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By Allyson L. Dir

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Understanding sexting behaviors, sexting expectancies, and the role of impulsivity in sexting behaviors.

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Is approved by the final examining committee:

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UNDERSTANDING SEXTING BEHAVIORS, SEXTING EXPECTANCIES, AND

THE ROLE OF IMPULSIVITY IN SEXTING BEHAVIORS

A Thesis

Submitted to the Faculty

of

Purdue University

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of

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ABSTRACT

Dir, Allyson L. M.S., Purdue University, May 2012. Understanding sexting behaviors, sexting expectancies, and the role of impulsivity in sexting behaviors. Major Professor: Melissa A. Cyders.

Sexting, defined as the exchange of sexually explicit materials via the Internet or mobile phones, is an increasingly common risky behavior; however, little is known about why people sext. The goals of the study were to (1) review the sparse literature on sexting, (2) identify key information yet to be answered by the current literature, (3) describe how personality and social learning might influence the risk for sexting, (4) empirically examine the factor structure of the newly developed Sextpectancies Measure, and (5) empirically examine how sensation seeking and sexual arousal-related expectancies might interact to predict sexting. Participants: Participants were undergraduate students at a large, public US, mid-western university ($N = 611$). The mean age was 21.2 ($SD = 5.4$) and the sample was 77.3% female. Design: A series of correlational, reliability, and hierarchical regressions were conducted to examine relationships between sensation seeking, sexting frequency, and sexual arousal sexting expectancies. A confirmatory factor analysis was conducted based on two proposed models of the Sextpectancies Measure. Findings: Sensation seeking significantly predicted sexting frequency ($\beta = .215$, $p < .001$). Sexual arousal sexting expectancies significantly predicted sexting frequency ($\beta = .428$, $p < .001$), and sexual arousal expectancies partially mediated the relationship between sensation seeking and sexting frequency, showing a significant indirect effect ($\beta = .085$, $p < .001$). Although the initially proposed model for the Sextpectancies Measure examining two overarching sending and receiving domains did not fit the data well, an alternative model which

identified overall positive and negative expectancies, fit the model relatively well (*RMSEA = .085; CFI = .926*). Conclusions: This study is the first step towards understanding the sexting risk process and how specific personality traits and social learning may increase the risk for sexting. Additionally this study provides some insight into common expectancies of sexting.

INTRODUCTION

Derived from the words "sex" and "texting," sexting refers to a social communication trend that involves the exchange of sexually charged material (picture or text) through the internet or mobile phones (e.g., Chalfen, 2009, p. 258). Sexting has become a controversial behavior, not only because of the pornographic nature of the content, but because it also "creates an uncomfortable combination of legal, social, and emotional problems for participants, most unanticipated" (Chalfen, 2009, p. 258). What emerged as a "mating call" has since turned into a "form of gossip" (O'Crowley, 2009, p. 4) and even worse, a form of blackmail (Hoffman, 2011). Media reports on anecdotal incidents exemplify the possible social, personal, and negative consequences prone not only to adolescents but young adults as well (e.g., Chalfen, 2009; Hoffman, 2011; Jolicoeur & Zedlewski, 2010).

Chalfen (2009) has summarized the questions of this new phenomenon: "Who is showing what to whom, for what reasons, under what circumstances, with what effect, and for what anticipated and unanticipated results?" (p. 261). Most of these questions are still unanswered by the current research literature, and thus, the goals of the study were to (1) review the sparse literature on sexting; (2) identify key information yet to be answered by the current literature; (3) describe how personality and social learning might influence the risk for sexting behaviors based in part on research in related areas; (4) empirically examine the factor structure of a newly developed scale designed to measure common expectancies associated with sexting; and (5) empirically examine how sensation seeking and sexual arousal expectancies might interact to predict sexting behaviors. The overarching goal of the study was to establish a research platform to begin the process of validating this sexting theory.

In this pursuit, first I will address what is currently known about sexting behaviors, in terms of prevalence of the behaviors and negative consequences associated with this behavior, based on non-empirical findings as well as data from two pilot studies I conducted. It is important to note that there is little empirical literature on the behaviors associated with sexting, and much of this literature offers more questions than answers (e.g., The National Campaign to Prevent Unplanned and Teen Pregnancy; TNC, 2008). Following this review, I will present areas that have yet to be examined in the current literature and should be explored further. Next, I will briefly discuss related areas of inquiry that helped to inform my theory, and I will present an integrated model of sexting risk. I will then present pilot data on the factor structure of the newly developed Sextpectancies Measure (Dir, Cyders, & Coskunpinar, 2011b). Following, I will present my hypotheses and related research; present methods and results, discuss findings and implications for future research, and address study limitations.

Prevalence of Sexting Behaviors

Although usually associated with adolescents, sexting prevalence spans generations, with even the elderly taking part in these behaviors (Leshnoff, 2009). According to the Family Research Council (2009), one in five teens (between age 13 to 19) and one in three adults (between age 20 and 26) reported sending or posting semi-nude or nude photos of themselves in "cyberspace" (as cited in Chalfen, 2009, p. 258). Additionally, over the past two years there has been a surge of professional athletes, public officials, and entertainers in the media who have been caught in extramarital affairs through sexts leaked to the media (Holson, 2009). Most recently, Representative Anthony Weiner, who resigned from his New York seat after he was caught sending "lewd" photos of himself over the internet to women (Parker & Barbaro, 2011).

Based on the TNC (2008) national survey of 1,288 participants, 33% of young adults (ages 20 to 26) and 20% of adolescents (ages 13 to 19) reported sending or posting nude or semi-nude photos of themselves. However, sending and receiving suggestive text messages was even more prevalent: 39% of adolescents and 59% of young adults reported sending messages, and 48% of teens and 64% of young adults reported receiving

sexts. Both teens and adults (22% and 28%, respectively) reported they are "more forward and aggressive" when sexting than in "real life" (TNC, 2008, p. 3).

Dir, Coskunpinar, and Cyders (2011a) found that in a sample of undergraduates, sexting behaviors were more prevalent than previously thought. The sample consisted for 255 undergraduate college students (70.6% female, mean age = 21.4 years, 78.3% Caucasian) who participated in exchange for course credit. In general, sexting behaviors were high in this sample: Between 58.5% and 63% of the sample reported receiving sexts (pictures and messages, respectively) and between 45.4% and 53.5% reported sending sexts (pictures and messages, respectively). Almost 30% of the sample had sent sexts to more than one person (29.3%).

Prevalence rates from the current sample and from previous pilot data (Dir et al., 2011a, 2011b) indicated that there was no significant gender difference in sexting behavior rates with respect to sending suggestive photos and suggestive texts (see Table 1). Table 1 summarizes the prevalence rates and difference tests between males and females in two pilot data sets as well as data from the current study.

<u>Negative Outcomes Associated with Sexting</u>

Since its emergence, "sexting has challenged society's definitions of normal adolescent behavior, problematic sexual behaviors, and a felony sex crime" (Weiss & Samenow, 2010, p. 244). Based on media reports, the known risks of sexting lie in the possibility of being rejected or humiliated, having private intimate information spread to others, being pressured into sexting by others, or even getting into legal trouble (Chalfen, 2009; Jolicoeur & Zedlewski, 2010). While these reports are not supported with empirical research, these anecdotes have provided enough information on the dangers of sexting to alert parents, educators, and authorities. Moreover, Chalfen (2009) notes that although the media may be "restricting reporting to when sexting 'goes wrong'…there are few if any stories about those instances when the activity remains private or enjoyed" (p. 259). It is likely that there are other unreported consequences (see Dir, Coo, & Cyders, 2012), and although many negative consequences have been presented, the prevalence rates of these negative consequences is, as of yet, unknown.

Despite the unknown prevalence of these negative outcomes, sexting among young adults and adolescents has become enough of an issue that many states are beginning to reconsider legislation in order to properly punish sexters (e.g., Chalfen, 2009; Manzo, 2009). Under many states' legislation, sexting is considered child pornography (Manzo, 2009); the sender could be charged with production of pornography and the recipients could be charged both with possession and distribution of pornography (Chalfen, 2009). One issue is whether new legislation should be implemented considering the harsh punishments that those can face; however, others argue that these severe punishments may be necessary to decrease the behavior and possibly prevent other negative sexting consequences from occurring (e.g., Chalfen, 2009; Manzo, 2009). Another issue is that proper legislation specific to sexting is needed in order to protect educators; there have been multiple cases of parents suing school administrators for not providing proper reinforcement and education on the dangers of sexting. New and specific sexting laws may help protect school administrators and new legislation may provide opportunities to educate students on the risks of sexting (Manzo, 2009).

Some of the greater risks of sexting are likely related to the potentially detrimental social consequences that one can face from sexting. One of the most common risks of sending sexts is that they can be shared with individuals other than the intended recipient (e.g., Chalfen, 2009; Jolicoeur & Zedlewski, 2010; TNC, 2008); in fact, it is estimated that one in five people who receive sexts pass them along to others (Siegle, 2010). Even still, people seem to be well aware of this risk: According to a national survey, 44% of adult women ($N = 380$) and 50% of adult men ($N = 124$) agreed it was common to share sext messages with people other than the recipient (TNC, 2008 p. 3). Even more so, according to the pilot study, 97.2% of the sample agreed it was likely for sexts to be spread to others (Dir et al., 2011b). Jones (2009) described a common incident of young females sending sexts to their boyfriends, only to have the boyfriend share the message with others; as previously mentioned, in this situation both the sender and recipient could be "forced to register as sex offenders" according to law (as cited in Chalfen, 2009, p. 261); however, the resulting humiliation and harassment may be more

detrimental (Jolicoeur & Zedlewski, 2010). As early as 2009, msnbc.com reported there had been at least two adolescent suicides linked to sexts that were shared with others (Quaid, 2009).

Additionally, due to "psychological distress" that is related to engagement in risky sexual behaviors among women, such as regret, shame, anxiety, and guilt (Stinson, 2010, p. 109; Fielder & Carey, 2009), it is likely that these negative affective states could also result from sexting as well (Jolicoeur & Zedlewski, 2010). Although this has not been demonstrated empirically, Chalfen (2009) suggests that individuals likely experience "severe psychological effects" (p. 264) from regret, peer harassment, and rejection.

My pilot data suggest that the above-noted negative outcomes associated with sexting are prevalent in undergraduate college samples (see Table 2). When asked about sexting, 97.2% of the sample agreed it was risky to sext, and the majority agreed that sexting was "not at all" beneficial. Based on qualitative data collected from the pilot study, other negative outcomes related to sexting behaviors include resulting conflicts with parents and friends, as well as conflicts in the workplace or at school (Dir et al., 2011b). Table 2 displays results from the pilot study regarding the potential for different negative consequences from sexting.

<u>Areas Unaddressed by the Current Literature</u>

In short, the existing literature on sexting is sparse and has focused on descriptive information rather than theory-driven, research-based empirical examinations of the risk and outcomes associated with sexting behaviors. Research has not studied why people are sexting despite the possible negative consequences, and has yet to address potential risk factors for sexting behaviors, or factors that increase the likelihood that an individual might engage in sexting behaviors. Thus, the current study empirically examined how certain aspects of personality and social learning might lead to increased risk for sexting behaviors. In doing so, the Acquired Preparedness Model of Risk was used as a theoretical model to encompass the study's aims.

The Acquired Preparedness Model of Risk

The Acquired Preparedness Model of Risk (AP; Smith & Anderson, 2001) is a model based in personality-environment transaction theory and states that one's personality and environment reciprocally affect each other. The AP Model posits that key personality traits, such as impulsivity, directly predispose an individual toward risk-taking behaviors; this predisposition then also indirectly influences risk-taking by affecting social learning processes (see Smith & Anderson, 2001). Personality, in particular, can influence socially-learned behavior by biasing learning that occurs in response to feedback from the environment. For example, impulsivity can cause an individual to *not* reflect on behavior in a way so that learning can occur, or it can lead to a bias toward remembering and learning about the rewarding aspects of a behavior rather than the punishing aspects of a behavior (Smith & Anderson, 2001). In other words, personality may influence one's beliefs or expectancies, which influence one's decision to act in a situation (McCarthy, Kroll, & Smith, 2001).

The AP Model was originally designed to address the risk for alcoholism, has been replicated many times (e.g., Anderson, Smith, & Fischer 2003; McCarthy, Kroll et al., 2001; McCarthy, Miller, Smith, & Smith, 2001), and has also been supported with imaging studies (Anderson, Schweinsburg, Paulus, Brown, & Tapert, 2005). One recent study supported the longitudinal development of alcohol-related learning as predicted by personality (Settles, Cyders, & Smith, 2010; this study will be discussed more fully below). Therefore, it appears that personality does affect alcohol use both directly and indirectly through the development of alcohol-related social learning.

Although the AP model was originally designed to address risk for alcoholism, it has been extended and validated with numerous behavioral processes, such as gambling (Cyders & Smith, 2008a), eating disordered behaviors (Combs, Pearson, & Smith, 2010; Combs, Smith, Flory, Simmons, & Hill, 2010; Pearson, Combs, & Smith, 2010), smoking (Spillane, Smith, & Kahler, 2010), and marijuana use (Vangsness, Bry, & LaBouvie, 2005). Therefore, I chose this overarching model in which to concurrently test the effects of personality and social learning expectancies on sexting behaviors. These findings support the current study's theory on how sexting behaviors may develop through

personality and social learning. As will be further explained, the current study focused on how personality (especially sensation seeking) directly and indirectly, through socially-learned expectancies, effects sexting. The study's primary personality and social learning variables of interest were sensation seeking and sexual-arousal sexting expectancies. Next, I will discuss the literature on how personality might influence sexting, and then I will discuss how expectancies might mediate this process.

<div align="center">Personality and Sexting Behaviors</div>

As I noted earlier, there is no published, empirical work examining the role of personality on sexting behaviors. However, research on other risk-taking behaviors, technology-based constructs, and sex-related constructs inform the current study hypotheses (see Dir et al., 2012 for review).

<div align="center">Research Integrating Impulsivity and other Risk-taking Behaviors</div>

Many personality traits have been proposed to relate to risk-taking behaviors, such as alcohol use, drug use, and gambling. However, one of the most important traits associated with these behaviors is the multidimensional trait of impulsivity, and, as such, was the primary focus in the study.

Impulsivity is a multidimensional trait with many components that can describe different behavioral tendencies (Whiteside & Lynam, 2001). Whiteside and Lynam (2001) synthesized the various constructs of impulsivity and found four facets of impulsivity corresponding to different aspects of functioning: negative urgency, lack of perseverance, lack of planning, and sensation seeking. Negative urgency represents the tendency to act rashly in response to an extreme negative emotional state (see Cyders & Smith, 2008b). However, more recent research identified a positive emotion variant of urgency known as positive urgency (Cyders et al., 2007), and thus, urgency is thought to represent two related yet distinct traits (Whiteside & Lynam, 2001; Cyders & Smith, 2008b; Cyders et al., 2007). These five dispositions toward rash action are measured in the UPPS-P Impulsive Behavior Scale (Lynam, Smith, Cyders, Fischer, & Whiteside, 2007).

Each of these five facets of impulsivity is uniquely related to existing personality measurements. Negative urgency and positive urgency are correlated with the impulsiveness facet of Neuroticism from the NEO Personality Inventory – Revised (Costa & McCrae, 1992), which measures the Five Factor Model (FFM) traits (Cyders et al., 2007; Whiteside & Lynam, 2001). Lack of planning is related to the low deliberation facet on the Conscientiousness domain of the NEO-PI-R, and is characterized by the inability to think or consider consequences before acting (Whiteside & Lynam, 2001). Lack of perseverance is characterized by difficulty in concentrating on tasks because of boredom or distraction from other stimuli and is also related to the FFM trait, low Conscientiousness (Whiteside & Lynam, 2001). Lastly, sensation seeking, characterized by the excitement seeking facet on the Extraversion domain, encompasses behavior tendencies of trying new things and seeking exciting and possibly dangerous activities (Whiteside & Lynam, 2001). Whiteside and Lynam's (2001) impulsivity facet of sensation seeking was the personality-based risk factor for sexting in the study.

Impulsivity plays a role in risky behaviors such as unprotected sex, illegal drug use, and excessive alcohol use (e.g., Cyders, Flory, Rainer, & Smith, 2009; Zapolski, Cyders, & Smith, 2009; Black, Serowik, & Rosen, 2009; Horvath & Zuckerman, 1993). However, when examining these relationships, the literature is often mixed. Use of the UPPS-P traits has helped to clarify the differential relationships between specific, unidimensional impulsivity traits, and behaviors of risk. Zapolski and colleagues (2009) explain how the five impulsivity traits represent "different pathways to risky behavior with different external correlates" of other personality traits (p. 349). The extensive research on the role of these impulsivity traits in mobile phone and internet use and sexual behaviors informed study hypotheses regarding sexting and sensation seeking.

Mobile Phone Use

Considering how mobile phones are now considered "an indispensable instrument of an individual's social and work life" (Takao, Takahashi, & Kitamura, 2009, p. 501), preliminary data suggest that mobile phone use may be a new target for addiction. Studies have examined the potential addictive or dependent nature of mobile phone use,

including text messaging, talking on the phone, and more specific behaviors related to mobile phone use, such as mobile phone use while driving (Billieux, Van der Linden, D'Acremont, Ceschi, & Zermatten, 2007; Billieux, Van der Linden, & Rochat, 2008; Bianchi & Phillips, 2005; Takao et al., 2009). Bianchi and Phillips (2005) created a scale for measuring excessive and problematic phone use called the Mobile Phone Problem Use Scale (MMPUS). The scale measures problematic mobile phone use behaviors such as those mentioned above. This research is important to the current study because it is possible that sexting is another type of addictive or problematic mobile phone use behavior that should be considered.

Billieux and colleagues (2007) used the MMPUS (Bianchi & Phillips, 2005) to examine the role of impulsivity in self-reported perceived dependence and actual dependence of mobile phones. Using the UPPS-R Impulsive Behavior Scale (Whiteside & Lynam, 2001), Billieux et al. (2007) found that impulsivity facets predicted certain problematic mobile phone behaviors. Specifically, sensation seeking, as well as urgency and lack of perseverance, predicted problematic phone use (i.e., high phone bills, texting while driving), mobile phone dependence, and text message habits (Billieux et al., 2007).

Billieux and colleagues (2008) then created a new scale, the Problematic Mobile Phone Use Questionnaire (PMPUQ), in order to assess for specific types of problematic use that the MMPUS does not assess, including prohibited use, dependence, financial problems, and dangerous use. Sensation seeking predicted dangerous mobile phone use (i.e. talking or texting while driving), urgency predicted overall problematic phone use, lack of perseverance predicted financial problems (i.e., high phone bills), and lack of planning predicted prohibited mobile phone use. This is consistent with the findings that sensation seeking is often associated with risky behaviors (e.g., Zapolski et al., 2009; Zuckerman, 1971). Moreover, findings show that actual mobile phone use (i.e., number of calls, etc.) correlates with problematic use; thus, excessive use tends to relate to problematic use (Billieux et al., 2008). Taken together, these findings support the idea that excessive mobile phone use may be a new addictive behavior and associated with impulsivity. Moreover, since sensation seeking is associated with risky or dangerous mobile phone use, this may support the role of sensation seeking in sexting.

Internet Use

Online social networks (i.e., Facebook, MySpace), online communication (i.e., instant messaging), cybersex, and internet pornography are specific internet activities related to sexting behaviors (Butt & Phillips, 2008; Perry, Accordino, & Hayes, 2007), since sexts can be exchanged via e-mail or even posted publicly on social networking sites. Importantly, Internet use is closely related to the broad trait of Extraversion, as well as more specific underlying facets of pleasure seeking and sociability (e.g., Mottram & Fleming, 2009): The interactive, convenient, and sociable nature of networks such as Facebook appeal to those seeking pleasure, excitement, and social activity (e.g., Mottram & Fleming, 2009; Ross et al., 2009), and the efficiency of this computer-mediated communication allows for impulsive actions (Ko, Yen, Liu, Huang, & Yen, 2009). Moreover, sensation seekers are often more outgoing, show higher levels of extraversion, and more likely to engage in social activities (Cyders et al., 2009). The Internet also provides opportunities to take social risks that are often dangerous, such as meeting people online; this uninhibited, outgoing behavior is often a target for online predators who use false identities to attract others (Dowdell, Burgess, & Flores, 2011).

Cybersex, gambling, pornography, and gaming are all Internet activities that appeal to individuals seeking excitement and arousal (Kim, Namkoong, Ku, & Kim, 2008; Mehroof & Griffiths, 2010). Particularly, Internet users who are sensation seekers are more likely to use the Internet for cybersex or pornography compared to those who are non-sensation seekers (Perry et al., 2007). In short, cybersex and pornography satisfy the need for arousal and excitement, and thus, I hypothesized that sexting may also satisfy this need for arousal.

Sex-related Behaviors

Risky sexual behavior, including non-coital sexual behavior, has been found to associate with impulsivity, especially the impulsivity facet of sensation seeking (Vélez-Blasini, 2008; Zapolski et al., 2009). Sensation seeking is a trait of impulsivity with two behavioral attributes, including a tendency to seek exciting activities and a tendency to try new activities that may or may not be dangerous (Whiteside & Lynam, 2009). Based

on these impulsive tendencies of sensation seekers' tendency towards spontaneity, they may look to engage in behaviors such as "unplanned sex, risky sex, non-relational sex, or sex with unknown partners" (Vélez-Blasini, 2008, p. 120). Gute and Eshbaugh (2008) suggest that sensation seeking is one of the strongest personality correlates with risky sexual behavior and "hooking up" (i.e. non-coital sexual intimacy). Additionally, high sensation seekers tend to report having more frequent sex and having more sexual partners (Kalichman, Tannenbaum, & Nachimson, 1998).

Sensation seekers are known to be unrestricted or "permissive" individuals who are more likely to engage in casual and unplanned sexual intercourse or hookups because of their low impulse control (Simpson & Gangestad, 1992, as cited in Paul, McManus, & Hayes, 2000, p. 77). Paul and colleagues (2000) studied hooking up in college students and differentiated among three groups: those who do not hookup, those who hookup, and those who have "coital" hookups (p. 77). Paul and colleagues (2000) found that sensation seeking, disinhibition, impulsivity, exhibitionism, autonomy, sentience (sensitivity to sensation), and low harm-avoidance characterized college students who hookup (especially those who have sexual intercourse) from those who do not engage in hookups or casual sex behaviors. This is further evidence for how sensation seeking is associated with sexual behavior.

Similarly, other findings support the role of sensation seeking in predicting risky sex behaviors (e.g., Justus, Finn, & Steinmetz, 2000; Vélez-Blasini, 2008). Vélez-Blasini (2008) found that sensation seeking was a stable personality trait that characterized college students who engaged in risky casual sexual behavior (coital and non-coital). In comparison to a group of non-risk individuals, those who engaged in more risky sexual activity reported higher levels of impulsive sensation seeking, activity, and sociability (Vélez-Blasini, 2008, p. 124). Similarly, Donohew et al. (2000) found that sensation seeking and impulsive decision-making were associated with a higher number of risky coital and non-coital behaviors. This tendency toward excitement seeking and preference for pleasure associates with sexual activity (Justus et al., 2000).

Gute and Eshbaugh (2008) examined the predictive influence of the FFM personality factors on hookup tendencies while controlling for alcohol use, and found that personality was independently a significant predictor of casual sex and hookups. The authors found the following: Extraversion predicted intercourse with someone only once and intercourse with someone known less than 24 hours; impulsiveness, a facet of Neuroticism, predicted intercourse with someone known less than 24 hours; and low Conscientiousness, characterized by poor impulse control, predicted having sex with someone only once, and also associated with high-risk sex (i.e., sex without a condom, multiple partners) (Gute & Eshbaugh, 2008). It is important to note that these predictions parallel the UPPS-P traits (Extraversion with sensation seeking, impulsiveness with negative urgency, and low Conscientiousness with lack of planning and lack of perseverance; Whiteside & Lynam, 2001).

Two characteristics of sensation seekers also support the role of sensation seeking in sexting behaviors. The tendency to seek out excitement suggests that those who are sensation seekers will often look for excitement to fulfill this urge; thus, it seems rational that a greater tendency to seek out excitement would relate to a higher frequency of engaging in these behaviors (Cyders et al., 2009). This is one reason why sensation seeking may predict sexting frequency. The other reason is that sensation seekers are often more outgoing, show higher levels of extraversion, and more likely to engage in social activities (Cyders et al., 2009). Thus, considering the nature of sexting and the role of sensation seeking in related risky behaviors, I hypothesized that sensation seeking would associate with sexting, and moreover, that sensation seeking would predict more frequent sexting.

Pilot Data on Impulsivity and Sexting

There is some specific evidence that suggests the relation of sensation seeking to sexting. Dir and colleagues (2011a) found that all UPPS-P impulsivity facets (lack of premeditation, positive urgency, negative urgency, and sensation seeking) except lack of perseverance correlated significantly with sexting behaviors; however, sensation seeking and negative urgency remained significant predictors of sexting over and above the other

UPPS-P traits. Additionally, this study found that the relationship between sensation seeking and sexting was partially mediated by alcohol consumption (Dir et al., 2011a). These relationships were replicated in the pilot data (Dir et al., 2011b).

Impulsivity Conclusion and Study Hypothesis One

Therefore, based on findings in areas related to other risk-taking behaviors, it appears that individual examination of the multidimensional aspects of impulsivity might help to inform the literature as to the personality traits that increase the risk for sexting behaviors. In general, it appears that sensation seeking likely relates to sexting behaviors based on the evidence that it is related to mobile phone use, Internet use, and sexual risk-taking. In the current study, *I hypothesized that sensation seeking would be a significant positive predictor of sexting frequency*. This hypothesis was based on the following reasons: First, sensation seeking is predictive of problematic phone use, number of people called, mobile phone dependence and addiction, and number of text messages sent per day (Bianchi & Phillips, 2005; Billieux et al., 2007; Billieux et al., 2008). Considering sexting as similar to risky mobile phone use behaviors, I hypothesized that sensation seeking would also be associated with sexting. Second, sensation seeking is associated with various sexual behaviors, including unplanned or spontaneous sex, unprotected sex, and hooking up (e.g., Gute & Eshbaugh, 2008; Justus et al., 2000; Paul et al., 2000; Zapolski et al., 2009). Thus, considering the similarities between sexting and sexual behavior, I hypothesized that sensation seeking would also predict sexting. Lastly, sensation seeking plays an important role in many risky behaviors (such as alcohol use), and it has been found that sensation seeking predicts frequency of engaging in risky behaviors (e.g., Cyders et al., 2009). Considering sexting as a risky behavior, I hypothesized that sensation seeking would predict the frequency of sexting behaviors.

Expectancies and Sexting Behaviors

Although it is understood that sexting is "rooted in romance and socialization" (Jolicoeur & Zedlewski, 2010, p. 2), little is known about why people sext and people's expectancies and attitudes about sexting. Despite the social risks and emotional distress associated with sexting (e.g., Chalfen, 2009; Jolicoeur & Zedlewski, 2010), people are still endorsing the behavior. The present study examined people's expectancies about sexting in order to better understand what outcomes they deem possible from sexting. I will first explain what expectancies are and how they may be related to sexting. *I hypothesized that positive sexual arousal expectancies would associate with more frequent sexting behaviors.*

General Expectancy Theory

Expectancies refer to individuals' beliefs or perceptions of what the outcome or effect of a certain behavior may be (Jung, 2010), or rather anticipations that individuals have about "certain outcomes as a consequence of particular behaviors" (Goldman, 1994, p. 131). According to Goldman (1994), expectancies may be conscious or unconscious beliefs or thoughts. Expectancies have been used as an "explanatory device" to help study individuals' decision-making processes with regard to alcohol and drug use, sex, gambling, eating, and other behaviors (Reich, Below, & Goldman, 2010, p. 13). For example, individuals use their own expectancies to predict positive or negative consequences that may result from drinking alcohol, and these expectancies may inform their decision to drink or not (Reich et al., 2010). In general, positive or desirable outcome expectancies have the potential to reinforce a behavior (Patrick & Maggs, 2009). The expectancy literature related to alcohol and sex-related behaviors informed how expectancies are involved in sexting as well as what makes up people's sexting expectancies.

It is first important to understand expectancy content, such as what makes up expectancies and how expectancies are formed. Expectancies often conceptualize one's "learning history" or past experiences with a certain behavior, summarizing expectancies "in an 'if…then' format" (Fischer, Smith, Anderson, & Flory, 2003, p. 108). This is

consistent with the AP Model's theory of how *direct* learning from experiences and reinforcement affect one's future decisions to engage in the behavior (Smith & Anderson, 2001). However, other *indirect* social learning experiences (as opposed to experiential learning) can also help form expectancies (Goldman, Brown, Chriastensen, & Smith, 1991; Leigh, 1989). For example, Goldman and colleagues (1991) explain how alcohol expectancies are present in children and adolescents even before having had experiences with alcohol consumption, suggesting that the expectancy content is partly based on social learning (i.e., from parent or peer drinking habits) rather than one's own personal experience of the physiological and other effects of alcohol (Goldman et al., 1991; Leigh, 1989). In other words, social learning plays a large role in developing expectancies (Donovan, Molina, & Kelly, 2009; Goldman et al., 1991). This suggests that individuals' sexting expectancies could form from their own experiences with sexting, their friends' or peers' experiences with sexting, and even from reports in the media about the possible risks and consequences from sexting.

Another issue in expectancy literature is over the argument of attitudes versus expectancies. There has been substantial literature attempting to discriminate between the effects of expectancies and attitudes on predicting behaviors (e.g., Ajzen & Fishbein, 1977; Goldman et al., 1991; Leigh, 1989). While some say that expectancies make up the cognitive component of attitudes (based on theory by Ajzen & Fishbein, 1977), Leigh (1989) purports that, based on mixed findings, "one may as easily say that attitudes are superfluous to expectancies as say that expectancies are an artifact of attitudes" (p. 366). More simply, attitudes, like belief components of expectancies, are subjective cognitions (e.g., Goldman et al., 1991; Leigh, 1989; Reich et al., 2010). Thus, it is rational to consider attitudes towards sexting as contributing or relating to expectancies' prediction of behaviors.

Due to the lack of existing research concerning sexting expectancies and their role in influencing sexting behaviors, I will discuss existing evidence concerning alcohol expectancies, sex-related alcohol expectancies, and attitudes toward sex-related behaviors that informed study hypotheses.

Alcohol Expectancies

There is a large literature on the role of alcohol expectancies in influencing alcohol use. Many studies (e.g., Goldman & Darkes, 2004; Jung, 2010) support the role of alcohol expectancies as a mediator of alcohol use along with other predictors of alcohol consumption (Goldman & Darkes, 2004). In fact, the alcohol literature provides the most consistent and extensive findings linking expectancies with risky behavior; however, it is important to note that expectancy research has been applied to other behaviors of risk as well (e.g., eating disordered behaviors in Fischer et al., 2003).

Expectancies can be categorized in different domains based on the nature of the anticipated outcome, according to research on alcohol and drug expectancies (Jung, 2010). Goldman (1994) and others (e.g., Earleywine, 1994; Goldman & Darkes, 2004; Jung, 2010) have studied various ways to structure different domains of expectancies. Although there is still debate about the domain structure, findings have yielded the following basic expectancy categories: social expectancies, sexual expectancies, expectancies for mood or affect, arousal expectancies, and expectancies for overall positive and negative effect (Jung, 2010; Smith, Toadvine, & Kennedy, 2009). Moreover, there are both negative and positive expectancies that exist within each of these domains (Goldman & Darkes, 2004). While positive expectancies have been used to predict the likelihood of endorsing behaviors, such as alcohol use, negative expectancies may provide insight into why people may choose not to endorse behaviors (Jung, 2010).

Sex Expectancies

Unlike the alcohol expectancy literature, research on specific sex expectancies is wanting and unorganized; there have been few studies pinpointing specific reasons why people engage in sexual behaviors and how people's different sexual expectancies result in different behavioral patterns and outcomes (e.g., Cooper, Shapiro, & Powers, 1998). With regard to motives for having sex, Cooper et al. (1998) explain that there is no consensus on how many distinct sexual motivations there are and few studies have examined "sexual motivations in relation to sexual behavior" (p. 1529). However, there is substantial literature on sexual attitudes and sex-related alcohol expectancies that

informed the current sexting expectancy theory. In general, the following research on sexual attitudes, expectancies, and motives demonstrates that people's attitudes and beliefs about sex influence their decision to engage in sex-related behaviors.

Cooper et al. (1998) suggested that the reasons why people have sex and the different functions sex serves for people shapes their behavioral patterns and either increases or decreases their engagement in sex. Motives represent people's goals or reasons for acting on a behavior based on social learning and experience with that behavior (Cooper et al., 1998), whereas expectancies conceptualize people's beliefs and experiences regarding a behavior (e.g., Goldman & Darkes, 2004). Cooper et al. (1998) found six dimensions of sexual motives: enhancement (*feel horny*), intimacy (*express love*), coping (*cheer self up*), self-affirmation (*feel better about self*), partner approval (*partner angry if don't have sex*), and peer approval (*because friends are having sex, others will kid you if you don't have sex*) (p. 1537). Furthermore, these dimensions uniquely predicted different outcomes of sexual behavior. Enhancement motives predicted more risky behaviors and more negative outcomes from sex; coping motives associated with risky sex practices and sex with multiple partners; self-affirmation, partner approval, and peer approval motives associated with less sexual experience and with intentions of pleasing others; and intimacy motives associated with more frequent but less risky sexual behaviors (Cooper et al., 1998). Thus, these findings suggest that people's motives for having sex are based on their sexual beliefs and experiences.

As mentioned previously, attitudes may be an important aspect of expectancies and may also influence one's decision to engage in a behavior (e.g., Ajzen & Fishbein, 1977; Goldman et al., 1991; Leigh, 1989). With respect to sexual behaviors, research on hooking up among the college population shows that there is a range of both positive and negative attitudes towards hooking up (Glenn & Marquardt, 2001; Owen & Fincham, 2011; Owen, Rhoades, Stanley, & Fincham, 2010; Paul & Hayes, 2002). These positive and negative attitudes are formed through individuals' hookup experiences as well as their emotional reactions towards hooking up (Owen et al., 2010). For example, Glenn and Marquardt (2001) found in a study of college women that emotional reactions associated with hooking up ranged from "desirable" to "awkward" (p. 5).

Owen et al. (2010) suggested that it may be a "combination of mismatched expectations and the lack of communication about the meaning of the encounter that leads to negative outcomes" (p. 660). Considering the negative and positive attitudes toward sexual behavior, I hypothesized that there would most likely be both negative and positive attitudes toward sexting as well. Thus, based on this hypothesis by Owen et al. (2010), identifying expectancies and attitudes is pertinent to predicting behaviors and outcomes of behavior.

Likewise, social learning and norms about sex-related behaviors have also been found to influence engagement in sexual behavior, and social learning and norms are important components of expectancies (Goldman et al., 1991; Donovan et al., 2009). Hayes (1987) found that among young adults, "adolescents' perceptions of their friends' liberal sexual attitudes and sexual activity influenced their own sexual choices" (as cited in Paul et al., 2000, p. 78). More simply, the perception that "everyone's doing it" leads to the social expectancy that engaging in sex will help with social acceptance (Fielder & Carey, 2009, p. 1106). This supports the idea that attitudes toward social norms influence people's behaviors. In this case, the influence of social norms leads to expectancies of social acceptance from sex, and thus influences some individuals' decision to engage in sexual behavior. This is much like the AP model (Smith & Anderson, 2001) mentioned previously.

Findings on sexual behavior show how attitudes toward hooking up can predict one's sex-related behavior (Glenn & Marquardt, 2001; Owen et al., 2010; Owen & Fincham, 2011). It is unclear what the social attitudes toward sexting are; however, these sexting norms are likely parallel with young adults' attitudes toward sexual behavior and hookups. Hence, it was rational to hypothesize that these sexting attitudes influence engagement in sexting similar to how sexual attitudes influence sexual behavior.

Sexual risk-taking has been linked to alcohol use repeatedly in many studies (e.g., Donohew et al., 2000; Patrick & Maggs, 2009; Zapolski et al., 2009). One theory for this common association is that the relationship can be explained by sensation seeking, given the role of sensation seeking in both alcohol use and risky sexual behavior (e.g., Kalichman et al., 1998; Paul et al., 2000). Research suggests that individuals share

common expectancies about sex when using alcohol (Leigh, 1989). Dermen and Cooper (1994a, 1994b) synthesized the sex-related alcohol expectancies and found three main domains: sexual enhancement ("I am a better lover"), sexual disinhibition ("I am more likely to do sexual things that I wouldn't do when sober"), and sexual risk ("I am less likely to use a condom") expectancies (p. 153). These domains of sex-related alcohol expectancies have also been proven to play an important role in marijuana use (Hendershot, Magnan, & Bryan, 2010).

Sex-related alcohol expectancies are related to number of sexual partners and drinking frequency: Those who have expectancies that they are more likely to experience sexual activity from alcohol or marijuana use tend to drink or use more frequently and in turn report more sexual partners (Patrick & Maggs, 2009; Hendershot, Stoner, George, & Norris, 2007; Hendershot et al., 2010). The idea that using substances will increase sexual enhancement encourages more frequent substance use and often results in more unprotected sex compared to non-substance sexual activity (Hendershot et al., 2007; Hendershot et al., 2010).

Much like people hold expectancies that using substances will make it more likely to engage in sexual behavior or will enhance sexual activity, it is possible that some people have expectancies that sexting will increase the likelihood of physical sexual activity. In fact, according to TNC (2008), 40% of adults reported sexting makes "hooking up" (i.e. coital or non-coital physical intimacy) more likely, and 29% of adults believed that "hooking up" was expected when sexts were exchanged. Moreover, adolescents reported that the main reasons for sexting were "to initiate sexual activity" and "to explore and experiment with sexuality" (Lenhart, 2009).

Not only do expectancies predict behaviors (Jung, 2010), but an individual's behavior can also influence another's expectancies of a situation (e.g., the expectancies of the sext recipient). Moreno, Swanson, Royer, and Roberts (2011) studied people's perceptions of sexually-related information on social networking sites, such as Facebook. Moreno et al. (2011) found that females' sexual pictures or messages "increased" males' sexual expectations (p. 87). Moreover, the more sexual material displayed on the Facebook profile (i.e., showing more skin with provocative clothing, sexually charged

content), the stronger the male's expectations and the more "convincing" that an interaction with the female "would lead to sexual activity" (Moreno et al., 2011, p. 87). This finding lends support to the idea that not only are there expectancies with respect to sending sexts, but also that recipients of sexts hold beliefs about receiving sexts.

These motives, attitudes, and expectancies toward sexual activity are important because they have been shown to influence one's decision to engage in sex-related behaviors (e.g., Cooper et al., 1998; Glenn & Marquardt, 2001; Hendershot et al., 2007; Hendershot et al., 2010; Owen et al., 2010; Owen & Fincham, 2011; Patrick & Maggs, 2009). Additionally, these beliefs and expectancies of sex informed my theory on sexting expectancies because it is possible that sexting is an alternative form of sexual behavior. Another possibility is that in some cases sexting may be an interim step or a gateway behavior to sexual behavior. In fact, Henderson (2011) recently found that among undergraduate students, sexting was significantly related to frequency of sex and oral sex, and number of sex and oral sex partners. The literature on sex-related alcohol expectancies and attitudes towards sexual behavior were the basis for the creation of the Sextpectancies Measure (Dir et al., 2011b). Next I will briefly review the construction of the Sextpectancies Measure and the proposed factor structures that were tested in the study.

Development of a Measure for Sexting Expectancies

The Sextpectancies Measure was based off of the literature on sex-related alcohol expectancies and attitudes toward sexual behavior. Based on these findings, initial development of a measure of sexting expectancies was formulated on the idea that people's sexting beliefs would be centered on expectancies of the self and expectancies of other people (e.g., Cooper et al., 1998). I hypothesized that there would be common expectancy domains related to social outcomes, sexual arousal, and overall positive or negative outcomes from sexting. An exploratory principal component factor analysis was conducted on initial pilot findings using oblimin rotation followed by parallel analyses to more accurately determine the number of meaningful factors to retain (Fabrigar, Wegener, MacCalum, & Strahan, 1999; Velicer, Eaton, & Fava, 2000). After

examination of individual item loadings, factors were named based on their meaningful content unique to other factors. This resulted in four factors for the sending expectancies and three factors for the receiving expectancies.

Scale development yielded the Sextpectancies Measure consisting of four factors for the sending expectancies and three factors for the receiving expectancies. The following factors of *sending* expectancies were: positive interpersonal-related expectancies, positive sexual arousal-related expectancies, negative self-consciousness-related expectancies, and negative interpersonal-related expectancies (see Table 3a). Additionally, there were specific expectancies pertaining to *receiving* sexts: positive affect- related expectancies, negative interpersonal-related expectancies, and negative affect-related expectancies (see Table 3b; Dir et al., 2011b). In general, the resulting subscales had good internal consistency (see Table 3a-b). Based on these findings, two separate models were proposed to be tested for validation in the current study: Model A was a three-factor structure for receiving expectancies and a four-factor structure for sending expectancies (see Figure 1); Model B was a three-factor structure for receiving expectancies and a three-factor structure for sending expectancies (see Figure 2).

Model A (as shown in Figure 1) consisted of three domains of receiving expectancies and four domains of sending expectancies. The receiving sext expectancy domains were as follows: negative interpersonal expectancies (six items), negative affect expectancies (nine items), and positive affect expectancies (10 items). The sending sext expectancy domains were as follows: positive sexual arousal expectancies (nine items), positive interpersonal expectancies (eight items), negative self-consciousness expectancies (five items), and negative interpersonal expectancies (six items). This model represented the negative sending expectancies as two separate factors: one domain related to the self and one domain related to experiences with others.

Model B (as shown in Figure 2) was the second proposed factor structure model and consisted of three domains of receiving expectancies (the same structure as in Model A) and three domains of sending expectancies. The three-factor sending expectancy domains were as follows: positive sexual arousal expectancies (nine items), positive

interpersonal expectancies (eight items), and negative affect expectancies (11 items). This three-factor structure represented the negative sending expectancies as one domain related to negative affect and emotions.

<center>Expectancies Conclusion and Study Hypothesis Two</center>

The data on alcohol and sex expectancies demonstrates how different behaviors are similarly influenced by expectancies. In general, these positive sex and alcohol expectancies function similarly to predict engagement (and often more frequent engagement) in a behavior. Based on results from the pilot study, it appears that there are common expectancies about sexting that may function similar to sex and alcohol expectancies. Thus, I hypothesized that positive sexual arousal expectancies would correlate with sexting behaviors. Moreover, positive alcohol expectancies have been found to both initiate and maintain behaviors (Leigh, 1989). Therefore, *I hypothesized that sexual arousal sexting expectancies would predict more frequent sexting behaviors.*

<center><u>Integrating Personality and Expectancies: Application of the AP Model</u></center>

Despite my already delineated hypotheses, the AP Model suggests that direct effects of sensation seeking and sexual arousal expectancies might not tell the whole story. Therefore, integration of sensation seeking with sexual arousal expectancies was warranted.

Expectancies and personality traits are both common risk factors of risky behaviors and expectancies have been found to help explain the relationship between personality and certain risky behaviors. For example, McCarthy, Kroll, and colleagues (2001) suggested that since personality and expectancies are risk factors for maladaptive behaviors, it is possible that personality may influence one's beliefs, which influence one's decision to act in a situation. Specifically, McCarthy, Kroll et al. (2001) tested the alcohol disinhibition theory that those who are disinhibited are more likely to endorse positive expectancies about alcohol use and that these expectancies help explain how disinhibition relates to more frequent alcohol use. They found that positive alcohol expectancies mediated the disinhibition and alcohol use relationship, in that disinhibited

individuals were more likely to form positive beliefs about alcohol use, and in turn these positive expectancies influenced drinking behavior (McCarthy, Kroll et al., 2001).

The mediating role of expectancies on personality and behavior has been found for other risky behaviors as well. For example, with respect to drug use, Hayaki et al. (2011) found that positive expectancies mediated the relationship between impulsivity and frequency of marijuana use. The findings from Hayaki et al. (2011) and McCarthy, Kroll et al. (2001) are important for the current study because they provide evidence that expectancies and personality are related, and that expectancies help explain the relationship between personality and behaviors.

Evidence for a causal relationship between expectancies and behaviors has been supported through longitudinal and experimental studies as well, offering a stronger level of support for the mediational model. Darkes and Goldman (1993, 1998) tested the causal role of alcohol expectancies in predicting drinking behavior by modifying participants' expectancies. Reducing the strength of positive alcohol expectancies led to a decrease in alcohol consumption. Darkes and Goldman (1998) also looked at whether modifying certain domains of expectancies differentially predicted drinking behavior. Reduction of social and pleasure related expectancies most significantly decreased alcohol consumption as compared to arousal expectancies and all positive alcohol expectancies as a whole. The function of different domains of expectancies influencing behavior differently is similar to the function of general semantic memory (Goldman, Greenbaum, & Darkes, 1997). So, if alcohol expectancies function like general semantic memory, it is possible that expectancies for other risky behaviors function similarly.

Other studies on risky sexual behavior and alcohol use have demonstrated how positive expectancies mediate the relationship between sensation seeking and sexual behavior (White, Fleming, Catalano, & Bailey, 2009). Hendershot et al. (2007) tested previous findings that sex-related alcohol expectancies mediated the relationship between sensation seeking and sexual behavior. Hendershot et al. (2007) found that higher levels of sensation seeking associated with stronger endorsement of sexual enhancement expectancies with alcohol use. Showing similar findings, Kalichman et al. (1998) also found that sensation seeking, as compared to alcohol use, was a more important predictor

of risky sexual behavior. Essentially, Hendershot et al. (2007) proffer that "expectancies may serve as a cognitive mechanism whereby biologically based personality factors influence alcohol use or other risky behaviors" (p. 366). Thus, since sensation seekers are more likely to hold strong sexual enhancement expectancies and since positive enhancement expectancies influence the decision to act, sexual arousal sexting expectancies could quite possibly mediate the relationship between sensation seeking and sexting frequency.

Despite the evidence suggesting a mediational relationship with impulsivity and expectancies, other researchers have proposed and supported a moderational relationship between impulsivity and expectancies. For example, Fischer et al. (2003) found that social facilitation expectancies moderated the relationship between extraversion and drinking. Additionally, Cyders and colleagues (2007) found support for a moderational relationship between positive urgency and enhancement drinking motives to predict alcohol use, while Fischer, Anderson, and Smith (2004) found evidence of moderations between the UPPS-P traits and expectancies to differentially predict alcohol use, eating behaviors, and gambling behaviors (Cyders & Smith, 2008a).

Although there is some evidence to define and test a moderational relationship between impulsivity and expectancies, I tested a mediational model for the following reasons: First, data in support of the mediational analysis have been based on longitudinal research designs in addition to cross-sectional designs, whereas data in support of the moderational analyses have been primarily based on cross sectional designs. Thus, I determined that the longitudinal designs provided stronger evidence than the cross-sectional designs. Second, the Hendershot et al. (2007) data, which found that sex-related alcohol expectancies mediated the relationship between sensation seeking and sexual behavior, offered a nice parallel to my proposed constructs and model, and thus I found this data to offer strong evidence in support of a mediational model of effects.

AP Model Conclusion and Study Hypothesis Three

Based on the above data that suggested a mediational relationship between impulsivity and expectancies to predict risk-taking, *I hypothesized that sexual arousal expectancies would partially mediate the relationship between sensation seeking and sexting frequency.*

Integrating Sensation Seeking and Expectancies for Sexting: Study Hypotheses

In summary, the study hypotheses were as follows:

Hypothesis One

Sensation seeking would predict increased sexting frequency. The role of sensation seeking in sexting was based on findings that high sensation seekers are more likely to engage in risky sexual and hookup behaviors (e.g., Aluja, García, & García, 2003; Justus et al., 2000; Miller et al., 2004; Paul et al., 2000; Vélez-Blasini, 2008; Zapolski et al., 2009; Zuckerman, 1971). Additionally, based on literature on mobile phone and internet use, these types of computer-mediated communication have been found to be possible new types of addictive behaviors also related to sensation seeking (e.g., Bianchi & Phillips, 2005; Billieux et al., 2007; Billieux et al., 2008). Katz, Fromme, and D'Amico (2000) suggest that "anticipatory pleasure or arousal is reflected in high sensation seekers' and low socially conforming individuals' beliefs about potential positive outcomes of risk-taking behavior" (p. 17). In other words, the need for excitement and pleasure associated with sensation seeking influences beliefs and expectancies about situations. Therefore, it is plausible that sensation seeking is associated with sexual arousal expectancies of sexting.

Hypothesis Two

Positive sexual arousal sexting expectancies would predict increased sexting frequency. This was supported by the literature suggesting the role of positive alcohol and sex expectancies to their respective behaviors, which was presented above (e.g., Cooper et al., 1998; Dermen & Cooper, 1994a, 1994b; Goldman & Darkes, 2004). For example,

positive expectancies have been found to both initiate and maintain behavior tendencies (Leigh, 1989), and a causal relationship in which positive expectancies predict alcohol use has also been found (Darkes & Goldman, 1993, 1998). Moreover, sex-related alcohol expectancies have been found to influence individuals' sexual and drinking behaviors, (Patrick & Maggs, 2009), and sexual motives have also been found to influence individuals' sexual behaviors (Cooper et al., 1998).

<div align="center">Hypothesis Three</div>

Positive sexual arousal sexting would mediate the relationship between sensation seeking and sexting frequency. This was based on sensation seekers' tendency towards pleasure, risky sex, and arousal, and based on the finding that higher levels of sensation seeking are associated with stronger endorsement of sexual enhancement expectancies with alcohol use (Hendershot et al., 2007). Also, data suggest that sex-related alcohol expectancies mediate the relationship between sensation seeking and risky sex with alcohol use (Hendershot et al., 2007; Kalichman et al., 1998). Those who frequently engage in risky behaviors are more likely to hold strong positive expectancies and weaker negative outcome expectancies about a situation (Katz et al., 2000). As such, sensation seekers tend to hold more positive expectancies based on their tendency towards risk and excitement. Patterson and Newman (1993) theorized that disinhibited individuals or "neurotic extraverts" (similar in characteristics to sensation seekers) are more active in seeking rewards and in return do not learn from punishment (as cited in McCarthy, Kroll et al., 2001); thus they "are more likely to maintain positive expectancies for the outcomes of their actions and less likely to develop negative, cautionary expectancies" (McCarthy, Kroll et al., 2011, p. 389). Related to sex, Katz et al. (2000) found that sensation seeking positively associated with positive outcome expectancies for risky sexual behavior. This provided support to hypothesize that sensation seeking would associate with positive sexual arousal expectancies based on sensation seekers' appeal towards pleasure and their greater tendency towards sexual behaviors (e.g., Cyders et al., 2009).

Additional Hypotheses

Although the hypotheses are incremental and based on the existing literature and pilot data, it was possible that the first two hypotheses would not be supported and thus the mediational model would not be tested. Therefore, I also proposed to replicate the factor structure of the Sextpectancies Measure (including both sending and receiving sext expectancies), and hypothesized two alternative models based on two possible factor structures of sending expectancies.

I proposed two separate models of the Sextpectancies Measure to be tested because based on the exploratory factor analysis, the sending expectancies items yielded two possible factor structures: The positive interpersonal sending expectancies and positive sexual arousal sending expectancies were both distinct factors; however, the other two factors had many overlapping items relating to negative sending sext expectancies, and when combined as one factor, the negative sending expectancy items had good overall scale reliability ($\alpha = .877$) (Dir et al., 2011b). Although the items all represented negative sending expectancies, it appeared that there could be two separate factors related to negative sending sext expectancies: one factor related to negative interpersonal expectancies (such as feeling vulnerable to others or being seen as immature) and one factor related to negative self-consciousness expectancies (such as feeling guilt, shame, and low self-esteem). Thus, I tested the fit of two different models of sending sext expectancy domains.

The first model (Model A; Figure 1) entailed four domains of sending sext expectancies: positive sexual arousal-related expectancies, positive interpersonal-related expectancies, negative interpersonal-related expectancies, and negative self-consciousness-related expectancies. The model also consisted of three domains of receiving sext expectancies: positive affect-related expectancies, negative interpersonal-related expectancies, and negative affect-related expectancies (see Table 3a-b).

The second model (Model B; Figure 2) entailed the same three factors of receiving expectancies and a three-factor model of sending expectancies consisting of the following domains: positive sexual arousal-related expectancies, positive interpersonal-related expectancies, and negative affect-related expectancies. This second model was

proposed because based on results from the exploratory factor analysis, the two factors regarding negative sending expectancies had items that overlapped in both domains, and when items were combined into one domain, the factor showed good internal consistency ($\alpha = .877$) (Dir et al., 2011b).

METHOD

Design

The study utilized a cross-sectional design. Thus, despite testing a mediation model, direction of causation among variables was not confirmed.

Sample

The sample consisted of 611 undergraduate students at IUPUI between 18 and 51 years of age ($M = 21.2$, $SD = 5.4$). The sample was 77.3% female and 75.8% Caucasian (see Table 4 for demographic information). Participants were students enrolled in an introductory psychology course and received .5 credits towards their B104/105 course requirement for participation.

Measures

Demographics

A 12-item self-report measure to collect background information and demographics was completed at the beginning of the study. Items included age, gender, year in school, sexual orientation, relationship status, general mobile phone and internet use, and race or ethnicity (see Appendix A for copy of scale).

Sexting Behaviors

Dir et al. (2011a) created the Sexting Behaviors Scale (SBS) to assess the
frequency and prevalence of the following sexting behaviors: receiving sexts; sending
sexts; and content of messages (i.e., pictures or sexually suggestive content). There are
also items assessing other behaviors, such as using social networking sites to exchange
messages or publicly post sexually suggestive content. The scale consists of 11 items
with responses based on a 5-point Likert scale from 1 (*never*) to 5 (*frequently or daily*)
and has good internal consistency (α = .883) (Dir et al., 2011b). The internal reliability of
the SBS for the study sample was .893. Sexting frequency was expressed as the mean
score of the SBS (see Appendix B for copy of scale).

Sexting Expectancies

Dir et al. (2011b) created the Sextpectancies Measure based on preliminary pilot
data collected to assess for people's expectancies of sending and receiving sexts. The
scale is a 53-item scale and responses are based on a 5-point Likert scale from 1 (*not true
at all*) to 5 (*true of myself*). The development of this scale was previously described in the
proposal (see above). The scale measures expectancies of both sending and receiving
sexts. The sending sext expectancy domains are positive sexual arousal expectancies,
positive interpersonal expectancies, negative interpersonal expectancies, and negative
self-consciousness expectancies. The receiving expectancy domains are positive affect
expectancies, negative interpersonal expectancies, and negative affect expectancies. The
primary scale of interest for the current study analyses was the positive sexual arousal
sending sext expectancy scale, which had good internal consistency (α =.856 in the pilot
sample (Dir et al., 2011b). The scale that was used for the final analyses had 13 items,
and the internal reliability for the sexual arousal expectancy scale was .897 (see
Appendix C for copy of scale).

Sensation Seeking

The UPPS-P (Lynam et al., 2007) is a 59-item self-report scale that measures five facets of impulsivity: lack of premeditation, lack of perseverance, positive urgency, negative urgency, and sensation seeking (Whiteside & Lynam, 2001). Responses are based on a 4-point Likert scale from 1 (*agree strongly*) to 4 (*disagree strongly*). The sensation seeking (SS) subscale (12 items) will be used for the current study analyses and has good internal consistency estimates ($\alpha = .840$) (Cyders et al., 2009). Internal reliability of the SS scale for the study sample was .846 (see Appendix D for copy of scale).

Procedure

Participants were recruited through Sona Internet database available to IUPUI students enrolled in B104/105 courses during the fall semester. All participants had to be at least 18 years old to participate. Upon signing-up to participate on Sona, participants were prompted and given a link to the survey's website. All study measures, including informed consent and debriefing forms, were available on the study website on Survey Monkey. Internet self-reports were used to maintain the anonymity of participants and their privacy, and participants had the option to discontinue their participation at any time during the survey without penalty. Total time to complete the survey was between 45 minutes and one hour. Participants were required to provide their e-mail address upon completion of the survey in order to receive credit for their participation; however, e-mail addresses were de-identified and were not linked to any of their responses or personal information. In return for their participation, participants were rewarded .5 research credits towards their B104/105 course research requirement.

RESULTS

Data Cleaning and Screening

Data was analyzed using SPSS, Version 19. Data were initially examined to assess for missing data and to ensure that all values were within the appropriate range. Data were confirmed to be missing at random based on criteria suggested by Schafer and Graham (2002), and thus I imputed missing data using the linear interpolation approach. Monte Carlo studies have been conducted that compare a set of data imputation procedures to traditional, alternative methods of handling missing data, including deletion of missing cases and mean imputation and have found that linear interpolation approaches produce less biased estimates of full sample values (Enders, 2006). There were no outliers. The data were examined to ensure normality and all of the scales met the normality criteria both in terms of skewness and kurtosis (Kline, 2011) (see Table 5). I then calculated descriptive sample information, such as mean age, gender, and diversity of the sample (see Table 4 for sample demographics information).

Study Hypothesis One: Sensation Seeking would predict more frequent Sexting

First, bivariate correlations were calculated and there was a significant correlational relationship between sensation seeking (based on UPPS-P sensation seeking scale score) and sexting frequency (mean total score from the SBS) ($r = .213$, $p = .010$). Next, I conducted a hierarchical multiple regression analysis examining the role of sensation seeking in predicting sexting frequency (mean score from the SBS). Sexting frequency was the dependent variable and sensation seeking was the independent variable. Sex and age were entered in Step 1 of the regression analysis and sensation seeking was entered in Step 2 of the equation. There were no significant differences in

sexting based on gender (β = -.056, p = .173) or age (β = .019, p = .637). Sensation seeking significantly predicted sexting frequency (β = .215, $p < .001$), supporting proposed hypotheses (see Table 7 for regression results).

Study Hypothesis Two: Positive Sexual Arousal Sexting Expectancies would predict more frequent Sexting

In order to test whether sexual arousal expectancies predict sexting frequency, a bivariate correlation was first calculated to determine whether there was a significant correlational relationship. There was a significant correlational relationship between sexual arousal sexting expectancies (based on the mean sexual arousal sending score from the Sextpectancies Measure) and sexting frequency (r = .448, p = .010). Next, in order to test whether sexual arousal expectancies predicted sexting frequency, a hierarchical multiple regression analysis was run with sexual arousal expectancies as the independent variable and sexting frequency as the dependent variable. Age and sex were entered in Step 1 and sexual arousal expectancies were entered in Step 2. There were no significant differences in sexting based on gender (β = -.056, p = .173) or age (β = .019, p = .637). Sexual arousal sexting expectancies significantly predicted sexting frequency (β = .428, $p < .001$), supporting proposed hypotheses (see Table 8 for results).

Study Hypothesis Three: Positive Sexual Arousal Expectancies would partially Mediate the Relationship between Sensation Seeking and Sexting frequency

I conducted mediational tests following the suggested procedures for the product of coefficients approach to mediation (as suggested by MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Preacher & Hayes, 2008). According to MacKinnon et al. (2002), this method of testing for mediation holds more power compared to the earlier significance test of mediation proposed by Baron and Kenny (1986).

MacKinnon et al. (2002) proposed a mediation model consisting of two regression equations: (1) The mediator (M) acting as the dependent variable (DV) regressed onto the independent variable (IV); and (2) the DV regressed on both the mediator and the IV (MacKinnon et al., 2002). Following this model, two simultaneous regression equations

were computed to represent the indirect link in the model from sensation seeking to sexual arousal expectancies to sexting frequency (see Figure 4).

First, path a, the effect of sensation seeking (SS) on sexual arousal expectancies (M), was computed by performing a simultaneous regression: $M = ax_{ss} + SE_a$ (where M = sexual arousal expectancies as the DV, a = the unstandardized regression coefficient for SS predicting M, x_{ss} = value for SS as the IV, and SE_a = the standard error). Sensation seeking significantly predicted sexual arousal sexting expectancies ($\beta = .199$, $p < .001$).

Next, path b, or the effect of sexual arousal expectancies (without the effect of SS on M) on sexting frequency, was computed by performing a simultaneous regression: $y = ax_{ss} + bx_M + SE_b$ with SS and M entered in the same step (where y = sexting frequency as the DV, a = the regression coefficient for SS predicting sexting, x_{ss} = value for SS as an IV, b = unstandardized regression coefficient for M predicting sexting, x_M = value for M as an IV, and SE_b = standard error). Sexual arousal expectancies (SAexps) significantly predicted sexting frequency, controlling for age and sex ($\beta = .428$, $p < .001$), suggesting that SAexps have a direct effect on sexting frequency (see Table 9 for results).

Path c represents the total effect of sensation seeking in predicting sexting frequency. This was calculated previously (as discussed above in hypothesis one) and sensation seeking significantly predicted sexting frequency ($\beta = .215$, $p < .001$). This total effect represents the direct effect of SS on sexting as well as the indirect effect of SS on sexting via M, or the effects of SS on other factors that may also influence sexting (i.e., SAexps).

Path ab represents the indirect effect of SS on sexting frequency through SAexps, and is represented as the product of the path a, the effect of SS on SAexps, and path b, the effect of SAexps on sexting frequency. The indirect effect (ab) of SS on sexting through SAexps was significant ($\beta = .085$, $p < .001$).

Path c' represents the direct effect of SS on sexting frequency, thus partialing out for the effects of SAexps. The direct effect was calculated as $c' = c - ab$, or rather, the difference between the total and indirect effects. Sensation seeking alone significantly predicted sexting frequency ($\beta = .130$, $p < .001$). Moreover, this suggests that SAexps

partially mediates the effect of SS on sexting, because even when subtracting out the effects of SAexps, SS still significantly predicts sexting, even though the effect of SS is reduced.

Next, in order to verify the significance of the mediation, I used the SPSS Macro for mediation provided by Preacher and Hayes (2008). This macro uses the product of coefficients method to determine the significance of the mediation by focusing on the indirect effect (*ab*). According to MacKinnon et al. (2002), significant mediation effects have confidence intervals (CI) that do not contain zero. In the Preacher and Hayes (2008) procedures, *a*, *b*, *c*, and *c'* paths are calculated (individual paths calculated separately are discussed above) and bootstrapping is used to compute confidence intervals for the indirect effects. Based on results the indirect effect, *ab*, of sensation seeking on sexting frequency through sexual arousal expectancies was significant ($\beta = .085$, $p < .001$). The bootstrap results for the model suggested a significant indirect effect of SS on sexting frequency through SAexps based on confidence intervals, 95% CI [.0511, .1241]; this suggests a partial influence of sexual arousal expectancies on the relationship between sensation seeking and sexting frequency (see Appendix E for SPSS output from provided macro). The mediational effect of sexual arousal expectancies supports proposed hypotheses (see Figure 4 for mediation model and detailed results).

Supplementary Hypotheses: Factor Structure of the Sextpectancies Measure

I first tested the reliability and validity of the Sextpectancies Measure by conducting a confirmatory factor analysis in Mplus (Muthén & Muthén, 2010). Specifically, categorical confirmatory factor analyses were run using the weighted least squares mean variance (WLSMV) method. To evaluate model fit, I examined the following fit indices to determine the best fitting model: the Comparative Fix Index (CFI; Bentler, 1990) and the root mean square error of approximation (RMSEA). Guidelines for what constitutes a good fit vary, although a CFI above either .90 or .95 is thought to represent very good fit (Hu & Bentler, 1999; Kline, 2011) and RMSEA values of .06 or lower are thought to indicate a close fit, .08 a fair fit, and .10 a marginal fit (Browne &

Cudeck, 1992; Hu & Bentler, 1999). Individual items were used as predictors of underlying latent variables. All latent variables were allowed to intercorrelate.

Confirmatory factor analyses were determined based on two theory-driven hypothesized models of expectancy factor structure. Model A (see Figure 1) consisted of three domains of receiving expectancies: negative interpersonal expectancies (six items), negative affect expectancies (nine items), and positive affect expectancies (10 items); and four domains of sending expectancies: positive sexual arousal expectancies (nine items), positive interpersonal expectancies (eight items), negative self-consciousness expectancies (five items), and negative interpersonal expectancies (six items). Model B (see Figure 2) consisted of three domains of receiving expectancies (same as Model A) and three domains of sending expectancies: (nine items), positive interpersonal expectancies (eight items), and negative affect expectancies (11 items). Table 3a and Table 3b illustrate factor loadings for items in the proposed models.

Both Model A and Model B were not positive definite as reported by Mplus, and thus the model was not estimated. One property of a positive definite model is that the eigenvalues are positive (Kline, 2011); however, both Model A and B had negative eigenvalues for some items. One potential reason for these negative eigenvalues could be due to the high collinearity between receiving and sending expectancies. In both Model A and B, receiving and sending expectancies were too highly correlated and had latent variable correlation values greater than 1.0. Thus, I next tested the receiving and sending expectancy domains individually by running a categorical factor analysis on sending expectancies and receiving expectancies separately. Using this approach, the negative (negative interpersonal, negative self-consciousness) and positive (positive interpersonal, positive sexual arousal) expectancy domains did not load together on an underlying latent variable (i.e., receiving or sending expectancies). Additionally, correlations between positive interpersonal and positive sexual arousal expectancies were too high, indicating a potential linear dependency between the two factors or indicating that these factors are measuring the same thing.

Since the hypothesized models and revised approaches did not work, I next re-evaluated each expectancy subscale and the individual items. The proposed models

yielded large negative variance and low factor loadings; one potential reason for this could be because there are a large number of items included in each factor. Thus, using SPSS I ran reliability statistics on each of the expectancy factors and examined the inter-item correlation, factor loadings, and overall scale reliability as measured by Cronbach's alpha, in order to reduce the number of items in each factor down to the best few items. The sending expectancies were redefined into two factors: negative expectancies (five items) and positive sexual arousal expectancies (13 items). There are more items on the sexual arousal expectancies scale because I retained two items for content, and all items appeared to add unique variance to the scale (see Table 6a for factor loadings and correlations). Receiving expectancies were also redefined into two similar factors: negative expectancies (five items) and positive sexual arousal expectancies (five items). Table 6a-b reports the reliability statistics and factor loadings for individual items in the proposed factor structure and revised factor structure. This model was then tested in Mplus as described above.

In this updated model, four latent variables were identified as follows: sexual arousal sending expectancies, negative sending expectancies, sexual arousal receiving expectancies, and negative receiving expectancies, with individual items predicting underlying latent variables. Additionally, two higher order factors were included: sexual arousal expectancies and negative expectancies, with sexual arousal receiving and sending expectancy factors predicting sexual arousal expectancies and negative receiving and sending factors predicting negative expectancies. I evaluated the model fit as described above. This model incurred the best fit in comparison to the originally proposed models; however, the model fit indexes showed varying levels of fit. For one, the model chi-square (χ^2) index showed a poor fit ($\chi^2 = 1877.324$, $df = 345$, $p < .001$), based on the premise that a model that perfectly fits the data should have a χ^2 index near zero, and subsequently, that higher chi-square values and significant values suggest poorer fit (Kline, 2011). However, some argue that this index is too sensitive, and can be influenced by sample size and correlations between observed variables, among other variables (see Kline, 2011); thus, I examined other fit indexes to determine model fit. As

measured by the CFI, the model had good fit (CFI = .926) as suggested by (Hu & Bentler, 1999; Kline, 2011); however, the RMSEA suggested a fair model fit (RMSEA = .085, $p < .001$), as proposed by others (Browne & Cudeck, 1992; Hu & Bentler, 1999). Figure 3 illustrates the final model of the sexting expectancies factor structure.

DISCUSSION

The overarching goals of this study were to better understand sexting behaviors, validate a measure to assess sexting expectancies to understand reasons what people expect from sexting, and to test whether personality and social learning are important risk factors for sexting behaviors.

AP Model Broad Research Implications

The identified path from sensation seeking to sexual arousal expectancies to sexting offers further strength for the growing applicability of the AP Model for understanding pathways to behavior. The overarching theory of the AP Model explains that personality not only directly influences behavior, but also indirectly influences behavior by influencing social learning. This gives rise to the importance of personality in influencing one's social learning process and cognition, and moreover, the utility of the AP Model to explain how personality and social learning influence a number of different behaviors, including alcohol use (Cyders et al., 2009; McCarthy, Kroll et al., 2001; McCarthy, Miller et al., 2001; Settles et al., 2010; Smith & Anderson, 2001), marijuana use (Vangsness et al., 2005), gambling (Cyders & Smith, 2008a), eating disordered behaviors (Combs, Pearson et al., 2010; Combs, Smith et al., 2010; Pearson et al., 2010), and smoking (Spillane et al., 2010), and now, sexting. Previously, risky behaviors were understood according to one of two main risk literatures: either personality risk or psychosocial learning risk (see Smith & Anderson, 2001); however the validity of the AP Model in the current study further justifies the need to integrate risks into a more comprehensive model to understand risk behaviors (Smith & Anderson, 2001; Anderson et al., 2003). Moreover, as Hendershot et al. (2010) explain, variable use

of the model with different constructs (i.e., different behaviors, expectancies, and personality traits) increases the reliability and external validity of the theoretical model for other behaviors.

<center>Sexting-Specific AP Model Implications</center>

Overall, the study supported the hypothesized role of sensation seeking influencing increased sexting behaviors, through, in part, its effect on sexting expectancies, as suggested by the AP Model, thus validating the role of the AP Model for sexting behaviors. This study suggests that sensation seekers are more likely to focus on rewarding aspects of sexting, in particular, sexual arousal expectancies, and that these expectancies, in turn, increase the likelihood of engaging in sexting behaviors.

Sensation seeking is conceptualized as a tendency toward arousal and excitement (Whiteside & Lynam, 2001), and this study suggests that this tendency predisposes one to focus on the sexually arousing and exciting aspects of sexting, in turn leading them to potentially sext again. Findings from the current study are parallel to other studies that have found that sex-related alcohol expectancies significantly mediated the relationship between sensation seeking and risky sex with alcohol use (Hendershot et al., 2007; Kalichman et al., 1998). This is further evidence that the potential for sexual-related feelings or outcomes is one reason why people sext, and that those who are particularly attracted to excitement and arousal, such as sensation seekers, are more likely to learn these rewarding aspects of sexting and act again. However, since the study was cross-sectional, these results of a mediation cannot be completely confirmed, and thus, further testing of the model is required to suggest a stable relationship between these variables. Thus, the next step is to validate this AP Model for sexting using a longitudinal study design or with a sample of younger adolescents in order to determine the direction of influence among these variables.

The Sextpectancies Measure

Although the factor structure for the Sextpectancies Measure was not consistent with the hypothesized models, the resulting factor structure with higher order negative and positive domains is consistent with other measures of expectancies, such as alcohol use (see Leigh & Stacy, 1993). Across most measures of alcohol expectancies, at the highest order of factor structure are positive and negative domains of alcohol expectancies (e.g., Goldman et al., 1997; Leigh & Stacy, 1993). Although positive expectancies appear to be a stronger predictor of behavior, according to theories of learning, both the rewarding and punishing aspects of a behavior shape one's beliefs (Leigh & Stacy, 1993). With respect to sexting, the current study only suggested the influence of positive sexting expectancies behavior, although there was still a negative relationship between sexting behaviors and negative expectancies ($r = -.456$, $p < .001$).

One of the broad goals of the study was to better understand sexting behaviors, and the Sextpectancies Measure provides essential empirical information in deciphering what people expect will happen when they sext, both potentially rewarding and punishing outcomes. Additionally, this study offers further support for the utility of using social cognition to understand and predict behavior. Expectancies have been used as an "explanatory device" to study multiple behaviors, such as alcohol use, drug use, sex, gambling, and eating (Reich et al., 2010, p. 13). As a result of this study, expectancies can also be used to understand people's decision-making process with regard to sexting, as well as beliefs about the outcomes from sexting. Next, I will discuss specific findings about common sexting expectancies and how these are parallel with what we already know about sexting.

Positive Expectancies

Based on study results, common positive expectancies and beliefs about sexting appear to be mainly sexual in nature. Identification of common sexual arousal sexting expectancies revealed beliefs sexting would enhance flirting and intimacy, increase attraction between individuals, make one excited, and increase the potential for sexual activity (see Table 6a for items and factor loadings). These beliefs are consistent with one

national survey that found that the main reasons for sexting among young adults and adolescents were "to initiate sexual activity" and "to explore or experiment with sexuality" (Lenhart, 2009). Sexual-related expectancies from the current study, along with previously reported motives and beliefs related to sexual behavior, suggest a potential relationship between sexting and sexual behavior. Subsequently, sexting and sexual behaviors had a strong relationship in the current sample ($r = .372$, $p < .001$), and this is consistent with other recent evidence suggesting an association between sexting and sexual behavior (Henderson, 2011). These findings warrant further research into understanding the relationship between sexting and sexual behaviors, and whether or not problematic sexting is related to more risky sexual behaviors.

Negative Expectancies

In identifying the negative beliefs and expectancies about sexting, common expectancies were based in beliefs that sending sexts would lead one to feel ashamed, embarrassed, immature, inappropriate, and foolish (see Table 6a), and that receiving sexts would make one avoid the sender, and lead one to feel uncomfortable, "turned off" or disgusted, and awkward (see Figure 3 and Table 6b for items and factor loadings). These sexting beliefs support media and anecdotal reports about the potential emotional distress that can result (e.g., Jolicoeur & Zedlewski, 2010). Moreover, these negative expectancies are parallel to the feelings of guilt, regret, anxiety, and shame that young adult women often experience after "hooking up" (Stinson, 2010). Importantly, this emotional distress from sexting suggests that this is not just an innocuous and youthful behavior, but that it has the potential for more serious consequences, such as social humiliation, and even worse, psychological distress leading to suicide (Henderson, 2011; Quaid, 2009).

Overall, results from the Sextpectancies Measure offer important implications for further research into the relationship between sexting and sexual behaviors, and provide important information to further what we know about sexting. Prior to this study, there was little known about sexting, and these expectancies offer important information into common beliefs about the outcomes of sexting. Sexual arousal expectancies influenced

sexting frequency in the current study, suggesting that these positive expectancies may affect some individuals' decision to sext. On the other hand, the current study did not examine the influence of negative expectancies on sexting behavior, although the findings suggest a negative relationship between negative expectancies and sexting frequency ($r = -.456$, $p < .001$). Thus, further investigation is needed to determine whether these negative expectancies or knowledge of potential negative sexting outcomes actually affect behavior. Based on the expectancy literature, negative expectancies have not been shown to be strong predictors of behavior. For example, it is the endorsement of positive alcohol expectancies, rather than negative alcohol expectancies, which has been repeatedly shown to predict drinking behaviors (i.e., Goldman et al., 1991; Patrick & Maggs, 2009). Based on our understanding of memory association networks, content related to reinforcement and activation of behavior is more "retrievable", thus, since positive expectancies delineate the rewarding aspects of drinking, these are more readily available during decision-making as compared to the negative expectancies (Goldman et al., 1991; Leigh, 1989). Thus, it is likely that sexting expectancies function similar to other risk-behavior expectancies, such that positive sexting beliefs are more influential on the decision-making process.

While negative expectancies might not offer predictive value, these common beliefs are consistent with media reports and anecdotal evidence on the significant risks and negative consequences associated with sexting (e.g., Chalfen, 2009; Jolicoeur & Zedlewski, 2010), thus, lending empirical support for sexting risks. Next I will propose the identification of sexting as a risk-taking behavior, based on previous findings and evidence from the current study.

Validation of Sexting as a Risky Behavior

The current study also supports the suggestion that sexting is, in fact, a risky behavior. As discussed above, results from the Sextpectancies Measure revealed negative expectancies from both sending and receiving sexts, as well as beliefs about common risks of sexting (Table 2 displays these negative outcomes). Conspicuously, 90% of the sample agreed that people (either others or oneself) regret sexting, implying the contingency of negative consequences. These negative expectancies, as well as the potential negative outcomes associated with sexting, offer justification for sexting as a potential risk-taking behavior. Beyond the potential risks, the role of sensation seeking in predicting sexting also offers insight into sexting as a risk-taking behavior.

On another level, sensation seeking is an important risk factor for risky sexual behaviors (Justus et al., 2000; Paul et al., 2000; Vélez-Blasini, 2008), problematic mobile phone use (Billieux et al. 2007, 2008), alcohol use (e.g., Cyders et al., 2009; Cyders et al., 2010; Fischer & Smith, 2008), and problematic internet use (Kim et al., 2008; Mehroof & Griffiths, 2010), especially cybersex and internet pornography (Perry et al., 2007). Given that sexting is also predicted by sensation seeking offers some support for the conceptualization of sexting as another risky behavior.

Secondary to direct risks from sexting, sexting may also be a gateway behavior to risky sexual behaviors, and a distal risk factor for health risks related to sexual risk-taking, such as unplanned pregnancies (Scott, Wildsmith, Ryan, Schelar, & Steward-Streng, 2011), sexually transmitted infections (STI; CDC, 2010, 2011; Weinstock, Berman, & Cates, 2004), and HIV (CDC, 2010, 2011). In the current sample, sexting significantly predicted sexual behaviors ($\beta = .372$, $p < .001$), and this is consistent with other findings among college students that sexting frequency correlated with number of sex and oral sex partners (Henderson, 2011).

The current study only demonstrates a model for predicting sexting frequency, rather than problematic sexting. Thus, further research is warranted in order to render the relationship between sexting and sexual behaviors, as well as problematic sexting and risky sexual behaviors. Based on findings that sexting predicts sexual behavior, it is rational to hypothesize that problematic sexting may predict more risky sexual behavior.

For one, there is some evidence that may support the idea that sensation seeking and sexual arousal expectancies predict problematic sexting, rather than just sexting frequency. Hendershot et al. (2010) recently found that sexual sensation seeking and sex-related alcohol expectancies led to increased risk for HIV, a consequence of risky sex, suggesting that sensation seeking could potentially lead to negative outcomes associated with sexual risk-taking. Based on the potential negative outcomes related to sexting, it is likely that sensation seeking, sexting expectancies, and sexting could be precursors to both sexual risk-taking and negative sex-related outcomes. Of note, current research is underway to assess sexting behaviors in a clinical sample of adolescents with substance use disorders. This high-risk population is also prone for sexual risk-taking, and thus, should provide further insight into sexual risk-taking and sexting risk.

<div align="center">Clinical Implications</div>

The results from the current study also suggest clinical implications that could be used in the prevention of negative outcomes associated with sexting. Darkes and Goldman (1993, 1998) found that altering or challenging one's expectancies can change their behavior. Reduction of positive sexual enhancement alcohol expectancies by a procedure challenging positive beliefs of alcohol resulted in a reduction of sexual-related alcohol expectancies, and in turn, a decrease in drinking frequency (Darkes & Goldman, 1993, 1998), demonstrating the efficacy of expectancy challenge techniques in the intervention of problematic alcohol use (Darkes & Goldman, 1993, 1998). Thus, expectancy challenge techniques could potentially be used in reducing sexting behaviors, which could help prevent negative outcomes associated with sexting. However, based on the AP Model, sensation seeking also has a direct effect on sexting, independent of expectancies. So, while expectancy challenge may change one's learned beliefs about sexting, it does not change one's disposition or tendency to act and fulfill these urges.

On another level, behavioral interventions may be used to address impulsive tendencies related to sensation seekers' need for excitement. For example, one technique that has been particularly successful in targeting sensation seekers' risk-taking tendencies is the use of media messages with "high sensation value" that promote alternative and

safe ways of seeking excitement in fulfilling these urges for high sensation and arousal (Palmgreen, Donohew, Lorch, Hoyle, & Stephenson, 2001; Stephenson, 2003; Zapolski et al., 2010). Based on the digital nature of sexting, these media messages could be particularly effective in preventing or intervening on problematic sexting behaviors in order to decrease negative outcomes. It is important to stress the importance of developing effective intervention and prevention techniques for sexting behaviors, due to the potential negative consequences directly associated with sexting, such as the possibility of having private intimate information spread to others, being pressured by peers, or even getting into legal trouble (see Dir et al., 2012), as well at the potential for sexting as a gateway behavior to risky sexual behaviors and negative consequences associated with sexual risk-taking (e.g., Henderson, 2011).

Study Limitations

The current study had some limitations. First, there was no other existing measure of sexting expectancies with which I could compare and validate the Sextpectancies Measure; even more so, the lack of empirical literature on sexting limited empirical support of the Sextpectancies Measure or of the study in general. I experienced some difficulty in testing the factor structure of the Sextpectancies Measure with CFA, and this could in part be due to "holes" in conceptualizing potential sexting outcomes. Understanding of sexting was gained through media reports and prevalence rates of sexting (see Chalfen, 2009; TNC, 2008), as well as through empirical literature on related constructs, such as risky sexual behaviors, mobile phone and internet use, and alcohol use.

The study sample had limitations also. Although I found that sexting was prevalent in the sample, the study only focused on a population of young adults, and thus the prevalence of sexting among adolescents and children is still unknown. Additionally, the majority of the sample was female (78.4%) and not representative of gender proportion in the population. Moreover, no significant gender differences in sexting (see Table 1) or sensation seeking (see Table 7) were found, and this could have been due to the largely female sample.

There were also limitations in the study design. This study was cross-sectional in nature, and thus no conclusions were made on causation. Moreover, the study hypothesized a causal test of mediation (based on previous research as previously explained in the proposal), which is usually supported in longitudinal studies. Thus, although the results supported a significant mediating effect of sexual arousal expectancies on sensation seeking and sexting, the direction of this relationship cannot be confirmed. Thus, future assessment of this AP Model with sexting using a longitudinal design is necessary to determine the direction and order of influence of the variables on one another.

Most important, there are likely many more factors that predict sexting that were not tested in the study. Considering the limited literature on sexting, there has been no proposed model of risk factors leading to sexting (see Dir et al., 2012). The current study only tested one path to sexting, namely the direct and indirect effect, through sexual arousal expectancies, of sensation seeking on sexting. However, this is only one path to sexting, and future research should seek to understand other paths to sexting behaviors. Thus, I acknowledge that there are many possible risk factors that could contribute to sexting behaviors, although only one path was tested (see dotted line of Figure 5). The overarching goal of the study was to take the first step towards developing a risk model of sexting. Figure 5 illustrates a proposed sexting risk model with potential sexting risk factors. Thus, future studies should work towards identifying a more comprehensive risk model for sexting, with the AP Model as being one component of this model. I will briefly discuss some other possible aspects that could potentially affect sexting behaviors.

Other personality traits are likely to influence one's sexting behaviors. For example, positive urgency has been found to predict risky sexual behavior among college students (Zapolski et al., 2009). It is likely that experiencing extreme positive emotions may lead some individuals to act rashly and thus, sext. Those who act rashly while experiencing positive emotions may focus only on the positive consequences that result from sexting and fail to consider the risks involved. Also, these highly urgent individuals may have stronger positive sexting expectancies related to sexual arousal or interpersonal

expectancies that may also contribute to their likelihood of sexting. Results from another pilot study found that negative urgency and sensation seeking significantly predicted sexting (Dir et al., 2011a).

Furthermore, negative urgency may predict sexting behaviors since Dir et al. (2011a) found it to be a significant predictor of sexting. Additionally, negative urgency is also a strong predictor of mobile phone dependence and the number of text messages sent per day (Billieux et al., 2007; Billieux et al., 2008). Negative urgency may also predict sexting due to its association with the FFM trait, Neuroticism, which is associated with having spontaneous sex (specifically having sex with someone known less than 24 hours) (Gute & Eshbaugh, 2008). Those who act rashly when experiencing negative emotions may use sexting as a coping mechanism, such as those who endorse sexual coping motives (see Cooper et al., 1998).

Pertaining to social-related motives of sexting, such as seeking attention and acceptance, it is likely that personality traits such as high levels of agreeableness from the FFM and lower levels of self-esteem may predict more sexting (see Dir et al., 2012). Evidence for self-esteem contributing to sexual behavior has been found in those who engage in sex in order to seek peer approval or self-affirmation (Cooper et al., 1998).

Additionally, based on the importance of the FFM in predicting problematic mobile phone and Internet use, alcohol use, and sexual behavior (see Dir et al., 2012), it is likely that other FFM traits may offer insight into who is more or less likely to sext.

Aside from stable personality factors, other individual characteristics may also influence sexting behaviors. For instance, Price and Hyde (2009) confirmed that academic achievement, pubertal status, involvement in community activities, relationship status, and possible biological factors all associated with the onset of sexual behavior among adolescents and young adults. Stronger religious, spiritual, or cultural beliefs are also associated with less risky sexual behavior among adolescents (Chia-Chen Chen, Thompson, & Morrison-Beedy, 2010). It is likely that these individual factors may influence sexting behaviors. Additionally, based on these factors' prediction of sexual behavior, it is likely that one's sexual behavior influences sexting behaviors.

Alcohol use likely increases the likelihood for sexting behaviors. Based on findings by Dir et al. (2011a), alcohol use mediated the relationship between sensation seeking and sexting behaviors. Just as sensation seeking predisposes one to alcohol and sexting, the disinhibiting effects of alcohol may increase the likelihood that one will act on impulse, or act due to sex-related alcohol expectancies that may relate to sexting as well. This is similar to the relationship between alcohol, sensation seeking, and unplanned sexual behavior (see Dir et al., 2011a).

Family environment and parental monitoring may also influence individuals' sexting behaviors. Considering that parents are "the earliest and most proximal source of influence on children's behavior," parents have been key factors in the explanation of children's and adolescents' behavior (Latendresse et al., 2008, p. 322). Parallel with social learning theory (see Bandura, 1977), parents' behaviors affect the development of similar behavioral habits in their children (Latendresse et al., 2008). For instance, parents' drinking, smoking, and social behaviors have been found to associate with their adolescents' engagement in these respective behaviors (Latendresse et al., 2008).

Other parental mechanisms also influence adolescent behaviors: parental discipline, parent-child communication, and adolescents' perception of shared activities, parental approval, and parental expectations, among others, have been found to influence adolescents' alcohol and tobacco use (Nash, McQueen, & Bray, 2005; Latendresse et al., 2008). Low levels of parental monitoring and coercive discipline increase the likelihood that adolescents will associate with "substance-using peers" and thus engage in substance use (Nash et al., 2005, p. 19). Poor parental relationships are also a risk factor for early onset sexual behavior in adolescents (Price & Hyde, 2009), and parental disapproval of sex and parental supervision serve as protective factors for sexual risk-taking (Chia-Chen Chen, Thompson, & Morrison-Beedy, 2010). Thus, it is likely that parental monitoring, and possibly parental modeling of similar behaviors, may influence adolescents' sexting behaviors.

Similar to family environment and parental monitoring, an individual's social environment may also influence sexting behaviors. Studies show that spending time with deviant peers is associated with a higher likelihood for substance use among adolescents

(Nash et al., 2005). Additionally, peer approval of alcohol use also influenced adolescents' engagement in drinking (Nash et al., 2005). This is similar to how college students' sexual behaviors are influenced by their peers' attitudes toward sex (e.g., Paul et al., 2000). Additionally, if their social environment is lively, such as a college environment with many parties, alcohol, and large social gatherings, this is related to a greater likelihood for engaging in "hookup" behaviors (Owen et al., 2010). Thus it is likely that the social environment will predict sexting behaviors.

There are most likely many other factors that lead to sexting and it is important that future research further explores more personality traits that may associate with sexting behaviors, as well as other environmental and social factors that may influence sexting. However, the current study was the first study to initiate identification of a sexting risk model.

LIST OF REFERENCES

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Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin, 84*, 888-918. doi:10.1037/0033-2909.84.5.888

Aluja, A., García, Ó., & García, L. F. (2003). Relationships among extraversion, openness to experience, and sensation seeking. *Personality and Individual Differences, 35*, 671-680. doi:10.1016/S0191-8869(02)00244-1

Anderson, K. G., Schweinsburg, A., Paulus, M. P., Brown, S. A., & Tapert, S. (2005). Examining personality and alcohol expectancies using functional magnetic resonance imaging (fMRI) with adolescents. *Journal of Studies on Alcohol, 66*(3), 323-331. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2270701/

Anderson, K. G., Smith, G. T., & Fischer, S. F. (2003). Women and acquired preparedness: Personality and learning implications for alcohol use. *Journal of Studies on Alcohol, 64*(3), 384-392. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12817828

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-215. doi: 10.1037/0033-295X.84.2.191

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182. doi:10.1037/0022-3514.51.6.1173

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*, 238-246. doi: 10.1037/0033-2909.107.2.238

Bianchi, A., & Phillips, J. G. (2005). Psychological predictors of problem mobile phone use. *CyberPsychology & Behavior, 8*, 39-51. doi:10.1089/cpb.2005.8.39

Billieux, J., Van der Linden, M., D'Acremont, M., Ceschi, G., & Zermatten, A. (2007). Does impulsivity relate to perceived dependence on actual use of the mobile phone? *Applied Cognitive Psychology, 21*, 527-537. doi:10.1002/acp.1289

Billieux, J., Van der Linden, M. D., & Rochat, L. (2008). The role of impulsivity in actual and problematic use of the mobile phone. *Applied Cognitive Psychology, 22*, 1195-1210. doi: 10.1002/acp.1429

Black, R. A., Serowik, K. L., & Rosen, M. I. (2009). Associations between impulsivity and high risk sexual behaviors in dually diagnosed outpatients. *The American Journal of Drug and Alcohol Abuse, 35*, 325-328. doi:10.1080/00952990903075034

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods and Research, 21*, 230-259. doi:10.1177/0049124192021002005

Butt, S., & Phillips, J. G. (2008). Personality and self reported mobile phone use. *Computers in Human Behavior, 24*, 346-360. doi: 10.1016/j.chb.2007.01.019

Centers for Disease Control and Prevention (2010). Youth risk behavior surveillance – United States, 2009. *Morbidity and Mortality Weekly Report, 59*, 1-142.

Centers for Disease Control and Prevention (2011). *2010 Sexually transmitted diseases surveillance.* Retrieved from www.cdc.gov/std/stats10

Chalfen, R. (2009). 'It's only a picture': sexting, 'smutty' snapshots and felony charges. *Visual Studies, 24*, 258-268. doi:10.1080/14725860903309203

Chia-Chen Chen, A., Thompson, E. A., & Morrison-Beedy, D. (2010). Multi-system influences on adolescent risky sexual behavior. *Research in Nursing & Health, 33*, 512-527. doi:10.1002/nur.20409

Combs, J. L., Pearson, C. M., & Smith, G. T. (2010). A risk model for preadolescent disordered eating. *International Journal of Eating Disorders*, 1-9. doi:10.1002/eat.20851

Combs, J. L., Smith, G. T., Flory, K., Simmons, J. R., & Hill, K. K. (2010). The acquired preparedness model of risk for bulimic symptom development. *Psychology of Addictive Behaviors, 24*, 475-486. doi:10.1037/a0018257

Cooper, M. L., Shapiro, C. M., & Powers, A. M. (1998). Motivations for sex and risky sexual behavior among adolescents and young adults: A functional perspective. *Journal of Personality and Social Psychology, 75*, 1528-1558. doi:10.1037/0022-3514.75.6.1528

Costa, P. T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice: The NEO personality inventory. *Psychological Assessment, 4*, 5-13. doi: 10.1037/1040-3590.4.1.5

Cyders, M. A., Flory, K., Rainer, S., & Smith, G. T. (2009). The role of personality dispositions to risky behavior in predicting first-year college drinking. *Addiction, 104*, 193-202. doi:10.1111/j.1360-0443.2008.02434.x

Cyders, M. A., & Smith, G. T. (2008a). The Acquired Preparedness Model of gambling risk: Integrating the influences of disposition and psychosocial learning on the risk process. In M.J. Esposito (Ed.), *Psychology of Gambling* (pp. 33-52). Hauppauge, NY: Nova Biomedical Books.

Cyders, M. A., & Smith, G. T. (2008b). Emotion-based dispositions to rash action: Positive and negative urgency. *Psychological Bulletin, 134*, 807-828. doi: 10.1037/a0013341

Cyders, M. A., Smith, G. T., Spillane, N. S., Fischer, S., Annus, A. M., & Peterson, C. (2007). Integration of impulsivity and positive mood to predict risky behavior: Development and validation of a measure of positive urgency. *Psychological Assessment, 19*, 107-118. doi:10.1037/1040-3590.19.1.107

Cyders, M. A., Zapolski, T. C. B., Combs, J. L., Settles, R. F., Fillmore, M. T., & Smith, G. T. (2010). Experimental effect of positive urgency on negative outcomes from risk taking and on increased alcohol consumption. *Psychology of Addictive Behaviors, 24*, 367-375. doi: 10.1037/a0019494

Darkes, J., & Goldman, M. S. (1993). Expectancy challenge and drinking reduction: Experimental evidence for a mediational process. *Journal of Consulting and Clinical Psychology, 61*, 344-353. doi:10.1037/0022-006X.61.2.344

Darkes, J., & Goldman, M. S. (1998). Expectancy challenge and drinking reduction: Process and structure in the alcohol expectancy network. *Experimental and Clinical Psychopharmacology, 6*, 64-76. doi:10.1037/1064-1297.6.1.64

Dermen, K. H., & Cooper, M. L. (1994a). Sex-related alcohol expectancies among adolescents: I. Scale development. *Psychology of Addictive Behaviors, 8*, 152-160. doi:10.1037/0893-164X.8.3.152

Dermen, K. H., & Cooper, M. L. (1994b). Sex-related alcohol expectancies among adolescents: II. Prediction of drinking in social and sexual situations. *Psychology of Addictive Behaviors, 8*, 161-168. doi:10.1037/0893-164X.8.3.161

Dir, A. L., Coo, C. S., & Cyders, M. A. (2012). Risk-taking: The risk process of sexting. Manuscript submitted for publication.

Dir, A. L., Coskunpinar, A., & Cyders, M. A. (2011a). *Sexting, alcohol, and impulsivity*. Paper presented at the meeting of RSA, Atlanta, GA.

Dir, A. L., Cyders, M. A., & Coskunpinar, A. (2011b). [A pilot study of sexting prevalence, sexting expectancies, and impulsivity in a college sample]. Unpublished raw data.

Donohew, L., Zimmerman, R., Cupp, P. S., Novak, S., Colon, S., & Abell, R. (2000). Sensation seeking, impulsive decision-making, and risky sex: Implications for risk-taking and design of interventions. *Personality and Individual Differences, 28*, 1079-1091. doi:10.1016/S0191-8869(99)00158-0

Donovan, J. E., Molina, B. S. G., & Kelly, T. M. (2009). Alcohol outcome expectancies as socially shared and socialized beliefs. *Psychology of Addictive Behaviors, 23*, 248-259. doi:10.1037/a0015061

Dowdell, E. B., Burgess, A. W., & Flores, J. R. (2011, July). Online social networking patterns among adolescents, young adults, and sexual offenders. *American Journal of Nursing, 111*, 28-36. doi: 10.1097/01.NAJ.0000399310.83160.73

Earleywine, M. (1994). Personality risk for alcoholism and alcohol expectancies. *Addictive Behaviors, 19*, 577-582. doi:10.1016/0306-4603(94)90013-2

Enders, C. K. (2006). A primer on the use of modern missing-data methods in psychosomatic medicine research. *Psychosomatic Medicine, 68*, 427–436. doi: 10.1097/01.psy.0000221275.75056.d8

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods, 4*, 272-299. doi:10.1037/1082-989X.4.3.272

Fielder, R. L., & Carey, M. P. (2009). Predictors and consequences of sexual "hookups" among college students: A short-term prospective study. *Archive of Sexual Behavior, 29*, 1105-1119. doi:10.1007/s10508-008-9448-4

Fischer, S., Anderson, K. G., & Smith, G. T. (2004). Coping with distress by eating or drinking: Role of trait urgency and expectancies. *Psychology of Addictive Behaviors, 18*, 269-274. doi: 10.1037/0893-164x.18.3.269

Fischer, S., & Smith, G. T. (2008). Binge eating, problem drinking, and pathological gambling: Linking behavior to shared traits and social learning. *Personality and Individual Differences, 44*, 789-800. doi: 10.1016/j/paid/2007.10.008

Fischer, S., Smith, G. T., Anderson, K. G., & Flory, K. (2003). Expectancy influences the operation of personality on behavior. *Psychology of Addictive Behaviors, 17*, 108-114. doi:10.1037/0893-164x.17.2.108

Glenn, N., & Marquardt, E. (2001). *Hooking up, hanging out, and hoping for Mr. Right: College women on dating and mating today*. An Institute for American Values report for the Independent Women's Forum.

Goldman, M. S. (1994). The alcohol expectancy concept: Applications to assessment, prevention, and treatment or alcohol abuse. *Applied & Preventive Psychology, 3*, 131-144. doi:10.1016/S0962-1849(05)80066-6

Goldman, M. S., Brown S. A., Chriastensen, B. A., & Smith, G. T. (1991). Alcoholism and memory: Broadening the scope of alcohol-expectancy research. *Psychological Bulletin, 110*, 137-146. doi:10.1037/0033-2909.110.1.137

Goldman, M. S., & Darkes, J. (2004). Alcohol expectancy multiaxial assessment: A memory network-based approach. *Psychological Assessment, 16*, 4-15. doi:10.1037/1040-3590.16.1.4

Goldman, M. S., Greenbaum, P. E., & Darkes, J. (1997). A confirmatory test of hierarchical expectancy structure and predictive power: Discriminant validation of the alcohol expectancy questionnaire. *Psychological Assessment, 9*, 145-157. doi:10.1037/1040-3590.9.2.145

Gute, G., & Eshbaugh, E. (2008). Personality as a predictor of hooking up among college students. *Journal of Community Health Nursing, 25*, 26-43. doi:10.1080/07370010701836385

Hayaki, J., Herman, D. S., Hagerty, C. E., de Dios, M. A., Anderson, B. J., & Stein, M. D. (2011). Expectancies and self-efficacy mediate the effects of impulsivity on marijuana use outcomes: An application of the acquired preparedness model. *Addictive Behaviors, 36*, 389-396. doi:10.1016/j.addbeh.2010.12.018

Henderson, L. (2011). Sexting and sexual relationships among teens and young adults. *McNair Scholars Research Journal, 7*(1). Retrieved from http://scholarworks.boisestate.edu/mcnair_journal/vol7/iss1/9

Hendershot, C. S., Magnan, R. E., & Bryan, A. D. (2010). Associations of marijuana use and sex-related marijuana expectancies with HIV/STD risk behavior in high-risk adolescents. *Psychology of Addictive Behaviors, 24*, 404-414. doi:10.1037/a0019844

Hendershot, C. S., Stoner, S. A., George, W. H., & Norris, J. (2007). Alcohol use, expectancies, and sexual sensation seeking as correlates of HIV risk behavior in heterosexual young adults. *Psychology of Addictive Behaviors, 21*, 365-372. doi:10.1037/0893-164X.21.3.365

Hoffman, J. (2011, March 26). A girl's nude photo, and altered lives. *The New York Times.* Retrieved from http://www.nytimes.com

Holson, L. M. (2009). Text messages: Digital lipstick on the collar. *The New York Times*. Retrieved from http://www.nytimes.com

Horvath, P., & Zuckerman, M. (1993). Sensation seeking, risk appraisal, and risky behavior. *Personality and Individual Differences, 14*, 41-52. doi:10.1016/0191-8869(93)90173-z

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55. doi:10.1080/10705519909540118

Jolicoeur, M., & Zedlewski, E. (2010). *Much ado about sexting*. (NCJ 230795). Rockville: National Criminal Justice Reference Service. Retrieved from http://www.ncjrs.gov/pdffiles1/nij/230795.pdf.

Jung, J. (2010). *Alcohol, other drugs, and behavior: Psychological research perspectives* (second ed.). Los Angeles: SAGE.

Justus, A. N., Finn, P. R., & Steinmetz, J. E. (2000). The influence of traits of disinhibition on the association between alcohol use and risky sexual behavior. *Alcoholism: Clinical and Experimental Research, 24*, 1028-1035. doi:10.1111/j.1530-0277.2000.tb04646.

Kalichman, S. C., Tannenbaum, L., & Nachimson, D. (1998). Personality and cognitive factors influencing substance use and sexual risk for HIV infection among gay and bisexual men. *Psychology of Addictive Behaviors, 12*, 262-271. doi:10.1037/0893-164X.12.4.262

Katz, E. C., Fromme, K., & D'Amico, E. J. (2000). Effects of outcome expectancies and personality on young adults' illicit drug use, heavy drinking, and risky sexual behavior. *Cognitive Therapy and Research, 24*, 1-22. doi:10.1023/A:1005460107337

Kim, E. J., Namkoong, K., Ku, T., & Kim, S. J. (2008). The relationship between online game addiction and aggression, self-control and narcissistic personality traits. *European Psychiatry, 23*(3), 212-218.

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (third ed.). New York: The Guilford Press.

Ko, C. H., Yen, J. Y., Liu, S. C., Huang, C. F., & Yen, C. F. (2009). The associations between aggressive behaviors and Internet addiction and online activities in adolescents. *Journal of Adolescent Health, 44*(6), 598-605.

Latendresse, S. J., Rose, R. J., Viken, R. J., Pulkkinen, L., Kaprio, J., & Dick, D. M. (2008). Parenting mechanisms in links between parents' and adolescents' alcohol use behaviors. *Alcoholism: Clinical and Experimental Research, 32*, 322-330. doi:10.1111/j.1530-0277.2007.00583.x

Leigh, B. C. (1989). In search of the seven dwarves: Issues of measurement and meaning in alcohol expectancy research. *Psychological Bulletin, 105*, 361-373. doi:10.1037/0033-2909.105.3.361

Leigh, B. C., & Stacy, A. W. (1993). Alcohol outcome expectancies: Scale construction and predictive utility in higher order confirmatory models. *Psychological Assessment, 5*, 216-229. doi: 10.1037/1040-3590.5.2.216

Lenhart, A. (2009). Teens and sexting. *Pew Internet & American Life Project*. Retrieved from http://pewresearch.org/assets/pdf/teens-and-sexting.pdfLevy

Leshnoff, J. (2009). Sexting not just for kids. *AARP.* Retrieved from http://www.aarp.org

Lynam, D., Smith, G. T., Cyders, M. A., Fischer, S., & Whiteside, S. A. (2007). *The UPPS-P: A multidimensional measure of risk for impulsive behavior*. Unpublished technical report.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7*, 83-104. doi:10.1037/1082-989X.7.1.83

Manzo, K. K. (2009). Administrators confront student 'sexting.' *Education Week, 28*(8), 13-16. Retrieved from http://www.eddigest.com/sub.php?page=contents

McCarthy, D. M., Kroll, L. S., & Smith, G. T. (2001). Integrating disinhibition and learning risk for alcohol use. *Experimental and Clinical Psychopharmacology, 9*, 389-398. doi:10.1037/1064-1297.9.4.389

McCarthy, D. M., Miller, T. L., Smith, G. T., & Smith, J. A. (2001). Disinhibition and expectancy in risk for alcohol use: Comparing black and white college samples. *Journal of Studies on Alcohol, 62*(3), 313-321. Retrieved from http://psycnet.apa.org/psycinfo/2001-01129-006

Mehroof, M., & Griffiths, M. D. (2010). Online gaming addiction: The role of sensation seeking, self-control, neuroticism, aggression, state anxiety, and trait anxiety. *Cyberpsychology, Behavior, and Social Networking, 13*, 313-316. doi:10.1089/cyber.2009.0229.

Miller, J. D., Lynam, D., Zimmerman, R. S., Logan, T. K., Leukfeld, C., & Clayton, R. (2004). The utility of the five factor model in understanding risky sexual behavior. *Personality and Individual Differences, 36*, 1611-1626. doi:10.1016/j.paid.2003.06.009

Moreno, M. A., Swanson, M. J., Royer, H., & Roberts, L. J. (2011). Sexpectations: Male college students' views about displayed sexual references on females' social networking web sites. *Journal of Pediatric and Adolescent Gynecology, 24*(2), 85-89.

Mottram, A. J., & Fleming, M. J. (2009). Extraversion, impulsivity, and online group membership as predictors of problematic Internet use. *CyberPsychology & Behavior, 12*(3), 319-321

Muthén, L. K., & Muthén, B. O. (2010). *Mplus user's guide* (sixth ed). Los Angeles: Muthén & Muthén.

Nash, S. G., McQueen, A., & Bray, J. H. (2005). Pathways to adolescent alcohol use: Family environment, peer influence, and parental expectations. *Journal of Adolescent Health, 37*, 19-28. doi:10.1016/j.jadohealth.2004.06.004

O'Crowley, P. (2009). The sexting generation. *Real Psychology*. Retrieved from http://realpsychology.com

Owen, J. J., & Fincham, F. D. (2011). Young adults' emotional reactions after hooking up encounters. *Archives of Sexual Behavior, 40*, 321-330. doi:10.1007/s10508-010-9652-x

Owen, J. J., Rhoades, G. K., Stanley, S. M., & Fincham, F. D. (2010). "Hooking up" among college students: Demographic and psychosocial correlates. *Archives of Sexual Behavior, 39*, 653-663. doi:10.1007/s10508-008-9414-1

Palmgreen, P., Donohew, L., Lorch, E. P., Hoyle, R. H., & Stephenson, M. T. (2001). Television campaigns and adolescent marijuana use: Tests of sensation seeking targeting. *Journal of Public Health, 91*, 292-296.

Parker, A., & Barbaro, M. (2011, June 8). In reckless fashion, rapid online pursuits of political admirers. *The New York Times.* Retrieved from http://www.nytimes.com

Patrick, M. E., & Maggs, J. L. (2009). Does drinking lead to sex? Daily alcohol–sex behaviors and expectancies among college students. *Psychology of Addictive Behaviors, 23*, 472-481. doi:10.1037/a0016097

Paul, E. L., & Hayes, K. A. (2002). The casualties of 'casual' sex: A qualitative exploration of the phenomenology of college students' hookups. *Journal of Social and Personal Relationships, 19*, 639-661. doi:10.1177/0265407502195006

Paul, E. L., McManus, B., & Hayes, A. (2000). "Hookups": Characteristics and correlates of college students' spontaneous and anonymous sexual experiences. *The Journal of Sex Research, 37*(1), 76-88. Retrieved from http://www.jstor.org/stable/3813373

Pearson, C. M., Combs, J. L., & Smith, G. T. (2010). A risk model for disordered eating in late elementary school boys. *Psychology of Addictive Behaviors, 24*, 696-704. doi:10.1037/a0020358

Perry, M., Accordino, M. P., & Hewes, R. L. (2007). An investigation of Internet use, sexual and nonsexual sensation seeking, and sexual compulsivity among college students. *Sexual Addiction & Compulsivity, 14*, 321-335. doi: 10.1080/10720160701719304

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*, 879-891. doi: 10.3758/BRM.40.3.879

Price, M. N., & Hyde, J. S. (2009). When two isn't better than one: Predictors of early sexual activity in adolescence using a cumulative risk model. *Journal of Youth & Adolescence, 38*, 1059-1071. doi:10.1007/s10964-008-9351-2

Quaid, L. (2009). Think your kid isn't 'sexting'? Think again. *msnbc.com*. Retrieved from http://msnbc.com

Reich, R. R., Below, M. C., & Goldman, M. S. (2010). Explicit and implicit measures of expectancy and related alcohol cognitions: A meta-analytic comparison. *Psychology of Addictive Behaviors, 24*, 13-25. doi:10.1037/a0016556

Ross, C., Orr. E. S., Sisic, M., Arseneault, J. M., Simmering, M. G., & Orr, R. R. (2009). Personality and motivations associated with Facebook use. *Computers in Human Behavior, 25*, 578-586. doi: 10.1016/j.chb.2008.12.024

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods, 7*, 147-177. doi: 10.1037/1082-989X.7.2.147

Scott, M. E., Wildsmith, E., Ryan, S., Schelar, E., & Steward-Streng, N. R. (2011). Risky adolescent sexual behaviors and reproductive health in young adulthood. *Perspectives on Sexual Reproductive Health, 43*, 110-118. doi: 10.1363/4311011.

Settles, R. F., Cyders, M. A., & Smith, G. T. (2010). Longitudinal validation of the acquired preparedness model of drinking risk. *Psychology of Addictive Behaviors, 24*, 198-208. doi:10.1037/a0017631

Siegle, D. (2010). Cyberbullying and sexting: Technology abuses of the 21st century. *Gifted Child Today, 32*(2), 14-16, 65. Retrieved from http://eric.ed.gov

Smith, G. T., & Anderson, K. G. (2001). Adolescent risk for alcohol problems as acquired preparedness: A model and suggestions for intervention. In P. M. Monty, S. M. Colby, & T. A. O'Leary (Eds.), *Adolescents, Alcohol, and Substance Abuse: Reaching Teens through Brief Interventions* (pp. 109-141). New York, NY: Guilford Press.

Smith, G., Toadvine, J., & Kennedy, A. (2009). Women's perceptions of alcohol-related sexual disinhibition: Personality and sexually-related alcohol expectancies. *International Journal of Sexual Health, 21*, 119-131. doi:10.1080/19317610902973241

Spillane, N. S., Smith, G. T., & Kahler, C. W. (2010). Impulsivity-like traits and smoking behavior in college students. *Addictive Behaviors, 35*, 700-705. doi:10.1016/j.addbeh.2010.03.008

Stephenson, M. T. (2003). Mass media strategies targeting high sensation seekers: What works and why. *American Journal of Health Behavior, 27*(3), S233-S238.

Stinson, R. (2010). Hooking up in young adulthood: A review of factors influencing the sexual behavior of college students. *Journal of College Student Psychotherapy, 24*, 98-115. doi:10.1080/87568220903558596

Takao, M., Takahashi, S., & Kitamura, M. (2009). Addictive personality and problematic mobile phone use. *CyberPsychology & Behavior, 12*, 501-507. doi:10.1089/cpb.2009.0022

The National Campaign to Prevent Unplanned and Teen Pregnancy. (2008). Sex and tech: Results from a survey of teens and young adults. *Sex and Tech*. Retrieved from http://www.thenationalcampaign.org/sextech/

Vangsness, L., Bry, B. H., & LaBouvie, E. W. (2005). Impulsivity, negative expectancies, and marijuana use: A test of the acquired preparedness model. *Addictive Behaviors, 30*, 1071-1076. doi:10.1016/j.addbeh.2004.11.003

Vélez-Blasini, C. J. (2008). Evidence against alcohol as a proximal cause of sexual risk taking among college students. *Journal of Sex Research, 45*, 118-128. doi:10.1080/00224490801987408

Velicer, W. F., Eaton, C. A., & Fava, J. L. (2000). Construct explication through factor or component analysis: A review and evaluation of alternative procedures for determining the number of factors or components. In R. D. Goffin, & E. Helmes (Eds.), *Problems and solutions in human assessment: Honoring Douglas Jackson at Seventy* (pp. 41-71). Boston: Kliwer.

Weinstock, H., Berman, S., & Cates, W. (2004). Sexually transmitted diseases among American youth: Incidence and prevalence estimates, 2000. *Perspectives on Sexual and Reproductive Health, 36*, 6-10. doi: 10.1363/3600604

Weiss, R., & Samenow, C. P. (2010). Smart phones, social networking, sexting and problematic sexual behaviors - a call for research. *Sexual Addiction & Compulsivity, 17*, 241-246. doi:10.1080/10720162.2010.532079

White, H. R., Fleming, C. B., Catalano, R. F., & Bailey, J. A. (2009). Prospective associations among alcohol use-related sexual enhancement expectancies, sex after alcohol use, and casual sex. *Psychology of Addictive Behaviors, 23*, 702-707. doi:10.1037/a0016630

Whiteside, S. P., & Lynam, D. R. (2001). The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences, 30*, 669-689. doi:10.1016/S0191-8869(00)00064-7

Whiteside, S. P., & Lynam, D. R. (2009). Understanding the role of impulsivity and externalizing psychopathology in alcohol abuse: Application of the UPPS impulsive behavior scale. *Personality Disorders: Theory, Research, and Treatment, S*(1), 69-79. doi: 10.1037/1949-2715.s.1.69

Zapolski, T. C. B., Cyders, M. A., & Smith, G. T. (2009). Positive urgency predicts illegal drug use and risky sexual behavior. *Psychology of Addictive Behaviors, 23*, 348-354. doi:10.1037/a0014684

Zapolski, T. C. B., Settles, R. E., Cyders, M. A., & Smith, G. T. (2010). Borderline personality disorder, bulimia nervosa, ADHD, substance use: Common threads, common treatment needs, and the nature of impulsivity. *Independent Practice, 30*(1), 20-23.

Zuckerman, M. (1971). Dimensions of sensation seeking. *Journal of Consulting and Clinical Psychology, 36*, 45-52. doi:10.1037/h0030478

TABLES

Table 1

Sexting Prevalence Rates

	Males	Females		
	n (%)	*n* (%)	$\chi^2_{(df=4)}$	*p*
Sent text	80 (62) [a]	321 (68) [a]	8.250 [a]	.143 [a]
	50 (67) [b]	123 (69) [b]	2.121 [b]	.713 [b]
	60 (48) [c]	214(56) [c]	6.153 [c]	.188 [c]
Sent picture	57(44) [a]	234 (50) [a]	16.715 [a]	.005[a]
	36 (48) [b]	93 (52) [b]	6.555 [b]	.161 [b]
	53 (43) [c]	179 (47) [c]	7.265 [c]	.123 [c]
Received text	102 (78) [a]	386 (82) [a]	4.734 [a]	.578 [a]
	61 (81) [b]	143 (79) [b]	1.497 [b]	.827 [b]
	80 (65) [c]	242 (64) [c]	1.065 [c]	.900 [c]
Received picture	88 (68) [a]	192 (62) [a]	13.040 [a]	.042 [a]
	56 (75) [b]	120 (67) [b]	10.465 [b]	.033 [b]
	79 (64) [c]	216 (57) [c]	6.396 [c]	.171 [c]

Note. n = number of people endorsing the item and % refers to the percentage of the respective gender sample. [a] Results from current study. Total N = 611, M = 130, F = 472[b] Results from Dir et al. (2011b). Total N = 255, M = 75, F = 180.[c] Results from Dir et al. (2011a). Total N = 504, M = 124, F = 380.

Table 2

Potential Negative Consequences from Sexting.

Negative consequence	Males n (%)	Females n (%)	$\chi^2_{(df=4)}$	p
Sexting causes problems with significant others.	94 (72.3) [a]	320 (67.8) [a]	1.636 [a]	.897 [a]
	57 (77) [b]	149 (85.6) [b]	7.122 [b]	.130 [b]
Sexting causes conflict at work.	98 (75.4) [a]	310 (65.7) [a]	9.306 [a]	.085 [a]
	60 (81.1) [b]	136 (78.2) [b]	.333 [b]	.954 [b]
Sexting results in trouble with the police.	95 (73.1) [a]	336 (71.2) [a]	8.081 [a]	.232 [a]
	55 (74.3) [b]	135 (77.6) [b]	1.365 [b]	.850 [b]
Sexting causes ridicule from others.	98 (75.4) [a]	360 (76.3) [a]	4.228 [a]	.646 [a]
	62 (83.8) [b]	155 (89.1) [b]	4.776 [b]	.189 [b]
Sexting results in unwanted attention.	94 (72.3) [a]	364 (77.1) [a]	5.531 [a]	.478 [a]
	54 (73.0) [b]	141 (81.5) [b]	3.095 [b]	.542 [b]
Sexting results in unwanted sexual contact.	77 (59.2) [a]	324 (68.6) [a]	9.050 [a]	.249 [a]
	41 (55.4) [b]	126 (73.3) [b]	10.758 [b]	.013 [b]
Sexting is used for blackmail.	113 (86.9) [a]	400 (84.7) [a]	7.038 [a]	.218 [a]
	70 (94.6) [b]	167 (96.0) [b]	4.793 [b]	.309 [b]
Sexting is used to bully others.	97 (74.6) [a]	356 (75.4) [a]	9.360 [a]	.154 [a]
	60 (81.1) [b]	154 (89.0) [b]	3.508 [b]	.477 [b]
People regret sexting.	117 (90) [a]	428 (90.7) [a]	9.745 [a]	.083 [a]
	70 (94.6) [b]	171 (97.7) [b]	1.981 [b]	.739 [b]
Sexts get around to other people.	118 (90.8) [a]	424 (89.8) [a]	3.300 [a]	.509 [a]
	69 (93.2) [b]	167 (96.0) [b]	1.183 [b]	.881 [b]

Note. n = number of people endorsing the item and % refers to the percentage of the respective gender sample. [a] Results from current study. *N* = 602, *M* = 130, F = 472. [b] Results from Dir et al. (2011b). *N* = 255, M = 74, F = 174.

Table 3a

Proposed Sending Sext Expectancy Scales

Sending expectancy subscales (and subscale items)	Factor loading	Item-total correlation
Positive sexual arousal expectancy scale [a]		
Sexting makes one feel attractive.	.676	.568
Sexting makes one attracted to others.	.686	.710
Sexting makes one feel sexy.	.538	.602
Sexting makes one likeable.	.675	.579
Sexting makes it easier to flirt.	.510	.551
Sexting makes it more likely for one to have sex.	-.508	.628
Sexting makes it more likely for one to "hookup".	-.507	.538
Sexting makes one horny.	.030	.652
Sexting makes one aroused.	.304	.751
Positive interpersonal expectancy scale [b]		
Sexting makes one adventurous.	.424	.569
Sexting makes one more open with others.	.579	.544
Sexting makes relationships more interesting.	.648	.585
Sexting makes one more intimate with the recipient.	.647	.658
Sexting makes one more affectionate.	.411	.457
Sexting makes one playful.	.493	.620
Sexting makes one fearless.	.43	.426
Sexting makes one excited.	.501	.608
Negative self-consciousness expectancy scale [c, d]		
Sexting makes one feel guilty.	.685	.640
Sexting makes one embarrassed.	.834	.706
Sexting makes one ashamed.	.869	.694
Sexting makes one feel dirty.	.612	.523
Sexting lowers one's self-esteem.	.578	.509
Negative interpersonal expectancy scale [d, e]		
Sexting makes one immature.	.678	.597
Sexting makes one inappropriate.	.711	.527
Sexting makes one desperate.	.674	.593
Sexting makes one vulnerable.	.447	.418
Sexting makes one feel awkward.	.667	.580
Sexting makes one foolish.	.726	.636

Note. [a] $\alpha = .856$. [b] $\alpha = .846$. [c] $\alpha = .836$.. [d] These domains represent the two negative

expectancy domains when combined. [e] $\alpha = .800$.

Table 3b

Proposed Receiving Sext Expectancy Scales

Receiving expectancy subscales (and subscale items)	Factor loading	Item-total correlation
Positive affect expectancy scale [a]		
Receiving sexts makes one attracted to the sender.	.513	.568
Receiving sexts makes one feel more attractive.	.804	.685
Receiving sexts makes one feel sexy.	.824	.681
Receiving sexts gives one confidence.	.865	.717
Receiving sexts makes one excited.	.432	.543
Receiving sexts makes one feel admired.	.435	.431
Receiving sexts raises one's self-esteem.	.57	.540
Receiving sexts makes one horny.	.42	.560
Receiving sexts makes one want to have sex.	.513	.621
Receiving sexts makes one feel wanted.	-	-
Receiving sexts makes one happy.	-	-
Negative interpersonal expectancy scale [b]		
Receiving sexts makes one feel uncomfortable.	.72	.668
Receiving sexts makes one feel disgusted.	.753	.666
Receiving sexts turns one off.	.723	.695
Receiving sexts makes one feel awkward.	.76	.670
Receiving sexts makes one avoid the sender.	.805	.698
Receiving sexts makes one feel insulted.	.67	.615
Negative affect expectancy scale [c]		
Receiving sexts makes one feel vulnerable.	-.513	.421
Receiving sexts makes one feel guilty.	-.705	.637
Receiving sexts makes one feel embarrassed.	-.781	.667
Receiving sexts makes one feel ashamed.	-.777	.591
Receiving sexts makes one feel dirty.	-.519	.595
Receiving sexts makes one feel promiscuous.	-.385	.424
Receiving sexts makes one feel uncomfortable.	-.518	.542
Receiving sexts makes one anxious.	-.447	.448
Receiving sexts lowers one's self-esteem.	-.484	.450

Note. [a] α = .864. Overall reliability for the positive affect expectancy scale. [b] α = .871. Overall reliability for the negative interpersonal expectancy scale. [c] α = .825. Overall reliability for the negative affect expectancy scale.

Table 4.

Demographic Information for the Current Sample

Variable	*M* or no. cases	*SD* or %
Sex		
Male	130	21.6
Female	472	78.4
Race		
Caucasian	463	77.0
African-American	67	11.1
Hispanic/Latino	18	3.0
Asian	19	3.2
Other	34	5.7
Technology [a]		
Facebook account	562	93.7
Mobile phone	597	99.3
Sexual Orientation		
Homosexual	18	3.0
Heterosexual	559	92.9
Bisexual	6	1.0
Other	6	1.0
Age	21.2	5.403
Sample Size	611	

Note. [a] Estimates refer to individuals who reported having a Facebook account and owning a mobile phone.

Table 5

Normality Data for Study Measures

	Normality estimate	
Scale	Skewness	Kurtosis
SS	-.264	-.200
SBS	1.039	1.739
SAexps	.478	.156

Note. SS: Sensation Seeking scale from the UPPS-P Impulsive Behavior Scale (Lynam et al., 2007). SBS: Sexting Behaviors Scale mean. SAexps: sexual arousal sending expectancies scale from the Sextpectancies Measure.

Table 6a

Sending Sext Expectancy Scales for the Sextpectancies Measure

Sending expectancy subscales (and subscale items)	Factor loading	Item-total correlation
Positive sexual arousal expectancy scale [a]		
Sexting makes one feel attractive.	1.00	.656
Sexting makes one attracted to others.	.912	.616
Sexting makes one feel sexy.	1.10	.725
Sexting makes one likeable.	.753	.477
Sexting makes it easier to flirt.	.842	.596
Sexting makes it more likely for one to have sex.[*]	.751	.475
Sexting makes it more likely for one to "hookup."[*]	.703	.474
Sexting makes one adventurous.	.918	.599
Sexting makes relationships more interesting.	.989	.677
Sexting makes one more intimate with the recipient.	.948	.641
Sexting makes one more affectionate.	.847	.532
Sexting makes one playful.	.918	.640
Sexting makes one excited.	1.017	.678
Negative expectancy scale [d]		
Sexting makes one embarrassed.	1.00	.508
Sexting makes one ashamed.	1.20	.696
Sexting makes one immature.	1.18	.676
Sexting makes one inappropriate.	1.21	.720
Sexting makes one foolish.	1.18	.548

Note. [a] α = .897. Overall reliability for the positive sexual arousal expectancy scale.

[b] α = .846. Overall reliability for the negative expectancy scale. [*] Items were kept in the scale for content, despite lower factor loadings.

Table 6b

Receiving Sext Expectancy Scales for the Sextpectancies Measure

Receiving expectancy subscales (and subscale items)	Factor loading	Item-total correlation
Positive sexual arousal expectancy scale [a]		
Receiving sexts makes one attracted to the sender.	1.00	.634
Receiving sexts makes one feel more attractive.	1.043	.678
Receiving sexts makes one feel sexy.	1.111	.682
Receiving sexts gives one confidence.	1.024	.647
Receiving sexts makes one want to have sex.	.987	.608
Negative expectancy scale [b]		
Receiving sexts makes one feel uncomfortable.	1.00	.776
Receiving sexts makes one feel disgusted.	.968	.751
Receiving sexts turns one off.	.911	.686
Receiving sexts makes one feel awkward.	.939	.732
Receiving sexts makes one avoid the sender.	*.890*	*.723*

Note. [a] α = .843. Overall reliability for the positive sexual arousal expectancy scale. [b] α = .891. Overall reliability for the negative expectancy scale.

Table 7

Hypothesis One Regression Output

Predictor	*b*	*SE*	β	*t*	*p*
Step 1					
Sex	-.084	.062	-.056	-1.363	.173
Age	.002	.005	.019	.472	.637
Step 2					
Sex	-.020	.062	-.013	-.327	.744
Age	.005	.005	.046	-.250	.257
SS	.220	.042	.215	5.218	.001

Note. SS: sensation seeking. Sex: male coded as 1, female as 2.

Table 8

Hypothesis Two Regression Output

Predictor	*b*	*SE*	β	*t*	*p*
Step 1					
Sex	-.084	.062	-.056	-1.363	.173
Age	.002	.005	.019	.472	.637
Step 2					
Sex	-.053	.055	-.035	-.829	.407
Age	-.001	.004	-.011	-.250	.802
SAexps	.392	.032	.428	11.527	.001

Note. SAexps: sexual arousal sexting expectancies. Sex: male coded as 1, female as 2.

Table 9

Hypothesis Three Regression Output

Predictor	b	SE	β	t	p
Step 1					
Sex	-.084	.062	-.084	-1.363	.173
Age	.002	.005	.002	.472	.637
Step 2					
Sex	-.016	.056	-.016	-.293	.770
Age	.001	.004	.001	.176	.860
SS	.133	.039	.130	3.416	.001
SAexps	.371	.032	.428	11.527	.000

Note. SS: sensation seeking. SAexps: sexual arousal sexting expectancies. Sex: male coded as 1, female as 2.
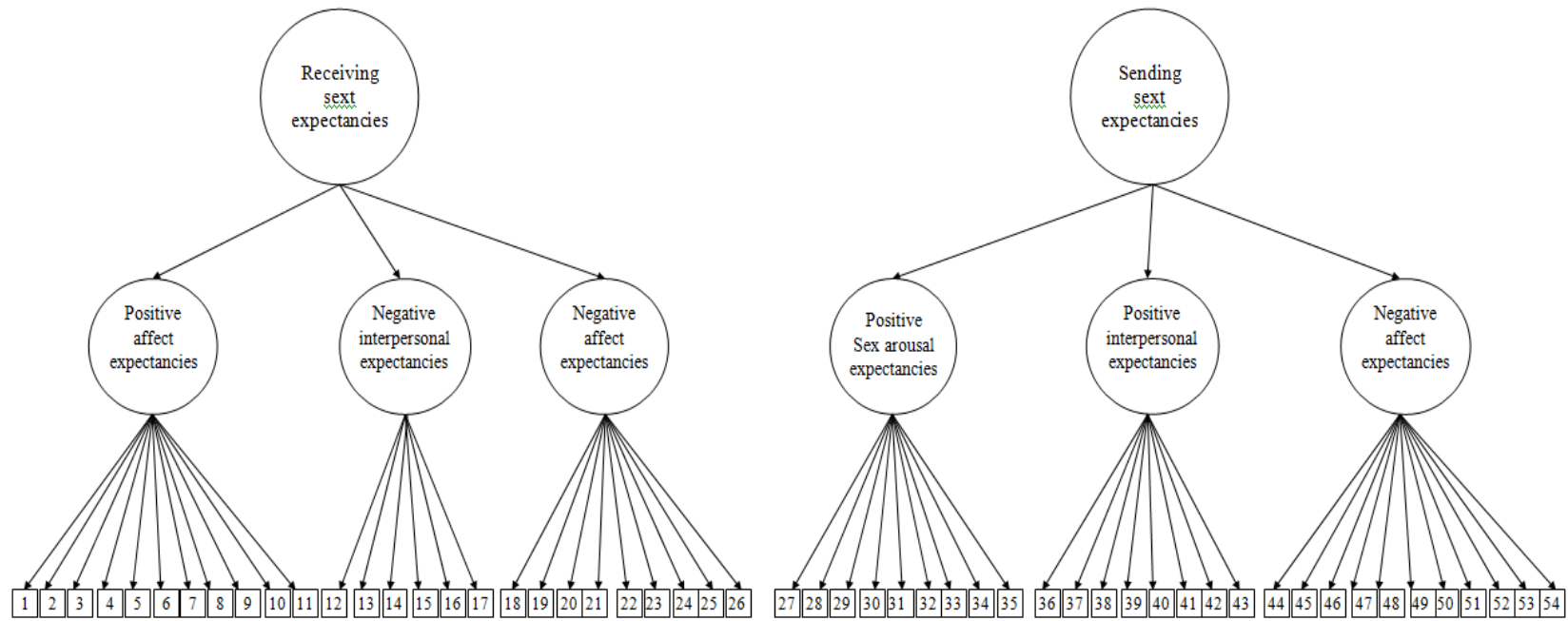
FIGURES

Figure 1. Model A: Factor structure for the Sextpectancies Measure to be tested with confirmatory factor analysis. Individual items will be used as latent variable indicators; items are indicated by number, as corresponding to item numbers in Table 3a-b

Figure 2. Model B: Hypothesized factor structure of the Sextpectancies Measure to be tested with confirmatory factor analysis. Individual items will be used as latent variable indicators; items are indicated by number, as corresponding to item numbers in Table 3a-3b.
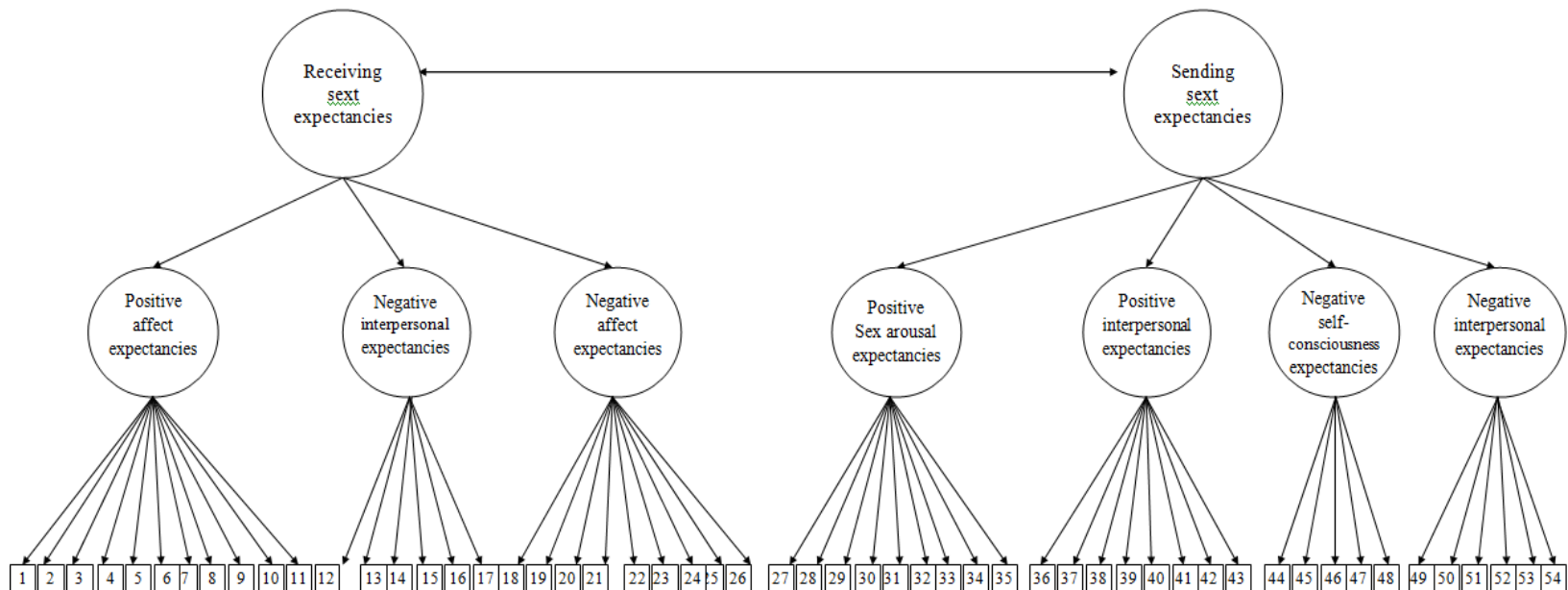
Figure 3

CFA Model for the Factor Structure of the Sextpectancies Measure. Model fit as represented by RMSEA was .085 (95% CI [.082, .089]), by χ^2 was 1877.324 ($df = 345$, $p = .000$), and by CFI was .926. Correlation between positive sexual arousal expectancies and negative was -.441. Within the positive domain, correlation between sending and receiving expectancies was .883. Within the negative domain, correlation between sending and receiving was .868. Estimated factor loadings for each item are on corresponding arrows. *"Sexting/receiving sexts makes one…"* 1-feel attractive; 2-attracted to others; 3-feel sexy; 4-likeable; 5-easier to flirt; 6-more likely to have sex; 7-more likely to "hook up"; 8-adventurous; 9-relationships more interesting; 10-intimate; 11-affectionate; 12-playful; 13-excited;14-attracted to the sender; 15-feel more attractive; 16-feel sexy; 17-gives one confidence; 18-want to have sex; 19-embarrassed; 20-ashamed; 21-immature; 22-inappropriate; 23-foolish; 24-feel uncomfortable; 25-disgusted; 26-turns one off; 27-feel awkward; 28-avoid the sender.
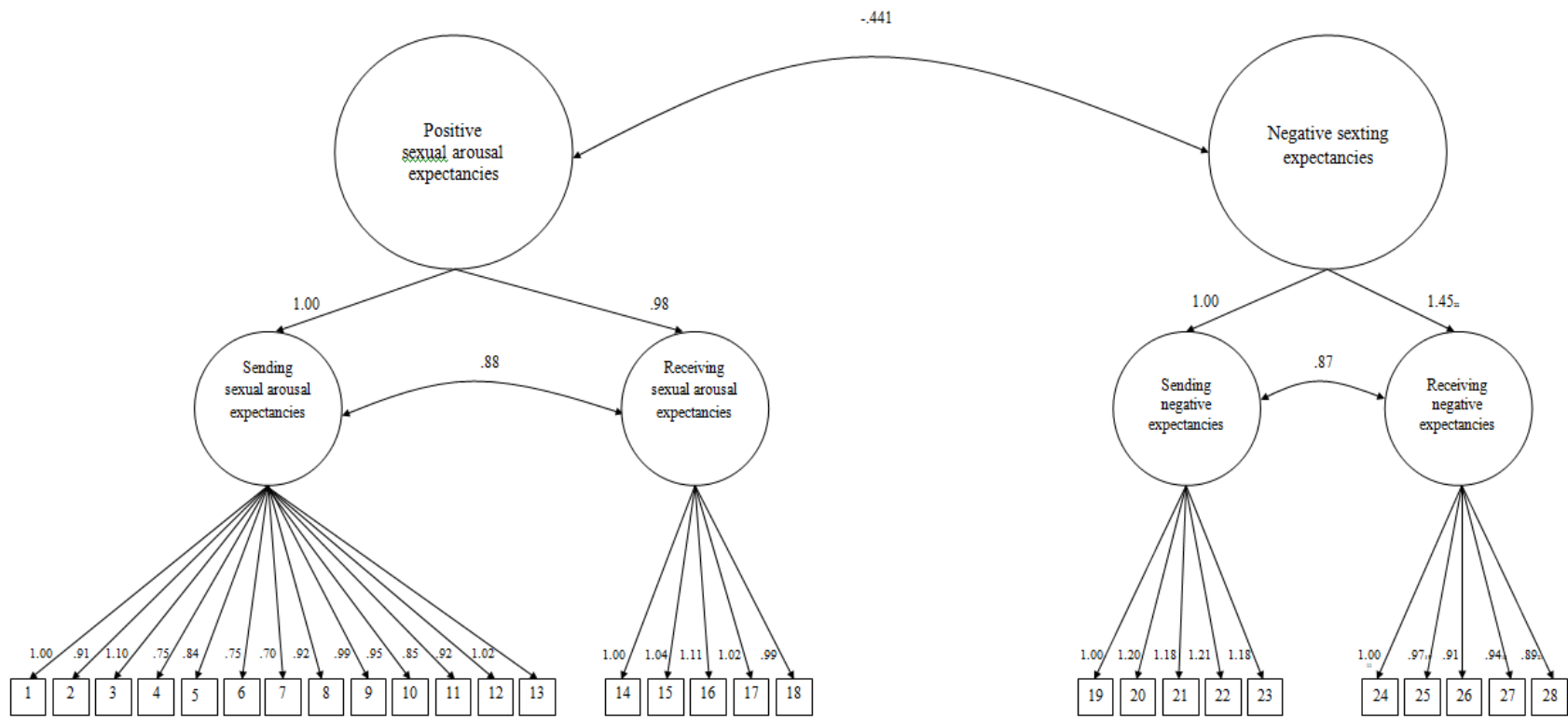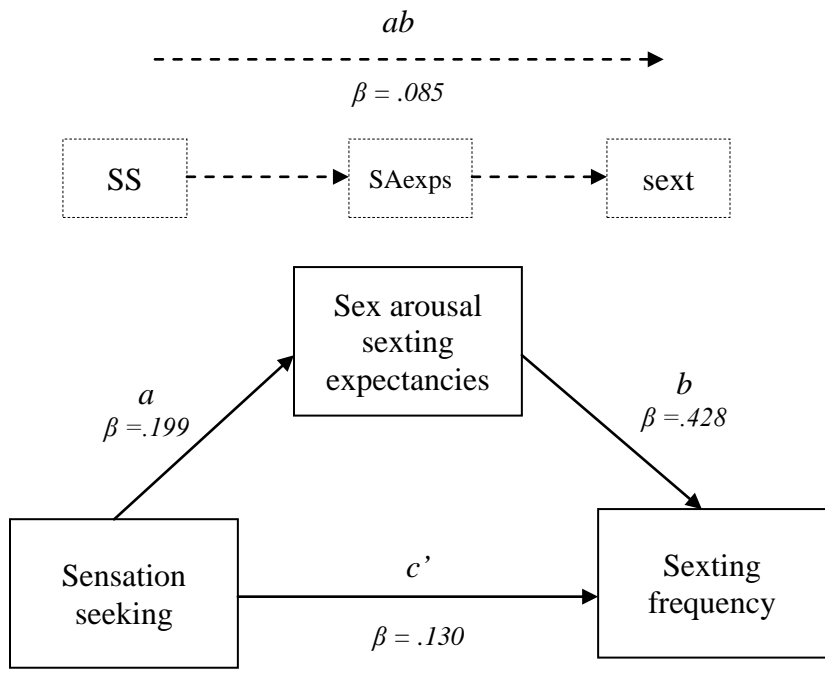
Figure 3

Figure 4. Mediation Model. Illustrates the effects of sensation seeking on sexting frequency, mediated by sexual arousal sexting expectancies. Values are the standardized regression coefficients for each path. *a* = the effect of sensation seeking on sexual arousal expectancies. *b* = the direct effect of sexual arousal expectancies on sexting frequency. *ab* = the indirect effect of sensation seeking (SS) on sexting frequency through sexual arousal expectancies (SAexps). *c'* = the direct effect of sensation seeking on sexting frequency, controlling for the effects of sexual arousal expectancies.
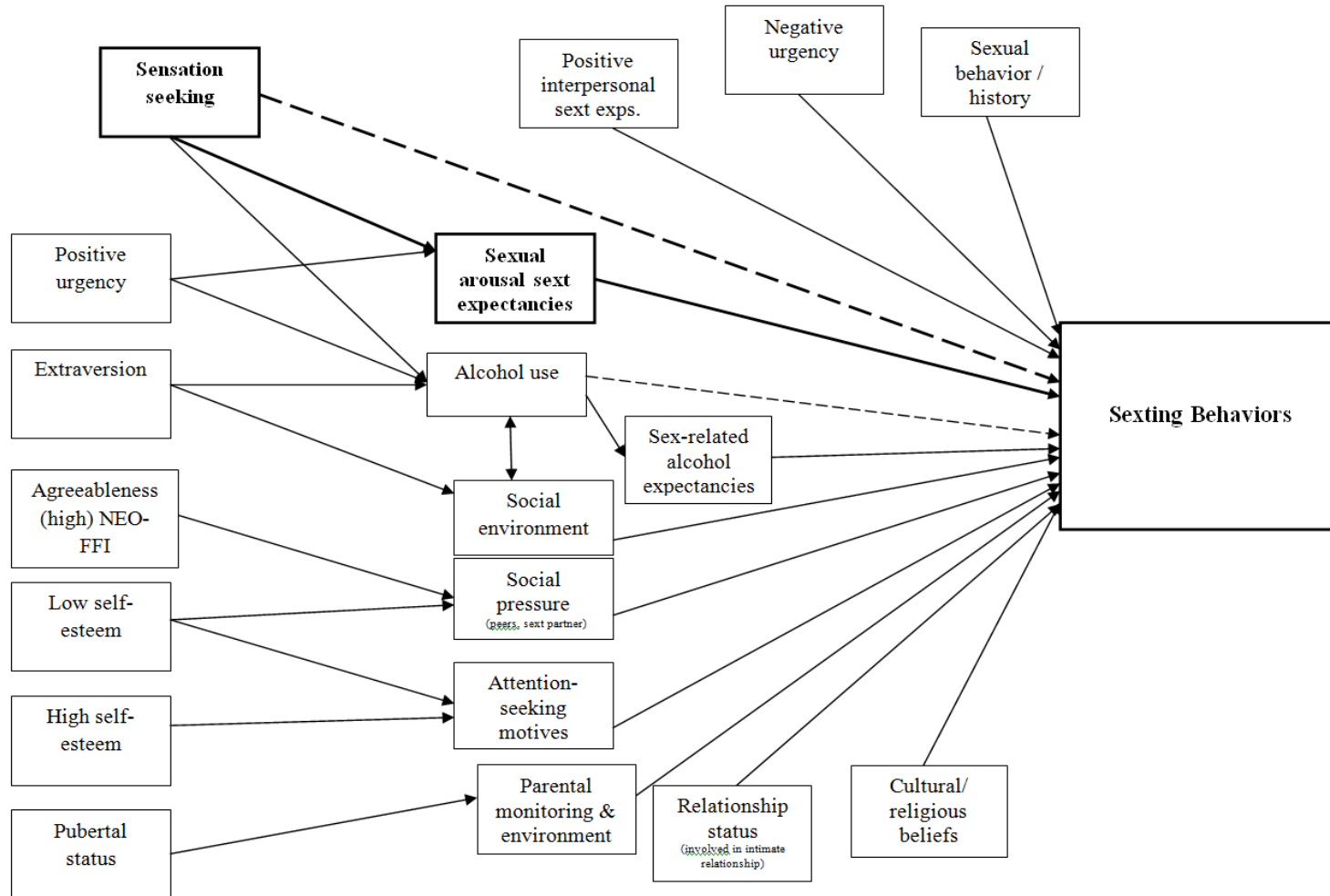
Figure 5. Sexting model of proposed factors leading to sexting. The bolded content represents the path tested in the study. The dotted arrow represents an indirect path from sensation seeking to sexting through sexual arousal expectancies.

APPENDICES

Appendix A: Demographics

Please fill in the following information using the choices provided. This information will be kept confidential and will be used for research purposes only.

1. Age _____

2. Sex
 a. Male
 b. Female
 c. Other

3. Year in school
 a. First year
 b. Second year
 c. Third year
 d. Fourth year
 e. Other

4. Race
    a. African-American (black)
    b. Asian American
    c. European American (white)
    d. Hispanic American
    e. Other

5. Sexual orientation
    a. Heterosexual
    b. Homosexual
    c. Bisexual
    d. other

6. Current relationship status
    a. Single
    b. Dating
    c. In a serious relationship
    d. Cohabiting Bisexual
    e. Married

7. Do you have a Facebook account?
    a. Yes
    b. No

8. Do you own a mobile phone?
    a. Yes

    b. No

9. If yes, do you use your mobile phone to exchange text messages?
   a. Yes
   b. No
   c. I don't own a mobile phone.

10. On average, how often do you send or exchange text messages?
    a. I don't text.
    b. 1-10 texts/day
    c. 11-25 texts/day
    d. 26-40 texts/day
    e. 41-60 texts/day
    f. 61-80 texts/day
    g. >80 texts/day

11. On average, how many people do you exchange texts with?
    a. I don't text.
    b. 1-2 people/day
    c. 3-5 people/day
    d. 6-10 people/day
    e. >10 people/day

12. What is your primary mode of communication with friends and family?
    a. Talking on the phone
    b. Texting
    c. E-mail
    d. Facebook

Appendix B: Sexting Behaviors Scale

Please respond to the following questions regarding sexting behaviors based on how it has been defined below. Please rate each of the following items using the 1-5 scale. We define SEXTING as: sending or receiving sexually suggestive or provocative messages and/or photographs, primarily between mobile phones (although some of the questions will ask about other media forms as well, such as Facebook).

1	2	3	4	5
Never	Rarely (a few times)	Occasionally (2-3/month)	Often (2-3/week)	Frequently (daily)

1. How often have you <u>received</u> suggestive or sexually charged text messages?   1   2   3   4   5

2. How often have you <u>received</u> provocative or suggestive *pictures* by text message?   1   2   3   4   5

3. How often have you <u>responded to</u> provocative or suggestive text or picture messages you received?   1   2   3   4   5

4. How often have you <u>received</u> provocative suggestive pictures or messages over the *internet* (i.e. Facebook, e-mail, MySpace)?   1   2   3   4   5

5. How often have you <u>sent</u> suggestive or sexually charged text messages?   1   2   3   4   5

6. How often have you <u>sent</u> provocative or suggestive *pictures* by text message?   1   2   3   4   5

7. How often has <u>someone responded to </u>a suggestive or sexually charged text or picture message *you* <u>sent</u>?   1   2   3   4   5

8. How often have you <u>sent</u> provocative or suggestive pictures or messages over the *internet* (i.e. Facebook, e-mail, MySpace, etc.)?   1   2   3   4   5

9. How often have you publicly posted suggestive or provocative pictures on Facebook, Twitter, or MySpace?   1   2   3   4   5

10.   How many people have you exchanged provocative pictures or texts with? _____

11. On average, I usually exchange sexts with
    1   I don't sext
    2   Friends of casual acquaintances who I am attracted to
    3   Someone I am dating
    4   Someone I am in a committed relationship with (i.e., boyfriend/girlfriend, partner.

Appendix C: Sextpectancies Measure

Please respond to the following questions regarding sexting behaviors based on how it has been defined below. Please rate each of the following items using the 1-5 scale. We define SEXTING as: sending or receiving sexually suggestive or provocative messages and/or photographs, primarily between mobile phones (although some of the questions will ask about other media forms as well, such as Facebook).

1	2	3	4	5
Not at all true	Somewhat true	A bit true	Extremely true	True of myself

	1	2	3	4	5
1. Sexting makes one adventurous.	1	2	3	4	5
2. Sexting makes one more open with others.	1	2	3	4	5
3. Sexting makes relationships more interesting.	1	2	3	4	5
4. Sexting makes one more intimate with the recipient.	1	2	3	4	5
5. Sexting makes one more affectionate.	1	2	3	4	5
6. Sexting makes one playful.	1	2	3	4	5
7. Sexting makes one fearless.	1	2	3	4	5
8. Sexting makes on excited.	1	2	3	4	5
9. Sexting makes one feel attractive.	1	2	3	4	5
10. Sexting makes one attracted to others.	1	2	3	4	5
11. Sexting makes one feel sexy.	1	2	3	4	5
12. Sexting makes one likeable.	1	2	3	4	5
13. Sexting makes it easier to flirt.	1	2	3	4	5
14. Sexting makes it more likely for one to have sex.	1	2	3	4	5
15. Sexting makes it more likely for one want to "hook-up".	1	2	3	4	5
16. Sexting makes one horny.	1	2	3	4	5
17. Sexting makes one happy.	1	2	3	4	5
18. Sexting makes one aroused.	1	2	3	4	5
19. Sexting makes one immature.	1	2	3	4	5
20. Sexting makes one inappropriate.	1	2	3	4	5
21. Sexting makes one desperate.	1	2	3	4	5
22. Sexting makes one vulnerable.	1	2	3	4	5
23. Sexting makes one embarrassed.	1	2	3	4	5
24. Sexting makes one ashamed.	1	2	3	4	5
25. Sexting makes one feel dirty.	1	2	3	4	5
26. Sexting lowers one's self-esteem.	1	2	3	4	5

27. Sexting makes one feel awkward.	1	2	3	4	5
28. Sexting makes one foolish.	1	2	3	4	5
29. Receiving sexts makes one attracted to the sender.	1	2	3	4	5
30. Receiving sexts makes one feel more attractive.	1	2	3	4	5
31. Receiving sexts makes one feel sexy.	1	2	3	4	5
32. Receiving sexts gives one confidence.	1	2	3	4	5
33. Receiving sexts makes one excited.	1	2	3	4	5
34. Receiving sexts makes one feel admired.	1	2	3	4	5
35. Receiving sexts raises one's self-esteem.	1	2	3	4	5
36. Receiving sexts makes one horny.	1	2	3	4	5
37. Receiving sexts makes one want to have sex.	1	2	3	4	5
38. Receiving sexts makes one feel wanted.	1	2	3	4	5
39. Receiving sexts makes one feel uncomfortable.	1	2	3	4	5
40. Receiving sexts makes one feel disgusted.	1	2	3	4	5
41. Receiving sexts turns one off.	1	2	3	4	5
42. Receiving sexts makes one feel awkward.	1	2	3	4	5
43. Receiving sexts makes one avoid the sender.	1	2	3	4	5
44. Receiving sexts makes one feel insulted.	1	2	3	4	5
45. Receiving sexts makes one feel vulnerable.	1	2	3	4	5
46. Receiving sexts makes one feel embarrassed.	1	2	3	4	5
47. Receiving sexts makes one feel ashamed.	1	2	3	4	5

48. Receiving sexts makes one feel dirty.	1	2	3	4	5
49. Receiving sexts makes one feel promiscuous.	1	2	3	4	5
50. Sexting causes problems with significant others.	1	2	3	4	5
51. Sexting causes problems/conflicts at work.	1	2	3	4	5
52. Sexting causes problems/conflicts at school.	1	2	3	4	5
53. Sexting results in trouble with the police.	1	2	3	4	5
54. Sexting causes problems with friends.	1	2	3	4	5
55. Sexting causes ridicule from others.	1	2	3	4	5
56. Sexting results in unwanted attention.	1	2	3	4	5
57. Sexting results in unwanted sexual contact.	1	2	3	4	5
58. Sexting damages friendships.	1	2	3	4	5
59. Sexting damages intimate relationships.	1	2	3	4	5
60. Sexting is used for blackmail.	1	2	3	4	5
61. Sexting is used to bully others.	1	2	3	4	5
62. People regret sexting.	1	2	3	4	5
63. Sexts get around to other people	1	2	3	4	5

<u>Appendix D: UPPS-P</u>

Below are a number of statements that describe ways in which people act and think. For each statement, please indicate how much you agree or disagree with the statement. If you **Agree Strongly** circle **1**, if you **Agree Somewhat** circle **2**, if you **Disagree somewhat** circle **3**, and if you **Disagree Strongly** circle **4**. Be sure to indicate your agreement or disagreement for every statement below. Also, there are questions on the following pages.

		Agree Strongly	Agree Some	Disagree Strongly	Disagree Some
1.	I have a reserved and cautious attitude toward life.	1	2	3	4
2.	I have trouble controlling my impulses.	1	2	3	4
3.	I generally seek new and exciting experiences and sensations.	1	2	3	4
4.	I generally like to see things through to the end.	1	2	3	4
5.	When I am very happy, I can't seem to stop myself from doing things that can have bad consequences.	1	2	3	4
6.	My thinking is usually careful and purposeful.	1	2	3	4
7.	I have trouble resisting my cravings (for food, cigarettes, etc.).	1	2	3	4
8.	I'll try anything once.	1	2	3	4
9.	I tend to give up easily.	1	2	3	4
10.	When I am in great mood, I tend to get into situations that could cause me problems.	1	2	3	4
11.	I am not one of those people who blurt out things without thinking.	1	2	3	4
12.	I often get involved in things I later wish I could get out of.	1	2	3	4
13.	I like sports and games in which you have to choose your next move very quickly.	1	2	3	4

14.	Unfinished tasks really bother me.	1	2	3	4
15.	When I am very happy, I tend to do things that may cause problems in my life.	1	2	3	4
16.	I like to stop and think things over before I do them.	1	2	3	4
17.	When I feel bad, I will often do things I later regret in order to make myself feel better now.	1	2	3	4
18.	I would enjoy water skiing.	1	2	3	4
19.	Once I get going on something I hate to stop.	1	2	3	4
20.	I tend to lose control when I am in a great mood.	1	2	3	4
21.	I don't like to start a project until I know exactly how to proceed.	1	2	3	4
22.	Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse.	1	2	3	4
23.	I quite enjoy taking risks.	1	2	3	4
24.	I concentrate easily.	1	2	3	4
25.	When I am really ecstatic, I tend to get out of control.	1	2	3	4
26.	I would enjoy parachute jumping.	1	2	3	4
27.	I finish what I start.	1	2	3	4
28.	I tend to value and follow a rational, "sensible" approach to things.	1	2	3	4
29.	When I am upset I often act without thinking.	1	2	3	4
30.	Others would say I make bad choices when I am extremely happy about something.	1	2	3	4
31.	I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional.	1	2	3	4

32.	I am able to pace myself so as to get things done on time.	1	2	3	4
33.	I usually make up my mind through careful reasoning.	1	2	3	4
34.	When I feel rejected, I will often say things that I later regret.	1	2	3	4
35.	Others are shocked or worried about the things I do when I am feeling very excited.	1	2	3	4
36.	I would like to learn to fly an airplane.	1	2	3	4
37.	I am a person who always gets the job done.	1	2	3	4
38.	I am a cautious person.	1	2	3	4

Appendix E: Mediation Macro

```
Run MATRIX procedure:
**********************************************************************
Preacher and Hayes (2008) SPSS Macro for Multiple Mediation
Written by Andrew F. Hayes, The Ohio State University
http://www.afhayes.com/
For details, see Preacher, K. J., & Hayes, A. F. (2008). Asymptotic
and resampling strategies for assessing and comparing indirect effects
in multiple mediator models. Behavior Research Methods, 40, 879-891.
**********************************************************************
Dependent, Independent, and Proposed Mediator Variables:
DV =    SBStotal
IV =    SS
MEDS = sexpsaro

Statistical Controls:
CONTROL= age
        sex

Sample size
       595

IV to Mediators (a paths)
            Coeff        se          t           p
sexpsaro    .2356      .0488     4.8264      .0000

Direct Effects of Mediators on DV (b paths)
            Coeff        se          t           p
sexpsaro    .3708      .0322    11.5267      .0000

Total Effect of IV on DV (c path)
        Coeff        se          t           p
SS     .2203      .0422     5.2183      .0000

Direct Effect of IV on DV (c' path)
        Coeff        se          t           p
SS     .1330      .0389     3.4161      .0007

Partial Effect of Control Variables on DV
         Coeff        se          t           p
age     .0007      .0042      .1760      .8604
sex    -.0163      .0558     -.2929      .7697

Model Summary for DV Model
     R-sq  Adj R-sq         F        df1        df2          p
     .2225     .2173   42.2217     4.0000   590.0000      .0000

**********************************************************************
          BOOTSTRAP RESULTS FOR INDIRECT EFFECTS

Indirect Effects of IV on DV through Proposed Mediators (ab paths)
             Data        Boot        Bias         SE
TOTAL        .0874      .0873     -.0001      .0198
sexpsaro     .0874      .0873     -.0001      .0198

Bias Corrected Confidence Intervals
            Lower      Upper
TOTAL        .0519      .1306
sexpsaro     .0519      .1306
**********************************************************************
Level of Confidence for Confidence Intervals:
  95
Number of Bootstrap Resamples:
  5000
******************************** NOTES ********************************
NORMAL THEORY TESTS NOT AVAILABLE IN MODELS WITH COVARIATES
```