

THE RELATIONSHIP OF ATTACHMENT STYLES AND
SELF-CONTROL ON CELL PHONE RELIANCE

A Thesis Presented to the Faculty
of
California State University, Stanislaus

In Partial Fulfillment
of the Requirements for the Degree
of Masters of Science in Psychology

By
Allison Hibbard
May 2015

CERTIFICATION OF APPROVAL

THE RELATIONSHIP OF ATTACHMENT STYLES AND SELF-CONTROL
ON CELL PHONE RELIANCE

by
Allison Hibbard

Signed Certification of Approval Page is on File with the University Library

Dr. Rosanne Roy
Associate Professor of Child Development

Date

Dr. Kurt Baker
Professor of Psychology

Date

Dr. Dawn Strongin
Professor of Psychology

Date

© 2015

Allison Hibbard
ALL RIGHTS RESERVED

DEDICATION

To the inspiration of this research, my cell phone.

ACKNOWLEDGMENTS

This endeavor would not have been possible without the encouragement of my family and friends. A specific thank you to my parents, John and Melba Hibbard, who have always supported my goals, no matter how ambitious the undertaking.

TABLE OF CONTENTS

	PAGE
Dedication	iv
Acknowledgements	v
List of Tables	vii
Abstract	viii
Literature Review.....	1
Attachment Theory	1
Technology	8
Self-Control.....	13
Methodology	16
Participants.....	16
Procedures.....	16
Measures	17
Results.....	20
Attachment Style and Self-Control	20
Attachment and Cell Phone Reliance	21
Self-Control and Cell Phone Reliance	21
Cell Phone Reliance, Attachment Style, and Self-Control	21
Discussion.....	23
References.....	27
Appendices	
Demographic Questionnaire	39
Experiences in Close Relationships Scale	41
Self-Control Scale.....	44
Cell Phone Reliance Scale	46
Consent Form.....	48
Debriefing Form.....	50

LIST OF TABLES

TABLE	PAGE
1. Means and Standard Deviation of Criterion Variables.....	20
2. Correlation Matrix of Attachment, Self-Control, and Cell Phone Reliance.....	20
3. Correlations Between Continuous Demographic Measures and Cell Phone Reliance.....	22

ABSTRACT

This study explored the relationship between attachment styles, self-control, and cell phone reliance. A total sample of 118 university students completed the Experiences in Close Relationship, Self-Control, and Cell Phone Reliance scales. Attachment anxiety and self-control were positively correlated with cell phone reliance, $r = .28, p < .01$ and $r = -.32, p < .01$, respectively. An interaction between attachment anxiety and self-control was not found. Age was not significantly correlated with cell phone reliance, however a negative correlation between age of first cell phone ownership and cell phone reliance was found ($r = -.30, p < .01$). The results of this study indicate self-control as a better predictor of cell phone reliance than attachment style.

LITERATURE REVIEW

With the popularity, portability, and functionality of cell phones, people can communicate with one another quickly and easily. Multiple tasks or multiple conversations can be done at once through the use of a cell phone. This “always on and always on you” phenomenon can be observed in virtually any setting, as people’s behavior has adapted to include access to their cell phone. As with other modes of communication, such as social networking or e-mail, a person’s attachment style and level of self-control would be expected to impact their cell phone usage behavior.

Attachment Theory

Since its development, attachment theory has broadened from mother-infant relationships to include the development and maintenance of relationships with others and self throughout the life span (Rholes & Simpson, 2004). Bowlby (1982) theorized an infant’s attachment to its mother developed out of the need to survive and was later connected to emotional and mental states in adolescence and adulthood through the development of internal working models.

To promote survival, infants engage in attachment behaviors including: sucking, clinging, following, crying, and smiling in order to engage his/her mother and remain in close proximity (Bowlby, 1982). Between the ages of six to nine months, children began to demonstrate attachment behaviors towards their mother when experiencing hunger, fatigue, illness, pain, unhappiness, or alarm (Ainsworth, 1963; Schaffer & Emerson, 1964a). As the child develops and becomes more mobile, these behaviors become more sophisticated and advanced. For example, infants will

begin to cry or make other vocalizations to illicit their mother's attention, as the child becomes mobile, they can be seen physically moving themselves closer to their mother by reaching, crawling, or walking towards her. This cycle of behaviors is repeated countless times between child and mother, reinforcing the child's perception of relationships and their role in them, creating the platform for the child's attachment style.

Attachment Styles

In an attempt to provide Bowlby's theory with empirical validation, Ainsworth, Blehar, Waters, and Wall (1978) devised a series of studies using the Strange Situation. Each study followed a similar pattern with variations in the setting and age group of the children. The study began with the mother and infant alone in a room where the mother and infant played. After a period of time a stranger was introduced into the room and the mother was asked to leave the room. The infant's reaction to the mother leaving and later reuniting with his or her mother was observed and rated. Three distinct patterns of infant behavior began to emerge, becoming known as attachment styles.

The majority of infants observed by Ainsworth and her colleagues would attempt to follow their mother as she left the room and began to cry when left alone with the stranger. Upon the mother's return, the infant would seek the mother by looking at her, moving towards her, and holding her for a period of time before returning to play. These infants were able to be soothed by their mother and accepted her immediately upon her return to the room. According to Ainsworth et al. (1978),

these infants were acting congruent with their level of internal distress, demonstrating a secure attachment style.

Infants whose behaviors were incongruent with their level of internal distress were described as having an insecure attachment style and further divided into two categories, avoidant and anxious/ambivalent thus creating three distinct patterns of attachment behavior (Ainsworth et al., 1978).

Avoidant infants would display distress when the mother left the room, but would not acknowledge the mother's attempts to comfort the infant upon her return and acted as if they were angry at their mother for leaving. These infants made little movement towards their mother as she re-entered the room and did not reciprocate affection displayed by the mother such as not wrapping arms around her as she hugged them. They were unable to return to their normal play as quickly as the infants with secure attachment style. Outside of the experimental setting, infants and children with avoidant attachment styles are described by parents as anxious and fearful while at home, and are often viewed as angry or attention-seeking by teachers in school (Berman & Sperling, 1994).

The third attachment style, anxious/ambivalent attachment, described by Ainsworth et al. (1978) is comprised of a mixture of secure and avoidant behaviors. Characterized by higher levels of distress than the other two groups, anxious/ambivalent attached infants, would cry and follow their mothers as she left the room. Upon her return, however, they would immediately make motions and movements towards her, but displayed uncertainty once physical contact with their

mother was made. They were difficult to soothe and continued to cry, returning to play after a long period of time, much like infants with avoidant attachment style. Anxious/ambivalent infants expressed a desire to be comforted by their mother, but were unable to quickly regulate their internal distress once the comfort was received. Both parents and teachers describe these children as clinging, emotionally liable, and fearful of new environments when outside of the experimental setting (Berman & Sperling, 1994).

Attachment in Childhood

Attachment behaviors do not remain exclusive to mothers; quickly generalizing to other attachment figures and objects. One month after attachment to mother emerges, Schaffer and Emmerson (1964a) observed children becoming attached to other attachment figures, most commonly the father or other immediate family members. By the age of 18 months, the majority of children's attachment to their mother and at least one other figure is present. Furthermore, by three years of age, most children demonstrate a sense of security when mother is not present under certain conditions such as, knowledge of their mother's location and familiarity with the person in charge of care (Schaffer & Emerson, 1964b).

Based on interactions with primary attachment figures during infancy, children continue to develop and revise a set of expectations of attachment figures behavior, communication, and interaction with them (Bowlby, 1988). In children with secure attachment, parents are viewed as readily available, sensitive, and lovingly responsive when in need of protection or comfort. When children are rebuffed and do

not receive comfort when sought, they begin to withdraw from attachment figures when distressed, becoming emotionally independent and comforting themselves (Bowlby, 1988). This behavior mirrors those seen by Ainsworth et al. (1978) in infants with avoidant attachment styles during the Strange Situation. Children with anxious/ambivalent attachment style again displays a combination of the other two attachment styles, expressing uncertainty if their parents will be available or responsive to emotional needs, causing them to be hesitant to explore their surrounding world (Bowlby, 1988).

Over time, these repeated interactions with attachment figures shape the child's behaviors and cognitive structures, known as the internal working model. Throughout the child's lifespan, he or she will rely on this internal working model to understand all relationships, particularly close relationships with significant others and their own children (Bowlby, 1988). Mickelson, Kessler, and Shaver (1997) explored the impact childhood experiences had on attachment styles in adulthood. By conducting telephone interviews of over 8,000 American adults, they found adults who experienced interpersonal trauma (e.g., physical abuse, serious neglect), parental psychopathologies, and parental substance abuse as children were more likely to have insecure attachment styles as adults.

Attachment in Adolescence and Adulthood

According to Bowlby (1988), attachment style continues to form as the internal working model of self strengthens and attachment behavior generalizes to include peers and romantic relationships during adolescence. This interplay between

the internal working model and attachment style can be observed in the adolescence's personality development and behavior.

Several longitudinal studies have been conducted demonstrating stability of attachment styles across developmental phases throughout the lifespan, demonstrating a correlation between parental attachment style and attachment style later in life (e.g., Fraley, 2002; Sroufe, 2005; Waters, Merric, Treboux, Crowell, & Albersheim, 2000).

Waters et al. (2000) conducted a follow up study using the original subject pool from Ainsworth et al.'s (1978) Strange Situation twenty years later, when the subjects were between the ages of 20 and 21. Fifty of the original 60 participants completed the Berkeley Adult Attachment Interview (AAI) to determine current attachment style. At the time of follow up, 32 participants (64%) were assigned to the corresponding three categorical classifications in infancy and early adulthood demonstrating the stability of attachment styles over major developmental periods and extended lengths of time. Of the participants whose attachment style had changed over time, negative life events such as death of a parent, parental divorce, life-threatening illness of parent or child, parental psychiatric disorder, and physical or sexual abuse by a family member had occurred during their lifespan. This suggests the internal working model continues to be revised throughout one's life and can impact attachment styles.

As attachment style continues to develop and the internal working model is revised, it would be expected an individual's behaviors would reflect these constructs. Cooper, Albino, Orcutt, and Williams (2004) tracked risky behaviors, self-concept,

and attachment style over a five year period from ages 16 to 21. Using self-report measures, securely attached young adults reported low levels of hostility and anxiety, positive self-concepts, and moderate levels of involvement in risky behaviors including substance use and sex. Anxiously attached young adults were identified as the most poorly adjusted group, reporting highest involvement in risky behaviors, poor self-concepts, and high psychological distress. Avoidant young adults were likely to abstain from these behaviors or reported significantly fewer incidents of sexually transmitted diseases, pregnancy, and substance use than the other two groups despite displaying negative self-concepts and distress levels higher than securely attached individuals. The researchers also found attachment styles to remain stable during this time period in the majority of participants. This study highlights the impact attachment styles can have on a wide range of behaviors, emotions, and cognitions through the development of the internal working model established early in life.

As adults, the internal working model, based on initial parent interactions, commonly shifts to a romantic partner with similar emotional outcomes. Hazan and Shaver (1987) found that adults who form secure attachments generally view their relationships positively and describe themselves and others as friendly, happy, and trusting. They are comfortable getting close to other people and tend to form long-lasting, stable relationships with limited conflict; whereas adults with avoidant attachment style report a fear of closeness to others, hallmarked by fear of self-disclosure and dependency on someone else. Further, individuals who form avoidant

attachments can be described as keeping people at arm's length, and have difficulty socializing with others. Adults with anxious/ambivalent attachment display a mixture of the other two attachment styles. Despite having social skills and a strong desire for intimacy, they lack self-confidence and independence leading to numerous, unsatisfying, short term relationships. Due to fear of abandonment or rejection, they are unable to take risks or become vulnerable in relationships. These findings have also been supported by Mickelson, Kessler, and Shaver (1997).

Other behaviors, emotions, and cognitions would also be impacted by attachment style and the continual development of the internal working model. For example, behaviors increasing access to a significant other, including the use of e-mail, social media, and cell phones, may be viewed as an overt display of a person's internal working model and attachment style.

Technology

Growth and Utility

Since its introduction to American markets in 1983, cell phone use has exploded in popularity with approximately two billion users worldwide (Seymour & Shaheen, 2011). Originally allowing voice communication only between network users, cell phones have expanded capabilities to include text and multimedia messaging in the 1990's and internet access in the 2000's. Smartphones, with internet access, offer users a wide range of communicating options including access to e-mail accounts, social networking sites, video chatting, voice messaging, and text messaging from one mobile device (Seymour & Shaheen, 2011). As of January 2014,

approximately 90% of American adults have a cell phone, of which 58% own a smart phone (Pew Research Internet Project, 2014).

With many features and ways to connect with others, a person no longer has to wait until they are able to place a phone call to contact someone, and can have multiple ongoing conversations with different people at the same time. Over a one week period in 2013, Levitas found only 16% of participant's cell phone use time was spent on phone calls. The majority of the time (84%) was spent on text messaging, e-mail, or social media forms of communication. Another study showed similar findings, with 81% of cell phone users sending or receiving text messages, 60% accessing the internet, 52% sending or receiving email, 50% downloading apps, 49% getting directions, recommendations, or other location-based information, and 48% using their phone to listen to music (Duggan, 2013). Since their introduction to the American market, cell phones have become integrated as part of daily life, allowing multiple modes of communication with others at any time and in any place.

With the portability and constant connectivity afforded by cell phones, people have adapted their behaviors to allow for consistent access to their phones. Some have described this phenomenon as "always on and always on you" (Turkle, 2011). In a study of over 7,400 18-44 year old Americans, 25% could not remember the last time they were physically away from their phone, 62% reported checking their phone first thing in the morning, and 72% admitted to checking it within the first 15 minutes of waking (Levitas, 2013). Forty-four percent of cell phone owners have slept with their phone next to their bed because they did not want to miss any calls, text

messages, or other notifications during the night (Smith, 2012). This fear of missing out extends to waking hours as well, with 67% of cell owners admitting to checking their phone for messages, alerts, or calls, even when they knew their phone had not vibrated or rang (Pew Research Internet Project, 2014).

High cell phone users, defined as sending and receiving 92 or more text messages daily, reported feeling anxious when separated from their cell phone or when use is restricted (Skierowski & Wood, 2011). This level of cell phone use has been correlated with poor sleeping habits, increased stress, and poor well-being in young adults during their first year of college (Murdock, 2013). Due to the relatively new phenomenon of cell phone, the long term impact of these behaviors remains unknown, and there is no current indication that cell phone habits will decrease despite possible negative consequences.

Technology and Attachment

Despite the infiltration of cell phones in society, research has been slow to keep up with providing a framework to understand this shift in people's behaviors and relationships. Several studies published on the topic of cell phones focus on negative outcomes of cell phone use attempting to describe frequent use in terms of addiction (i.e., Beranuy, Oberst, Carbonell, & Chammarro, 2009; Jenaro, Flores, Gomez-Vela, Gonzalez-Gil, & Caballo, 2007; Roberts, Pullig, & Manolis, 2015). These studies, focusing on pathologizing the emergence of cell phone use, overlook motives behind non-problematic use and positive effects cell phones may have on people and their relationships. Few studies have been conducted focusing specifically

on cell phone use and close interpersonal relationships (Jin & Pena, 2010; Pettigrew, 2009). Other areas of technology use, specifically internet and social networking sites such as Facebook, have been examined more thoroughly than cell phones, using the framework of personality and attachment theory (i.e., Gentzlr, Oberhauser, Westerman, & Nadorff, 2011; Jenkins-Guarnieri, Wright, & Hudiburgh, 2012; Odaci, & Cikrikci, 2014).

Oldmeadow, Quinn, and Kowert (2013) explored the impact attachment style and social skills may have on Facebook use and functions it serves in people's relationships. A total of 742 individuals ranging in age from 18 to 64 years old, completed an online questionnaire including the Experiences in Close Relationship scale to measure attachment style, Social Skills Inventory to measure social skills, and a questionnaire designed to measure Facebook use. Using a hierarchical regression to analyze the data, differences between the use and perceptions of Facebook users between the three primary attachment styles emerged. Participants with anxious attachment style reported more frequent Facebook use than the secure and avoidant attached participants. Participants with avoidant attachment style reported significantly less time spent on Facebook, made fewer public posts, sharing less information, and expressed more negative opinions about Facebook in general than the secure or anxious attached participants. Attachment style was determined to be a predictor of Facebook use among participants, moderated by social skills. Because of the functionality of cell phones and the use of smartphones to access

social media sites such as Facebook, similar results between attachment styles and cell phone behaviors would be expected.

Attachment to the cell phone itself and utility of cell phone may also play a role in cell phone behavior patterns and vary among attachment styles. Individuals with anxious/ambivalent attachment style, characterized by uncertainty about close relationships and fear of rejection, tend to seek other relationships or objects to resolve internal distress and reinforce their sense of self and security (Kirkpatrick, 2005). Keefer, Landau, Rothschild, and Sullivan (2012) found when a group of participants were primed to feel uncertain about their close relationships they demonstrated an increase in reported separation anxiety when their cell phones were removed from the room regardless of attachment style. Individuals higher in attachment anxiety than attachment avoidance may utilize their phone in a similar way, increasing reliance due to instant contact with others. Avoidant attachment style, which is characterized by resistance of emotional dependence on others (Mikulincer & Shaver, 2007), may view the cell phone as a burden or use their cell phone as a way to disconnect from people in their presence.

This potential difference in utility of cell phones among attachment styles would translate to different cell phone behaviors between attachment styles. For example, Jin and Pena (2010) found college students with avoidant attachment styles reported significantly fewer and shorter voice calls with their romantic partner than anxious attachment styles. Additional difference may include frequency of checking, feeling or hearing phone alerts when they are not present, expectations for themselves

and others to respond quickly to messages, amount of time separated from phone (i.e., turns phone off at night, leaves phone at home), and use of social media and entertainment functions.

For the purpose of this study, the expression of these cell phone behaviors and feelings will be referred to as cell phone reliance. At this point, it remains unclear if cell phone reliance is centered around a desire to maintain or improve relationships with other people, utilizing the cell phone as an interaction facilitator, or if cell phone reliance is a result of an attachment to the cell phone itself. To explore this and other possible factors impacting cell phone reliance an additional influence will be taken into consideration, self-control.

Self-Control

Self-control is defined as the conscious act of restraining one's self from engaging in an activity (Baumesiter, 2008). The concept of self-control can also be discussed in terms of gratification. When children or adults are able to resist temptation for a period of time, or delay gratification, they are displaying self-control.

The proximate temptation effect states the more available a gratifying option is, the harder it becomes to resist. Babin and Darden (1995) found this effect is moderated by an individual's level of self-control. Participants with higher levels of self-control were more likely to refrain from temptations despite their constant presence. Additional research has demonstrated individuals with low self-control favor behaviors consistent with instant gratification or short term benefits when

placed in environments with tempting options (Babin & Darden, 1995; Baumeister, Sparks, Stillman, & Vohs, 2008; Gul & Pesendorfer, 2004).

The effects of self-control extend beyond immediate decisions and impacts a wide range of daily functioning, including personal relationships. The ability for a college student to delay gratification has been associated with superior scholastic performance, coping skills, and improved relationships (Shoda, Mischel, & Peake, 1990; Tangney, Baumeister, & Boone, 2004). In fact, Tangney et al. (2004) found statistically significant correlations between attachment styles and self-control. Secure attachment style was positively correlated with self-control and insecure attachment styles (avoidant and anxiety-ambivalent) styles were shown to have a negative correlation with self-control. In other words, the more securely attached a person is, the more self-control they are likely to have. Vohs, Finkenauer, and Baumeister (2010) expanded on this concept finding participants who scored higher on self-control measures rated their relationships better than participants who scored low on self-control measures.

Technology use and self-control has been studied with various technologies including television, internet, social networking, and cell phone use over the years. Research on television viewing and internet use suggests a negative correlation between self-control and the amount of time adults spend watching television (Kubey & Csikszentmihalyi, 1990; LaRose, Lin, & Eastin, 2003). Khang, Kim, and Kim (2013) found a participant's level of self-control predicted the amount of cell phone,

internet, and video game use. As a participant's level of self-control increased, the amount of time spent with previously mentioned technologies decreased.

These studies demonstrate the impact self-control can have on a person's technology consumption, but frequently does not take into consideration underlying factors, such as attachment style.

Hypotheses

This study was designed to further explore the potential relationship between attachment style, self-control, and cell phone reliance. Due to the construction of the measure used to rate attachment style, participants will not be categorized and levels of attachment anxiety and attachment avoidance will be measured for each participant. Despite limited research specifically in the area of cell phone reliance, the following patterns were expected to emerge among participants:

H1: Anxious/ambivalent attachment style will be (a) negatively correlated to self-control and (b) positively correlated to cell phone reliance.

H2: Avoidant attachment style will be negatively correlated with (a) self-control and (b) cell phone reliance.

METHODOLOGY

Participants

A sample of 151 men and women were recruited from a university campus. All participants were at least 18 years old and current graduate or undergraduate students. Participants were recruited through distribution of flyers on campus and the Psychology Department's online participant pool (SONA). Students recruited through SONA received extra credit for their participation at their instructor's discretion; all participants were eligible to enter a drawing for a \$100 gift card. Twenty-eight participants did not complete the survey and were dropped from further analysis. An additional 4 participants were excluded from the analysis due to not owning a smartphone, leaving a final subject pool of 118 participants (20 male, 97 female, 1 'other'). Age ranged from 18 to 51 with a median age of 22 years ($M = 23.11$, $SD = 5.75$). Fifty percent of the sample identified as Hispanic, 28 percent as Caucasian, 5.9 percent as African American, 7.6 percent as Asian, .8 percent as Native American, and 7.6 as 'Other'.

Procedures

All data were collected online through the survey software Qualtrics. Flyers distributed on campus included a QR code, providing immediate access to the survey from the participant's mobile phones. Students using the SONA system were redirected to Qualtrics via a hyperlink. Participants accessed and completed the demographic questionnaire (Appendix A), Experiences in Close Relationships Scale (ECR; Brennan, Clark, & Shaver, 1998; Appendix B), Self-Control Scale (SCS;

Tangney et al., 2004; Appendix C), and Cell Phone Reliance Scale (CPRS; Sato, Harman, Adams, Evans, & Coolsen, 2013; Appendix D). Presentation order of the surveys was randomly varied for each participant. Prior to accessing the survey, participants read and acknowledged the conditions of the informed consent (Appendix E) and were debriefed at the conclusion of the study (Appendix F). Both informed consent and debriefing forms were available for downloading as PDF files for participants' personal records. At the conclusion of the study, participants were able to select a link directing them to a separate survey to enter their name, e-mail address, and telephone number for the \$100 gift card raffle.

Measures

Demographic questionnaire

A demographic questionnaire was designed by the author to gather general information about participants and personal cell phone history. Sample items enquiring about cell phone history include, "How long have you owned your current phone?" and "What age were you when you received your first cell phone?"

Experiences in Close Relationships Scale

The Experiences in Close Relationships Scale (ECRS) is a 36-item scale consisting of two, 18-item subscales designed to measure levels of attachment avoidance and attachment anxiety (Brennan, Clark, & Shaver, 1998). Participants rated each of the 36-items on a Likert scale from 1 (disagree strongly) to 7 (agree strongly). A sample item rating attachment anxiety is "I worry about being abandoned." A sample item rating attachment avoidance is "I get uncomfortable

when a romantic partner wants to get close.” A total of ten items were reversed scored, 9 items on the avoidance subscale and one item on the anxiety subscale. Each participant received a mean score for each of the two subscales, identifying level of attachment anxiety and attachment avoidance. For this study, Cronbach's alphas for the anxiety and avoidance subscales were .93 and .94 respectively, similar to results reported in prior research (Ravitz, Maunder, Hunter, Sthanikya, & Lancee, 2010). A significant correlation between the two subscales ($r(118) = .31, p < .001$) was also found indicating similarity in individual participants scores on each subscale of attachment anxiety and attachment avoidance.

Self-Control Scale

The Self-Control Scale (SCS) is a 36-item scale designed by Tangney et al. (2004) to measure individual levels of self-control. Each item was rated by participants on a Likert scale from 1 (not at all) to 5 (very much), with 24 items reversed scored. Sample items include “I am good at resisting temptation” and “I refuse things that are bad for me.” Participant’s self-control was determined by the average of their responses from 1 (low self-control) to 5 (high self-control). For this study, Cronbach's alpha was .90, similar to results reported by Tangney et al. (2004).

Cell Phone Reliance Scale

Due to the limited amount of research on cell phone use or dependency, few measures exist focusing on behaviors surrounding cell phone use. The majority of studies found by the researcher had been conducted using scales developed in Asian countries and translated into English. The Cell Phone Reliance Scale (CPRS),

however, was developed and tested using 195 undergraduate students in the United States by Sato et al. (2013). Participants were asked to rate each of the 26 total items on a Likert scale from 1 (never or hardly ever) to 6 (always or almost always), with 5 items reversed scored. Example items include, “Losing my wallet would be more traumatic than losing my phone” and “I feel a sense of security when I hold my phone.” Participant’s cell phone reliance will be determined by the average of their responses from 1 (low reliance) to 6 (high reliance). Sato et al. (2013) reported a Cronbach's alpha of .92, demonstrating strong internal validity. Test-retest reliability conducted three weeks apart, yielded correlation scores of .93, suggesting good temporal stability and reliability. For this study, Cronbach's alpha was .93.

RESULTS

Table 1 displays the means and standard deviations for all scales and subscales. Due to the variability between the survey's scales, a scale range descriptor is also included. Correlations among all variables are presented in Table 2. Where significant correlations were found, a regression analysis was conducted to explore for main effects and interactions.

Table 1
Means and Standard Deviation of Criterion Variables for Entire Sample

	<i>M</i>	<i>SD</i>	Scale Range
Attachment Anxiety	3.47	1.32	1 – 7
Attachment Avoidance	3.05	1.22	1 - 7
Self-Control	3.33	0.54	1 - 5
Cell Phone Reliance	3.33	0.95	1 - 6

Table 2
Correlation Matrix of Attachment, Self-Control, and Cell Phone Reliance

	Anxiety	Avoidance	Self-Control	Cell Phone Reliance
Attachment Anxiety	-	.31**	-.46**	.28**
Attachment Avoidance	.31**	-	-.11	.12
Self-Control	-.46**	-.11	-	-.32**

Note: ** $p < .01$

Attachment Style and Self Control

Attachment anxiety scores ranged from 1 to 6.61 with a median score of 3.39 and mean of 3.05 ($SD = 1.22$). Individual scores on the SCS ranged from 2 to 4.7 with a median score of 3.36 and mean of 3.33 ($SD = 0.54$). As hypothesized (H1a), attachment anxiety negatively correlated with self-control ($r = -.46, p < .001$).

Scores for attachment avoidance ranged from 1 to 6.28 with a median score of 3.0 and mean score of 3.45 ($SD = 1.22$). There was no significant correlation found between attachment avoidance and self-control ($r = -.11, p = .25$).

Attachment and Cell Phone Reliance

As hypothesized (H1b), cell phone reliance was positively correlated with attachment anxiety ($r = .28, p < .01$). Attachment avoidance was not significantly correlated with cell phone reliance as predicted by H2b ($r = .12, p = .21$).

Self-Control and Cell Phone Reliance

Self-control was significantly correlated with cell phone reliance ($r = -.32, p < .01$). Further analysis was conducted to explore potential interactions between self-control and attachment anxiety on cell phone reliance.

Cell Phone Reliance, Attachment Style, and Self-Control

To further explore cell phone reliance, a multiple regression analysis was used to test if self-control and attachment anxiety predicted participants' cell phone reliance. The results of the regression indicated the two predictors explained 10.8% of the variance of cell phone reliance ($R^2 = .11, F(2, 115) = 8.10, p < .001$). Only one of the predictors, self-control, significantly predicted cell phone reliance ($\beta = -.47, t(115) = -2.50, p = .01$), whereas attachment anxiety did not ($\beta = .12, t(115) = 1.65, p = .10$). Therefore, self-control is a better predictor of cell phone reliance than attachment anxiety.

Some studies have suggested a significant correlation between cell phone use and age (Deursen, Bolle, Hegner, & Kommers, 2015; Forgays, Hyman, & Schreiber, 2014; Kim, Briley, & Ocepek, 2015). Demographic measures, including age, were explored further for potential correlations with the criterion variables. Participants reported age ranged from 18-51 with a median age of 22. Age was found to have a

significant negative correlation with self-control ($r = -.22, p = .04$) and a marginally significant correlation with cell phone reliance ($r = -.20, p = .06$). Cell phone reliance and age when the participant received their first cell phone was negatively correlated ($r = -.30, p = .002$). Table 3 shows correlations between cell phone reliance and demographic measures.

Table 3

Correlations between continuous demographic measures and cell phone reliance

	Cell Phone Reliance	
	<i>r</i>	<i>p</i>
Age	-.20	.06
Age of first cell phone	-.30	.002
Length of time current phone owned	-.12	.23

DISCUSSION

The aim of this study was to explore any links between attachment style, self-control, and cell phone reliance. The first hypothesis predicted attachment anxiety to have a (a) negative correlation with self-control and a (b) positive relationship with cell phone reliance. Hypothesis 1a was confirmed, demonstrating a negative correlation between attachment anxiety and self-control. Attachment anxiety is characterized by fears of being alone, need for reassurance, and difficulty regulating emotions (Brennan et al., 1998). Tangney et al. (2004) and Vohs, Finkenauer, and Baumeister (2010) have found similar negative correlations between attachment anxiety and self-control. This correlation has been attributed mostly to the shared characteristics between attachment anxiety and low self-control such as difficulty regulating emotions.

A positive correlation between attachment anxiety and cell phone reliance was also found supporting hypothesis 1b. A similar positive correlation was found by Oldmeadow et al. (2013) when examining attachment anxiety and Facebook use, suggesting individuals high in attachment anxiety use Facebook to seek comfort, evaluate concern, and regulate mood due to instant access to other people. This direct and constant access to other people, including social media, is available with smartphone technology. Quick and easy interaction with other people provides immediate gratification and can reduce attachment anxiety reinforcing the behavior. At this point it remains unclear if cell phone activities vary depending on attachment style or mood states. It also remains unclear if the increase in cell phone use is due to

reliance on the cell phone itself to regulate internal emotions or reliance on others for assurance and mood regulation.

Hypothesis 2 predicted attachment avoidance to have a negative correlation with both (a) self-control and (b) cell phone reliance. Attachment avoidance was not indicated as a significant predictor of either self-control or cell phone reliance. Previous studies such as Tangney et al. (2004) found a significant negative correlation between attachment avoidance and self-control, indicating people high in self-control had a more secure attachment style and were less prone to insecure attachment styles (anxious and avoidant) than people low in self-control. Significant results may not have been found in this study due to the correlation between attachment avoidance and attachment anxiety observed in this population. Individuals high in attachment avoidance are often characterized as being aloof in their relationships due to fear of rejection. According to Fraley and Brumbaugh (2007), individuals high in attachment avoidance will use “pre-emptive” measures to prevent attaching to others, such as not entering into relationships, averting eye contact or gazes with others, or disengage from conversations relating to attachment issues. Metcalfe and Mischel (1999) argue that one way individuals high in self-control are able to manage emotional impulses is through planned strategies of regulation. The combination of these two theories can explain the lack of significant correlation between attachment avoidance and self-control found in this study.

Hypothesis 2b was rejected due to lack of significant correlation between attachment avoidance and cell phone reliance. Previous research by Oldmeadow et al.

(2013) examining attachment avoidance and Facebook use found a negative correlation between the two variables. Individuals with high attachment avoidance may use their phones differently, for example, for non-social uses, than individuals with other attachment styles. A wide variety of activities available through smartphones including music, television/video streaming, and gaming can be done without the involvement of other people and would appeal to those with high attachment avoidance. Individuals who are high in attachment anxiety or secure attachment seek relationships and comfort from others, likely leading them to use their cell phone for social activities such as texting or social media use. A limitation of the CPRS is its lack of differentiation in type of cell phone use as primarily social or non-social when testing for cell phone reliance. Further exploration of amount of time participants spend on various functions of their cell phone would help to explain the observed differences in outcomes between attachment avoidance and attachment anxiety on cell phone use.

Demographic measures, such as current age and age of becoming a cell phone owner were examined for relationship with cell phone reliance. Many previous studies have found a significant correlation between age and cell phone use (i.e., Forgays, Hyman, & Schreiber, 2014; Kim, Briley, & Ocepek, 2015). In this study, age was positively correlated with self-control and not cell phone reliance. Many studies have demonstrated a positive correlation between age and self-control, though not without debate.

Burt, Sweeten, and Simons (2014) argue that self-control is unstable between the ages of 10-25 years old due to biological and social factors, limiting the applicability of self-control theory with this age group. Metcalfe and Mischel (1999) also note the important role developmental stages play in the change and expression of self-control due to biological changes which promote executive functioning and reasoning abilities. This study was conducted using a convenience sample of university students, with an average age of 23 years old. Due to this, the role of self-control in cell phone reliance could be inflated. Alternative theoretical models, which demonstrate stability over the lifespan such as personality or attachment theory would be more appropriate when conceptualizing cell phone use behaviors at this time.

A negative correlation between cell phone reliance and age of first cell phone ownership was found. The average age participants in this study reported getting their first cell phone was between 12 and 13 years old impacting the likelihood of cell phone reliance to develop. Due to the recent emergence and affordability of cell phones, older adults were unable to receive their first cell phone as an adolescent and received their first phone at an older age, potentially altering the developmental stage and level of self-control when they were first introduced to cell phones. By receiving a cell phone during adolescence, when primary attachments begin to broaden outside of the primary family unit to their peer group, young adults may have been primed to become more reliant on their cell phone. Additionally, there potentially could be differences between the two age groups related to the perceived functionality of cell phones for work or social benefits impacting cell phone reliance. Deursen, Bolle,

Hegner, and Kommers (2015) found people who use their smartphones extensively for social purposes develop habitual cell phone behaviors faster than those who use their smartphone for work-related purposes.

Another difference between the two age groups could also be opinions regarding cell phone use and messages heard to reinforce cell phone reliance. For example, a 2010 exploratory study conducted in Sweden by Erickson found middle aged adults were resistant to purchasing a cell phone for themselves, viewing them as unnecessary, but were willing to purchase phones for their children for use in case of an emergency. Due to this, the messages young adults heard as teenagers regarding cell phone use are different than messages heard by older adults. For instance, an adolescent or young adult with a cell phone may be reminded to have their phone on them at all times and to respond to a parents message immediately, shaping the adolescent's or young adult's reliance on their phone.

Further analysis was conducted to explore the relationship between attachment anxiety and self-control on cell phone reliance. Self-control was the only significant predictor of cell phone reliance when both variables of attachment anxiety and self-control were added to the regression equation. This lack of relationship indicates any impact attachment style may have on cell phone reliance is insignificant and other personality factors such as self-control should be explored more thoroughly in future studies.

Limitations to this study includes use of a small sample size and a convenient sample comprised of mostly young adults, possibly altering the effects of self-control

and cell phone reliance observed. Additional exploration of cell phone reliance across various life stages by the inclusion of more diverse participant demographics or use of longitudinal design would help to develop a wider perspective of cell phone reliance across developmental stages. Also the two subscales of the ESCR questionnaire used to measure attachment styles were correlated, indicating similarity between participant's level of attachment anxiety and attachment avoidance. Replication of this study's results using a more diverse population with a non-significant correlation between the two subscales or a different attachment measure would further add to this study's results.

Similar to previous technological advances, such as television and the internet, the full impact of cell phones and people's relationship to them is changing and difficult to ascertain. Many more studies will need to be completed in this area exploring personal factors and cell phone use before a clearer picture of cell phone reliance can be seen. Personality factors, relationship status and satisfaction, and stressors can all potentially have an impact on cell phone behaviors, and are only beginning to be explored by researchers.

This study explored the relationship of attachment styles and self-control on cell phone reliance. Differences in type of cell phone use may vary depending on attachment style, however self-control was indicated to have a stronger relationship with cell phone reliance.

REFERENCES

REFERENCES

- Ainsworth, M. D. (1963). The development of infant-mother interaction among the Ganda. In Foss, B. M. (Eds.), *Determinants of infant behavior, Vol. 2*. New York: Wiley.
- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation* [digital version]. New York: Psychology Press. Retrieved from <http://www.ebrary.com>
- Babin, B. J., & Darden, W. R. (1995). Consumer self-regulation in the retail environment. *Journal of Retailing, 71*, 47-70.
doi:10.1016/0022-4359(95)90012-8
- Baumeister, R. F. (2008). Free will in scientific psychology. *Perspectives on Psychological Science, 3*, 14-19. doi:10.1111/j.1745-6916.2008.00057.x
- Baumeister, R. F., Sparks, E. A., Stillman, T. F., & Vohs, K. D. (2008). Free will in consumer behavior: Self-control, ego depletion, and choice. *Journal of Consumer Psychology, 18*, 4-13. doi:10.1016/j.jcps.2007.10.002
- Beranuy, M., Oberst, U., Carbonell, X., & Chamarro, A. (2009). Problematic internet and mobile phone use and clinical symptoms in college students: the role of emotional intelligence. *Computes in Human Behavior, 24*, 1182-1187.
- Berman, W. H., Sperling, M. B. (1994). The structure and function of adult attachment. In Sperling, M. B., & Berman, W. H. (Eds.), *Attachment in adults: Clinical and developmental perspectives* (1-30). New York, NY: The Guilford Press.

- Bowlby, J. (1982). *Attachment and loss: Vol. I Attachment* (2nd ed.). New York: Basic Books.
- Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. New York: Basic Books.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult romantic attachment: an integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 76-76). NY: The Guildford Press.
- Burt, C. H., Sweeten, G., & Simons, R. L. (2014). Self-control through emerging adulthood: instability multidimensionality, and criminological significance. *Criminology*, 52, 450-487. doi: 10.1111/1745-9125.12045
- Cooper, M. L., Albino, A. W., Orcutt, H. K., & Williams, N. (2004). Attachment styles and intrapersonal adjustment: a longitudinal study from adolescence into young adulthood. In Rholes, W. S., & Simpson, J. A. (Eds.), *Adult attachment: theory, research, and clinical implications* (438-466). New York, NY: The Guilford Press.
- Deursen, A. J., Bolle, C. L., Hegnerd, S.M., & Kommers, P. M. (2015). Modeling habitual and addictive smartphone behavior: the role of smartphone usage types, emotional intelligences, social stress, self-regulation, age, and gender. *Computers in Human Behavior*, 45, 411-420. doi: 10.1016/j.ghb.2014.12.039
- Duggan, M. (2013). *Cell phone activities 2013*. Retrieved from <http://www.pewinternet.org/2013/09/19/cell-phone-activities-2013/>

- Erickson, M. (2010). Conceptions of emergency calls: emergency communication in an age of mobile communication and prevalence of anxiety. *Journal of Contingencies and Crisis Management, 18*, 165-174.
- Friley, R. C. (2002). Attachment stability from infancy to adulthood: meta-analysis and dynamic modeling of development mechanisms. *Personality and Social Psychology Review, 6*, 2, 123-151. doi: 10.1207/S15327957PSPR0602_03
- Friley, R. C., & Brumbaugh, C. C. (2007). Adult attachment and preemptive defenses: Converging evidence on the role of defensive exclusion at the level of encoding. *Journal of Personality, 75*, 5, 1033-1050.
doi: 10.1111/j.1467-6496.2007.00465.x
- Forgays, D. K., Hyman, I., Schreiber, I. (2014). Texting everywhere for everything: gender and age differences in cell phone etiquette and use. *Computers in Human Behavior, 31*, 314-321. doi: 10.1016/j.chb.2013.0.053
- Gentzlr, A. L., Oberhauser, A. M., Westerman, D., & Nadorff, D. K. (2011). College students' use of electronic communication with parents: links to loneliness, attachment, and relationship quality. *Cyberpsychology, Behavior, and Social Networking, 14*, 71-74. doi: 10.1089/cyber.2009.0409
- Gul, F., & Pesendorfer, W. (2004). Self-control, revealed preference and consumption choice. *Review of Economic Dynamics, 7*, 243-264.
doi:10.1016/j.red.2003.11.002
- Hazan, C. Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*, 511-524.

- Jenaro, C., Flores, N., Gomez-Vela, M., Gonzalez-Gil, F., & Caballo, C. (2007). Problematic internet and cell phone use: psychological behavioral and health correlates. *Addiction Research and Theory, 15*, 309-320.
- Jenkins-Guarnieri, M. A., Wright, S. I., & Hudiburgh, L. M. (2012). The relationships among attachment style, personality traits, interpersonal competency, and Facebook use. *Journal of Applied Developmental Psychology, 33*, 294-301. doi: 10.1016/j.appdev.2012.08.001
- Jin, B. & Pena, J. F. (2010). Mobile communication in romantic relationships: mobile phone use, relational uncertainty, love commitment, and attachment styles. *Communication Reports, 23*, 1, 39-51. doi: 10.1080/08934211003598742
- Keefer, L. A., Landau, M. J., Rothschild, Z. K., and Sullivan, D. (2012). Attachment to objects as compensation for close others' perceived unreliability. *Journal of Experimental Social Psychology, 48*, 912-917. doi: 10.1016/j.jesp.2012.02.007
- Khang, H., Kim, J. K., & Kim, Y. (2013). Self-traits and motivations as antecedents of digital media flow and addiction: The internet, mobile phones, and video games. *Computers in Human Behavior, 29*, 2416-2424. doi: 10.1016/j.chb.2013.05.027
- Kim, Y., Briley, D. A., Ocepek, M. G. (2015). Differential innovation of smartphone and application use by sociodemographics and personality. *Computers in Human Behavior, 44*, 141-147. doi: 10.1016/j.chb.2014.11.059

- Kirkpatrick, L. A., (2005). *Attachment, evolution, and the psychology of religion*. New York: Guilford Press.
- Kogut, T., & Kogut, E. (2011). Possession attachment: individual differences in the endowment effect. *Journal of Behavioral Decision Making*, 24, 377-393. doi: 10.1002/bdm.698
- Kubey, R. W., & Csikszentmihalyi, M. (1990). *Television and the quality of life: How viewing shapes everyday experience*. Hillsdale, NJ: Lawrence Erlbaum.
- LaRose, R., Lin, C. A., & Eastin, M. S. (2003). Unregulated Internet usage: Addiction, habit, or deficient self-regulation? *Media Psychology*, 5, 225-253. doi:10.1207/ S1532785XMEP0503_01
- Levitas, D. (2013). *Always connected: how smartphones and social keep us engaged* (IDC Report No. 240435). Retrieved from <http://www.marketingprofs.com/charts/2013/10459/7-in10-smartphone-owners-access-facebook-via-device>
- Metcalf, J., & Mischel, W. (1999). A hot/cool-system analysis of delay of gratification: Dynamics of willpower. *Psychological Review*, 106, 3–19.
- Mickelson, K. D., Kessler, R.C., & Shaver, P. R. (1997). Adult attachment in a nationally representative sample. *Journal of Personality and Social Psychology*, 73, 1092-1106.
- Mikulincer, M., & shaver, p. r. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York: Guilford press.

- Murdock, K. K. (2013). Texting while stressed: implications for students' burnout, sleep, and well-being. *Psychology of Popular Media Culture, 2*, 4, 207-221. doi: 10.1037/ppm0000012
- Odaci, H., & Cikrikci, O. (2014). Problematic internet use in terms of gender, attachment styles, and subjective well-being in university students. *Computers in Human Behavior, 32*, 61-66. doi: 10.1016/j.chb.2013.11.019
- Oldmeadow, J. A., Quinn, S., & Kowert, R. (2013). Attachment style, social skills, and Facebook use amongst adults. *Computers in Human Behaviors, 29*, 1142-1149. doi: 10.1016/j.chb.2012.10.006
- Pettigrew, J. (2009). Text messaging and connectedness within close interpersonal relationships. *Marriage and Family Review, 45*, 697-716. doi: 10.1080/01494920903224269
- Pew Research Internet Project (2014). Retrieved from <http://www.pewinternet.org/fact-sheets/mobile-technology-fact-sheet/>
- Ravitz, P., Maunder, R., Hunter, J., Sthanikya, B., & Lancee, W. (2010). Adult attachment measures: a 25-year review. *Journal of Psychosomatic Research, 69*, 419-432. doi: 10.1016/j.jpsychores.2009.08.006
- Rholes, W. S., & Simpson, J. A. (2004). Attachment theory: basic concepts and contemporary questions. In Rholes, W. S., & Simpson, J. A. (Eds.), *Adult attachment: theory, research, and clinical implications* (3-14). New York, NY: The Guilford Press.

- Roberts, J. A., Pullig, C., Manolis, C. (2015). I need my smartphone: a hierarchical model of personality and cell-phone addiction. *Personality and Individual Differences, 79*, 13-19. doi: 10.1016/j.paid.2015.01.049
- Sato, T., Harman, B. A., Adams, L. T., Evans, J. V., & Coolsen, M. K. (2013). The cell phone reliance scale: validity and reliability. *Individual Differences Research, 11*, 3, 121-132.
- Schaffer, H. R., & Emerson, P. E. (1964a). The development of social attachments in infancy. *Monographs of the Society for Research in Child Development, 29*, 3, 1-77.
- Schaffer, H. R., & Emerson, P. E. (1964b). Patterns of response to physical contact in early human development. *Journal of Child Psychology and Psychiatry, 5*, 1-13. doi: 10.1111/j.1469-7610.1964.tb02126.x
- Seymour, T., & Shaheen, A. (2011). History of wireless communication. *Review of Business Information Systems, 15*, 2, 37-42.
- Shoda, Y., Mischel, W., & Peake, P. K. (1990). Predicting adolescent cognitive and self-regulatory competencies from preschool delay of gratification: Identifying diagnostic conditions. *Developmental Psychology, 26*, 978-986. doi:10.1037/0012-1649.26.6.978
- Skierkowski, D., & Wood, R. M. (2011). To text or not to text? The importance of text messaging among college aged youth. *Computers in Human Behavior, 28*, 744-756. doi: 10.1016/j.chb.2011.11.023

- Smith, A. (2012). *The best (and worst) of mobile connectivity*. Retrieved from <http://www.pewinternet.org/2012/11/30/the-best-and-worst-of-mobile-connectivity/>
- Sroufe, L. A. (2005). Attachment and development: a prospective, longitudinal study from birth to adulthood. *Attachment and Human Development, 7*, 4, 349-367. doi: 10.1080/14616730500365928
- Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality, 72*, 271-322. doi: 10.1111/j.0022-3506.2004.00263.X
- Turkle, S. (2011). *Alone Together: Why We Expect More from Technology and Less from Each Other*. New York: Basic Books.
- Vohs, K. D., Finkenauer, C., & Baumeister, R. F. (2011). The sum of friends' and lovers' self-control scores predicts relationship quality. *Social Psychological and Personality Science, 2*, 138-145. doi: 10.1177/1948550610385710
- Waters, E., Merric, S., Treboux, D., Crowell, J., & Albersheim, L. (2000). Attachment security in infancy and early adulthood: a twenty-year longitudinal study. *Child Development, 71*, 3, 684-689. doi: 10.1111/1467-8624.00176

APPENDICES

APPENDIX A

DEMOGRAPHIC QUESTIONNAIRE

1. What is your age (in years)? _____
2. What is your gender?
 - _____ a. Male
 - _____ b. Female
 - _____ c. Other: _____
3. What is your race?
 - _____ a. White/Caucasian
 - _____ b. African American
 - _____ c. Hispanic
 - _____ d. Asian
 - _____ e. Native American
 - _____ f. Other
4. Type of phone currently owned
 - _____ a. Traditional
 - _____ b. Smartphone
 - _____ c. None
5. How long have you owned your current cell phone (in months)? _____
6. What age were you when you received your first cell phone? _____
7. In an average day, how much total time, in hours, do you spend using your cell phone (includes all activities, not just phone calls or text messaging)?

8. In a typical day, what is the estimated percent of total time spent on your phone doing the following activities? (Answers must add up to 100%)
 - _____ a. Phone Calls
 - _____ b. Text Messaging (includes SMS and MMS)
 - _____ c. Sending/Receiving E-mails
 - _____ d. Social Media Sites and Social Gaming (i.e., words with friends)
 - _____ e. Internet Searches

- _____ f. GPS Functions (i.e., directions, restaurant recommendations,
etc.)
- _____ g. Video Chatting
- _____ h. Playing Games by Self
- _____ i. Movies/TV/Music
- _____ j. Other functions

APPENDIX B

EXPERIENCES IN CLOSE RELATIONSHIPS SCALE

Instructions: The following statements concern how you feel in romantic relationships. We are interested in how you generally experience relationships, not just in indicating how much you agree or disagree with it.

Disagree Strongly		Neutral/Mixed			Agree Strongly	
1	2	3	4	5	6	7

- _____ 1. I prefer not to show a partner how I feel deep down.
- _____ 2. I worry about being abandoned.
- _____ 3. I am very comfortable being close to romantic partners.
- _____ 4. I worry a lot about my relationships.
- _____ 5. Just when my partner starts to get close to me I find myself pulling away.
- _____ 6. I worry that my romantic partners won't care about me as much as I care about them.
- _____ 7. I get uncomfortable when a romantic partner wants to be very close.
- _____ 8. I worry a fair amount about losing my partner.
- _____ 9. I don't feel comfortable opening up to romantic partners.
- _____ 10. I often wish that my partner's feelings for me were as strong as my feelings for him/her.
- _____ 11. I want to get close to my partner, but I keep pulling back.

- _____ 12. I often want to merge completely with romantic partners, and this sometimes scares them away.
- _____ 13. I am nervous when partners get too close to me.
- _____ 14. I worry about being alone.
- _____ 15. I feel comfortable sharing my private thoughts and feelings with my partner.
- _____ 16. My desire to be very close sometimes scares people away.
- _____ 17. I try to avoid getting too close to my partner.
- _____ 18. I need a lot of reassurance that I am loved by my partner.
- _____ 19. I find it relatively easy to get close to my partner.
- _____ 20. Sometimes I feel that I force my partners to show more feeling, more commitment.
- _____ 21. I find it difficult to allow myself to depend on romantic partners.
- _____ 22. I do not often worry about being abandoned.
- _____ 23. I prefer not to be too close to romantic partners.
- _____ 24. If I can't get my partner to show interest in me, I get upset or angry.
- _____ 25. I tell my partner just about everything.
- _____ 26. I find that my partners(s) don't want to get as close as I would like.
- _____ 27. I usually discuss my problems and concerns with my partner.
- _____ 28. When I'm not involved in a relationship, I feel somewhat anxious and insecure.
- _____ 29. I feel comfortable depending on romantic partners.

_____ 30. I get frustrated when my partner is not around as much as I would like.

_____ 31. I don't mind asking romantic partners for comfort, advice, or help.

_____ 32. I get frustrated if romantic partners are not available when I need them.

_____ 33. It helps to turn to my romantic partner in times of need.

_____ 34. When romantic partners disapprove of me, I feel really bad about myself.

_____ 35. I turn to my partner for many things, including comfort and reassurance.

_____ 36. I resent it when my partner spends time away from me.

APPENDIX C

SELF-CONTROL SCALE

Using the scale provided, please indicate how much each of the following statements reflects how you typically are.

- | Not at all | | | | Very Much |
|------------|---|---|---|-----------|
| 1 | 2 | 3 | 4 | 5 |
| ___1. | | | | |
| ___2. | | | | |
| ___3. | | | | |
| ___4. | | | | |
| ___5. | | | | |
| ___6. | | | | |
| ___7. | | | | |
| ___8. | | | | |
| ___9. | | | | |
| ___10. | | | | |
| ___11. | | | | |
| ___12. | | | | |
| ___13. | | | | |
| ___14. | | | | |
| ___15. | | | | |
| ___16. | | | | |
| ___17. | | | | |

- ___18. I am reliable.
- ___19. I get carried away by my feelings.
- ___20. I do many things on the spur of the moment.
- ___21. I don't keep secrets very well.
- ___22. People would say that I have iron self-discipline.
- ___23. I have worked or studied all night at the last minute.
- ___24. I'm not easily discouraged.
- ___25. I'd be better off if I stopped to think before acting.
- ___26. I engage in healthy practices.
- ___27. I eat healthy foods.
- ___28. Pleasure and fun sometimes keep me from getting work done.
- ___29. I have trouble concentrating.
- ___30. I am able to work effectively toward long-term goals.
- ___31. Sometimes I can't stop myself from doing something, even if I know it
is wrong.
- ___32. I often act without thinking through all the alternatives.
- ___33. I lose my temper too easily.
- ___34. I often interrupt people.
- ___35. I sometimes drink or use drugs to excess.
- ___36. I am always on time.

APPENDIX D

CELL PHONE RELIANCE SCALE

Using the following scale, please rate the following statements regarding your cell phone usage.

1	2	3	4	5	6
Never or Hardly ever	Only once in a while	Sometimes	Somewhat Often	Very Often	Almost or Almost Always

- ___ 1. It is important for me to replace my phone within 24 hours if it stops working
- ___ 2. I use my phone when I am face to face with one other person
- ___ 3. I feel fine even when I forget to bring my phone
- ___ 4. I avoid going to places with bad reception
- ___ 5. Losing my wallet would be more traumatic than losing my phone
- ___ 6. I use my phone in the bathroom
- ___ 7. I feel more attached to my phone than to most other things I own
- ___ 8. I feel a sense of security when I hold my phone
- ___ 9. It bothers me when I am asked put my phone away (or to turn my phone off)
- ___ 10. I use my phone late at night when others are usually sleeping
- ___ 11. Receiving voice/text messages makes me happy
- ___ 12. I send more than 50 text messages to at least one person in a day
- ___ 13. I find myself checking my phone for messages without making a conscious effort
- ___ 14. I am tempted to check my phone for messages at meetings, at work, or in class

- ___ 15. I do not text/phone people unless I have something important to say or ask
- ___ 16. It bothers me if I have not checked my phone/text messages for a few hours
- ___ 17. Whenever something important happens, I immediately text people about it
- ___ 18. I would feel lost if I did not have my phone
- ___ 19. I use many texting acronyms (e.g., OMG, LOL, etc.)
- ___ 20. It bothers me when people do not respond to my text messages in a timely manner
- ___ 21. I frequently send text messages with over 50 words
- ___ 22. Using my phone helps me relax when I am under stress
- ___ 23. I send more than 30 text messages in one hour
- ___ 24. I feel comfortable in situations where I cannot use my phone
- ___ 25. I do not check my phone for messages unless I am expecting something very important
- ___ 26. On average, I send: 1=less than 20; 2=21-100; 3=101-200; 4=201-300;
5=301-400; 6= over 400 text messages a day

APPENDIX E
CONSENT FORM

1. This research study will examine close relationships, self-management, and cell phone behaviors. If you agree to participate, you will be asked to answer survey questions that ask about your cell phone use, how you manage your daily behaviors, and how you relate to others, such as romantic partners.
2. You are free to discontinue your participation at any time without penalty. You may also skip any survey questions that make you feel uncomfortable. Even if you withdraw from the study, you will receive any entitlements that have been promised to you in exchange for your participation, such as extra credit.
3. Participation in this research study does not guarantee any benefits to you. However, possible benefits include the fact that you may learn something about how research studies are conducted and you may learn something about this area of research (i.e., relationships, self-management, and cell phone behaviors).
4. You will be given additional information about the study after your participation is complete.
5. If you agree to participate in the study, it will take about 20-30 minutes to complete three short surveys.
6. All data from this study will be kept from inappropriate disclosure and will be accessible only to the supervising faculty and researcher.

7. The present research is designed to reduce the possibility of any negative experiences as a result of participation. Risks to participants are kept to a minimum. However, if your participation in this study causes you any concerns, anxiety, or distress, please contact the CSU Stanislaus Student Counseling Center at (209) 667-3381 to make an appointment to discuss your concerns.
8. This study is being conducted by Allison Hibbard, a graduate student in the Department of Psychology and Child Development under the supervision of Rosanne Roy, Associate Professor, from the department of Psychology and Child Development, at CSU Stanislaus. If you have any questions or concerns about your participation in this study, you may contact Dr. Roy at rroy@csustan.edu.
9. You may obtain information about the outcome of the research at the end of the study by contacting Dr. Roy.
10. If you have any questions about your rights as a research participant, you may contact the Campus Compliance Officer of California State University, Stanislaus at IRBadmin@csustan.edu.
11. You have the option to download and print a blank copy of this consent form.
12. By clicking you “agree” below, you attest that you are 18 years old or older.
13. By clicking you “agree” below, you are indicating you have freely consented to participate in this research study.

APPENDIX F
DEBRIEFING FORM

Thank you for your participation in this research. The study that you participated in today is a preliminary investigation into the relationship between attachment styles, self-control and cell phone use or reliance. All the information collected in today's study will be kept from inappropriate disclosure. There will be no way of identifying your responses in the data collected. We are not interested in anyone's individual answers; rather, we want to look at the general patterns in the population.

Your participation today is greatly appreciated and will help psychologists discover whether attachment styles, and self-control influence cell phone reliance. We ask that you do not discuss the nature of the study with others who may later participate in it, as this could affect the validity of our research conclusions.

If you have any questions about the study or would like to learn more about the results of the study, you may contact Allison Hibbard's supervising faculty member, Dr. Rosanne Roy, at rroy@csustan.edu.

If you have questions about your rights as a research participant, you may contact the Campus Compliance Officer of CSU Stanislaus at IRBadmin@csustan.edu.

If participation in the study caused you any concern, anxiety, or distress, you may contact the Stanislaus Student Counseling Center at (209) 667-3381.

If you would like to learn more about this research topic, we suggest the following references:

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: a psychological study of the strange situation* [digital version].

New York: Psychology Press. Retrieved from <http://www.ebrary.com>

Gentzlr, A. L., Oberhauser, A. M., Westerman, D., & Nadorff, D. K. (2011). College students' use of electronic communication with parents: links to loneliness, attachment, and relationship quality. *Cyberpsychology, behavior, and social networking, 14*, 71-74. Doi: 10.1089/cyber.2009.0409

Mickelson, K. D., Kessler, R.C., & Shaver, P. R. (1997). Adult attachment in a nationally representative sample. *Journal of Personality and Social Psychology, 73*, 1092-1106.

PewResearch Internet Project (2014). Retrieved from

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