conversation to be either casual or meaningful in order to explore which relational

contexts of mobile phones matter most. The directions for the casual conversation condition

included discussing thoughts or feelings about plastic holiday trees while the meaningful

conversation condition directions were to discuss the most meaningful events of the past year

(Przybylski & Weinstein, 2012). The experiment followed a between-subjects design with 68

participants assigned to one of four groups: mobile phone absent and casual conversation,

mobile phone absent and meaningful conversation, mobile phone present and casual

conversation, and mobile device present and meaningful conversation. For this experiment,

the variable of relationship quality was assessed in the same way as the first experiment as

well as the variables of partner trust and partner empathy (Przybylski & Weinstein, 2012).

When participants engaged in meaningful conversation in the presence of the mobile phone,

Przybylski and Weinstein (2012) found that participants reported lower relationship quality,

less trust, and less perceived empathy following the conversation. No difference was found in

the participants who engaged in casual conversation with or without a mobile phone presence

among any of the variables (Przybylski & Weinstein, 2012).

Overall, the researchers concluded that the presence of a mobile device could

interfere with the formation of human relationships (Przybylski & Weinstein, 2012).

Therefore, the very devices that are meant to enhance interpersonal communication and

connection could paradoxically disrupt the face-to-face experience of interpersonal bonding and intimacy.

A limitation of the study conducted by Przybylski and Weinstein (2012) was that the only mobile device or technology that was included in the study was a mobile cell phone. As has been suggested, mobile devices can encompass more than just a cell phone, broadening the effect that the device can have on dyadic interactions. Additionally, the participants did not interact with the cell phone during the experiments. Another limitation of the study was that only strangers meeting for the first time were included in the study instead of couples (Przybylski & Weinstein, 2012) so no data was collected on the impact of the presence of the cell phone on an established, interpersonal relationship such as a couples relationship.

Mobile Device Use and Connectedness

In a study related to text messaging and connectedness, 19 interviews were conducted with a total of 38 participants in dyadic pairs including platonic friendships, heterosexual partners, and familial pairings (Pettigrew, 2009). Pettigrew (2009) found a theme among participants that compulsively responding or replying to a text message while talking with a significant other can interrupt or damage immediate relations and can even devalue the other person. Additionally, one participant spoke to the compulsive impact that a mobile device can have when a message is pending by stating that when the phone would go off "it's like crack to me because I have to look, I mean I have to see what it is…you kind of feel obligated to respond" (Pettigrew, 2009, p.706). Participants went on to provide strategies for protecting immediate relationships from such distractions such as only checking important messages, creating rules for mobile phone usage when participating in significant couple or family interactions, and using caller ID. Though the Pettigrew (2009) qualitative study

identified language for the impact that a mobile device can have on connectedness, the study only addressed use of a mobile device for purposes of text messaging, thus failing to address the complexities of activities available on a mobile device. Additionally, Pettigrew's study included both partnered couples and non-partnered couples.

Rules for Mobile Device Usage

According to Gottman and Gottman (2015), the construction of a shared meaning system, either intentionally or unintentionally, by a couple can facilitate stability and happiness within the relationship. One way that shared meaning can be manifested in relation to mobile device usage is the development of shared rules related to acceptable usage during time spent together. Gottman and Silver (2015) also suggested that all couples establish rules related to the use of technology and etiquette.

Helsper and Whitty (2010) conducted a quantitative study with the purpose of understanding the level of agreement about rules that coupled partner's reported within their relationship related to Internet usage. "Netiquette" was operationalized as the "(unspoken and spoken) rules about acceptable and unacceptable online activities" (Helsper & Whitty, 2010, p. 919). Data was collected from 2,401 individuals using an online survey of married couples who use the Internet. The findings suggested that netiquette is developed and negotiated consciously or unconsciously within intimate, partner relationships (Helsper & Whitty, 2010). Additionally, both partners seemed to develop similar ideas or an agreement about the netiquette or rules developed, thus contributing to relationship satisfaction (Helsper & Whitty, 2010).

Mobile Devices and Relationship Interference

The extent that the presence and use of mobile devices themselves (e.g. cell phones, tablets, laptops, personal gaming devices, etc.) relates to relationship interference or distraction and satisfaction in coupled partners has recently started to be covered in research studies. When Murray and Campbell (2015) surveyed 225 individuals on how technology hurts their partnered relationship, they found that technology could distract from an intimate relationship in a couple of ways. The first finding was that partners reported using technology to escape from the relationship. Another finding was that participants reported having other aspects of the partners' life infringe on the time that was set aside for their relationship. This was illustrated by the statement "Distraction during conversation from texting other people" (Murray & Campbell, 2015, p. 133). Feeling neglected because of a partner's distraction due to technology was another way that participants identified technology as hurting their relationship. Finally, participants identified missing out on time to spend on their relationship because of the distraction of technology as a final way that technology can distract from the relationship and thus hurt the partner relationship (Murray & Campbell, 2015).

Hertlein and Ancheta (2014) posed the question of how technology interferes with relationship in a qualitative study on the advantages and disadvantages of technology, in particular sexting, on couple relationships. One of the themes found related to distancing as a way that technology interferes with relationships. A lack of focus and interference with the process of intimacy were particular ways that participants identified technology as leading to distance within the relationship (Hertlein & Ancheta, 2014). One participant identified the result of a lack of focus with a partner in the following scenario "It seems like people are always on their phones. So, when you are on a date and your partner is on their phone you

could feel like you are being ignored." (Hertlein & Ancheta, 2014, p.7). Participants in the

Hertlein and Ancheta (2014) study also identified that the presence of phones or technology

during time when partners were spending time together was problematic in that "it keeps

people from actually interacting when they are together." (p.7).

Additionally, interactive communication can be reduced if one individual uses a cell

phone to connect with individuals outside of the family rather than present family members

(Lannigan, 2009). Two additional studies were identified in which a relationship was found

between interruptions or distractions by cell phones or other mobile devices, an increase in

conflict in partner relationships, and a decrease in relationship satisfaction (McDaniel &

Coyne, 2014; Roberts & David, 2016). McDaniel and Coyne (2014) investigated the

phenomenon of "technoference", an intrusion or interference in communication during time

spent together with a technological device, while Roberts and David (2016) investigated the

phenomenon of "Pphubbing", the snubbing of one's partner using a phone.

"Technoference." Technoference is defined as the "everyday intrusions or

interruptions in couple interactions or time spent together that occur due to technology"

(McDaniel & Coyne, p. 1, 2014). Technoference can occur in any relationship, including

couple relationships, when one partner uses their mobile device while in the presence of their

partner. McDaniel and Coyne (2014) examined the frequency of the occurrence of

technoference within romantic relationships and the relationship between technoference and

conflict within the romantic relationships, among 143 female participants in a heterosexual

married or cohabiting relationship.

McDaniel and Coyne (2014) investigated whether technoference predicted conflict in

a relationship related to technology use and whether this conflict accounted for negative

outcomes, such as reduced relationship or life satisfaction. They predicted that technoference would interfere with intimacy in partner relationships, specifically relationships in which one of the partners had developed "intimacy" with an electronic device at the cost of intimacy with a partner (McDanie & Coyne, 2014). They also hypothesized that technology might interfere with face-to-face relationships when individuals multitask with technology while interacting with their partner (McDaniel & Coyne, 2014).

McDaniel and Coyne (2014) developed three measures to study technoference. The first measured frequent interference in couple relationships called the Technology Device Interference Scale (TDIS). The second, called the Technology Interference in Life Examples Scale (TILES) measured the frequency of interference of technology in specific situations. The third and final measure assessed relationship conflict related to technology, the Conflict over Technology Use Scale (McDaniel & Coyne, 2014).

McDaniel and Coyne (2014) found that computers were rated highest of the technological tools for producing technoference followed by mobile phones then tablets. The life scenario that was found to occur most frequently among the participants was when the partner got their mobile device out during couple leisure time together (McDaniel & Coyne, 2014). Participants who reported experiencing increased levels of technoference were also found to report increased levels of technology related conflict and lower levels of relationship satisfaction (McDaniel & Coyne, 2014). A model of technology interference was developed using structural equation modeling. It was found that the conceptual model was a good fit and showed that the frequency of technoference predicted conflict over technology use which predicted lower relationship quality (McDaniel & Coyne, 2014). This finding lays the groundwork for the hypotheses in the current study that states that interference from

mobile devices and conflict over mobile device usage will mediate the relationship between amount of mobile device usage and relationship satisfaction.

A limitation of McDaniel and Coyne's (2014) study was that only women in heterosexual relationships were included in the study. Additionally, the alpha for the TDIS was relatively low which was accounted for as being the result of the differing usage of the variety of forms of technology (McDaniel & Coyne, 2014).

"Pphubbing." Roberts and David (2016) developed a measure for Pphubbing in order to better understand how technology impacts partner relationships. A "phubb" is defined as "an interruption of your conversation with someone when he or she attends to their cell phone or when you are in close proximity to another but they use their cell phone instead of communicating with you" (Roberts & David, 2016, p. 134). Pphubbing is defined as an incident of phubbing that occurs in the presence of one's spouse or partner (Roberts & David, 2016).

Roberts and David (2016) conducted two studies to develop and test a measure of Pphubbing, or the act of using or being distracted by one's cell phone while in the presence of one's partner. The first study involved item development and sampled 308 adults. Following an exploratory factor analysis and a confirmatory factor analysis, the study yielded a 9-item measure of Pphubbing (Roberts & David, 2016). The second study was conducted to test the conceptual model which hypothesized that partner phubbing (Pphubbing) would predict a decrease in relationship satisfaction which would be mediated by cell phone conflict and that the relationship between cell phone conflict and Pphubbing would be moderated by attachment anxiety. The 9-item Pphubbing measure was used with the 145 adults that participated in the second study (Roberts & David, 2016).

In both studies Pphubbing was found to have a positive, significant effect on cell phone conflict and a negative, significant effect on relationship satisfaction (Roberts & David, 2016). Following a post-hoc test, Roberts and David (2016) found that Pphubbing and cell phone conflict significantly predicted relationship satisfaction. The results indicated that Pphubbing could lead to cell phone conflict, which can then negatively impact relationship satisfaction (Roberts & David, 2016).

Mobile Device Usage and Physical Affection

An aspect of couple relationships that has not been explored as it relates to technology is physical affection or physical touching. The nature of mobile device usage at times requires that the device be held which means that physical touching with hands may not take place. An area close to physical affection that has briefly been explored is intimacy. Kerkhof, Finkenauer, and Muusses (2011) examined compulsive Internet use and relationship quality, including intimacy and passion, among newlywed, heterosexual couples. They found that when couples reported a partner exhibited more compulsive Internet use they also reported less intimacy and passion (Kerkhof, Finkenauer, & Muusses, 2011). Though compulsive Internet use and mobile device usage are not mutually inclusive, mobile devices can be used to access the Internet. This provides some guidance for the research question related to mobile device usage and physical affection.

Demographic Differences: Mobile Device Usage and Relationship Satisfaction

Few studies have started to identify differences across demographic areas related to mobile device usage and relationship satisfaction. Additionally, Leggett & Rossouw (2014) stated that future researchers should explore cultural and gender differences as well as relationship satisfaction of same-sex couples. The current generation of young adults has

grown up with the easy access of mobile technology and the expectation of continuous connection therefore, being constantly connected may be a norm for younger adults when compared to older generations (Turkle, 2011). Previous research has identified existing differences among the demographic variables of gender, age, and type of relationship.

Men have been found to spend more time on the Internet when compared to females (Peterson, Aye, & Wheeler, 2014). Peterson, Aye, and Wheeler (2014) also found that participants in romantic relationships spent significantly less time on the Internet when compared to participants not in a romantic relationship. Coyne et al. (2011) examined differences among demographic or relationship factors and usage of mobile devices. Specifically, Coyne et al. (2011) found that individuals age 17-25 reported using all forms of technology to communicate with their partner when compared to couples from other age groups. Additionally, participants who reported being married reported a difference in the frequency of types of media used when compared to dating couples (Coyne, et al., 2011). They also found that women used technology to connect with individuals other than their partner more than men and that younger individuals were significantly more like to do so as well. Additionally, individuals who were not married were significantly less likely to use technology to connect with others while with their partner (Coyne et al., 2011).

Chapter Conclusion

This research study held the potential to provide groundbreaking insight into the newly charted field of the presence of mobile devices and the relationship with couple satisfaction. Mobile devices are being used more and more as an escape from real life and when this escape occurs in the presence of a partner, the couple relationship could result in varying levels of distress or disconnection. This research study attempted to build on

previous research related to the areas of technology, use of mobile devices, couple

relationship satisfaction, conflict, rule development, and interference.

CHAPTER III

METHODOLOGY

The purpose of this chapter is to describe the design of the study and the methodology used. This study utilized a quantitative design using an online questionnaire. The relationship between mobile device usage and relationship satisfaction was examined for individuals in committed, couple relationships. Additionally, the variables of conflict, interference due to a mobile device, and rules of mobile device usage related to relationship satisfaction and mobile device usage were examined. The hypotheses and research question are as follows.

Hypotheses

Hypothesis 1: The following relationships are expected to exist: a negative relationship between the amount of time spent on devices during partners' wake time spent together (mobile device usage) and couple relationship satisfaction, a negative relationship between interference of a mobile device and couple relationship satisfaction, and a negative relationship between conflict over mobile device usage and couple relationship satisfaction.

Hypothesis 2: Interference due to a mobile device will mediate the relationship between the mobile device usage and couple relationship satisfaction. Specifically, as mobile device usage increases, interference due to a mobile device will increase and couple relationship satisfaction will decrease.

Hypothesis 3: Conflict over mobile device usage will mediate the relationship between the mobile device usage and couple relationship satisfaction. Specifically, as mobile device usage increases, conflict over mobile device usage will increase and couple relationship satisfaction will decrease.

Hypothesis 4: The existence of rules related to mobile device usage will moderate the relationship between mobile device usage and couple relationship satisfaction such that if rules related to mobile device usage are present the relationship between mobile device usage and couple relationship satisfaction will be weaker.

Research Question

Research Question: Will a relationship exist between affection and amount of time spent on devices during partners' wake time spent together?

Participants

Individuals who identified as a member of a couple relationship and who use a mobile device were invited to participate in the online survey. Specifically the relationships of dating, committed, married, domestic partner, and cohabiting couples were included for participation in the study. Participants who identified as single with no partner were excluded from the final analysis. A request was made by the researcher that only one member of the couple participate in order to collect one set of data per couple; however this could not be controlled. The targeted number of participants ranged between 200 and 250 based on a G*Power statistical analysis (Faul, Erdfelder, Buchner, & Lang, 2009). Effort was made to recruit participants from diverse backgrounds including, but not limited to, couples in which one or both partners identify as LGBTQ, couples belonging to varying age groups, ethnically and racially diverse couples, and interracial couples.

The sample was comprised of 234 participants that ranged in age from 18 to 78 years (M = 36.06, SD = 11.97). The full descriptive analyses can be found in Table 1. The sample consisted of participants who were predominantly female (79.5% identified as female, 20.5% as male) with partners who identified as female (20.1%), male (79.1%), and transgender male

(.4%). In relation to ethnicity, 84.2% of participants identified as Caucasian, 6.8% as

Multiracial, 3.4% as African American, 2.6% as Asian or Asian American, 1.7% as

Hispanic, .9% as Native American, and .4% did not respond. For this study, 86.8% of

participants identified as straight/heterosexual, 5.6% as bisexual, 2.1% as gay, 1.7% as

lesbian, 1.3% as pansexual, 1.3% as queer, .4% as questioning, .4% as other, and .4% did not

respond. Participants reported being married (62.8%), in a committed relationship (22.6%),

engaged (8.1%), in a domestic partnership (2.6%), dating seriously (2.6%), and dating

occasionally (1.3%). The reported length of the relationships ranged from 2 months to 46

years (M = 10.80 years, SD = 10.543). In regard to social class, 1.7% reported being at a very

low income or poverty level, 19.7% as working class, 56.4% as middle class, 20.9% as upper

middle class, and 1.3% as upper class. In relation to education, .4% of the participants

reported that they completed some high school, 3.8% completed high school, 15.8%

completed some college, 21.8% obtained an undergraduate degree, 4.7% completed some

graduate school, 37.2% obtained a Master's degree, and 16.2% obtained a doctoral degree,

Medical Doctorate or a Juris Doctorate. The sample was comprised of individuals from the

Midwest (59.0%), Northeast (15.8%), Southeast (11.1%), Northwest (5.6%), Southwest

(4.3%), Other (4.3%, two participants from Europe and one from Canada). Participants were

recruited to participate in the survey through social media (52.6%), email (20.1%), a friend or

family member (10.7%), and other means (including Craigslist and Reddit, 16.7%).

Participants identified the mobile devices that they own including a mobile or cell

phone (99.6%), tablet (77.4%), laptop computer (90.6%), eReader (33.3%), and personal

gaming device (20.9%). The reported ownership of this sample is higher than what was

reported in a study from 2015 in which 92% of U.S. adults owned a cell phone, 45% of U.S.

adults reported owning a tablet computer and 73% reported owning a laptop or desktop computer (Anderson). Participants were asked to report the types of activities or apps that they use on their mobile device as well as the settings in which devices are used during time spent with their partner. The 13 activities or apps included social networking apps (88.9%), browsing the Internet (80.3%), news apps (35.5%), utilities apps (35.5%), shopping apps (33.8%), productivity apps (29.5%), gaming apps (28.2%), travel and lifestyle apps (23.5%), reading apps (23.5%), sports apps (18.4%), entertainment apps (17.9%), educational apps (16.7%), and other apps (9.8%). Of the two apps that were reportedly used the most by participants, social networking apps (53.8%) and browsing the Internet (13.7%) were ranked as causing the greatest amount of distraction during wake time spent together.

The settings in which participants reported using a mobile device during awake time spent with their partner included at home (95.3%), in the bedroom (41.9%), in a motor vehicle (35.0%), in a restaurant (18.4%), and other settings (1.3%). Less than a third of the participants (30.8%) reported that they use their mobile device to avoid interactions with their partner. The majority of participants (62.4%) reported having no informal or formal rules related to mobile device usage during awake time spent with their partner.

Procedures

All study procedures were reviewed and approved by the University of Missouri-St. Louis Institutional Review Board prior to data collection. Participants were recruited using convenience and snowball sampling methods. Specifically, participants were recruited using targeted electronic communication (email messages), social media snowballing announcements, marriage forum/group posts, a listserv for Counselor Educators (CESNET), and ads placed in online classified forums such as Craigslist or the Reddit Survey

Community. The study invitation in Appendix (G) was used to recruit participants by email and by way of other electronic communication. The study invitation included a link to the online survey which was created using Qualtrics, an online research software program. Upon following the link, participants were taken to a page that included the informed consent statement (Appendix H) for the study. After reading the informed consent page, participants were asked to either click Continue to begin the survey or could exit the survey without penalty. If a participant chose to click continue they were then presented with the demographic questions followed by the measures previously described, presented in a random order in order to reduce error.

The survey was estimated to take participants approximately 10-15 minutes to complete. Upon completion of the survey, participants were invited to participate in a raffle for one of ten $20 gift cards to Amazon.com. If a participant chose to participate in the raffle they were redirected to a separate survey page using a hypertext link. In the separate survey, participants could provide their first name and email address in order to receive compensation for the survey. The information provided in the raffle could not be linked to their survey responses from the first survey.

Measures

The constructs measured in this study included demographic information, mobile device usage (amount of usage time, type of use, and rules), relationship satisfaction, physical affection, conflict related to mobile device usage, and mobile device interference.

Demographic items

Participants were asked to provide information regarding their age, gender, gender of their partner, race and ethnicity, relationship status, amount of time in current committed

relationship, social class, level of education, and identified sexual orientation. Additionally, participants identified what region of the United States they were from and how they heard about the survey. Types of mobile devices owned were also included in this section. Questions specific to mobile device usage were included as a separate set of questions. The demographic items can be found in Appendix A.

Measure of Mobile Device Usage

To assess the amount of use of mobile devices, participants were asked to report their personal and their partner's use. First, participants were asked to estimate the amount of wake time spent with their partner in a typical week. Next, participants were asked to estimate, during the reported wake time spent with their partner, the amount of wake time that they (one score) and their partner (second score) spend on mobile devices engaged in a private activity. Additionally, the type of activity participated in on the device was assessed (e.g. social media, games, entertainment, news, etc.). Participants were asked to identify mobile device presence in specific situations such as meals, dates, and at night (in or out of the bedroom). These situation specific questions could provide insight into the use of the mobile devices during socially defined wake "together time" for couples. Finally, participants were asked to identify if they have rules related to acceptable mobile device usage during time spent together and how often they or their partner break the rules of mobile device usage. If rules were present, participants were asked to list the rules. The items used to assess the amount of mobile device usage and rules related to mobile device usage can be found in Appendix B.

Relationship Satisfaction

Relationship satisfaction was assessed using the Couple Satisfaction Index (CSI; Funk & Rogge, 2007). The CSI (Appendix C) is a 32-item relationship satisfaction measure that uses a 7-point scale on 1-item to assess overall happiness with the relationship. For the 7-point scale the items are ranked 0 = *Extremely Unhappy*, 1 = *Fairly Unhappy*, 2 = *A Little Unhappy*, 3 = *Happy*, 4 = *Very Happy*, 5 = *Extremely Happy*, 6 = *Perfect*. For the remaining 31-items a 6-point scale is used with varying scale ranges and descriptions. For three items the scale ranges from *Always Agree to Always Disagree*, for two items the scale ranges from *All the Time to Never*, for 12 items the scale ranges from *Not at all True to Completely True*, for five items the scale ranges from *Not at All to Completely*, and for two items the scale ranges from *Never to More Often*. Finally, for the last seven items participants are asked to rate a list of words descriptive of their relationship. The word ranges include *Interesting-Boring, Bad-Good, Full-Empty, Lonely-Friendly, Sturdy-Fragile, Discouraging-Hopeful, and Enjoyable-Miserable.*

The CSI is a measure of relationship satisfaction that was developed using Item Response Theory and a principal-components analysis approach in order to select highly discriminatory items from a pool of satisfaction items from existing measures. The pool of 75 satisfaction items was drawn from over 8 widely used measures of relationship satisfaction and was administered to 5,315 online participants, who were predominantly female (80.0%) and Caucasian (75.8%; Funk & Rogge, 2007).

Sample questions include "how well does your partner meet your needs" and "I still feel a strong connection with my partner" (Funk & Rogge, 2007). Scores range from 0 to 161 with higher scores corresponding with higher levels of relationship satisfaction. In particular, the distress cut off score is 104.5, meaning that a score above 104.5 would be indicative of

relative satisfaction and a score below 104.5 would be indicative of a lack of satisfaction
(Funk & Rogge, 2007).

The CSI was found to demonstrate excellent internal consistency and strong
convergent validity with existing relationship satisfaction measures (Funk & Rogge, 2007).
A high level of internal consistency was found with an alpha of .98. Convergent validity was
tested using six existing measure of relationship satisfaction. The six measures (and the
corresponding scale intercorrelations) were the Dyadic Adjustment Scale (.91), Marital
Adjustment Test (.91), Quality of Marriage Index (.94), Relationship Assessment Scale (.96),
Kansas Marital Satisfaction Scale (.90), and the Semantic Differential (.96; Funk & Rogge,
2007). In a meta-analysis of relationship satisfaction scales, the CSI was found to have a
mean alpha of .94 across five previous studies (Graham, Diebels, & Barnow, 2011).
Additionally, in a study of Facebook usage and relationship quality among heterosexual,
dating couples, the CSI was found to have high internal consistency with an alpha of .95
among the male participants and .96 among the female participants (Papp, Danieleqicz,
Cayemberg, 2012). Cronbach's alpha for this sample was .98.

Affection

Affection was measured using a modified version of the Physical Affection Scale
(PAS, Appendix D) that consists of 14 behaviors of physical affection (Liederman, 1991).
The PAS is a subscale of the Affection Interaction Scale (AIS). For the modified version,
individuals were asked to rate the amount of time engaged in each activity with their partner
during wake time spent together and their satisfaction with the amount of time spent. The
rating scale for both sets of activities was on a 0 – 7 scale. For the amount of time engaged in

each activity the anchors were defined as 0 (*none*) to 7 (*a great deal*). For satisfaction the anchors were defined as 0 (*not satisfied at all*) to 7 (*satisfied a great deal*).

Psychometric analysis of the AIS was conducted with a group of 50 males and 82 females (Liederman, 1991). The AIS was found to be reliable, with high internal consistency ranging from .90 to .97 for the subscales, and test-retest reliability ranging from .80 to .92 (Liederman, 1991). The AIS was also found to have good concurrent validity (Liederman, 1991). The Cronbach's alpha for this sample was .97 for the total score, .94 for the activity subscale, and .97 for the satisfaction subscale.

Conflict over Mobile Device Usage

A modified version of the Conflict over Technology Use scale (Appendix E) was used to measure conflict over mobile device usage during time spent together. The Conflict over Technology Use scale was developed by McDaniel and Coyne (2014) and is a modified version of the frequency of relationship conflict measure from the RELATE battery. The instructions for the scale were modified as follows: "please indicate below if you and your partner experience conflict during wake time spent together due to the following" and the 8 items were modified to reflect time spent performing the activities on a mobile device. Sample items include "time spent on the Internet on a mobile device," "time spent talking or texting on cell phone," and "time spent on a laptop computer" (McDaniel & Coyne, 2014).

Participants rank the frequency of how often they experience a conflict or problem with each item on a five-point scale ranging from 1 (*never*) to 5 (*very often*). The average of the scores was used to produce an overall score for conflict over mobile device usage. Higher scores are representative of more frequent conflict related to the mobile device while lower scores represent less frequent conflict (McDaniel & Coyne, 2014). McDaniel and Coyne

(2014) used the scale with a population of women to study the interference of technology in couple relationships. Internal consistency estimates of reliability were computed and the Cronbach's alpha was .82 (McDaniel & Coyne, 2014). The Cronbach's alpha for the current study was .87.

Mobile Device Interference

Interference due to a mobile device during time spent together was measured using the Technology Interference in Life Examples Scale (TILES, McDaniel & Coyne, 2014, Appendix F). The TILES assesses the frequency that partners experience interference of a mobile device in specific life situation examples. Sample scenarios include "during a typical mealtime that my partner and I spend together, my partner pulls out and checks his/her phone or mobile device" or "my partner sends texts or emails to others during our face-to-face conversations" (McDaniel & Coyne, 2014). Participants rate five scenarios on an eight-point scale with the following ratings: 0=*never*, 1=*less than once a week*, 2=*once a week*, 3=*once every few days*, 4=*once a day*, 5=*2-5 times a day*, 6= *6-9 times a day*, and 7=*10 or more times a day.* The items are averaged to produce an overall score. Higher scores represent higher frequency of interference in couple interactions and time spent together (McDaniel & Coyne, 2014).

The TILES was developed with a female sample to study personal and relational well-being. The factor analysis yielded the following factor loadings for the five items, with one factor accounting for 63% of the variance: .83, .86, .85, .80, and .62. Internal consistency estimates of reliability were computed and the Cronbach's alpha was .85 (McDaniel & Coyne, 2014). For this study, the Cronbach's alpha was .83.

Statistical Analysis

SPSS was used for data analysis. Following data cleaning, a preliminary descriptive analysis was conducted in order to analyze the means and variance among the variables. Dummy variables were created for the nominal demographic variables of gender, race, sexual orientation, and relationship status in order to create continuous variables for data analysis. Specifically for race, white and non-white variables were created due to the majority of participants identifying as Caucasian. For sexual orientation three different dummy variables were created including straight/non-straight, lesbian/non-lesbian, and gay/non-gay. For relationship status dating/non-dating and committed relationship/non-committed relationship dummy variables were created. Next, the statistical analysis or main analysis for the research question and the individual hypotheses were performed. A probability of .05 for significance was used for all statistical tests.

Hypothesis 1

A correlational analysis was performed to test the first hypothesis, to determine if a negative, linear relationship exists between the construct of couple relationship satisfaction and the constructs of mobile device usage, conflict related to device usage, and interference. Since this study is not experimental, a cause and effect relationship cannot be defined (e.g., frequent use of mobile devices causes relationship distress). Additionally, demographic variables were included in the correlational analysis to determine which, if any, variables correlate with the main study variables to be used in the analyses for hypotheses 2, 3, and 4.

Hypotheses 2 and 3

Mediation occurs when an intervening variable, in this study interference or conflict, called a mediator is the construct through which an antecedent variable influences an outcome variable. Variation in the antecedent variable causes variation in the mediating

variable, which creates variation in the outcome variable (Hayes, 2013). In order to test for

the mediation relationships defined in the second and third hypotheses, that interference of a

mobile device would mediate the relationship between mobile device usage and relationship

satisfaction and conflict over a mobile device would mediate the same relationship, a simple

mediation model was created and was analyzed using the PROCESS Procedure macro add-

on in SPSS. The PROCESS Procedure, developed by Hayes (2013), was used to test the two

simple mediation models using SPSS by first installing the macro or syntax coding into SPSS.

Next, a regression was created for each hypothesis. For hypothesis 2, relationship satisfaction

was entered as the outcome variable (y), participant mobile device usage was entered as the

independent variable (x), and interference of a mobile device was entered as the mediator

variable (m). The same process was conducted with partner mobile device usage as the

independent variable in order to yield both a participant and a partner model. For hypothesis

3, relationship satisfaction was again entered as the outcome variable (y), participant mobile

device usage was entered as the independent variable (x), and conflict over a mobile device

was entered as the mediator variable (m). Again, the process was repeated with partner

mobile device usage as the independent variable. The path diagram or model for hypothesis 2

can be found in Figure 1 and for hypothesis 3 can be found in Figure 2.

Hypothesis 4

Moderation occurs when a moderator variable influences the magnitude of the causal

effect of an independent variable on the dependent variable (Hayes, 2013). Also known as

interaction, the association between the dependent variable and independent variable is "said

to be moderated when its size or sign depends on a third variable" or set of moderator

variables (Hayes, 2013, p. 8). A hierarchical multiple regression analysis was conducted to

test the hypothesized moderating variable of presence of rules related to mobile device usage, in order to test the fourth hypothesis. The analysis examined whether the presence of rules weakens the relationship between the amount of mobile device usage and relationship satisfaction. Due to the lack of statistically significant correlations between any of the demographic variables and the analysis variables no demographic variables were included in the analysis. Standardized scores were created for the variables of mobile device usage and presence of rules related to mobile device usage. Mobile device usage and presence of rules related to mobile device usage were entered at Step 1. The interaction term that was created was device usage * rules related to mobile device usage; this was entered on Step 2. The path diagram or model for hypothesis 4 can be found in Figure 3.

Research Question

A correlational analysis was performed to test the research question, to determine if a linear relationship exists between mobile device usage and affection.

Chapter Conclusion

This study aimed to close the gap in research related to mobile device usage and relationship satisfaction and this chapter outlined the methodology that was used in this study to fill this gap. The description of the participants, procedures, measures, and analyses were discussed. Couples over the age of 18 who own a mobile device were invited to participate in the survey. The results of the study are presented in the next chapter.

Chapter IV

Results

This chapter provides a review of the results, including the preliminary analysis and the main analysis of the four hypotheses and the research question. Data were analyzed using SPSS (23). As stated in the previous chapter, the sample consisted of 234 participants who were 18 or older, in a relationship, and own a mobile device. The majority of participants were female (79.5%), Caucasian (84.2%), straight/heterosexual (86.8%), and married (62.8%).

Preliminary Analyses and Data Cleaning

Prior to the main analyses, the preliminary analyses of the data were conducted in order to clean the data, to determine the description of the sample, and to examine assumptions. Data cleaning involved identifying participants who did not fit the criteria for participation in the study, who did not correctly answer validity questions that were randomly distributed in the survey, who did not provide complete data for the main variable of mobile device usage (missing data), who did not understand the mobile device usage question, or who missed 20% or more of a measure or scale. Parent (2013) provided guidance for a method of handling missing data known as available item analysis. This method of handling missing data involves using the data that is available. If data is missing for a particular variable in an analysis, that participant data is omitted from the analysis (Parent, 2013). This method of handling missing data was beneficial due to a number of participants participating in all but one or two of the scales. Otherwise, these participants would have been deleted instead of used for the analyses on a scale for which there was complete data.

Initially, 304 individuals participated in the online survey. First, six participants were removed from the final sample because they answered "single, no partner" as their relationship status; only participants involved in a relationship were included. Next, participants who either did not answer the questions related to mobile devices (N=58) or who may not have understood the question by entering more time spent on a mobile device than time spent together (N=3) were deleted. Participants missing more than 20% of the items in a scale were deleted (four participants). Finally, participants who incorrectly answered one of the two validity questions that were included in the online survey were deleted (one participant). Only one validity question (please answer "almost completely" for this statement) was used for data cleaning, as the second one was a sliding scale question that was deemed to be difficult to accurately answer using the slider in the online environment.

Following the initial cleaning of the data, univariate and multivariate outliers were identified. According to Tabachnick and Fidell (2001), "univariate outliers are cases with an extreme value on one variable" (p.67). In order to identify univariate outliers, standardized or z-scores are created for the main variables and cases with a standardized score higher than 3.29 are identified as outliers. For this study one participant was identified to be a univariate outlier on the measure of relationship satisfaction. "Multivariate outliers are cases with an unusual combination of scores on two or more variables" (Tabachnick & Fidell, 2001, p. 67). To test for multivariate outliers, a Mahalnobis distance test was performed with one case identified as an outlier with a $p < .001$ (Tabachnick & Fidell, 2011). The same participant that was identified as being a univariate outlier was identified as a multivariate outlier. Therefore, overall one participant was identified as an outlier and was deleted. After this participant was identified, 234 participants remained and were included in the main analysis.

Next, the data were screened for normality and linearity. Normality was assessed using the skewness and kurtosis values for the study variables. A skewness value of 3.00 or above was indicative of a skewed variable and a kurtosis value of 10.00 or above was indicative of a heavily or lightly tailed relative variable. Skewness and kurtosis values were within normal limits for the main study variables of mobile device usage (both participant and partner), relationship satisfaction, interference of a mobile device, conflict due to a mobile device, and rules related to mobile device usage. The values for skewness and kurtosis were within normal limits for the demographic variables of age, gender, partner's gender, race, social class, level of education, relationship type, and length of relationship. The sexual orientation variable resulted in a skewness value that was within normal limits (-.23) however the kurtosis value was too peaked and positive (13.36) meaning that for sexual orientation the curve is leptokurtic, or heavily tailed. This is due to the lack of diversity within the variable; therefore no variable transformation was used and the variable was only used in the main analysis through dummy variable coding. Linearity was within normal limits.

Finally, the data were screened for multicollinearity. According to Tabachnick and Fiddell (2001), multicollinearity occurs when variables are too highly correlated with a Pearson correlation coefficient or $r > .90$. To assess for multicollinearity, a correlation analysis was performed to identify Pearson's r correlations between the main study variables of mobile device usage (both participant and partner), relationship satisfaction, interference of a mobile device, conflict over mobile device usage, amount of affection, satisfaction with affection, and rules for mobile device usage. As was expected, no two variables yielded a Pearson's r correlation score above .90, meaning that no two variables were identified to be

highly correlated and all variables were retained in the analysis. Correlations between the

main study variables can be found in Table 2.

Demographic Variable Correlations

Prior to analyzing the hypotheses and research question, relationships were analyzed

between the main study variables and the demographic variables of age, gender, length of

relationship, relationship type, level of education, and social class (see Table 3). In order to

determine if relationships existed between the demographic and main study variables,

correlational analyses were conducted. Particularly, a relationship between the dependent

variable of relationship satisfaction and demographic variables was analyzed in order to

determine if any demographic variables should be included as covariates in the main study

analyses. No significant correlations were found between the demographic variables and the

dependent variable.

No significant correlations were found between gender and any of the main study

variables. Significant relationships were found between age and interference due to a mobile

device ($r = -.20$, $p < .01$), age and amount of affection ($r = -.25$, $p < .001$), and age and

satisfaction with the amount of affection ($r = -.22$, $p < .001$). A significant, negative

relationship was found to exist between age and the variables of interference due to a mobile

device, amount of affection, and satisfaction with amount of affection. Therefore, younger

participants reported more interference due to a mobile device, a higher amount of affection,

and more satisfaction with the amount of affection.

Next, significant relationships were found between length of relationship in years and

interference due to a mobile device ($r = -.144$, $p < .05$), length of relationship in years and

amount of affection ($r = -.275$, $p < .001$), and length of relationship in years and satisfaction

with amount of affection ($r = -.275, p < .05$). As the reported length of the relationship

increased, interference due to a mobile device, amount of affection, and satisfaction with the

amount of affection decreased.

Type of relationship (e.g. dating, committed, married, etc.) was found to correlate

with participant mobile device usage ($r = .140, p < .05$), amount of affection ($r = -.285, p$

$< .001$), and satisfaction with the amount of affection ($r = -.204, p < .01$). A positive,

significant relationship was found between type of relationship and participant mobile device

usage while a negative, significant relationship was found between type of relationship and

amount of affection and satisfaction with the amount of affection. Therefore, for participants

who reported being a part of a married relationship also reported increased mobile device

usage for the participant and decreased amounts of affection and satisfaction with the amount

of affection.

Level of education was found to significantly correlate with conflict over mobile

device usage ($r = -.163, p < .05$) and amount of affection ($r = -.139, p < .05$) meaning that a

as the reported level of education increased, reported conflict over mobile device usage and

amount of affection decreased. Finally, social class significantly correlated with participant

mobile device usage ($r = -.150, p < .05$). Therefore, participants who reported a higher social

class also reported less participant mobile device usage.

Hypothesis 1

The primary purpose of this study was to examine the relationship between mobile

device usage and relationship satisfaction. Hypothesis 1 (H1a) predicted that a negative

relationship would exist between the amount of time spent on mobile devices during partners'

time spent together (mobile device usage) and couple relationship satisfaction. Additionally,

it was predicted that a negative relationship would exist between interference of a mobile device and couple relationship satisfaction (H1b). Finally, it was predicted that a negative relationship would exist between conflict over mobile device usage and couple relationship satisfaction (H1c). In order to determine if these relationships exist correlational analyzes were conducted (see Table 4).

The first analysis was between mobile device usage and couple relationship satisfaction (H1a). Two correlational analyses were conducted, one between participant mobile device usage and relationship satisfaction and the second between partner mobile device usage and relationship satisfaction. Participant mobile device usage and relationship satisfaction were significantly correlated at $p = .002$ and the Pearson Correlation coefficient (r) for the relationship was -.21, indicative of a significant negative relationship between participant mobile device usage and relationship satisfaction. For partner mobile device usage and relationship satisfaction a significant relationship was observed with a $p < .0005$ and a Pearson r Correlation coefficient of -.30, indicative of a significant negative relationship between partner mobile device usage and relationship satisfaction. Therefore hypothesis 1a was supported; as partner and participant reported mobile device usage increased, reported relationship satisfaction decreased.

The second correlational analysis was between interference of a mobile device and couple relationship satisfaction (H1b). The relationship between interference of a mobile device and relationship satisfaction were found to be significantly correlated at $p < .0005$ with a Pearson r Correlation coefficient of -.28. This is indicative of a significant, negative relationship between the two variables of interference of a mobile device and couple

relationship satisfaction, which supports the hypothesis. Therefore, as interference of a mobile device increased, reported couple relationship satisfaction decreased.

The third correlational analysis was between conflict over mobile device and couple relationship satisfaction (H1c). The relationship between relationship satisfaction and conflict over mobile device usage was found to be significant at $p < .0005$ with a Pearson r Correlation coefficient of -.32, indicative of a negative relationship between the two variables. Again, this supports the hypothesis that a negative relationship would exist between conflict over mobile device usage and relationship satisfaction. Thus, as conflict over mobile device usage increased, reported relationship satisfaction decreased.

Hypothesis 2

Another purpose of the study was to examine if interference due to a mobile device mediates the relationship between the mobile device usage and couple relationship satisfaction. Specifically, that as mobile device usage increases, interference due to a mobile device will increase and couple relationship satisfaction will decrease. A simple mediation model was created and analyzed using the PROCESS procedure in order to test this hypothesis. Hayes (2013) suggested that PROCESS is the method of choice for analyzing mediation data and provided SPSS macros for the procedure. The analysis of the mediation models are described below, first for the participant mobile device usage model and second for the partner mobile device usage model (see Figure 3 for the models).

Participant Model

The participant model analysis tested whether interference due to a mobile device mediated the relationship between participant mobile device usage and relationship satisfaction. The unstandardized regression coefficient without interference in the model was

-.26 ($p < .01$); with interference in the model, the unstandardized regression coefficient for mobile device usage was -.20 ($p < .05$). This shows that the strength of the relationship between participant mobile device usage and relationship satisfaction was reduced when interference due to a mobile device was added to the model. Additionally, the indirect effect equaled -.06, confidence intervals were 95% lower bound = -.14 and 95% upper bound = -.02. Because 0 falls outside the confidence interval, interference due to a mobile device had a significant mediation effect ($p < .05$). This supports the hypothesis that interference of a mobile device mediated the relationship between participant mobile device usage and relationship satisfaction.

Partner Model

The partner model analysis tested whether interference due to a mobile device mediated the relationship between partner mobile device usage and relationship satisfaction. The unstandardized regression coefficient without interference in the model was -.35 ($p < .001$); with interference in the model, the unstandardized regression coefficient for mobile device usage was -.26 ($p < .01$). This demonstrates that the strength of the relationship between partner mobile device usage and relationship satisfaction was reduced when interference due to a mobile device was added to the model. Additionally, the indirect effect equaled -.09, confidence intervals were 95% lower bound = -.17 and 95% upper bound = -.02. This further supports the hypothesis that interference of a mobile device mediated the relationship between partner mobile device usage and relationship satisfaction.

Hypothesis 3

A third purpose of the study was to examine if conflict over mobile device usage mediated the relationship between the mobile device usage and couple relationship

satisfaction. Specifically, that as mobile device usage increases, conflict over mobile device usage will increase and couple relationship satisfaction will decrease. As in hypothesis 2, a simple mediation model was created and analyzed using the PROCESS procedure in order to test this hypothesis. The mediation models are described below first for the participant mobile device usage model and second for the partner mobile device usage model (see Figure 4 for the models).

Participant Model

The participant model analysis tested whether conflict over mobile device usage mediated the relationship between participant mobile device usage and relationship satisfaction. The unstandardized regression coefficient without conflict in the model was -.26 ($p < .01$); with conflict in the model, the unstandardized regression coefficient for mobile device usage was -.20 ($p < .05$). This shows that the strength of the relationship between participant mobile device usage and relationship satisfaction was reduced when conflict over mobile device usage was added to the model. Additionally, the indirect effect equaled -.06, confidence intervals were 95% lower bound = -.14 and 95% upper bound = -.02. Because 0 falls outside the confidence interval, conflict over mobile device usage had a significant mediation effect ($p < .05$). This supports the hypothesis that conflict over mobile device usage mediated the relationship between participant mobile device usage and relationship satisfaction.

Partner Model

The partner model analysis tested whether conflict over mobile device usage mediated the relationship between participant mobile device usage and relationship satisfaction. The unstandardized regression coefficient without conflict in the model was -.35

($p < .001$); with conflict in the model, the unstandardized regression coefficient for mobile

device usage was -.26 ($p < .001$). This demonstrates that the strength of the relationship

between participant mobile device usage and relationship satisfaction was reduced when

conflict over mobile device usage was added to the model. Additionally, the indirect effect

equaled -.09, confidence intervals were 95% lower bound = -.17 and 95% upper bound = -.04.

This supports the hypothesis that conflict over mobile device usage mediated the relationship

between participant mobile device usage and relationship satisfaction.

Hypothesis 4

A final purpose of the study was to determine if the existence of rules related to

mobile device usage moderated the relationship between mobile device usage and couple

relationship satisfaction such that if rules related to mobile device usage are present the

relationship between mobile device usage and couple relationship satisfaction will be weaker.

To test this hypothesis, two hierarchical multiple regression analyses were conducted, one for

participant and one for partner mobile device usage. The results can be found in Table 6.

For the first analysis, the first step included the two variables of participant mobile

device usage and presence of rules. These two variables were assessed for significance and

amount of variance. The first model, which did not include the interaction term, yielded the

following result: $R^2 = .06$, $F(2, 212) = 6.4$, $p < .01$. The second model, which included the

interaction term, yielded the following result: $R^2 = .06$, $F(3, 211) = 4.3$, $p < .01$. Since both

models were significant at a p-value of $p < .01$ the next step was to determine if the second

model accounted for significantly more variance than the first model. For this sample, model

2 with the interaction between participant mobile device usage and presence of rules did not

account for significantly more variance than just participant mobile device usage and

presence of rules by themselves, R^2 change = .00, p = .67. Thus, the presence of rules did not moderate the relationship between participant mobile device usage and relationship satisfaction.

For the second analysis the first step included the two variables of partner mobile device usage and presence of rules. These two variables were assessed for significance and amount of variance. The first model, which did not include the interaction term, yielded the following result: R^2 = .10, $F(2, 212)$ = 11.79, p = .000. The second model, which included the interaction term, yielded the following result: R^2 = .10, $F(3, 211)$ = 7.8, p = .000. Since both models were significant at a p-value of $p < .001$ the next step was to determine if the second model accounted for significantly more variance than the first model. For this sample, model 2 with the interaction between partner mobile device usage and presence of rules did not account for significantly more variance than just partner mobile device usage and presence of rules by themselves, R^2 change = .00, p = .97. Thus, the presence of rules did not moderate the relationship between partner mobile device usage and relationship satisfaction. Therefore, this hypothesis was not supported.

Research Question

The research question of this study was to determine if a relationship exists between affection and amount of time spent on mobile devices during partners' time spent together. Due to the lack of literature related to affection and technology, specifically mobile device usage, a directional relationship could not be hypothesized. In order to determine if a relationship exists, four correlational analyses were conducted: amount of affection and participant mobile device usage, amount of affection and partner mobile device usage,

satisfaction with affection and participant mobile device usage, and satisfaction with the amount of affection and partner mobile device usage (see Table 3).

A significant relationship could not be supported between the construct of participant mobile device usage and amount of affection ($r = -.09$, $p = .16$) and between participant mobile device usage and satisfaction with the amount of affection ($r = -.03$, $p = .64$). A significant relationship was supported between partner mobile device usage and amount of affection ($r = -.16$, $p < .05$) as well as between partner mobile device usage and satisfaction with the amount of affection ($r = -.15$, $p < .05$). Therefore, a significant, negative relationship exists between partner mobile device usage and affection, both the amount of affection and satisfaction with the amount of affection. For this sample, as reported partner mobile device usage increased the reported amount of affection and satisfaction with the amount of affection decreased.

Summary

This study examined the relationships between mobile device usage, relationship satisfaction, affection, conflict over mobile device usage, interference of a mobile device, and rules for mobile device usage in a sample comprised of partners in coupled relationships.

First, a correlational analysis was conducted between the construct of relationship satisfaction and the constructs of mobile device usage, interference due to a mobile device, and conflict over mobile device usage in order to assess a significant, negative relationship. The findings suggested a significant, negative relationship was found to exist between partner mobile device usage and relationship satisfaction, participant mobile device usage and relationship satisfaction, interference due to a mobile device and relationship satisfaction, and conflict over mobile device usage and relationship satisfaction.

The next analysis investigated the meaning of two of these relationships, interference due to a mobile device and relationship satisfaction as well as conflict over mobile device usage and relationship satisfaction, in order to determine if these two constructs mediate the relationship between mobile device usage and relationship satisfaction. Four simple mediation models were developed to account for participant and partner mobile device usage. All four mediation models were supported by the data. This means that interference due to a mobile device was found to mediate the relationship between mobile device usage and relationship satisfaction. Also, conflict over mobile device usage was found to mediate the relationship between mobile device usage and relationship satisfaction.

A hierarchical multiple regression analysis was conducted in order to examine if rules related to mobile device usage moderated the relationship between mobile device usage and relationship satisfaction. Rules related to mobile device usage were not found to moderate this relationship.

Finally, a correlational analysis was conducted between affection and mobile device usage. It was found that a significant, negative relationship existed between partner mobile device usage and amount of affection as well as partner mobile device usage and satisfaction with the amount of affection. A complete discussion of these findings will be presented in the next chapter.

CHAPTER V

DISCUSSION

Mobile technology has become a fixture in the daily lives of adults in the United States. With significant new forms of technology developed over the last decade, it was only a matter of time before mobile technology started to affect interpersonal relationships, including couple relationships. In the field of couple relationship research, examination of mobile device usage has just recently started to take shape around topics related to the interference of technology in couple relationships (McDaniel & Coyne, 2014), distraction due to cell phone usage and relationship satisfaction (Roberts & David, 2015) the impact of technology use on couple relationships (Leggett & Rossouw, 2014), and compulsive Internet use (Kerkhof, Finkenauer, & Muusses, 2011). This study aimed to examine how the presence and usage of mobile devices during partners' time spent together affected relationship satisfaction. Specifically, mobile device usage during wake partner time together, interference due to a mobile device, conflict over mobile device usage, and rules of mobile device usage as they related to couple relationship satisfaction were studied. An online survey data collection method was used to gather data from a useable sample of 234 partnered individuals to explore the relationships between these variables. To the knowledge of the researcher, this is the first study to examine the relationship between the presence of mobile technology on couple relationship satisfaction.

This chapter covers the findings of the current study as well as the limitations. Additionally, implications for the field of counseling, specifically couples and marriage counseling, will be presented. Next, recommendations for future research will be provided.

Finally, the conclusion will provide a concise summary of the study's findings and implications.

Findings

This study had four hypotheses and one research question. The hypotheses were directional, meaning there was literature that supported the implication that the findings would be in a certain direction. There was no such literature on the matter of the research question, which must be viewed as exploratory.

First, it was hypothesized that the following relationships would exist: a negative relationship between the amount of time spent on devices during partners' time spent together (mobile device usage) and couple relationship satisfaction, a negative relationship between interference of a mobile device and couple relationship satisfaction, and a negative relationship between conflict over mobile device usage and couple relationship satisfaction. The next hypothesis was that interference due to a mobile device would mediate the relationship between the mobile device usage and couple relationship satisfaction; followed by a similar hypothesis that conflict over mobile device usage would mediate the relationship between the mobile device usage and couple relationship satisfaction. The final hypothesis was that the existence of rules related to mobile device usage would moderate the relationship between mobile device usage and couple relationship satisfaction such that if rules related to mobile device usage are present the relationship between mobile device usage and couple relationship satisfaction will be weaker. Finally, a research question was posed as to whether a relationship would exist between affection and amount of time spent on devices during partners' time spent together.

Mobile Device Usage and Relationship Satisfaction

The main purpose of this study was to identify if a relationship exists between mobile device usage during partner time spent together and relationship satisfaction (hypothesis 1). As reported, as mobile device usage among participants and their partners increased, relationship satisfaction was found to decrease. The finding that the use of technology or mobile technology increases as relationship satisfaction decreases is consistent with previous research. Leggett and Rossouw (2014) found a similar correlation in a study with 21 couples. They found that as the amount of time partners spent on a laptop during time spent together increased, perceived satisfaction with the relationship became negative (Leggett & Rossouw, 2014). Additionally, Przybylski and Weinstein (2012) found that the presence of mobile technology could interfere with the development of trust and intimacy in relationships.

Given the current findings, it cannot be said whether an increase in mobile device usage during time spent together results in being dissatisfied in one's relationship or if being dissatisfied in one's relationship leads to an increase in mobile device usage as a way to escape from the relationship. However, it is worth mentioning that in this study relationship satisfaction correlated negatively with affirmative answers to the question as to whether or not participants used their mobile device to avoid interactions with their partner. For this sample, participants who reported lower levels of relationship satisfaction also reported using their mobile device as a way to escape or avoid interactions with their partner. Again, a directional conclusion cannot be defined or determined due to the non-experimental nature of the study, but the auxiliary finding does raise questions about device usage as a means to distance a relationship. The findings from this study support that individuals in this sample who spend more time on a mobile device during time spent with their partner, or who perceive their partner to spend more time on their device, report less relationship satisfaction.

Interference, Relationship Satisfaction, and Mobile Device Usage

Interference due to a mobile device was also hypothesized to have a negative relationship with couple relationship satisfaction (hypothesis 1). Again, this negative relationship was supported in this study. As interference due to a mobile device increased relationship satisfaction decreased. Interference due to a mobile device included scenarios related to partners using cell phones during mealtime or leisure time, pulling out and checking a mobile device in the middle of conversation, or partners sending texts or emails during face-to-face conversation. These findings suggest that the mobile devices that act as tools to connect people and to supplement communication are also devices that can interfere with face-to-face interactions, thus negatively impacting relationship satisfaction.

In order to further investigate the relationship between mobile device usage, relationship satisfaction, and interference due to a mobile device a simple mediation model was used to assess the second hypothesis. Specifically, it was hypothesized that as mobile device usage increased, interference due to a mobile device would increase, and couple relationship satisfaction would decrease. The results of the main analysis supported the hypothesis that as mobile device usage increases, interference due to a mobile device increases, and relationship satisfaction decreases. This finding supports previous research, which suggested that increased interruptions or interferences from technology were associated with lower relationship satisfaction (McDaniel & Coyne, 2014).

Conflict, Relationship Satisfaction, and Mobile Device Usage

A final supported correlational finding of the study was that conflict over mobile device usage was found to negatively correlate with relationship satisfaction. This may be viewed as a significant finding since the relationship between an increased amount of conflict

over mobile device usage and decreased relationship satisfaction was supported. Conflict is an area of relationship theory that has heavily been studied by past researchers and is a fundamental part of Gottman's model, which was used to guide this study. Conflict alone is not of concern in a relationship; in fact, some level of conflict is healthy in relationships (Gottman & Gottman, 2015). However, when conflict in a relationship is found to negatively correlate with relationship satisfaction it no longer can be considered a healthy part of the relationship.

In order to further investigate the relationship between relationship satisfaction, mobile device usage, and conflict over mobile device usage a simple mediation model was hypothesized (see Figure 2). It was specifically hypothesized that as mobile device usage increased, conflict over mobile device usage would increase, and couple relationship satisfaction would decrease. The main analysis revealed that conflict over mobile device usage mediated the relationship between mobile device usage and relationship satisfaction for both participant and partner mobile device usage. The findings suggested that the hypothesis was supported, increased mobile device usage was associated with increased conflict over mobile device usage, which in turn was associated with decreased participant's relationship satisfaction. These findings are similar to findings from a previous study which found that conflict was a significant mediator between technoference, or the everyday interruptions or intrusions of technology, and relationship satisfaction (McDaniel & Coyne, 2014). The findings from the current study highlight the important impact that conflict over mobile devices can have on both mobile device usage and relationship satisfaction.

Rules for Mobile Device Usage

Although the hypothesis that the existence of rules related to mobile device usage would moderate the relationship between mobile device usage and couple relationship satisfaction was not supported in this study, this finding did provide insight into the use of rules in a relationship. Only 37.4% of participants reported having formal or informal rules related to mobile device usage during wake time spent together. One reason for such a low number of participants who identified having rules related to mobile device usage might be that mobile technology is so new partners are not considering the effect that technology can have on their relationship. Only recently have researchers started to examine this topic so it could be inferred that couples are not alert to the issue either.

In addition to asking participants to identify whether rules exist, participants were also asked to define the formal or informal rules related to mobile device usage. One of the common themes from this question related to acceptable times or settings in which mobile devices could be used. One of the settings was during mealtime or time spent eating together. Another setting in which rules were established by some of the participants was in the bedroom.

Mobile Device Usage and Affection

A significant relationship was found to exist between the reported amount of time that a partner spends on a mobile device during time spent together and the amount and satisfaction with the amount of affection. Participants who reported higher levels of time spent on mobile devices by their partners were found to experience less affection and less satisfaction with the limited amount of affection they received. This is consistent with the finding of Kerkhof, Finkenauer, and Muusses (2011) that when an individual reported that their partner exhibited more compulsive Internet usage they also reported a decrease in

intimacy and passion. It is likely that when partners are spending time together they should

limit their use of mobile technology in order to increase affection and satisfaction with

affection.

Aside from the test of the hypotheses, in the correlational analysis of the main study

variables, relationship satisfaction was found to positively correlate with both amount of

affection ($r = .54$, $p < .001$) and satisfaction with the amount of affection ($r = .62$, $p < .001$).

This ancillary finding is important as the correlation between the variables of affection and

relationship satisfaction demonstrates that these variables measure similar traits of a

relationships. This suggests that as reported relationship satisfaction increased the amount of

and satisfaction with affection also increased. Therefore, couples who were more satisfied in

their relationship reported more affection between them and their partners as well as

increased satisfaction with the amount of affection they received.

Demographics

In addition to the main analysis, the results revealed significant relationships among

demographic variables with the main study variables. First, age was found to negatively

correlate with the variables of interference due to a mobile device, amount of affection, and

satisfaction with amount of affection. Participants in the current study who were younger

reported experiencing more interference due to a mobile device. Mobile technology has

recently been introduced and adopted by younger generations. Therefore, it seems reasonable

that younger generations will use more technology compared to older generations and would

experience more interference due to the devices.

Two demographic variables related to the relationship were found to significantly

correlate with some of the main study variables. First, the length of the relationship in years

was found to correlate negatively with interference due to a mobile device, amount of affection, and satisfaction with amount of affection. Participants who reported being in their relationship for less years reported experiencing more interference due to a mobile device. This relates to the previous finding where younger participants reported a similar correlation. It can be inferred that participants who are younger have also been in their relationship for less years and experience more interference in their relationship due to a mobile device due to using their mobile device more.

The type of relationship was found to correlate positively with mobile device usage of the participant and negatively with amount of affection and satisfaction with the amount of affection. Therefore, participants who reported being married also reported spending more time on their mobile device during time spent with their partner. This is somewhat consistent with the findings of Coyne et al. (2011), who found that individuals who were not married were significantly less likely to use technology to connect with others while with their partner.

Finally, social class was found to negatively correlate with participant mobile device usage and level of education was found to negatively correlate with conflict over mobile device usage and amount of affection. Participants who reported belonging to a lower social class also reported less mobile device usage during time spent with their partner. This could relate to the digital divide or the gap between those who do and do not have access to technology, with those who do not typically living in rural areas or belonging to lower social classes (van Dijk, 2006). Additionally, participants who reported completing higher levels of education also reported experiencing less conflict over mobile device usage and a lower amount of affection in their relationship.

Limitations

This study had several limitations. Survey research is subject to numerous threats to internal validity. The data that was collected was self-reported, which can lead to respondent bias. Of particular note is the measure of mobile device usage. A limitation of the mobile device usage variables was that they are perceived or estimated amounts. Participants were asked to think back on the previous week and to estimate the amount of time they spent with their partners as well as the amount of time both they and their partners spent on their devices. This is a limitation of the study for two reasons. First, with participants reporting the amount of time that they spend on a mobile device there is room for respondent error related to impression management. Participants may not want to seem as though they spend more time on their device than their partner. For this reason, both the participants reported amount of time and the reported amount of time for their partner were collected and used in the survey to look at mobile device usage from two perspectives. Second, participants were asked to think back on the past week to determine the amount of time spent together as well as the amount of time spent on devices. This is a limitation in that participants could have experienced an increase or a decrease that week in device usage. Additionally, thinking back on the week and estimating the amount of time that an individual has participated in an activity is an internal validity issue (i.e., estimates may not be accurate) with the study that needs to be recognized as a possible limitation.

Another limitation of the study was with regard to the diversity of the sample. The sample consisted of participants who were female (79.5%), Caucasian (84.2%), straight/heterosexual (86.8%), and married (62.8%). This provided for a sample that was not very representative related to gender, race, sexual orientation, or relationship status. Due to

the lack of representativeness in the sample, the findings of this study cannot be generalized to the general population, only to the population represented in the sample. Additionally, some of the demographic variables were skewed and demographic differences among the main study variables, particularly related to gender, relationship status, and length of relationship, could not be determined due to the lack of a representative and diverse sample. A correlational analysis of the demographic variables found that only age was significantly correlated with any of the main study variables and the rest of the demographic variables were not used in the main study analysis. Additional data should be collected with the intention of diversifying the sample in the areas of gender, sexual orientation, race, and relationship type (e.g. recruiting dating and non-married couples).

The method of recruitment and sampling provided for additional limitations in the study, which may have contributed to the limitation of a lack of diversity within the sample. First, the sample was recruited by way of online networks including Facebook, direct emails, professional listservs, and online survey networks including Reddit and Craigslist. The majority of participants were recruited through social media (52.6%). This is a limitation in that only 65% of the general U.S. population has a social media presence (Perrin, 2015). Of the population on social media there are significant differences across age, gender, and social class. Specifically, young adults, women, and individuals with higher levels of education and household income are more likely to use social media (Perrin, 2015). Additionally, due to the digital divide some participants from more rural areas and with lower socioeconomic status may have been omitted from the study due to a lack of access to the Internet to complete the study.

Another limitation of the study is that both partners were discouraged from participating in the study. Had dyadic data collection been utilized, cross-dyad interpretations and assumptions could have been assessed. Future research in this area would benefit from studying both partners in the relationship in order to develop a deeper understanding of how mobile device usage relates to relationship satisfaction.

In this study only one measure was used for each main study construct. The use of only one measure for each main study variable is a limitation in that it threatens the validity of the study. In particular, construct validity may have been threatened by the use of only one measure for each main study variable. Adding additional measures to the survey would have made the survey longer thus taking more time to complete, which could have reduced the number of individuals who completed the survey. In order to reduce the effect of this limitation, care was taken by the researcher to identify and to use measures with high validity and reliability, as well as ones that had been used with similar samples. With that being said, no instrument is perfect and additional studies using other quality measures are recommended for future research and cross validation.

A potential limitation that was controlled for in the study related to order effects of the measures. The scales that were used to study the main study variables (Mobile Device Usage, CSI, TILES, Conflict over Mobile Device Usage Scale, and the PAS) were randomized in the online survey platform. Participants who completed the survey saw the items in a different order depending on the survey. Randomizing the measures helped to protect against systematic order effects.

Due to the correlational nature of this study, a causal relationship could not be inferred or determined. Therefore, one cannot say whether time spent on a mobile device

causes relationship dissatisfaction or if relationship dissatisfaction causes an increased

amount of time spent on a mobile device. This is a limitation of the study in that only a

negative relationship could be determined but a predictive relationship could not be deduced.

Future research in this area of an experimental or longitudinal design could be beneficial in

order to determine a more causal relationship.

Implications for the Field of Counseling

This study demonstrates the need for counseling practitioners working with couples

or individuals experiencing partner relationship concerns to incorporate an understanding of

technology into their practices. Counseling practitioners should include in their intake with a

couple or individual questions related to technology and mobile device usage in order to gain

an understanding of how such technologies and devices are affecting the current presenting

problem in the relationship or for the individual. Gottman and Silver (2015) provided an

Electronic Distraction Quiz that could be used with couples who are identified to have a

concern related to mobile device usage. Additionally, questions similar to the ones used in

this study related to mobile device usage could be utilized to develop a picture of each

couple's mobile device usage habits, rituals, and rules.

For couples that experience dissatisfaction in their relationship due to mobile

technology a few suggestions can be offered. Practitioners could encourage partners to

engage in open communication related to mobile device usage and comfort with usage during

time spent together, especially if partners are resistant to developing rules for such behavior.

This could take the form of rules, either formal or informal, or the development of dialogue

related to when it is acceptable to use devices and when it is not. Gottman and Silver (2015)

recommended that partners establish rules that work for them, including banning social

media, email or other acts on mobile devices during mealtime, date night, or during conversations. The percentage of participants who reported having rules for mobile device usage in their relationship for this sample was 37% and there was not a significant correlation between rules and relationship satisfaction or mobile device usage, so it cannot be said that developing rules for usage would be beneficial to couples. However, past research suggests that developing some type of rules or etiquette related to device usage could lessen the use of mobile devices during time spent together. Pettigrew (2009) suggested the use of personalized ring tomes, limiting checking messages to only important ones, and development of rules to regulate mobile device usage in order to limit distractions by mobile devices in interpersonal relationships. An additional strategy would be to set a mobile device to only receive important alarms, messages, and calls during time spent with one's partner in order to limit interference of mobile device usage during time spent together. Changing these types of settings can help curve the compulsivity experienced to check a mobile device every time a notification sound is made.

In this study, of the participants who reported having formal or informal rules related to mobile device usage during time spent together the majority reported that they and their partner put mobile devices away during mealtimes and in the bedroom. Additionally, some participants reported having a rule that if they are with their partner at all that they are not on their mobile device. Finally, some participants reported that if they or their partner ask for devices to be put down in order to participate in conversation that they do so without argument.

Another implication for counseling related to couple relationships is the use of technology or mobile devices to escape from interactions with one's partner. In the current

study, 30.8% of participants reported using a mobile device to avoid interactions with their partner. Practitioners who are working with clients experiencing relationship dissatisfaction or concerns should take care to assess the use of mobile technology, as well as other means, to avoid interactions with one's partner as this was found to be significantly, negatively correlated with relationship satisfaction in this sample ($r = -.30, p < .001$).

The results of this study, along with results from previous studies of technology and couple relationships, provide guidance for implementing technology related concerns in counseling coursework on systems theory and couples and marriage. Counselor educators could use the results of this study, along with the results from previous studies, to educate future counselors to the effects that mobile technology can have on interpersonal relationships. Of particular note would be the study which found that when individuals who were strangers were asked to get to know each other in the presence of a mobile device they experienced significantly less trust in their partner and closeness compared to when a mobile device was not present (Przybylski & Weinstein, 2012).

Recommendations for Future Research

This study provides meaningful insight into the effect that the presence of mobile devices can have on aspects of a couple relationship including affection and relationship satisfaction and is just a starting point in this area of research. Researchers should expand this research into other areas of relationship quality including connectedness, intimacy, and communication. Additional research should be conducted to examine the relationship between mobile device usage and the areas of affection and intimacy. For example, the findings related to affection were only supported in relation to partner mobile device usage and not for participant usage. In order to expand on this relationship a study should be

conducted that focuses on affection and intimacy, mobile device usage, and relationship satisfaction.

Additional work should be done to recruit and explore a more diverse sample. A significant limitation of this study was the lack of diversity within the sample. This has been identified as a limitation in past research in this field (McDaniel & Coyne, 2014; Leggett & Rossouw, 2014); of particular note is the lack of male, non-White, and sexual minority participants. Sampling should be done in order to recruit participants from populations typically underrepresented in research including males, racial and ethnic minorities, and sexual minorities. This could be done through targeted recruitment on listservs, social media, and online survey recruitment platforms. Additionally, recruitment could take place at local events or businesses where a more diverse fellowship occurs. Changing the invitation to target specific populations could also assist in recruitment (i.e. inviting sexual minorities to participate, non-married couples, etc.).

Another area for future research relates to how the presence of mobile device technology affects long-distance relationships versus traditional relationships. In this study a limited number of participants identified that they are a part of a long-distance relationship. This data came up in the questions related to time spent together and time spent on devices during time spent together as well as in the section related to rules for usage. However, there were no questions included in the demographic section or in the survey that specifically related to the nature of distance in the relationship.

The mobile device usage items used in this study were developed based on a review of the literature by the researcher. Future research should be conducted using these questions in order to determine if they are valid and reliable. Potentially, a measure or scale of mobile

device usage could be developed using the scale development model outlined by Lounsbury, Gibson, and Saundaragas (2006).

Two of the measures used in this study, the Conflict over Mobile Device Usage Scale and the Mobile Device Interference Scale, were recently developed by McDaniel and Coyne (2014). Although both of these scales were adapted to fit the design of the current research study, the high reliability coefficients found in this study could be used to further support the use of these two measures in future research studies. Additional research should be done to further validate these two measures.

The study intended to explore how rules related to mobile device usage interact with relationship satisfaction and mobile device usage. A moderation path was hypothesized in this study and was not found to be significant with the sample. Future research needs to continue to explore the effect that the presence or lack of rules has on the constructs of mobile device usage and relationship satisfaction. A potential study with this sole purpose could follow a qualitative design by interviewing both partners in a coupled relationship to analyze the presence of rules and relationship satisfaction.

In order to correct for respondent bias, an experimental, observational study should be conducted. Such an experimental study would provide validity to the findings that increased mobile device usage during partner time spent together relates to a decrease in relationship satisfaction. Though we may never know whether relationship dissatisfaction or increased mobile device usage came first without conducting a longitudinal study, an experimental study could strengthen the validity of the results from this study and provide more insight into the complexities of this research area.

Conclusion

This study lays the groundwork for understanding the impact that mobile devices can have on couple relationships. This is only the beginning of this line of research as many aspects of a couple relationship could not be included in this study. As technology changes and more individuals become dependent on their mobile devices the impact that these devices have on interpersonal and couple relationships will continue to grow. Researchers should continue to explore this relationship in order to understand how the presence of mobile technology is changing the way that couples experience affection, conflict, and satisfaction.

References

Anderson, M. (2015). Technology device ownership: 2015. *Pew Research Center*. Retrieved

from http://www.pewinternet.org/2015/10/29/technology-device-ownership-2015

Coyne, S.M., Stockdale, L., Busby, D., Iverson, B., & Grant, D, M. (2011). "I luv u :)!": A

descriptive study of the media use of individuals in romantic relationships. *Family

Relations, 60*, 150-162. doi: 10.1111/j.1741-3729.2010.00639.x

Czechowsky, J.D. (2008). The impact of the Blackberry on couple relationships.

(Unpublished doctoral dissertation). Wilfrid Laurier University.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.G. (2009). Statistical power analyses using

G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research

Methods, 41*, 1149-1160.

Fox, J., Osborn, J. L., & Warber, K. M. (2014). Relational dialectics and social networking

sites: The role of Facebook in romantic relationship escalation, maintenance, conflict,

and dissolution. *Computers in Human Behavior*, 35, 527–534.

doi:10.1016/j.chb.2014.02.031

Funk, J.L., & Rogge, R.D. (2007). Testing the ruler with item response theory: Increasing

prevision of measurement for relationship satisfaction with the couples satisfaction

index. *Journal of Family Psychology, 21*, 572-583. doi: 10.1037/0893-3200.21.4.572

Glorieux, I., Minnen, J., van Tienoven, T.P. (2011). Spouse "together time": Quality time

within the household. *Social Indicators Research, 101*, 281-287. doi:

10/1007/s11205-010-9648-x

Gottman, J.M. (1994). *What Predicts Divorce? The Relationship Between Marital Processes

and Marital Outcomes*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Gottman, J.M. (1999). *The Marriage Clinic: A Scientifically based marital therapy*. New

York: W.W. Norton and Company, Inc.

Gottman, J.M., & Gottman, J.S. (2008). Gottman method couple therapy. In A.S. Gurman

(Ed.) *Clinical Handbook of Couple Therapy* (4th ed., 138-164). New York: The

Guilford Press.

Gottman, J.M., & Gottman, J.S. (2015). Gottman method couple therapy. In A.S. Gurman,

J.L. Lebow, & D.K. Snyder (Eds.) *Clinical Handbook of Couple Therapy* (5th ed.,

129-157). New York: The Guilford Press.

Gottman, J.M., & Silver, N. (2015). *The Seven Principles for Making Marriage Work* (2nd

ed.). New York: Harmony Books.

Graham, J.M., Diebels, K.J., & Barnow, Z.B. (2011). The reliability of relationship

satisfaction: A reliability generalization meta-analysis. *Journal of Family Psychology,*

25, 39-48. doi: 10.1037/a0022441

Guldner, G.T., & Swensen, C.H. (1995). Time spent together and relationship quality: Long-

distance relationships as a test case. *Journal of Social and Personal Relationships, 12*,

313-320. doi: 10.1177/0265407595122010

Hayes, A.F. (2013). *Introduction to Mediation, Moderation, and Conditional Process*

Analysis. New York: Guilford Press.

Helsper, E.J., & Whitty, M.T. (2010). Netiquette within married couples: Agreement about

acceptable online behavior and surveillance between partners. *Computers in Human*

Behavior, 26, 916-926. doi: 10.1016/j.chb.2010.02.006

Hendrick, S. (1988). A generic measure of relationship satisfaction. *Journal of Marriage and*

Family, 50, 93-98.

Hertlein, K.M. (2012). Digital dwelling: Technology in couple and family relationships. *Family Relations, 61*, 374-387. doi: 10.1111/j.1741-3729.2012.00702.x

Kerkhof, P., Finkenauer, C., Muusses, L.D. (2011). Relational consequences of compulsive internet use: A longitudinal study among newlyweds. *Human Communication Research, 37*, 147-173. doi: 10.1111/j.1468-2958.2010.01397.x

Lanigan, J.D. (2009). A sociotechnological model for family research and intervention: How information and communication technologies affect family time. *Marriage & Family Review, 45*, 587-609. doi: 10.1080/01494920903224194

Leggett, C., & Rossouw, P.J. (2014). The impact of technology use on couple relationships: A neuropsychological perspective. *International Journal of Neuropsychotherapy, 2,* 44-99. doi: 10.12744/ijnpt.2104.0044-0099.

Liederman, G. (1991). *Gender difference in affectional interaction of happily married husbands and wives* (Master's thesis). Available from Université Concordia Libraries Spectrum Research Repository. (MM73656)

Ling, R., & Campbell, S.W. (2011). *Mobile communication: Bringing us together and tearing us apart*. New Brunswick: Transaction Publishers.

McDaniel, B.T., & Coyne, S.M. (2014). "Technoference": The interference of technology in couple relationships and implications for women's personal and relational well-being. *Psychology of Popular Media Culture, Dec.2014*, 1-14. doi: 10/1037/ppm0000065

Murray, C.E., & Campbell, E.C. (2015). The pleasures and perils of technology in intimate relationships. *Journal of Couple & Relationship Therapy, 14,* 116-140. doi: 10.1080/15332691.2014.953651

Papp, L.M., Danielewicz, J., Cayemberg, C. (2012). "Are we Facebook official?"

implications of dating partners' Facebook use and profiles for intimate relationship

satisfaction. *Cyberpsychology, Behavior, and Social Networking, 15*, 85-90. doi:

10.1089/cyber.2011.0291

Parent, M.C. (2013). Handling item-level missing data: Simpler is just as good. *The*

Counseling Psychologist, 41, 568-600. doi: 10.1177/0011000012445176

Pepping, A. (2015). Social media usage: 2005-2015. *Pew Research Center*. Retrieved from

http://www.pewinternet.org/2015/10/08/social-networking-usage-2005-2015/

Peterson, S.A., Aye, T., Wheeler, P.Y. (2014). Internet use and romantic relationships among

college students. *North American Journal of Psychology, 16*, 53-62.

Pettigrew, J. (2009). Text messaging and connectedness within close interpersonal

relationships. *Marriage & Family Review, 45*, 697-716. doi:

10.1080/01494920903224269

PEW Research Internet Project (January 2014). Mobile technology fact sheet. Retrieved from

http://www.pewinternet.org/fact-sheets/mobile-technology-fact-sheet/

Przybylski, A. K., & Weinstein, N. (2012). Can you connect with me now? How the presence

of mobile communication technology influences face-to-face conversation quality.

Journal of Social and Personal Relationships, 30, 237–246.

doi:10.1177/0265407512453827

Rainie, L., & Zickuhr, K. (2015). Americans' views on mobile etiquette. Pew Research

Center. Retrieved from http://www.pewinternet.org/2015/08/26/American-views-on-

mobile-ettiquette

Roberts, J.A., & David, M.E. (2016). My life has become a major distraction from my cell

      phone: Partner phubbing and relationship satisfaction among romantic partners.

      Computers in Human Behavior, 54, 134-141. doi: 10.1016/j.chb.2015.07.058

Tabachnick, B.G., & Fidell, L.S. (2001). *Using multivariate statistics (4th ed.)*. Boston: Allyn

      & Bacon

Turkle, S. (2011). *Alone Together: Why We Expect More From Technology and Less From*

      Each Other. New York: Basic Books.

van Dijk, J.A.G.M. (2006). Digital divide research, achievements and shortcomings. *Poetics,*

      34, 221-235. doi:10.1016/j.poetic.2006.05.004

Appendix A: Demographic Items

1. What is your Age?
2. What is your Gender?
   a. Female
   b. Male
   c. Trans female/Trans woman
   d. Trans male / Trans man
   e. Genderqueer/Gender non-conforming
   f. If the options above do not accurately describe how you identify yourself, please share with us how you self-identify.
3. What is the Gender of your partner?
   a. Female
   b. Male
   c. Trans female/Trans woman
   d. Trans male / Trans man
   e. Genderqueer/Gender non-conforming
   f. If the options above do not accurately describe how you identify yourself, please share with us how you self-identify.
4. Please tell us about your race /ethnicity. You may check multiple boxes.
   a. African American/Black
   b. White/Caucasian
   c. Hispanic-American/Latino(a)/Chicano(a)
   d. Native-American/American Indian
   e. Asian-American
   f. Multiracial
   g. If the options above do not accurately describe how you identify yourself, please share with us how you self-identify.
5. Do you consider yourself to be:
   a. Lesbian
   b. Gay
   c. Bisexual
   d. Straight/Heterosexual
   e. Pansexual
   f. Queer
   g. Questioning
   h. If the options above do not accurately describe how you identify yourself, please share with us how you self-identify.
6. What do you consider to be your status related to social class?
   a. Very low income/poverty level
   b. Working class
   c. Middle class
   d. Upper middle class
   e. Upper class
   f. Other (please specify)
7. What is your highest educational level achieved?

    a. Some high school
    b. Completed high school
    c. Some college
    d. Obtained an undergraduate degree
    e. Some graduate school
    f. Obtained Master's degree
    g. Obtained doctorate/MD/JD

8. Region where you live
    a. Northeast
    b. Southeast
    c. Southwest
    d. Northwest
    e. Midwest/Central
    f. Other (please specify)

9. Which of the following best describes the area you live in?
    a. Urban
    b. Suburban
    c. Rural

10. How did you hear about this survey?
    a. Email
    b. Social media (Facebook, Yahoo groups, etc)
    c. Friend
    d. Other (please specify)

11. What is your current relationship status?
    a. Single, no partner
    b. Dating occasionally
    c. Dating seriously
    d. Domestic Partnership
    e. Engaged
    f. In a Committed Relationship
    g. Married
    h. Other (please specify)

12. How long have you been with your partner?
    a. Please specify

13. Please mark the mobile devices below that you own:
    a. Mobile/Cell Phone
    b. Tablet
    c. Laptop Computer
    d. eReader
    e. Personal Gaming Device

Appendix B: Mobile Device Usage

1. A week consists of 168 hours. Please estimate the amount of wake time that you spend with your partner in a typical week. (For example, if you spend 2 hours every evening awake with your partner that would be 14 hours).
2. For the reported time above, please estimate the amount of wake time that you spend on your mobile device engaged in a private activity during time that you and your partner spend together.
3. For the reported time in question 1, please estimate the amount of wake time that your partner spends on a mobile device engaged in a private activity during time that you and your partner spend together.
4. During wake time spent with your partner, what types of activities or applications (apps) do you access privately (without the participation or interaction of your partner) using a mobile device?
   a. Browsing the Internet
   b. Social Networking Apps (e.g. Facebook, Twitter, Instagram, Pinterest)
   c. Games Apps
   d. Entertainment Apps
   e. Sports Apps
   f. News Apps
   g. Travel & Lifestyle Apps (e.g. travel, fitness, food & drink)
   h. Productivity Apps (e.g. calendars, translators)
   i. Utilities Apps (e.g. weather apps, note-taking apps)
   j. Educational Apps
   k. Reading Apps
   l. Shopping Apps
   m. Other (Please describe)
5. Of the applications or activities that you selected from above, which cause the greatest amount of distraction during wake time spent together? (please only rank the one's which you selected above)
   a. Browsing the Internet
   b. Social Networking Apps (e.g. Facebook, Twitter, Instagram, Pinterest)
   c. Games Apps
   d. Entertainment Apps
   e. Sports Apps
   f. News Apps
   g. Travel & Lifestyle Apps (e.g. travel, fitness, food & drink)
   h. Productivity Apps (e.g. calendars, translators)
   i. Utilities Apps (e.g. weather apps, note-taking apps)
   j. Educational Apps
   k. Reading Apps
   l. Shopping Apps
   m. Other (Please describe)
6. In what settings do you typically use a mobile device during awake time spent with your partner?
   a. At home

       b. In a restaurant
       c. In a motor vehicle
       d. In the bedroom
       e. Other

7. Have you ever used a mobile device to avoid interaction with your partner?
       a. Yes
       b. No

8. Do you and your partner have rules (either formal or informal) related to acceptable mobile device usage during awake time spent together?
       a. Yes (Please share)
       b. No

9. How often do you break the rules established for acceptable mobile device usage?
       a. Never
       b. Rarely
       c. Sometimes
       d. Often
       e. Always

10. How often has does your partner break the rules established for acceptable mobile device usage?
       a. Never
       b. Rarely
       c. Sometimes
       d. Often
       e. Always

Appendix C: Couple Satisfaction Index
(Funk & Rogge, 2007)

1. Please indicate the degree of happiness, all things considered, of your relationship.

Extremely Unhappy	Fairly Unhappy	A Little Unhappy	Happy	Very Happy	Extremely Happy	Perfect
0	1	2	3	4	5	6

Most people have disagreement in their relationships. Please indicate below the approximate extent of agreement or disagreement between you and your partner for each item on the following list.

	Always Agree	Almost Always Agree	Occasionally Disagree	Frequently Disagree	Almost Always Disagree	Always Disagree
2. Amount of time spent together	5	4	3	2	1	0
3. Making major decisions	5	4	3	2	1	0
4. Demonstrations of affection	5	4	3	2	1	0

	All the Time	Most of the Time	More often than Not	Occasionally	Rarely	Never
5. In general, how often do you think that things between you and your partner are going well?	5	4	3	2	1	0
6. How often do you wish you hadn't gotten into this relationship?	0	1	2	3	4	5

	Not at all True	A Little True	Somewhat True	Mostly True	Almost Completely True	Completely True
7. I still feel a strong connection with my partner.	0	1	2	3	4	5
8. If I had my life to live over, I would marry (or live with/date) the same person.	0	1	2	3	4	5
9. Our relationship is strong.	0	1	2	3	4	5

10. I sometimes wonder if there is someone else out there for me.	5	4	3	2	1	0
11. My relationship with my partner makes me happy.	0	1	2	3	4	5
12. I have a warm and comfortable relationship with my partner.	0	1	2	3	4	5
13. I can't imagine ending m relationship with my partner.	0	1	2	3	4	5
14. I feel that I can confide in my partner about virtually anything.	0	1	2	3	4	5
15. I have had second thoughts about this relationship recently.	5	4	3	2	1	0
16. For me, my partner is he perfect romantic partner.	0	1	2	3	4	5
17. I really feel like part of a team with my partner.	0	1	2	3	4	5
18. I cannot imagine another person making me as happy as my partner does.	0	1	2	3	4	5

	Not at All	A Little	Somewhat	Mostly	Almost Completely	Completely
19. How rewarding is your relationship with your partner?	0	1	2	3	4	5
20. How well does your partner meet your needs?	0	1	2	3	4	5
21. To what extent has your relationship met your original expectations?	0	1	2	3	4	5
22. In general, how satisfied are you with your relationship?	0	1	2	3	4	5

	Worse than all others (Extremely Bad)					Better than all others (Extremely Good)
23. How good is your relationship compared to most?	0	1	2	3	4	5

	Never	Less Than Once a Month	Once or Twice a month	Once or twice a week	Once a Day	More Often
24. Do you enjoy your partner's company?	0	1	2	3	4	5
25. How often do you and your partner have fun together?	0	1	2	3	4	5

For each of the following items, select the answer that best describes how you feel about your relationship. Base your responses on your first impressions and immediate feelings about the item.

26.	INTERESTING	5	4	3	2	1	0	BORING
27.	BAD	0	1	2	3	4	5	GOOD
28.	FULL	5	4	3	2	1	0	EMPTY
29.	LONELY	0	1	2	3	4	5	FRIENDLY
30.	STURDY	5	4	3	2	1	0	FRAGILE
31.	DISCOURAGING	0	1	2	3	4	5	HOPEFUL
32.	ENJOYABLE	5	4	3	2	1	0	MISERABLE

Appendix E: Physical Affection Scale
(Liederman, 1991)

Instructions: For the physical activity items below, indicate the amount of time spent in each activity with your partner during wake time spent together and indicate the level to which you are satisfied with the amount of time spent in each activity with your partner during wake time spent together.

Activity	Amount of Time (0 = None – 7 = A great deal)							
	None							A great deal
Cuddling	0	1	2	3	4	5	6	7
Holding Hands	0	1	2	3	4	5		7
Patting part of the body	0	1	2	3	4	5	6	7
Hugging	0	1	2	3	4	5	6	7
Being physically playful	0	1	2	3	4	5	6	7
Kissing	0	1	2	3	4	5	6	7
Stroking part of the body	0	1	2	3	4	5	6	7
Nuzzling	0	1	2	3	4	5	6	7
Sitting on partner's lap, or vice versa	0	1	2	3	4	5	6	7
Massage	0	1	2	3	4	5	6	7
Sitting very close to each other	0	1	2	3	4	5	6	7
Massage	0	1	2	3	4	5	6	7
Sitting very close to each other	0	1	2	3	4	5	6	7
Back Scratching	0	1	2	3	4	5	6	7
Sitting, lying or walking with arms around each other	0	1	2	3	4	5	6	7
Breast or genital fondling	0	1	2	3	4	5	6	7

Activity	Satisfaction (0 = Not Satisfied At All – 7 = Satisfied a Great Deal)							
	Not Satisfied At All							A great deal
Cuddling	0	1	2	3	4	5	6	7
Holding Hands	0	1	2	3	4	5		7
Patting part of the body	0	1	2	3	4	5	6	7
Hugging	0	1	2	3	4	5	6	7
Being physically playful	0	1	2	3	4	5	6	7
Kissing	0	1	2	3	4	5	6	7
Stroking part of the body	0	1	2	3	4	5	6	7
Nuzzling	0	1	2	3	4	5	6	7
Sitting on partner's lap, or vice versa	0	1	2	3	4	5	6	7

Massage	0	1	2	3	4	5	6	7
Sitting very close to each other	0	1	2	3	4	5	6	7
Massage	0	1	2	3	4	5	6	7
Sitting very close to each other	0	1	2	3	4	5	6	7
Back Scratching	0	1	2	3	4	5	6	7
Sitting, lying or walking with arms around each other	0	1	2	3	4	5	6	7
Breast or genital fondling	0	1	2	3	4	5	6	7

Appendix E: Conflict Over Mobile Device Usage
(McDaniel & Coyne, 2014)

Please indicate below if you and your partner experience conflict during wake time spent

together due to the following.

	Never	**Rarely**	**Sometimes**	**Often**	**Very Often**
1. Time spent on the Internet on a mobile device	1	2	3	4	5
2. Time spent accessing an application on a mobile device	1	2	3	4	5
3. Time spent watching TV	1	2	3	4	5
4. Time spent on an eReader	1	2	3	4	5
5. Time spent talking or texting on a cell phone or smartphone to someone other than your partner	1	2	3	4	5
6. Time spent on iPod, iPad, or other tablet	1	2	3	4	5
7. Time spent on a laptop computer	1	2	3	4	5
8. Time spent on a personal gaming device	1	2	3	4	5

Appendix F: Mobile Device Interference Scale
(McDaniel & Coyne, 2014)

Please rate how frequently you experience the following with your partner.

Never	Less than once a week	Once a week	Once every few days	Once a day	2 to 5 times a day	6 to 9 times a day	10 or more times a day
0	1	2	3	4	5	6	7

1. During a typical mealtime that my partner and I spend together, my partner pulls out and checks his/her phone or mobile device.

2. My partner sends texts or emails to others during our face-to-face conversations.

3. When my partner's phone or mobile device rings or beeps, he/she pulls it out even if we are in the middle of a conversation.

4. During leisure time that my partner and I are able to spend together, my partner gets on his/her phone, mobile device, or tablet.

5. My partner gets distracted from our conversation by the TV.

Appendix G: Invitation to Participate

Hi there!

You are invited to participate in a study examining mobile device usage and couple relationships. The study is conducted by researchers at the University of Missouri-St. Louis. The purpose of this research is to understand how the use of mobile device technology impacts couple relationships. If you are at least 18 years old, are part of a committed couple relationship, and own a mobile device we would greatly appreciate your participation in our study. Please note that we request that only one member of the couple complete the survey.

When you have finished the survey, you will have the option to enter a raffle for one of 10 gift cards worth $20.

The survey is anonymous, and takes about 10-15 minutes to complete. For those interested in participating in this study, click on the following link: http://tinyurl.com/MobileRelationshipSurvey, which will take you to the consent form and survey. This research has been approved by the Institutional Review Board for protection of human subjects at the University of Missouri-St. Louis.

Please feel free to forward this e-mail announcement to eligible friends and other relevant listservs. Thank you in advance for your help with this project!

Sincerely,

Emily & Rocco

Emily Oliveira, Ed.S., LPC, NCC, University of Missouri-St. Louis
R. Rocco Cottone, Ph.D., University of Missouri-St. Louis

Appendix H: Informed Consent

Department of Counseling and Family Therapy
University of Missouri - St. Louis
469 Marillac Hall
314-516-5782
St. Louis, MO

Informed Consent for Participation in Research Activities
The Relationship Between Mobile Device Usage and Couple Satisfaction

Participant _____   HSC Approval Number _____
Principal Investigator: _____Emily Oliveira_____   PI's   Phone   Number__573-576-9386_____

1. You are invited to participate in a research study conducted by Emily Oliveira, doctoral candidate in the Department of Counseling and Family Therapy at the University of Missouri – St. Louis under the supervision of Dr. R. Rocco Cottone. The purpose of this research is to understand how the use of mobile device technology impacts couple relationships.

2. Your participation will involve completing an online survey consisting of measures related to your relationship satisfaction, affection, conflict, and mobile device usage, rules and interference. Your survey will be kept anonymous and we will not know how you personally responded to the questions. Approximately 1000 individuals may be involved in this research.

    The amount of time involved in your participation will be 10-15 minutes. When you have finished the survey, you will have the option to enter a raffle for one of ten $20 gift cards to Amazon. To enter the raffle, click on the new link provided at the end of the survey that will connect you to a separate survey page where you will be able to enter your contact information. Please be assured that your answers to the initial survey will not be linked with the contact information provided on the raffle survey.

3. There are no anticipated risks associated with this research. Some questions may invoke feelings of discomfort, sadness, hurt or even anger. If you wish to stop the survey, please feel free to do so.

4. There are no direct benefits for you participating in this study. However, your participation will contribute to the knowledge about how mobile technology interacts with couple relationships.

5. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any

questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.

6. By agreeing to participate, you understand and agree that your data may be shared with other researchers and educators in the form of presentations and/or publications. In all cases, your identity will not be revealed. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection). That agency would be required to maintain the confidentiality of your data. In addition, all data will be stored on a password-protected computer and/or in a locked office.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may contact the Investigator, Emily Oliveira at emilyoliveira@umsl.edu or Dr. R. Rocco Cottone at cottone@umsl.edu. You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research Administration, at 314-516-5897.

I have read this consent form. By clicking the Continue button below, I consent to my participation in the research described above.

Figure 1. Mediation Model - Hypothesis 2
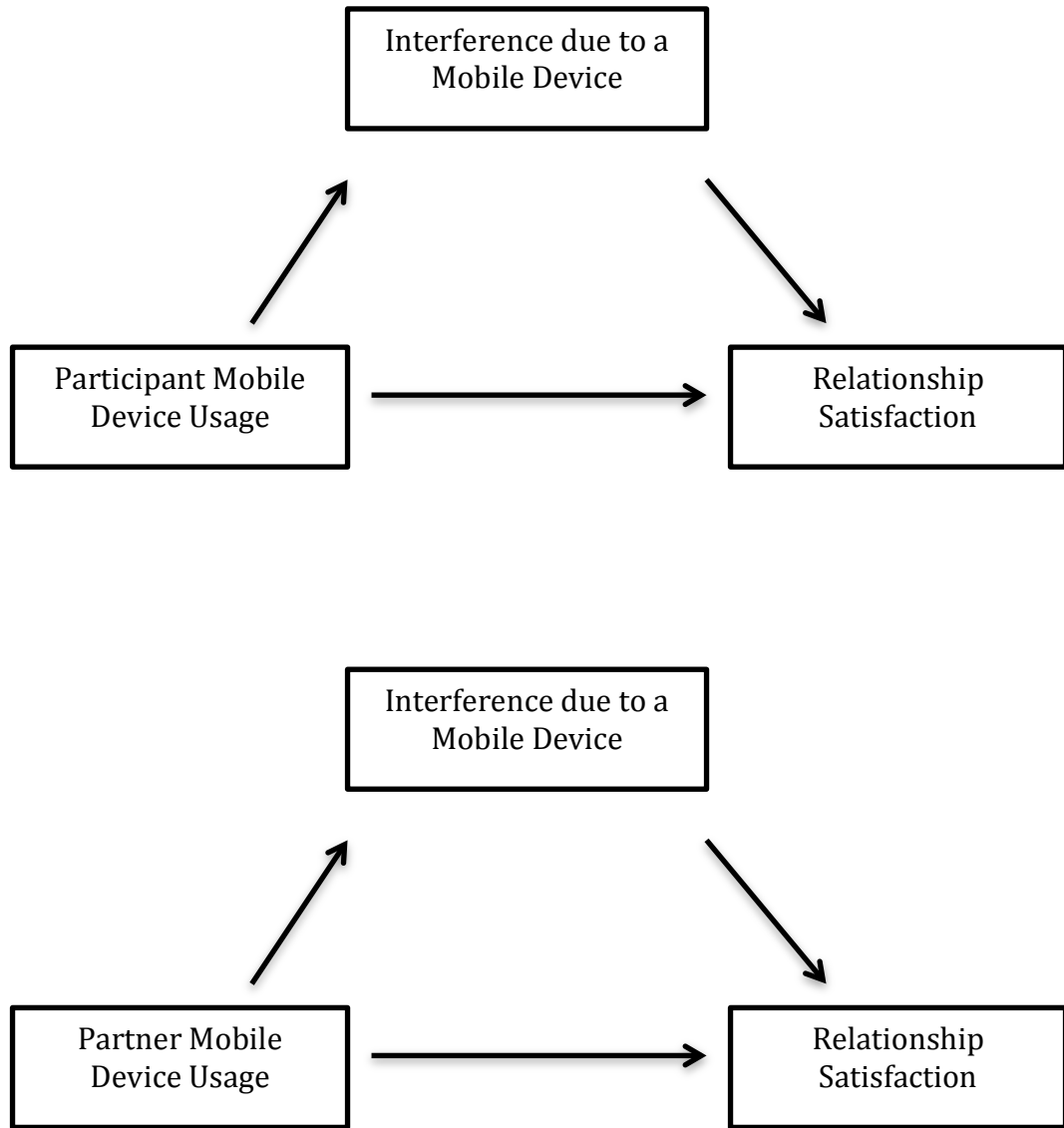
Figure 2. Mediation Model - Hypothesis 3
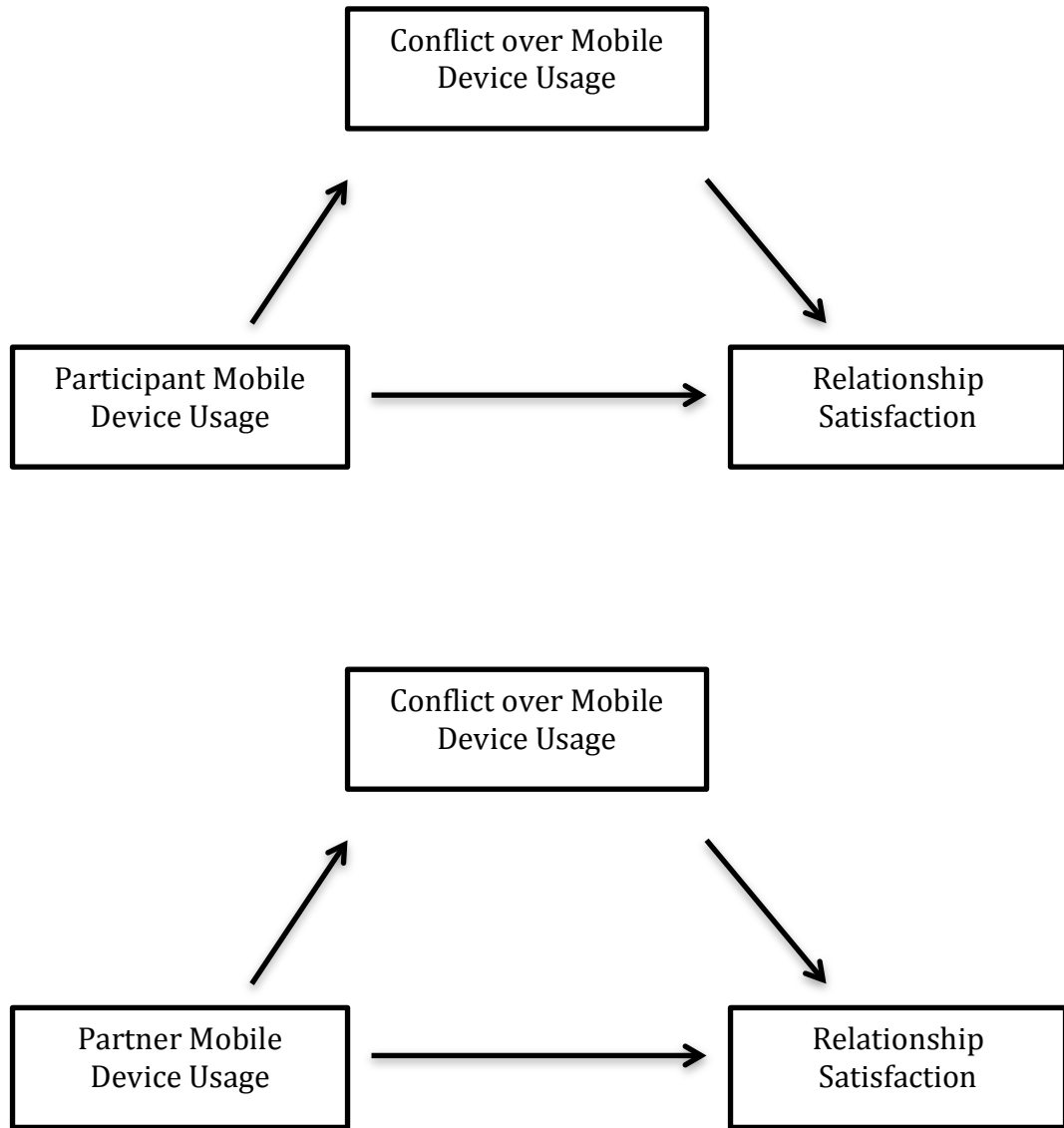
Figure 3. Mediation Models with unstandardized regression coefficients (Interference)

a) Direct Pathway
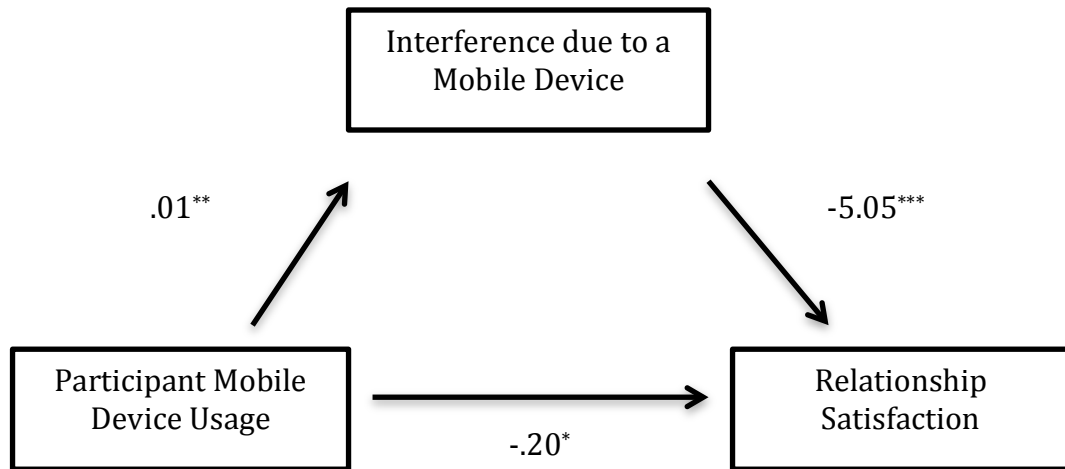
	-.26**	
Participant Mobile Device Usage	→	Relationship Satisfaction

b) Indirect or Mediated Pathway (Participant)

Interference due to a Mobile Device

.01**

-5.05***

Participant Mobile Device Usage

-.20*

Relationship Satisfaction

Note: Values represent unstandardized coefficients.
*p < .05; ** p < .01; *** p < .001

c) Direct Pathway (Partner)

| Partner Mobile Device Usage | -35^{***} → | Relationship Satisfaction |

d) Indirect or Mediated Pathway (Partner)

| Interference due to a Mobile Device |

$.02^{***}$

-4.01^{**}

| Partner Mobile Device Usage | → | Relationship Satisfaction |

$-.26^{**}$

Note: Values represent unstandardized coefficients.
* *p* < .05; ** *p* < .01; *** *p* < .001

Figure 4. Mediation Models with unstandardized regression coefficients (Conflict)

a) Direct Pathway (Participant)
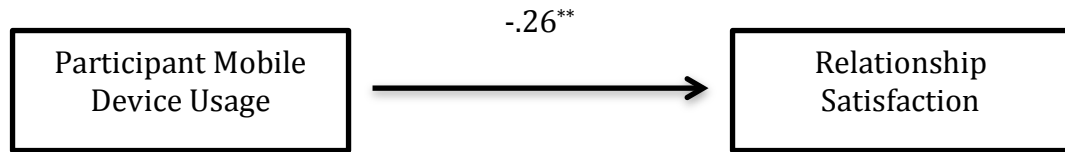
b) Indirect or Mediated Pathway (Participant)
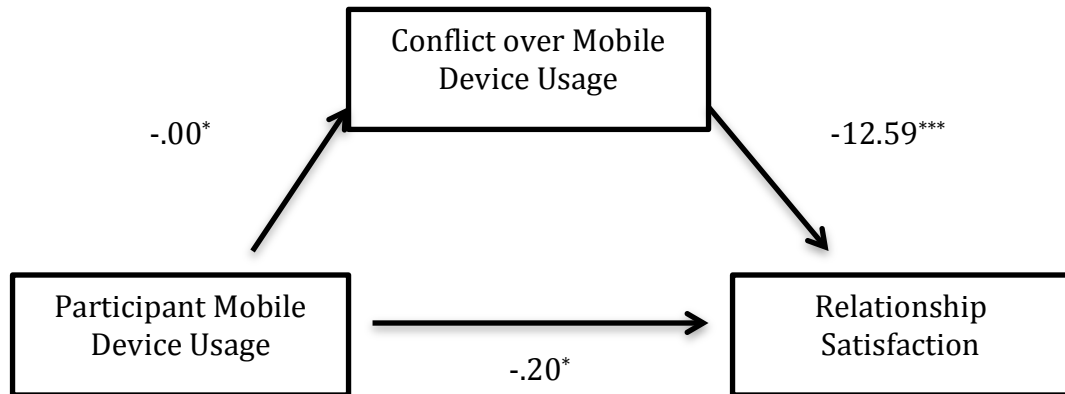
Note: Values represent unstandardized coefficients.
* $p < .05$; ** $p < .01$; *** $p < .001$

c) Direct Pathway (Partner)

Partner Mobile Device Usage	-35^{***} →	Relationship Satisfaction

d) Indirect or Mediated Pathway (Partner)

Conflict over Mobile Device Usage

$.01^{***}$

-11.02^{***}

Partner Mobile Device Usage

Relationship Satisfaction

$-.26^{**}$
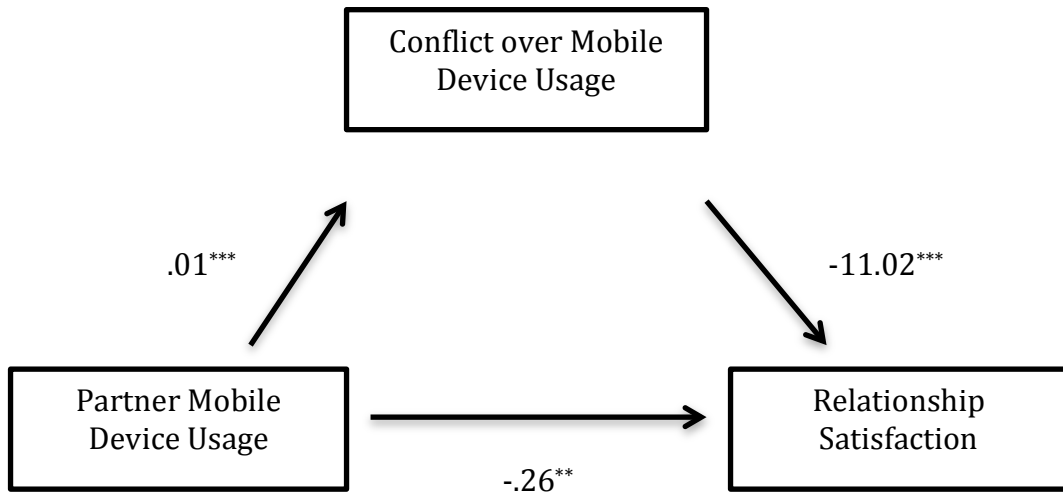
Note: Values represent unstandardized coefficients.
* $p < .05$; ** $p < .01$; *** $p < .001$

Table 1

Characteristics of Study Participants

Current Age (years)	Frequency (%)[a]	
Mean = 36.06		
Standard Deviation = 11.973		
Range = 18-78		
Sex		
Female	186	(79.5)
Male	48	(20.5)
Partner's Sex		
Female	47	(20.1)
Male	185	(79.1)
Transgender Male	1	(0.4)
Race/Ethnicity		
Caucasian/White	197	(84.2)
Multiracial	16	(6.8)
African American/Black	8	(3.4)
Asian/Asian American	6	(2.6)
Hispanic	4	(1.7)
Native American	2	(0.9)
Sexual Orientation		
Straight/Heterosexual	203	(86.8)
Bisexual	13	(5.6)

Gay	5	(2.1)
Lesbian	4	(1.7)
Pansexual	3	(1.3)
Queer	3	(1.3)
Questioning	1	(0.4)
Other	1	(0.4)
Relationship Status		
Married	147	(62.8)
In a Committed Relationship	53	(22.6)
Engaged	19	(8.1)
Domestic Partnership	6	(2.6)
Dating Seriously	6	(2.6)
Dating Occasionally	3	(1.3)
Length of Relationship		
Mean = 10.80		
Standard Deviation = 10.543		
Range = 2 months – 46 years		
Social Class		
Very Low Income or Poverty	4	(1.7)
Working Class	46	(19.7)
Middle Class	132	(56.4)
Upper Middle Class	49	(20.9)
Upper Class	3	(1.3)

Level of Education Completed

Some High School	1	(0.4)
High School	9	(3.8)
Some College	37	(15.8)
Obtained Undergraduate Degree	51	(21.8)
Some Graduate School	11	(4.7)
Obtained Master's Degree	87	(37.2)
Obtained Doctoral Degree, MD, JD	38	(16.2)

Region

Midwest	138	(59.0)
Northeast	37	(15.8)
Southeast	26	(11.1)
Northwest	13	(5.6)
Southwest	10	(4.3)
Other	10	(4.3)

Means of Recruitment

Social Media	123	(52.6)
Email	47	(20.1)
Friend/Family Member	25	(10.7)
Other (Craigslist or Reddit)	39	(16.7)

Type of Mobile Device Owned

Mobile/Cell Phone	233	(99.6)
Tablet	181	(77.4)

Laptop Computer	212	(90.6)
eReader	78	(33.3)
Personal Gaming Device	49	(20.9)

Activities or Apps

Social Networking Apps	208	(88.9)
Browsing the Internet	188	(80.3)
News Apps	83	(35.5)
Utilities Apps	83	(35.5)
Shopping Apps	79	(33.8)
Productivity Apps	69	(29.5)
Gaming Apps	66	(28.2)
Travel and Lifestyle Apps	55	(23.5)
Reading Apps	55	(23.5)
Sports Apps	43	(18.4)
Entertainment Apps	42	(17.9)
Educational Apps	39	(16.7)
Other Apps	23	(9.8)

Settings in which Participants Used a Mobile Device

At Home	223	(95.3)
In the Bedroom	98	(41.9)
In a Motor Vehicle	82	(35.0)
In a Restaurant	43	(18.4)
Other Settings	3	(1.3)

Used a mobile device to avoid interaction with their partner

      Yes   72   (30.8)

      No   161   (68.8)

Have informal or formal rules related to mobile device usage

      Yes   87   (37.2)

      No   146   (62.4)

Table 2

Correlations Between Main Study Variables

Variable	1	2	3	4	5	6	7	8
1. Relationship Satisfaction								
2. Mobile Device Usage-Participant	-.21*							
3. Mobile Device Usage – Partner	-.30***							
4. Interference of a Mobile Device	-.28*	.20*	.37***					
5. Conflict over Mobile Device Usage	-.32***	.16*	.28***	.45***				
6. Rules for Mobile Device Usage	-.11	-.01	-.02	.05	.03			
7. Amount of Affection	.54***	-.09	-.16*	-.23**	-.15*	-.13		
8. Satisfaction with Amount of Affection	.62***	-.03	-.15*	-.21**	-.26***	-.13	.65***	

*$p < .05$; ** $p < .01$; *** $p < .001$

Table 3

Correlations Between Demographic Characteristics and Main Study Variables

Variable	Age	Gender	Relationship Type	Length of Relationship	Education	Social Class
1. Relationship Satisfaction	-.10	-.06	-.07	-.07	-.02	.02
2. Mobile Device Usage-Participant	-.02	-.12	.14*	-.03	-.00	-.09
3. Mobile Device Usage – Partner	-.05	-.07	.12	-.04	.01	-.15*
4. Interference of a Mobile Device	-.20**	-.09	-.02	-.14*	.02	-.11
5. Conflict over Mobile Device Usage	-.12	-.08	.04	-.00	-.16*	-.03
6. Rules for Mobile Device Usage	.11	.08	-.01	.12	-.11	-.09
7. Amount of Affection	-.25**	-.05	-.29**	-.31**	-.14*	-.07
8. Satisfaction with Amount of Affection	-.22**	-.05	-.20*	-.28**	-.03	-.01

Note. Gender = coded as female (1), male (2); Relationship Type = coded as single (1), dating occasionally (2), dating seriously (3), in a committed relationship (4), domestic partnership (5), engaged (6), married (7); Length of Relationship = scored in years; Education = coded as some high school (1), completed high school (2), some college (3), obtained an undergraduate degree (4), some graduate school (5), obtained master's degree (6), obtained doctorate, MD, JD (7); Social Class = coded as very low income/poverty (1), working class (2), middle class (3), upper middle class (4), upper class (5).
* $p < .05$; ** $p < .01$

E. OLIVEIRA DISSERTATION Table 4

Mediation Model – Interference (Participant model)

Path	F	R^2	b
Path a	8.48**	.04**	.01**
Path b	11.52***	.10***	-5.05***
Path c	8.78**	.04**	-.26**
Path c'	11.52***	.10***	-.20*
	z	K^2	
Sobel Test	-2.24*	.05	

Note. Path a = participant mobile device usage (x) predicts interference due to a mobile device (m), Path b = m predicts relationship satisfaction (y), Path c = x predicts y, Path c' = x no longer predicts y (or is lessened).

* *p* < .05; ** *p* < .01; *** *p* < .001

Mediation Model – Interference (Partner model)

Path	F	R^2	b
Path a	32.97***	.13***	.02***
Path b	14.11***	.12***	-4.01**
Path c	19.60***	.08***	-.35***
Path c'	14.11***	.12***	-.26**
	z	K^2	
Sobel Test	-2.50**	.07	

Note. Path a = partner mobile device usage (x) predicts interference due to a mobile device (m), Path b = m predicts relationship satisfaction (y), Path c = x predicts y, Path c' = x no longer predicts y (or is lessened).

* *p* < .05; ** *p* < .01; *** *p* < .001

Table 5

Mediation Model – Conflict (Participant model)

Path	F	R^2	b
Path a	5.66[*]	.03[*]	.00[*]
Path b	15.14[***]	.13[***]	-12.59[***]
Path c	8.78[**]	.04[**]	-.26[**]
Path c'	15.14[***]	.13[***]	-.20[*]
	z	K^2	
Zobel Test	-2.07[*]	.05	

Note. Path a = participant mobile device usage (x) predicts conflict over mobile device usage (m), Path b = m predicts relationship satisfaction (y), Path c = x predicts y, Path c' = x no longer predicts y (or is lessened).

* *p* < .05; ** *p* < .01; *** *p* < .001

Mediation Model – Conflict (Partner model)

Path	F	R^2	b
Path a	18.39[***]	.08[***]	.01[***]
Path b	18.13[***]	.15[***]	-11.02[***]
Path c	19.60[***]	.08[***]	-.35[***]
Path c'	18.13[***]	.15[***]	-.26[**]
	z	K^2	
Sobel Test	-2.85[**]	.07	

Note. Path a = partner mobile device usage (x) predicts conflict over mobile device usage (m), Path b = m predicts relationship satisfaction (y), Path c = x predicts y, Path c' = x no longer predicts y (or is lessened).

* *p* < .05; ** *p* < .01; *** *p* < .001

Table 6

Summary of Hierarchical Regression Analysis for Variables Predicting Relationship Satisfaction

Model	F	R^2 Change	p
1	6.35		.002
		.057	.002
2	4.28		.006
		.001	.672

Note. Model 1 = participant mobile device usage predicts relationship satisfaction, Model 2 = the interaction presence of rules effects participant mobile device usage predicts relationship satisfaction.

* $p < .05$; ** $p < .01$; *** $p < .001$

Model	F	R^2 Change	p
1	11.79		.000
		.10	.000
2	7.82		.000
		.00	.971

Note. Model 1 = partner mobile device usage predicts relationship satisfaction, Model 2 = the interaction presence of rules effects partner mobile device usage predicts relationship satisfaction.

* $p < .05$; ** $p < .01$; *** $p < .001$