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Attachment and Delayed Gratification in the Technological Age

Susan G. Pomerantz
Seton Hall University

ATTACHMENT AND DELAYED GRATIFICATION IN THE TECHNOLOGICAL AGE

BY

SUSAN POMERANTZ

Dissertation Committee

Laura Palmer, Ph.D., Mentor
John Smith, Ph.D.
Cheryl Thompson Sard, Ph.D.
Ben Beitin, Ph.D.
Thomas Massarelli, Ph.D.

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DISSERTATION COMMITTEE
(please sign and date beside your name)

Mentor:
Dr. Laura Palmer _____ 5/24/13

Committee Member:
Dr. John Smith _____ 4/16/13

Committee Member:
Dr. Ben Beitin _____ 4-16-13

Committee Member:
Dr. Cheryl Thompson _____ 4/16/13

Committee Member:
Dr. Thomas Massarelli _____ 4-16-13

The mentor and any other committee members who wish to review revisions will sign and date this document only when revisions have been completed. Please return this form to the Office of Graduate Studies, where it will be placed in the candidate's file and submit a copy with your final dissertation to be bound as page number two.

ABSTRACT

ATTACHMENT AND DELAYED GRATIFICATION IN THE TECHNOLOGICAL AGE

Advanced modern communications technology, particularly cell phones and their increasingly popular text messaging capability, allow instant and constant contact between partners. As a result, interpersonal interactions have become imbued with an immediacy and connectedness unrelated to physical proximity. Instant access and immediate gratification, as the new norm or expectation in interpersonal interactions, are bound to have an impact on relationships as well as one's ability to exercise self-control and delay gratification. This impact was presumed to be markedly greater for individuals whose first romantic relationships were navigated with texting. This study offers an empirical examination of the relationship between romantic attachment, ability to delay gratification, self-control, and generation. Its aim is to begin to address several research questions: Is our attachment in a romantic relationship less secure as a result of 24-hour access to our partner? Is it likely that growing up with the instant gratification afforded by modern technology impairs one's ability to delay gratification and exercise self-control? Are text checking and responding fair measures of the ability to delay gratification? Finally, do generation and romantic attachment style predict the ability to delay gratification and exercise self-control? While this study does not demonstrate causality, it does reveal that the level of attachment anxiety is higher among members of the Net Generation than their Non-Net counterparts. However, the study does not allow

one to conclude that modern technology is responsible for any decrement in attachment anxiety. Neither does it mean that modern communications technology has no impact on one's ability to delay gratification or exercise self-control. Rather, this study suggests that these constructs are relatively stable and perhaps immune from environmental influences such as advanced technological communications. Additionally, while text checking appears to have a moderate negative relationship with the ability to exercise self-control, text responding is not a fair measure of one's ability to delay gratification or exercise self-control. Explanations for these findings and their implications for counseling psychology are discussed.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

Introduction

Modern communication technology offers immediate contact with nearly everyone we know at any time of day or night. Mobile phones, with the power of instant global communication unbridled by temporal or geographic realities, are ubiquitous. At least 85% of American adults under 65 years old own a cell phone and 95% of adults from 18 to 34 years old own a cell phone (Zickuhr, 2011). Moreover, 80% of all adults, and at least 94% of adults 18 to 34 use their phone to send and receive text messages (Chen, 2012; Zickuhr).

Among teenagers, texting is the most common mode of social communication. The percentage of teens who communicate socially via text doubled from 2006 to 2009 while all other forms of communication, including in-person contact, instant messaging, mobile voice and social network messaging were flat during the same time period and email and landline telephone calling actually decreased (Lenhart, Ling, Campbell, & Purcell, 2010). Eighty-eight percent of teen cell phone users are texters; and one in three teens send over one hundred text messages a day or three thousand texts a month (Lenhart et al., 2010). Not only teenagers, but also adults are adopting texting as a dominant mode of social communication. The proportion of texting adults increased from 58% to 72% in only 3 years (Lenhart, 2010). The average adult user sends and receives 20 texts a day, more than double the amount of only 8 months earlier, and 18% of adults under 24 send more than 200 messages a day or 6,000 a month.

Significance of the Problem

A striking consequence of the rapidly growing use of this technology is that interpersonal interactions have become imbued with an immediacy and connectedness unrelated to physical proximity. Instant access and immediate gratification have become the norm or expectation in interpersonal interactions and relationships. We send electronic mail and expect an answer within 24 hours. If we cannot wait a full day, we can call a cell phone, send a text message, or instant message and receive an immediate response. Whether partners in a relationship are separated by an ocean or a dormitory room wall, they can talk to each other face-to-face, constantly gauging the other's attentiveness and expressions of affection, as well as monitoring his/her whereabouts and activities. Not only in interactions with others, but in our daily lives, we rarely have to wait for anything. If we want to read a recommended book, listen to a new song, watch a missed television show or see a just-released movie, we can download it instantly.

In some cases, this access and connectedness manifests in a false sense of urgency and blurs the demarcation of that which is time critical. This sense of urgency affects each member of a communication dyad—the sender and recipient of a message—but has potentially different consequences. The implicit, or in some cases explicit, expectation of an immediate reply to one's communication could mean that its absence or a delay in the reply leads to feelings of insecurity or distress whereas a prompt response engenders comfort by reinforcing a mutual connectedness. The expectation of an immediate reply to a text message has become ingrained in the social consciousness, particularly among younger texters. This phenomenon is perhaps best evidenced by the fact that over 90% of adults 18 to 29 years old sleep with their cell phones (Lenhart, 2010). Taylor and Harper

(2003) framed this expectation as a widely accepted obligation of reciprocity; and they note that the failure to reciprocate can lead to feelings of rejection. Thus, the absence of an immediate response might signal a problem and foster worry or insecurity about the relationship. Indeed, it seems reasonable to speculate that over time, one's experience of romantic attachment might be affected by these expectations.

Attachment Theory and Adult Romantic Attachment

A conceptual foundation of adult attachment theory as developed by Bowlby (1973) and expanded by others (see Bartholomew & Horowitz, 1991; Feeney & Noller, 1990; Fraley & Shaver, 2000; Hazan & Shaver, 1987; Mikuliner & Shaver, 2007 ; Fraley & Shaver, 2000; Bartholomew & Horowitz, 1991; Feeney & Noller, 1990; Hazan & Shaver, 1987, for example) is that working models of attachment relationships developed in early childhood influence how people perceive their relationships and help them organize their interpersonal behavior in relationships throughout their lives. In applying Bowlby's attachment theory to romantic love, Hazan and Shaver (1987) noted that similar to infants seeking comfort from a caregiver, adults experience feelings of safety and security when their partner is in close proximity, accessible, attentive, and responsive to demands. A securely attached individual is more likely to seek such a figure and is more likely to be capable of meeting those needs for a partner. Although Hazan and Shaver (1987) demonstrated that an attachment theory-based approach to romantic love is viable by revealing parallels between infant attachment and experiences in romantic relationships, the continuity of attachment styles adopted in infancy has been the subject of considerable debate and research findings have been conflicting (Crowell, Fraley, &

Shaver, 1999; Davila, Burge, & Hammen, 1997; Fraley & Shaver, 2000). Working models of attachment not only assimilate, but also accommodate new information, and contextual factors can change attachment style (Bowlby, 1973). An inconsistency between expectations and experiences in relationships, in particular, has been cited as a basis for a shift in one's attachment style (Bowlby, 1973; Fraley, 2010; Kirkpatrick & Hazan, 1994). Although evidence has been found that individual differences can determine one's vulnerability to attachment style changes (Davila, Burge, & Hammen, 1997), subsequent research suggested that the method of assessment influenced whether attachment change was deemed a result of external factors due to life stress or individual differences (Davila & Cobb, 2003). Notably, research conducted by Dinero, Conger, Shaver, Widaman, and Larsen-Rife (2008) suggested that romantic interactions and relationships increasingly influence attachment style as an individual moves from adolescence into adulthood; and family of origin interactions become less influential. Thus, security in romantic relationships is predicted by behavioral interactions with romantic partners. It seems plausible that if one's expectations become unreasonable - based on the demand for 24/7 access via cell phones and texting - then, depending on past experiences to some extent, one's relationships may be destined to disappoint, thereby producing insecurity and perhaps compromising previously established attachment patterns.

Bartholomew (1990) extended Bowlby's Attachment theory when she proposed a four-group model of attachment styles. While she did not propose a new theory, she identified two dimensions in her conceptualization of Bowlby's theory and she based the attachment styles on these dimensions. They are the positivity of the self model and the

positivity of others. The former has to do with the internalization of one's self-worth, namely whether one is anxious and uncertain of one's own lovability. This model relates to the degree of anxiety and dependency on a partner in a close relationship. The positivity of the other model has to do with the degree to which others are expected to be supportive and available. Researchers have renamed those dimensions Anxious and Avoidant (Brennan, Clark, & Shaver, 1998; Fraley & Shaver, 2000). Attachment anxiety refers to the worry a person may feel that his/her partner is not available or responsive to his/her needs. Attachment avoidance refers to the level of distrust a person feels toward relationship partners and his/her attempts to exert autonomy and emotional distance from romantic partners. This study is concerned primarily with the level of anxiety in one's romantic attachment and it seems reasonable that someone with a more anxious attachment style will be more sensitive to the uncertainty inherent in new modes of social interaction. In turn, those with a more anxious attachment style are likely to have a difficult time delaying their response to a text message or delaying interpersonal gratification in general. They are likely to focus excessively on attachment-related experiences and may be unable to distract themselves from attachment-related distress (Fraley & Shaver, 1997). In contrast, research has shown that people with more avoidant attachment patterns attend or focus less on attachment-related experiences, which leads to fewer and shallower attachment-related memories; and they do not expose themselves to situations that might force attention to attachment-related issues (Fraley & Shaver, 1997).

Delay of Gratification

An association between delay of gratification, which can be viewed as a measure of self-control (Metcalf & Mischel, 1999), and attachment style has been established (Jacobsen, 1998; Jacobsen, Huss, Fendrich, Kruesi, and Ziegenhain, 1997; Sethi, Mischel, Aber, Shoda, & Rodriguez, 2000). A delay of gratification paradigm was developed by Mischel and Ebbesen (1970) to examine the ability to self-regulate and voluntarily delay a reward. Based on the above research on the attentional control efforts of insecurely attached individuals, it seems that the cognitive mechanisms or processes underlying the ability to delay gratification and exercise self-control are affected by attachment style. Mischel and other researchers conducted numerous experiments demonstrating that attention control strategies employed to distract an individual from temptation and the frustration of delaying gratification allowed him/her to exercise the willpower necessary to sustain a delay (Metcalfe & Mischel, 1999; Mischel, Cantor & Feldman, 1996; Mischel & Ebbesen, 1970; Mischel, Shoda & Rodriguez, 1989). Sethi and colleagues (2000) found that preschoolers who were able to cope effectively with separation from their mother were also able to delay gratification, indicating that similar attentional control strategies are critical to both tasks.

The attentional control necessarily for thought suppression and distraction would appear to be lacking or compromised among texters who feel they must view and respond instantly to a text message. One might argue, however, that the delay of gratification construct is not relevant to text messaging because the construct implies that a delay necessarily results in a greater reward. A delay in gratification - for example, waiting to read a text message - does not inevitably result in a greater reward, but may simply mean the same reward is received later. Thus, one might question whether immediate

gratification is a negative behavior and the ability to delay gratification, which has been linked in research to positive social, academic, behavioral and cognitive outcomes (Ayduk et al., 2000), a noble one.

Still, there are clearly instances when a failure to delay gratification has consequences, either in the size of the reward or in the impact on some other unrelated behavior or event. For example, responding to a text message during a class lecture likely reduces attention to, and learning of, the substance of the lecture. Thus, an inability to delay gratification and exercise self-control has practical implications for cognitive functioning. If one cannot stop oneself from viewing and/or responding to a text message when one is already engaged in another activity, then one's effectiveness in and attention to that activity likely suffer at least a slight reduction. Cognitive scientists have demonstrated that our capacity for attention is necessarily limited (Ninio & Kahneman, 1974). Aside from the rare "supertasker," most of us are not capable of sustaining attention on more than one task without a performance decrement in one (Watson & Strayer, 2010). Researchers have shown, for example, that cell phone use while driving results in slowed brake reaction time, impaired object detection, and higher accident rates (Strayer, Drews & Johnson, 2003; Strayer & Johnston, 2001). Cell phone conversations while driving produce "inattention blindness" in which drivers do not perceive as much as half of the information in the driving environment (Strayer & Drews, 2007). Texting while driving has also been shown to result in reduced driving control, braking response time, and an increase in collisions (Drews, Yazdani, Godfrey, Cooper, & Strayer, 2009). Not only critical activities like driving are affected by cell phone use. Whenever attention is divided and different stimuli must be attended to, there is necessarily a

competition for our attention. Even with speech or written inputs, our attention is not effortless or inconsequentially divided (Ninio, & Kahneman, 1974).

If one interrupts a mundane task, such as watching a television show or washing the dishes, to answer a text, his/her efficiency and accuracy in both tasks may be reduced. This diminution may be meaningless if it occurs occasionally. But given the vast amount of texts sent and received by most young adults, these effects are likely to be evident and perhaps consequential not only in the interpersonal communication carried out through the texting, but also in the mundane and critical tasks the individual confronts throughout the day.

Self-Control

Nevertheless, given the possibility that waiting to respond to a text may not result in a larger reward, a condition central to the delay of gratification paradigm, it is helpful to look also at the broader concept of self-control. Self-control is inevitably influenced by delay of gratification. Self-control is defined as a process by which individuals avoid temptation and approach desired goals (Fishback & Shah, 2006; Freitas, Liberman, & Higgins, 2002; Metcalfe & Mischel, 1999). It can be seen as the mechanism that allows people to exercise the willpower required to stay on a healthy diet or stay home from a party to study for an exam, for example. People who lack self-control are impulsive and have difficulty delaying gratification. Moreover, low self-control has been shown repeatedly to be correlated with delinquency and criminality; changes in self-control during development explain 75% of the variability in the development of deviance (Vazsonyi & Huang, 2010).

The literature indicates that this construct is related to attachment patterns developed in early childhood. Vazsonyi and Huang (2010) found that the parenting provided to children at an early age significantly affects the development of their self-control over time. The perception of self-control in another person has been shown to be critical to demonstrating trustworthiness and thus, romantic partners that are high in self-control are judged to be trustworthy (Righetti & Finkenauer, 2011). It seems somewhat of a paradox that we value self-control in others, but expect them to answer our texts immediately. This problem is related to another issue produced by the impact of technological advances on societal norms that must be considered: responding to a text without delay, regardless of one's present circumstances, may no longer be viewed as a lack of self-control, particularly among younger texters. Still, given that there are situations when it is necessary to delay gratification, either in responding to a text or viewing a text, it is worth assessing the ability to delay gratification and exercise self-control in this context.

Research Questions and Hypotheses

This study offers an empirical examination of the relationship between romantic attachment, ability to delay gratification, self-control, and generation. Its aim is to begin to address several research questions: Is our attachment in a romantic relationship less secure as a result of 24-hour access to our partner? Is it likely that growing up with the instant gratification afforded by modern technology impairs one's ability to delay gratification and exercise self-control? Are text checking and responding fair measures

of the ability to delay gratification? Finally, do generation and romantic attachment style predict the ability to delay gratification and exercise self-control?

As the aforementioned data demonstrate, members of the Net Generation, those born after 1980, rely on texting as a primary mode of communication to a greater degree than members of Non-Net Generations, those born in or before 1980. Therefore, they have likely learned to expect immediate replies to their communications and might be more accustomed to immediate gratification in their interpersonal communications in general and texting in particular and less comfortable waiting for a reply or waiting to send their own reply. After all, they never had to wait for a letter from a loved one in the mail.

Generation is most likely an important variable to consider in the relationship between delay of gratification and attachment style. Today's adolescents and young adults are referred to as the Net Generation. They were raised with computer-based technology and never knew life without it. It was a central part of their school, home, and social worlds. As a result, they are believed to adopt technology more readily than their older counterparts. Notably, the Net Generation fully adopted text messaging in less than three years while Baby Boomers adopted the computer over a period of a decade (Carrier, Cheever, Rosen, Benitez, & Chang, 2009). Carrier and colleauges found that younger generations engaged in more multitasking and found multitasking easier than older generations. Texting first became popular in the late 1990s. From 2006 to 2008, texting increased 450% (Nielsen Mobile Survey, 2008); therefore, anyone born after 1980 likely texted in most of their adult romantic relationships.

The hypotheses set forth for this research are:

H1: Adult members of the Net Generation, those between the ages of 18 and 31, will have a higher level of anxiety in their adult attachment styles than members of Non-Net Generations.

H2: Adult members of the Net Generation will be less able to delay gratification and exercise self-control than members of Non-Net Generations.

H3: Adult members of the Net Generation are more likely to view and respond to text messages than members of Non-Net Generations.

H4: Text checking and text response will be negatively correlated with delay of gratification and self-control.

H5: A model including generational group and level of anxiety in romantic attachments will predict text response and text checking.

H6: A model including generational group and level of anxiety in romantic attachments will predict the ability to delay gratification.

H7: A model including generational group and level of anxiety in romantic attachments will predict the ability to exercise self-control.

Notwithstanding their apparent ability to adopt and adapt to new technologies, the Net Generations' attachment in relationships may be negatively affected by the social-psychological consequences of these technologies, which may in turn, have a negative impact on mental health and overall success and well-being. Shoda, Mischel, and Peake (1990) confirmed earlier and related findings (Mischel, Shoda, & Peake, 1988) that the ability to delay gratification is closely related to positive outcomes. Specifically, they found a clear positive relationship between the ability to delay gratification in preschool

and academic and cognitive competence as well as the ability to handle frustration and stress in adolescence. Insecure attachment styles have also been linked to negative outcomes. Indeed, Bowlby (1973) first began looking at mother-child attachment to explain psychopathologies and character disturbances, and he found substantial evidence to support his theories. Children and adolescents with secure attachment representations have been found to pay closer attention in class, participate more in class, feel more secure about themselves, and have a higher GPA (Jacobsen & Hofmann, 1997). Adults with more fearful and preoccupied attachment styles were more vulnerable to depression (Murphy & Bates, 1997). Attachment anxiety is positively correlated with self-reported distress and attachment avoidance is associated with physiological measures of stress (Maunder, Lancee, Nolan, Hunter, & Tannenbaum, 2006).

A relationship between the variables generation, attachment, ability to delay gratification and self-control is critical for clinicians to understand. If the abilities to delay gratification and exercise self-control suffer a decrement as immediate gratification becomes the norm, and in turn romantic attachment becomes less secure, then cognitive and behavioral interventions could focus on attentional processes to minimize distraction from the task at hand and maximize distraction from temptations. Mischel, Ebbeson, and Zeiss (1972) found that given certain motivational and attentional-cognitive conditions, most people, including children, can learn to manage to delay gratification for long periods of time. Therapeutic interventions, including cognitive strategies could be applied to protect and reinforce secure attachment patterns. Couples therapists could incorporate this knowledge into their work to increase security and positive outcomes in romantic relationship. The individual therapist can also apply attachment theory to the therapeutic

process not only to help clients explore the impact of their earlier relationships and expectations for attachment figures (Bowlby, 1988), but also, to provide a secure base that is immune from the expectation of constant connectedness.

CHAPTER II

Literature Review

Notwithstanding the incalculable impact technology's instant gratification has had on modern life, few researchers have examined its implications for psychological well-being. There have been some anecdotal, baseline qualitative and empirical studies examining people's use of and feelings toward modern communications technology, in general (Baron, 2010; Baym, 2010; Brody, Mooney, Westerman, & McDonald, 2009; Jin & Pena, 2010; Turkle, 2011; Walsh, White, & Young, 2008). They indicate that 24-hour digital availability may be a curse as much as a convenience, even to its most steadfast proponents and most frequent users. In a cross-cultural study, Baron (2010) demonstrated that mobile phone users around the world felt that the technology offered greater control in their interpersonal interactions, but also felt, to a significant extent, controlled by the technology. Similarly, Walsh, White and Young (2008) conducted a qualitative analysis of cell phone use in Australia and found that mobile phone use consistently interfered with other important activities, including driving, social events, and work. They also found that Australian youth (ages 16 to 24) are attached to their mobile phones and displayed addictive behavior such as compulsive checking, euphoria, tolerance, and withdrawal. These researchers speculated that the ability to resist using the phone in inappropriate situations distinguishes addicted mobile phone users from those users who are not addicted.

Technology and Relationships

Modern communications technology is particularly relevant to interpersonal relationships. People use all modes of communication to express their needs and enhance feelings of comfort; and each mode, as it has emerged and entered the mainstream, has produced a new way of interacting (Katz & Aakhus, 2002). Cell phones offer a mobile method of communication, allowing brief but frequent text messages and voice calls, which in turn enable users to feel constantly connected (Licoppe & Smoreda, 2005). The inherent comfort in these feelings of connectedness is at least partially responsible for making it a routine practice of romantic couples (Jin & Pena, 2010), and particularly relevant to a discussion of adult attachment experiences.

The theme of texting as a means of promoting connectedness emerged in a study by Brody, Mooney, Westerman, and McDonald (2009) who found that text messaging is used as a relational maintenance tool for both romantic relationships and friendships. Indeed, synchronous forms of communication, such as rapidly reciprocated texts, are associated with heightened social attraction and conversational involvement (Nowak, Watt & Walther, 2002). Moreover, the synchrony of texting exchanges is a key factor in the social orientation of messages and the use of text messaging to maintain relationships (Brody, Mooney, Westerman, & McDonald, 2009). Additionally, findings of a positive correlation between instant messaging and intimacy in romantic relationships suggest that a similar association might exist with texting given the synchrony in communication it also offers.

Attachment and Texting

The security inherent in a sense of connectedness with one's partner is partially confirmed by Jin and Pena (2010) who found that mobile phone voice calls are associated with reduced relational uncertainty. However, the frequency of texting and the amount of time spent text messaging were not associated with self, partner, or relationship uncertainties. Moreover, while the time and frequency of mobile voice calls between romantic partners were associated with higher levels of love and commitment in relationships, the same correlation was not found between text messaging and love and commitment. This study found no relationship between the amount of text messaging and attachment style, suggesting that the amount of texting behavior is not correlated with attachment style. In other words, securely attached adults may send and receive just as many text messages as their insecure counterparts. This study looked only at college students in romantic relationships and did not examine the impact of texting in general on romantic attachment or whether delayed gratification or self control in responding to texts is related to attachment style and generational group.

A finding that sheds light on the link between texting and romantic attachment is that euphoria resulting from mobile phone use is related to feeling valued or loved when a text message or call is received (Walsh et al., 2008). Moreover, cell phone users reported feeling disconnected from others when they were unable to use their phone. Overall, the mobile phone is viewed as a way to connect to others, rather than a negative addiction or an activity in which one should reduce or refrain from engaging (Walsh et al., 2008).

Evidence that texting may be related to attachment anxiety is provided by research conducted on texting and ostracism (Smith & Williams, 2004). When friends were excluded from text conversations, their uncertainty increased and they reported reductions in self-esteem, a sense of belonging, control, and meaningful existence as well as negative changes in mood (Smith & Williams, 2004). Researchers attributed the symptoms to the ambiguity inherent in the absence of a text message. Their assumption was based on previous research that groups and individuals are motivated to reduce uncertainty, and paranoid attributions are fostered by uncertainty (Jetten, Hogg, & Mullin, 2000; Kramer, 1994). In addition, low levels of uncertainty, likely to be engendered by the absence of an anticipated text message, have been found to increase social attraction (Antheunis, Valkenburg, & Peter, 2010), which by heightening the pull one feels toward a romantic partner or potential partner may increase anxiety.

It also seems that the connectedness offered by texting increases social attraction and hastens the development of relationships. A recent survey revealed that text messaging has become a primary means of communication among couples and is responsible for relationships becoming intimate faster (Heussner, 2011). Survey participants reported that the connectedness and constant contact offered by texting accelerates the development of relationships, but may also provide a sense of false, and exceedingly fragile, security in the relationship (Heussner, 2011).

Findings of another study (Fleuriet, 2010) indicated that attachment style, relational stability and nonverbal cues in a text message (such as emoticons or the use of all capital letters) predict the variance in the perceived motive of the text. Attachment style was the key individual characteristic examined in this study and extends previous

research (Noller, 2005) demonstrating that attachment style influences how one interprets messages and communication in relationships.

The attachment system is activated when an internal event or an interaction with the environment results in an actual or perceived threat to one's sense of security (Bowlby, 1969/1982; Mikulincer, Gillath, & Shaver, 2002; Schachner, Shaver, & Milkuner, 2005). Activation of the system results in a determination, either positive or negative, about the availability of the attachment figures and their capacity for promoting a sense of security by responding to needs for security.

Attachment Anxiety, Emotional Regulation, and Proximity Seeking

Theoretically, securely attached individuals, having experienced consistent evidence of the availability of a supportive attachment figure, will be able to reduce their distress on their own or turn to others as a healthy coping mechanism. Thus, regulation of negative affect is a key role served by the attachment system. An insecurely attached person will experience considerably more distress and will seek, with great intensity, closer proximity to attachment figures and try to gain their attention and responsiveness. If the attachment figure is responsive sometimes, but is not consistently reliable, then the person may seek proximity compulsively and become extremely sensitive to any hint of rejection or abandonment. In addition, the person may worry excessively about his/her own shortcomings and problems in the relationship. Thus, there are clear attachment style differences in the activation of the system.

Mikulincer and Shaver (2003) note that the psychological manifestations of attachment anxiety derive from this activation of the attachment system. Attachment

anxiety heightens the accessibility of cognitive representations of attachment figures and attachment avoidance actually inhibits the accessibility of these representations (Mikulincer, Gillath, & Shaver, 2002). Researchers speculate that the cognitive accessibility of attachment figures in threat situation initiates a process leading to efforts to increase proximity, psychological or physical, to attachment figures (Mikulincer, Gillath, & Shaver, 2002).

Indeed, the attachment behavior of proximity seeking is activated when partner-specific attachment anxiety is high, regardless of dispositional attachment style (Eastwick & Finkel, 2008). Moreover, partner-specific attachment anxiety tends to be high in the very early stages of developing romantic relationships. It seems that the uncertainty inherent in fledgling relationships likely produces a rise in attachment anxiety (Eastwick & Finkel, 2008). This research provides further evidence that attachment anxiety increases in response to uncertainty, a condition clearly engendered by the absence of an expected or desired text message.

The proximity seeking, which according to Bowlby (1969/1982) is the principal strategy of the attachment system, entails various activities or behaviors, including verbal and non-verbal communication (Schachner, Shaver, & Mikulincer, 2005). Simpson, Collins, Tran, and Haydon (2007) conducted longitudinal research that demonstrated a relationship between early attachment experiences during different developmental points and the experience and expression of emotions in later romantic relationships. Specifically, they found that a secure attachment history is one factor that predicts a more positive emotional experience and reduced expression of negative affect in romantic

relationships; and a less secure attachment history predicts a more negative experience and greater expression of negative affect in relationships.

Non-verbal communication is believed to be a central method for emotional expression and transmitting needs for support and closeness (Schachner, Shaver, & Mikulincer, 2005). In the context of attachment behavior, its goal is to seek protection from stress, danger and other threats to one's sense of security (Schachner, Shaver, & Mikulincer, 2005). However, as Noller (2005) notes, those with an insecure attachment style likely distort messages from partners because their insecurities act as a filter in their decoding or interpretation of those messages. Text messages, in particular, often leave considerable room for interpretation given the inherent lack of such critical non-verbal cues as tone of voice and body language. A single text message offers few if any cues, and only an accumulation of many messages can convey meaningful relational information (Brody, Mooney, Westerman, & McDonald, 2009).

Similarly, attachment insecurity will affect encoding or how and whether a person expresses his/her emotions (Noller, 2005). Individuals with an avoidant attachment style are likely to inhibit their emotional expression because they mistrust others and wish to avoid intimacy and maintain autonomy. In contrast, those higher on attachment anxiety are more likely to express emotions openly and with intensity, even if inappropriate (Noller, 2005). Texting clearly offers a convenient vehicle for this expression.

Attachment and Delaying Gratification

No researchers have examined the connection between compulsive or unrestrained texting, as a potential manifestation of either attachment anxiety or inability

to delay gratification and exercise self-control. However, adult attachment researchers have found a relationship between attachment style and the cognitive and affective regulation critical to delaying gratification. Delay of gratification research has revealed that children with a secure attachment to their mothers are able to use effective delay of gratification strategies, such as attentional deployment (Sethi, Mischel, Aber, Shoda, & Rodriguez, 2000). These strategies enable children to distract themselves from temptation, thereby delaying gratification for greater reward. Thus, when toddlers experienced frustration resulting from interpersonal stress, they were able to use effective strategies such as deploying their attention away from their mother, from whom they were separated, regulating their attention and affect to delay gratification. (Sethi et al., 2000). The ability to deploy attention strategically was found to be a self-regulatory skill that endured throughout early development (Sethi et al., 2005). Thus, the ability to regulate attention and affect, which are necessary to effectively delay gratification, are likely stronger in the securely attached adult as well. It makes sense then, that the securely attached individual will have a greater ability to delay gratification.

In addition, typical neurological and psychological development renders delay of gratification easier with age (Metcalf & Mischel, 1999; Mischel & Metzner, 1962) at least in part due to increased capacity for attentional deployment with age (Rodriguez, Mischel, & Shoda., 1989). Thus, impulse control is stronger in older age (Metcalf & Mischel, 1999). Another noteworthy finding in related research is that stress reduces the ability to delay gratification (Metcalf & Mischel). The ability to self-regulate, necessary for both self-control and delay of gratification, depends on cognitive and physical strength, both of which are reduced by acute stress (Metcalf & Mischel). Researchers

have found that effective self-control behavior depletes glucose and subsequent self-control efforts are compromised unless glucose is replenished (Gailliot et al., 2007). Moreover, the exertion of engaging in self-regulating behavior lengthens the perceived amount of time that has elapsed, and this perception that the self-regulatory task lasted excessively long also depletes the ability to exert self-control (Vohs & Schmeichel, 2003). The skewed perception of time is important to consider in examining text response and delayed gratification because an individual may imagine he/she is postponing the reward of viewing a text for a longer period of time than is accurate.

The stress of uncertainty in a romantic relationship is likely to have a similar impact on the self-regulatory capacity needed to delay gratification. As Fraley and Shaver (2000) have found, attachment patterns determine whether someone can effectively divert attention from distress in romantic relationships by suppressing attachment-related thoughts and emotions. They found that those high on the anxiety dimension of attachment style actually experience an increase in attachment-related thoughts and emotions when they attempt to suppress such thoughts. This finding is consistent with Wegner's model (1994) that thought suppression efforts are likely to increase preoccupation with the unwanted thought; and this effect is greater under stress because the cognitive capacity to suppress thoughts is diminished under conditions of stress. With respect to romantic relationships, Wegner and Gold (1995) found that attempts to suppress thoughts of a past relationship may increase the frequency of these thoughts and heighten emotional reactions to them.

Anxiously attached individuals are likely to be hypervigilant to attachment related concerns and attentive to emotional information; in addition, their memories of

attachment experiences are emotionally diffuse, making it more difficult to forget or disregard them (Fraley, Garner, & Shaver, 2000; Fraley & Shaver, 2000; Hazan & Shaver, 1987;). In contrast, those with an avoidant attachment style are able to distract themselves by deploying attention elsewhere. An individual high on the avoidant dimension of attachment is able to suppress thoughts of negative attachment related experiences because their memories of attachment related experiences are vague and their motivation to avoid attachment related emotions and thoughts is greater; they seek to avoid dependence on others, which diminishes the likelihood that they will allow themselves to be exposed to situations that force attention to attachment concerns. Instead, they are less attentive to events that may arouse emotion when they occur and therefore encode less of the event and subsequently have less detailed or meaningful memories of the event (Fraley, Garner, Shaver, 2000). The avoidant romantic partner might find it easy to ignore a text message or dismiss the lack of response from a partner as insignificant. However, if an anxiously attached person does not receive an anticipated text message response from his/her romantic partner, his/her attempts to suppress thoughts related to abandonment or loss of attachment figures will likely lead to hyper-accessibility of such thoughts (Fraley & Shaver, 1997), which heightens stress, and can be expected to reduce the cognitive and affective regulatory capacity necessary to delay gratification and exercise self-control.

CHAPTER III

Methods

Participants

A non-random sample of adults ages 18 and older was recruited though email using a snowball sampling technique and through contact with two psychology professors who assisted in recruiting undergraduate students to participate voluntarily. Every effort was made to ensure that the sample was diverse and adequately representative of the population in terms of gender, race/ethnicity, relationship status, and sexual orientation. Specifically, initial emails were sent to single and committed men and women of a wide age range and identifying with diverse sexual orientations and race/ethnicities. In addition, one psychology professor posted a sign-up sheet in an undergraduate class to recruit students and another professor provided this researcher's contact information to undergraduate students willing to volunteer to participate. In both cases, participation in the study was completely voluntary and not all students chose to participate. Ownership of a cell phone with texting capability and some level of experience in a past or current romantic relationship were criteria for participation in this study; the former limited the diversity of the sample in terms of socioeconomic status. A sample size of at least 42 individuals was sought to attain a power of .80. A power analysis was conducted using G*Power (Erdfelder, Faul, & Buchner, 1996) to determine the appropriate sample size

for this study. The analysis uses Cohen's criteria (Cohen, 1988) for effect size. The analysis assumed a medium effect size (.25) and power of .80. Given the proposed use of multiple regressions to test the three hypothesized relationships between generational group, attachment anxiety, and each of the three dependent variables, text response, delay of gratification, and self control, the minimum sample size, based on $\alpha = 0.05$, power = 0.80, and effect size = 0.25, was 42. With the samples size of 58, assuming an effect size of 0.25 and $\alpha = 0.05$, the power would have been .92. For the independent samples t-test, the effect size of .60 and $\alpha = 0.05$ yielded power = .58. The 58 participants included 26 men and 32 women. The majority of the participants, 37, were members of the Net Generation. These participants ranged from 18 to 31 years old. The Non-Net Generation grouping included 21 participants who ranged from 32 to 64 years old.

Procedures

After participants were recruited, a solicitation letter was emailed to them and a date, time, and place to meet were arranged with each participant individually. The day before their scheduled meeting, this researcher emailed them a reminder, which included cell phone contact information in case the participant was unable to make the scheduled time and a request for the participant's cell phone number in case this researcher was delayed. This email ensured that this researcher had each participant's cell phone number prior to data collection. Only one participant failed to respond with a cell phone number and a follow-up email was sent requesting the participant's cell phone number in case there were any last minute changes to the location (room number) of the meeting; the participant then responded with the cell phone number. When they arrived, participants

were given a packet containing self-report measures and a demographic questionnaire. Participants were reminded that this research was intended to explore the relationship between instant gratification and attachment in romantic relationships, but were not told that the study had to do with texting or modern technology. This level of deception is in accordance with the American Psychological Association (APA) Ethics Code 8.07 because an alternative and accurate way to measure one's natural inclination to respond to a text message in a laboratory setting does not exist, and the findings contribute substantially to existing psychological research (APA, 2002). Participants signed the informed consent and consent to be video-recorded, and were told they could withdraw from the study at any time without consequences. They were oriented to the different scales on each measure. They were asked to leave their cell phones on the table and with the power on because unforeseen conflicts with the room assignment might necessitate a change in location. This researcher told participants they would receive a text message if a room change were necessary. This deception was necessary to ensure the participant's phone was turned on and accessible. This researcher instructed the participant to fill in all of the forms as efficiently as possible, explaining that several others were scheduled to arrive, the room was only available for a short time, and it was important that all participants have enough time to complete all of the questionnaires. Participants were given no further instructions on the use of their cell phones. This researcher turned the video camera on before leaving the room.

Approximately two minutes after leaving the room, this researcher sent the following text message to the participant: "Just letting you know, we will not have to switch rooms. I am right outside the door whenever you're done. Thanks! –Susan."

Approximately four minutes later, from a different cell phone number, this researcher sent the following text: "Hi! this is my new cell nmber. call or txt when u can! miss u!" Regardless of whether the participant responded to this text message, another message was sent roughly two minutes later from the same anonymous number stating: "what r u doing later?" This researcher did not respond to any text from the participants.

After participants completed the questionnaires and this researcher returned to the room, they were given a debriefing packet, containing an explanation of the purpose of the research and the true source of the text message as well as contact information if they were interested in the findings. They were also asked whom they thought the text might be from and why they did or did not respond to it.

Instruments

The demographic and behavioral data collected included date of birth, gender, current relationship status, sexual orientation, race/ethnicity, preferred mode of communication with partner, estimated text message, email and instant message frequency, and current texting/data plan for their phone (see Appendix A). Generational Group was determined by the participant's year of birth. While the definition of the Net Generation in terms of age varies in the literature, for the purposes of this study, those born after 1980 were considered members of the Net Generation and those born in 1980 or before were in one of the Non-Net generational groups (Carrier, Cheever, Rosen, Benitez & Chang, 2009; Rosen, 2010; Tapscott, 1997). Participants for this study were limited to adults, ages 18 and older.

Text Checking: Text checking behavior was measured as a categorical variable: Never checked text message, checked after completing questionnaires, checked text after first message, checked text after both messages; text checking was coded respectively as 0, 1, 2, and 3.

Text Response: Text response behavior was measured as a categorical variable: No response, responded after completing questionnaires, responded after first text, responded after both texts; text response was coded respectively as 0, 1, 2, and 3.

Adult attachment anxiety was measured by the Experiences in Close Relationships-Revised (ECR-R; Fraley, Waller, and Brennan, 2000), a 36-item self-report questionnaire. It is a revised version of the ECR developed by Brennan, Clark, and Shaver (1998). It was designed to evaluate individual differences in attachment security, particularly in attachment-related anxiety and avoidance. It asks participants questions related to their experiences in romantic relationships and taps conscious attitudes. Each item is scored on a seven-point scale, ranging from *strongly disagree* to *strongly agree.* The ECR-R items were selected using techniques based on Item Response Theory. The measure can produce two subscales: Avoidance, which refers to discomfort with closeness and discomfort depending on others; and Anxiety, which refers to fear of rejection and abandonment. Sibley and Liu (2004) applied exploratory and confirmatory factor analyses and found that the ECR-R offers a reliable and replicable dual dimension self-report measure of adult romantic attachment. The scale provides stable measures of trait attachment with little error. The results on subscales were stable over a six week assessment period; *a* coefficients are reportedly close to or exceed .90, and test-retest coefficients are reportedly between .50 and .75; correlation between the two scales of

anxiety and avoidance is minimal (Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010). The ECR-R has been used to measure attachment in a study examining the relationship between stress and adult attachment (Maunder, Lancee, Nolan, Hunter, & Tannenbaum, 2006) and another exploring the effects of adult attachment on social interaction (Sibley & Overall, 2008). In addition, Patton, Nobles, and Fox (2010) recently used the ECR-R to measure attachment anxiety and attachment avoidance in research that revealed a significant positive association between adult attachment anxiety and stalking behavior. Another study concerned with attachment anxiety used the ECR-R to examine the normative experience of partner-specific attachment anxiety, as opposed to dispositional trait attachment anxiety, in fledgling romantic relationships (Eastwick & Finkel, 2008). These researchers looked at the effect of attachment anxiety on proximity seeking, an attachment behavior well-served by texting and perhaps at odds with delaying gratification.

Delay of Gratification was measured using the self-report Bredehoft – Slinger Delayed Gratification Scale (BSDGS; Bredehoft & Slinger, 2009). It is a 22-item instrument designed to measure a participant's ability to delay gratification. It provides a total delayed gratification score and three subscale scores: impulsivity, task completion and anger/frustration. The scale has very good internal consistency with a Cronbach's Alpha for the aggregate score of .88. The subscales have the following alphas: Impulsivity, .85; Task Completion, .81; and Anger/Frustration .76 (Slinger & Bredehoft, 2010).

External validity was established against the Self-Control Scale (Tangney, Baumeister, & Boone, 2004), which is discussed below, and the Generalizability of

Deferment of Gratification Scale (Ray & Naiman, 1986), a 12-item instrument designed to assess delay of gratification with respect to financial planning and emotional control. The correlation coefficients were .72 and .74 for the respective instruments (Bredehoft & Slinger, 2011).

The Self-Control Scale (Tangney, Baumeister, & Boone, 2004) is a 36-item instrument designed to measure dispositional self-control. It gauges the power of restraint in domains such as eating habits, temptation, money, and concentration. The authors demonstrated strong validity and the internal reliability and test-retest reliability of the scale are high with alphas of .89 each (Tangney et al., 2004). The instrument produced self-control scores that correlated with secure attachment, as well as better relationships, stronger interpersonal skills, academic achievement, reduced incidence of psychopathology, higher self esteem, and less binge eating and alcohol abuse.

Research Design

A non-experimental design was used to test whether adult attachment anxiety and generational group predict text response, delay of gratification, and self-control. All variables are continuous with the exception of the dichotomous categorical variables: generational group (Net or Non-Net), text response and text checking. The latter two variables were coded as continuous variables for some of the statistical analyses. A hierarchical multiple regression analysis was conducted to test the predictive models for each of the dependent variables: text response, text checking, delay of gratification, and self-control. Correlations were calculated to assess the relationship between the dependent variables; and t-tests were conducted to determine whether a difference in

attachment anxiety, delay of gratification, and self control exists between members of the Net Generation and Non-Net Generations. While a factorial MANOVA might have been a more convenient statistical tool because it allows one to evaluate the influence of factors on multiple dependent variables, it is not appropriate to use with continuous scales of attachment anxiety. Analyses on a variety of samples have demonstrated that attachment differences are measured accurately as dimensions, rather than categories (Fraley & Waller, 1998). Thus, attachment anxiety is a matter of degree rather than type and, as Fraley (2010), an author of the ECR-R notes, classifying participants based on their scores would inevitably reduce the precision of the data and weaken the statistical power. He further specifies the multiple regression analyses should be used to evaluate attachment data.

CHAPTER IV

Results

Descriptive Statistics

This research was conducted with 61 participants, all of whom completed the measures. However, two participants did not have their cell phone turned on, as instructed, and a third reported a malfunction that prevented receipt of the texts sent as part of the study. These cases were removed from the data, and the total sample size for this study is 58. The participants included 26 men and 32 women.

Table 1

Demographic Composition of Sample by Generation

	Net	Non-Net
Male	14	9
Female	23	12
Married/In a Relationship	23	17
Single	14	4

The majority of the participants, 37, were members of the Net Generation while 21 were members of the Non-Net Generation. Approximately 69% of the participants

were in a relationship or married and slightly more than 25% identified as single (see Table 1).

Over 79% of the sample was White; Latino/as and African-Americans made up nearly 7% each, Asian-Americans about 3% and both Caribbean-Americans and mixed race participants each comprised under 2% of the sample. The vast majority of the participants identified as heterosexual; only four participants identified as gay or lesbian. Sixty-four percent of the participants selected texting as the preferred mode of communication with a partner (see Table 2).

Table 2

*Preferred Mode of Communication with Partner by Generation**

	Net	Non-Net
Text	31	6
Instant Message	1	0
Voice	5	15

*Additional choices (email, video chat, and postal mail) received no responses.

Statistical Analyses

Statistical analyses were performed using SPSS Software (PASW Statistics 18). One univariate outlier was found, but the case was not found to be a multivariate outlier and was retained in the analysis. The data were analyzed using independent samples t-tests, correlations and multiple regressions.

H1: Adult members of the Net Generation, those between the ages of 18 and 31, will have a higher level of anxiety in their adult attachment styles than members of Non-Net Generations.

An independent samples t-test was conducted with Generation, Net or Non-Net, as the grouping variable and level of attachment anxiety, as measured by the ECR-R, as the dependent variable. According to the Levenne's test for equality of variance (p = .129), because the p value is greater than .05, equal variances between the groups, Net and Non-Net, are assumed. The analysis shows that a statistically significant difference in attachment anxiety exists between the Net Generation (M = 2.64, SD = 1.21) and Non-Net Generation (M = 1.99, SD = .92; t = (56) 2.13, p < .05). Members of the Non-Net Generation endorse a higher level of anxiety in adult romantic attachment, on average, than members of the Net Generation. The effect size of d = .60 indicates a medium effect.

H2: Adult members of the Net Generation will be less able to delay gratification and exercise self-control than members of Non-Net Generations.

Two independent samples t-tests were conducted with Generation, Net or Non-net, as the grouping variable for both; for one t-test, Delay of Gratification, as measured by the BSDGS, was the dependent variable and for the other, Self-Control, as measured by the Self-Control Scale, was the dependent variable. Again, equal variances are assumed (p > .05) between the means of Self-Control for Net and Non-Net Generations and delay of gratification for those groups. There was not a significant difference in the scores for Self Control, as measured by the SCS, in the Net Generation (M = 124.3, SD = 17.3) and Non-Net Generation (M = 125, SD = 13.9) or for the aggregate score for Delay of Gratification, as measured by the BSDGS, between the Net Generation (M = 102.6, SD

=21.8) and the Non-Net Generation (M = 111.7; SD = 16.5). This data suggest that generational differences in the ability to exercise self-control or delay gratification do not exist for this sample.

H3: Adult members of the Net Generation are more likely to view and respond to text messages than members of Non-Net Generations.

Since both dependent variables, check text message and response to text message, are ordinal level variables, numeric codes were associated with each label in ascending order. The dependent variables (check text messages and respond to text messages) are coded so that lower numeric values are associated with participants who did not check or respond to text messages and higher values are associated with those who checked their text messages or responded to text messages, twice. Thus, 0 = No response, 1 = Checked text message after completing the surveys, 2 = Checked text message once during administration of test, 3 = Checked text messages twice during administration of test. Similarly for responded to text messages, 0 = No response to text message, 1 = Responded to text message after completing questionnaires, 2 = Responded once to text message, 3 = Responded at least twice to text messages.

According to Levenne's test, equality of variances is assumed for 'checked mystery text' and 'responded to mystery text' ($p > .05$). The analysis shows that a statistically significant difference only in 'checked text message' exists between the Net Generation (M = 1.92 , SD = 1.30) and Non-Net Generation (M =1.14, SD = 1.35; t = (56) 2.16, $p < .05$). There is no statistical difference between the two groups for 'responded to text message.' The chart shown in Figure 3 illustrates the difference

between the Net and Non-Net Generations in text checking when all text checking is categorized as 'yes' and all non-checking behavior is categorized as 'no.'

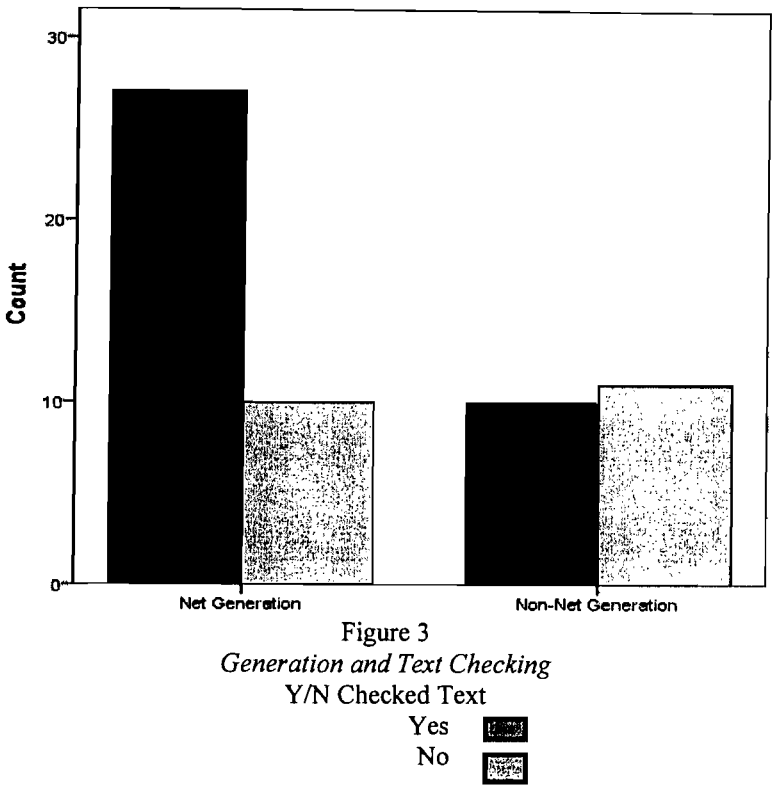

Figure 3
Generation and Text Checking

Alternative analyses were conducted without coding the ordinal variables as continuous, but instead leaving them as categorical and distilling them down to dichotomous variables whereby the variables text response and text checking would be dichotomous variables, yes or no. Thus, regardless of whether the participant checked or responded to a text once, twice or after administration, their response or checking variable would be categorized as a yes; and if they did not respond to or check any mystery text messages during test administration, that variable would be categorized as a no. A chi square test of independent samples for categorical variables was used to

evaluate the relationship between generation and both text checking and text response. Generation was significantly related to text checking ($\chi^2 = 4.41$ (1), $p < .05$).

H4: Text checking and text response will be negatively correlated with Delay of Gratification and Self-Control.

Text checking, but not text response, is negatively and significantly correlated with the ability to exercise self-control scale ($r = -.32, p < .05$). Neither variable is significantly correlated with delay of gratification as measured by the BSDGS. All correlations calculated for this study are displayed in Table 3. The reason for this discrepancy is unclear, particularly because the two scales are highly correlated with each other ($r = .723, p < .01$). The small amount of miscorrelation between the two scales may be represented by the personality/behavior construct that causes one to check a text message. This sub-construct may have to do with the expectation of a reward. It is a nuance, admittedly, but the delay of gratification paradigm assumes that a delay results in a larger reward (Mischel & Ebbesen, 1970) whereas the self-control construct does not necessarily imply a reward, but rather, the avoidance of temptation and the movement toward desired goals (Fishback & Shah, 2006; Freitas, Liberman, & Higgins, 2002; Metcalfe & Mischel, 1999). Interestingly, whereas 70% of the sample did not respond to the text message during test administration, only 24% fell in the "patient postponer" category, the highest of three groupings to reflect the degree to which one is able to delay gratification. Nevertheless, this finding is somewhat perplexing and further research should be done to identify and distinguish the sub-constructs that may account for this behavior.

Table 3

Correlations Matrix

Variable	Gener-ation	Relation. Status	SCS	ECR-Anxious	BSDGS	Check Text	Respond Text	Gender
Generation	1	.674	.021**	.-274	.215**	.-.277	.076**	.187**
Sig.		.000	.878	.038	.104	.038	.570	.161
Relation.Status	.674	1	.119**	-.399	.217**	-.364	.076**	-.117**
Sig.	.000		.376	.002	.101	.005	.570	.382
SCS	.021**	.119**	1	-.124**	.723	-.319	-.108**	-.084**
Sig.	.878	.376		.354	.000	.015	.420	.531
ECR-Anxious	-.274	-.399	-.124**	1	-.112**	.126**	.007**	.078**
Sig.	.038	.002	.354		.404	.347	.958	.559
BSDGS	215**	.217**	723	-.112**	1	-.152**	-.008**	..060**
Sig.	.104	.101	.000	.404		.254	.950	.657
Checked Text	.-.277	-.364	-.319	.126**	-.152**	1	.476	-.067**
Sig.	.038	.005	.015	.347	.254		.000	.620
Responded Text	076**	076**	-108**	.007**	-.008**	.476	1	.151**
Sig.	.570	.570	.420	.958	.950	.000		..258
Gender	.187**	-.117**	-.084**	.078**	.060**	-.067**	.151**	1
Sig.	.161	.382	.531	.559	.657	.620	..258	

** *Correlation is **not** statistically significant.*

H5: A model including generational group and level of anxiety in romantic attachments will predict text response and text checking.

The relationship of interest is the effect of generation on text response, but theory suggests that level of attachment anxiety moderates the effect of generation on text response; therefore, attachment anxiety was entered first in the regression model. This model was tested as a predictor for both text response and text checking. The set of predictors, generational group and attachment anxiety were not found to predict text

response or text checking at a statistically significant level ($p > .05$). However, before attachment anxiety was added to the model, it was a significant regression model to explain text checking. Thus, generational group was found to be a significant predictor of text checking, $F(1,56) = 4.64, p < .05$, accounting for about 6% of the variance in text checking.

H6: A model including generational group and level of anxiety in romantic attachments will predict the ability to delay gratification.

Attachment anxiety in romantic relationships and generational group was not found to be a significant predictor of delay of gratification, as measured by the BSDGS.

H7: A model including generational group and level of anxiety in romantic attachments will predict the ability to exercise self-control.

Attachment anxiety in romantic relationships and generational group was not found to be a significant predictor of self-control, as measured by the Self Control Scale.

CHAPTER V

Discussion

This study attempted to answer the following research questions: Is our attachment in a romantic relationship less secure as a result of 24-hour access to our partner? Is it likely that growing up with the instant gratification afforded by modern technology impairs one's ability to delay gratification and exercise self-control? Are text checking and responding fair measures of the ability to delay gratification and exercise self-control? Finally, do generation and romantic attachment style predict the ability to delay gratification and exercise self-control?

While this study does not demonstrate causality, it does reveal that the level of attachment anxiety is higher among members of the Net Generation than their Non-Net counterparts. However, the study does not allow one to conclude that modern technology is responsible for any decrement in attachment anxiety. Neither does it mean that modern communications technology has no impact on one's ability to delay gratification or exercise self-control. Rather, this study suggests that these constructs are relatively stable and perhaps immune from environmental influences such as advanced technological communications.

While text checking appears to have a moderate negative relationship with the ability to exercise self control, text responding is not a fair measure of one's ability to delay gratification or exercise self-control. The lack of a relationship between text

checking and delay of gratification is somewhat puzzling, but may have to do with the construct's assumption that a reward will be larger if gratification is delayed; when one checks a text immediately, one is not relinquishing a larger reward. Thus, it appears that some self-control is required to avoid reading a received text message. However, there is no evidence suggesting that responding to a text reflects a lapse in self-control or a reduced ability to delay gratification.

Rather, this behavior, whether or not one responds to a text message, may have to do with many other factors, including relationship status, familial role and responsibilities (for example, participants in middle adulthood with children said they worried that the text might have involved one of their children), past experiences with spam, situational factors, such as current level of demands on one's time, and other psychological factors, such as engagement with the current task and even psychological defenses such as avoidance that may have been triggered by specific questions on the self-report measures. This research also fails to demonstrate the predictive ability of generation and romantic attachment style for delay of gratification and self control. Again, this is likely due to the constancy of these constructs across the lifespan, as evidenced by follow-up studies up to 40 years after the first marshmallow experiments demonstrated delay of gratification (Casey et al., 2011; Mischel et al., 2011).

Conclusions

Attachment Anxiety and Generation

This study has not conclusively answered whether attachment in a romantic relationship is less secure as a result of 24-hour access to our partner; however, it does

indicate that the generation socialized to carry out romantic relationships with such technology may have a higher level of attachment anxiety than their counterparts who likely arranged their first dates without the convenience of texting or even voicemail. Perhaps the attachment security of the Non-Net generation was bolstered by having to send love letters via postal mail and await a reply; perhaps, it was the effort it took a partner to communicate his/her interest and feelings that generate security among older participants in the love of their partners. This finding lends support to the concept that the ability to regulate attention and affect is likely more developed in the securely attached individual (Fraley & Shaver, 1997), and this ability becomes stronger as one ages (Metcalf & Mischel, 1999; Rodriguez, Mischel, & Shoda, 1989). It is important to note, that this study does not demonstrate causality; it is not clear whether the access to faster communications technology reduced security in relationships or whether other factors, such as developmental age, relationship experience or relationship status, contributed to this finding.

Delay of Gratification, Self-Control, and Generation

It does not seem likely that growing up with the instant gratification afforded by modern technology impairs one's ability to delay gratification and exercise self-control. The analyses conducted in this study did not show a significant difference between the Net Generation and Non-Net Generation in terms of their ability to delay gratification and exercise self-control. Several possible reasons exist for this result. First, most of the Net Generation members were college students who are facing a stagnant economy, mounting student loans and an uncertain future while the Non-Net Generation comprises

a wider age range of members, some of whom may be planning for retirement and saving for their children's education. The recession, which has slowed economic growth and created high unemployment, has been affecting this country since before some of these Net Generation members reached puberty; in other words, their awareness of economic troubles is bound to have influenced their security in the future and the freedom they may feel to be youthful and impulsive. Both employment rates and starting salaries for new college graduates have dropped sharply in recent years. The median starting salary for students with degrees from four-year colleges in 2009 and 2010 was $27,000, which is down from $ 30,0000 for those who graduated in 2006 to 2008 (Rampell, 2011).

These results may also reflect cultural influences, including the value society places on immediate gratification as well as unbridled consumerism, suggested by the Non-Net Generation's predilection for such behaviors as leasing new cars every few years or refinancing mortgages to afford better faster gadgets or dream vacations. This normative consumerist culture juxtaposed against the relative personal and/or professional stability of older generations may allow them greater freedom and reduce their self-control. In contrast, members of the Net Generation, as they plan to separate from their primary caregivers and assume greater autonomy and responsibility, face an uncertain future; they must reconsider youthful tendencies toward impulsivity and begin to focus on completing tasks successfully.

Finally, the wider age range of the Non-Net Generation may dilute the results to some extent. While the age range for the Net Generation is 18 to 31 or only 13 years, the age range for the Non-Net Generation participants is 32 to 64 or 32 years. The Non-Net

Generation is largely an artificial grouping (comprising several generations) intended to serve as a control group against which to examine the Net Generation.

One might expect delayed gratification and self-control to be subject to a developmental effect, given neurological changes that contribute to an improved capacity for planning and reduced impulsivity in early adulthood. However, recent studies have demonstrated the relative stability of these constructs, believed to stem from cognitive control, throughout one's lifetime (Casey et al., 2011; Mischel et al., 2011). Indeed, Mischel and colleagues (2011) are conducting neuroimaging studies to identify the neural correlates involved in the delay of gratification cognitive process; these neurobiological mechanisms are believed to be in place at an early age, as demonstrated by the longitudinal project that began with the marshmallow tests 40 years ago and continues today. These studies offer evidence that the self-regulatory capacity involved in delaying gratification has predictive validity for cognitive, psychological, social, economic and behavioral outcomes later in life. Although the temptation of an immediate reward distinguishes the constructs delay of gratification and self-control, the involvement of cognitive control in both processes suggests self-control is also stable across the lifespan. Nevertheless, the potential impact of situational factors on responses to a self-report measure should not be discounted.

Text Response, Text Checking, Delay of Gratification and Self Control

Text response, or the likelihood one will respond to a text, does not appear to be a valid indicator of one's ability to delay gratification or exercise self-control. Whereas 70% of the sample did not respond to the text message during test administration, only

24% fell in the "patient postponer" category, the highest of three groupings to reflect the degree to which one is able to delay gratification. There does not appear to be a relationship then between these variables.

However, text-checking, the likelihood someone will look at their phone to read a received text message, may reflect diminished self-control. Several reasons exist for the generational difference between 'checked text message' but not 'responded to text message.' The feeling of urgency to check a text message may be a more accurate reflection of a need for immediate gratification related to technology and communications. This possibility is supported by the higher attachment anxiety evidenced in members of the Net Generation. Attachment anxiety likely increases in response to uncertainty (Eastwick & Finkel, 2008). Proximity seeking, which according to Bowlby (1969/1982) is the principal strategy of the attachment system, could entail a variety of behaviors, such as verbal and non-verbal communication (Schachner, Shaver, & Mikulincer, 2005); it seems reasonable that checking a text message would be a sufficient response to activation of the attachment system and could satisfy the objective of proximity seeking. Thus, the cognitive representation of an attachment figure could be produced merely by seeing a text message from the attachment figure; therefore, checking a text message would be sufficient to reduce that anxiety and responding to a text message would not be necessary.

Once participants viewed the text message and saw that it was from an unknown sender, various explanations account for the failure by Net Generation members to respond, as hypothesized. A more savvy understanding of technology by members of the Net Generation may lead them to be more skeptical and less trusting of texts of unknown

origin. Moreover, once they have seen that the text is not important, they may be more motivated to complete the questionnaires than learn the source of the text. Also, they may be more likely to have all of their friends and relatives in their contacts whereas Non-Net Generation members may have a wider range of acquaintances, from simply more years of interacting with others, and may not feel confident that they have all of their contacts listed in their phone.

The finding that Net Generation participants were more likely to check their texts and Non-Net Generation members were more likely to ignore their text message and complete the questionnaires may indicate a greater urgency for task completion among the latter. The text sent prior to the first mystery text was a message from this researcher that they would not have to change rooms and they would be met outside the room when they were finished with the questionnaires. It is possible that some participants wondered whether the projected room change, used by this researcher as a ruse to ensure cell phones were on and accessible, might be necessary after all.

However, it seems likely that sufficient gratification is derived from simply checking the text message. Thus, this need for instant gratification is satisfied and Non-Net Generation members may not have that same need to be gratified, perhaps because they have lower levels of attachment anxiety. Text checking, then, may be the behavior more likely to reflect difference in cognitive control necessary for delaying gratification. Nearly 68% of the Net Generation participants checked the mystery text message during the study, but only 27% responded to the text. Responding to a text while engaged in another activity does not necessarily reflect a reduced ability to delay gratification or exercise self-control.

Another explanation for the lack of a significant effect for text responding is the suspiciousness or expectation of spam. A Pew Research study in 2012 found that 69% of texters report receiving unwanted spam or text messages. Moreover, a quarter of American texters say this problem with spam occurs at least weekly (Brenner, 2013). Indeed, conversations with participants after test administration revealed that several attributed their decision not to respond to suspicion that the text was spam.

Relationship status may have more influence on whether someone checks or responds to a text message. Specifically, the degree to which the relationships feels stable and committed likely influences the level of security in a relationship and whether one feels the need to respond immediately to one's partner. As Eastwick and Finkel (2008) found, attachment anxiety specific to a partner tends to be high in the initial stages of developing romantic relationships. This study did not attempt to gauge the security of one's specific relationship and nearly one-third of participants were not in a relationship. Future studies should evaluate the impact of relationship status and partner-specific security on text checking and text response.

Texting in general may not be an accurate measure of the ability to delay gratification or exercise self-control because values have changed and it may no longer reflect those constructs. While the percentage of cell phone owners who use their cell phone to text was reported as 72% when this study was first undertaken, a more recent study conducted by the Pew Research Center in 2012 indicated that 80% of cell phone owners use their phones to text, an increase from 58% in 2007 (Chen, 2012). This substantial and continuous increase in cell phone use and the finding in this study that nearly two-thirds of all participants and 84% of Net Generation participants selected

texting as the preferred means of communicating with a partner suggest that texting is becoming normative.

Normative expectations in interpersonal communication have clearly changed (for example, the sense of immediacy has been heightened). Sociologists have observed that when cell phones were new, there was an expectation that a clerk in a store, for example, would not offer service to someone until he/she finished a call; now, however, the norms are that the user of a cell phone can do whatever he/she wishes, and the other person in the interaction must simply accept it (Lippman, Bulanda, & Wagenaar, 2009). As normative orientations toward higher education have changed and it is now viewed as a required step rather than a privilege, a more casual, and perhaps less respectful, attitude toward professors and academic institutions as well as a sense of entitlement among students have been fostered (Lippman, Bulanda, & Wagenaar). Texting during class and virtually all environments is now widely practiced and accepted, if not embraced, as normative. Perhaps checking/responding to a text would not reflect an inability to delay gratification, but rather a normal and acceptable effort to connect with a loved one.

Generation, Attachment Style, and Delay of Gratification

Finally, generational grouping and attachment style do not predict one's ability to delay gratification. Thus, one is no more likely to seek instant gratification simply because they grew up with technology that allows instant communication and endorse an anxious attachment style. One reason generation and attachment style may not predict whether someone will delay gratification is likely the dispositional nature of the delay of

numerous factors contribute to behavior in relationships and it is crucial for therapists to help clients identify the salient factors and how they contribute to both positive and maladaptive behaviors. Finally, it is essential that counseling psychologists working with the college age population recognize that attachment anxiety may be elevated during these years. This anxiety could make experiences in new relationships particularly stressful. The college counseling center therapist can provide valuable support and a secure base from which the student can strive for the developmental task of becoming autonomous (Chickering, 1969).

Limitations

In this study, the presence of a video camera may have affected whether the participants responded to a text. Some participants were noted looking up at the video camera after checking their phone and at least two participants stated after test administration that they planned to respond to the text later because the video camera inhibited them during the experiment. Video-taping in this study was deemed necessary at least in part because adequate cell reception cannot be assumed and it was necessary to be certain each participant received the text. It was also important to observe the participants' behavior to see whether they noticed the text coming in and whether they checked their phone to view the message. It was also considered critical, in part, because the initial intention was to time how long it took participants to respond; this measure was not meaningful because participants either responded right away or not until the end of administration. As more cell towers are erected and cell phone signals become stronger, texting becomes increasingly reliable, and it may be possible in future studies to

rely on the receipt of a response as the sole indicator of whether someone responded. Still, text checking cannot be monitored without some sort of observation.

Another limitation was the contrived context or setting of the experiment, which is an inherent limitation of any experiment that is not *in vivo*, but attempts to replicate naturally occurring or real-life behavior. While only two participants said they suspected the text came from this writer, it is possible that others harbored similar suspicions and chose not to respond for that reason. Thus, if one failed to check or respond to a text message during this experiment, it cannot be assumed that they would exhibit the same behavior in a natural setting, such as a classroom, if they were to receive a text from their romantic partner or a potential employer.

Along these lines, an inherent limitation in this study is the fluid and rapidly changing nature of language in advanced communications technology. Of the participants who said they were suspicious of the source of the text, one noted that only young teenagers and middle aged women still abbreviate the wording the way this researcher did while the other thought the wording used was too provocative to be credible. This limitation also relates to cultural differences in communication.

The number of variables accounted for by this research is limited by necessity and those thought to have the most significant impact on the outcome variables were used; however, it appears likely that numerous variables, both situational and dispositional, affect whether one chooses to respond to or check a text message. In addition, the wider age range of the Non-Net Generation may have diluted the effects of their grouping when measured against the narrower age range of the Net Generation. Another limitation is the quantitative imbalance in generational grouping; there were fewer participants in the

Non-Net generational category. Finally, the generalizability of these findings is limited because this sample does not include an adequate representation of cultural groups found in the general population. The sample was predominantly white, heterosexual, and able-bodied.

Finally, self-report measures are inherently less reliable than more objective measures. Although self-report measures are the most widely used tests in psychological research, their validity and reliability have been the subject of extensive debate (Constantine & Ponterotto, 2006; Johnson & Richter, 2004). This method assumes the participants' attention, effort, and willingness to approach the instrument seriously and truthfully (Evans & Rooney, 2008). Truthfulness notwithstanding, a distorted view of oneself or limited insight, would further compromise the accuracy of self-report data, regardless of the instrument. The distraction of texting may reduce the reliability of the self-report measures further because our capacity for attention is limited (Ninio, & Kahneman, 1974). The accuracy and efficiency of task completion is necessarily compromised by interruptions such as texting.

Recommendations for Future Research

Future studies should account for cultural influences. Texting behavior and other key constructs considered in this study are likely influenced by the values and norms of distinct cultural identities. Researchers in this area may want to separate and compare specific cultural groups to gauge these differences.

It would also be valuable to identify the many variables that contribute to generational differences in attachment anxiety and continue to attempt to prioritize these

factors and measure their impact, accounting for mediating variables. For example, perhaps relationship anxiety is heightened not only by the failure of a romantic partner to respond immediately to a text, but the failure to respond compounded by the newness of the relationship and recent incriminating photographs posted by one's partner on Facebook or Instagram. Future research should also attempt to evaluate the relationship between social networking and situational attachment anxiety. In addition, given the inevitable difficulty of establishing the credibility of a text message from an unknown source in a research setting, it might be more useful for a future study to look at the relationship between texting behavior among couples and their attachment style. In such a scenario, the texts would be coming from the participant's partner and the suspicion that influences their decision to respond would be eliminated. Such research would be particularly valuable for couples' therapists in identifying specific behaviors in communications that might engender discord or uncertainty in the relationships.

Finally, a research effort to uncover the underlying neural correlates and neurological processes responsible for communications behavior in relationships would increase our understanding of the rigidity of this behavior. In other words, this information might reveal the extent to which this behavior is biologically determined and whether continued technological advances in communication could eventually influence our behavior and anxiety in attachment relationships.

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Appendix

Attachment and Delayed Gratification in the Technological Age

Demographic Questionnaire

Attachment and Delayed Gratification in the Technological Age

Demographic Questionnaire

Name:_____

Date of Birth:_____

Current Relationship Status (circle one): Single In a relationship, not married Married Separated Divorced Widowed

Sexual Orientation (circle one): Straight Gay/Lesbian Bisexual Transgender Unsure

Race/Ethnicity (circle one): White African American Caribbean American Latino/a American East Asian American Southwest Asian American Native American Pacific Islander Mixed Race Other (Please specify):_____

Which method of communication do you use **most frequently** to communicate with a partner when you are not together (circle one)? Texts Email Instant Messages Video Chat (e.g. Skype) Voice Calls Postal Mail

Estimated Text Message Frequency (sent and received combined): Less than 1 text a day 1 -5 texts a day 6-10 texts a day 11-25 texts a day More than 25 texts a day

Does your cell phone data plan include unlimited text messaging?
Yes No Unsure

Estimated Emailing Frequency (sent and received, **not** including junk/spam/advertising emails): Less than 1 email a day 1 -5 emails a day 6-10 emails a day 11-25 emails a day More than 25 emails a day

Estimated instant message frequency, on average: No chats Chats lasting less than 10 minutes a day Chats lasting 10-30 minutes a day Chats lasting 30-60 minutes a day Chats lasting more than one hour a day