

The Nature and Psychosocial Correlates of Electronic Victimization
and Aggression in Early Adolescence

by

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ABSTRACT

The present study was designed to extend previous research on early adolescents' involvement in electronic aggression and victimization. A new measure for electronic victimization and aggression was created for this study in order to better assess this type of peer harassment in early adolescence. The first goal of the study was to describe young adolescents' involvement in electronic aggression and victimization by exploring the links between electronic victimization and aggression and (a) youth demographic characteristics (e.g., gender, ethnicity), (b) involvement in traditional forms of aggression and victimization, and (c) gender of the aggression/victimization context (i.e., same-sex aggressor -victim versus other-sex aggressor- victim dyad). The second goal was to examine how electronic victimization and aggression were associated with self-esteem and relationship efficacy. Participants were 826 (49.9% female) 7th and 8th grade students (M age = 12.5 years old; SD = .67). Students were administered surveys during school hours. Results indicated that girls were more likely to be involved in both electronic aggression and victimization than boys. Further, girls were more likely to be both electronic aggressors and victims simultaneously than boys. Finally, those involved with electronic aggression reported higher levels of relationship efficacy than their peers and involvement as an aggressor/victim was associated with lower self-esteem than any other involvement category.

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Chapter 1

INTRODUCTION

The development of new technology has led to significant changes in the ways that youth communicate with one another (Landoll, La Greca, & Herge, 2011; Lenhart, Ling, Campbell & Purcell, 2010). Recent data show that 75% of 12- to 17-year olds own cell phones (Lenhart, Purcell, Smith & Zickuhr, 2010) and 95% of 14- to 17-year olds report using the internet (Lenhart et al., 2010). Among youth who own cell phones, 96% communicate via text messaging several times a week, and over half of teens in the United States report that they text on a daily basis (Lenhart et al., 2010; Monroe & Fodeman 2011). Peer communication among youth is also common via the internet. In a nationally representative sample (Lenhart et al., 2010), 93% of adolescents reported using email and 75% reported using online instant messaging as a regular means of communication with peers.

These new forms of electronic communication provide additional opportunities for youth to cultivate friendships and interactions with peers (Lenhart et al., 2010), but also offer new means for victimization and aggression among youth (see Tokunaga, 2010 for a review). Of concern, statistics show that many youth face this problem today: Nearly one in three youth ages 12 to 17 report being electronically victimized (Ybarra & Mitchell, 2008). Less is known, however, about how often youth engage in electronic aggression or how many youth today are electronic aggressors, highlighting the need for more work in this area.

Research points to the significant adjustment difficulties associated with electronic victimization and aggression, although more is known about the consequences

of electronic victimization than of electronic aggression. Electronic *victimization* has been associated with a variety of problems, such as low academic performance (Li, 2007), poor family relationship quality (Beran & Li, 2007), psychosocial problems and affective disorder symptomology (Didden et al., 2009; Juvoven & Gross, 2008; Patchin & Hinduja, 2006). Further, recent research suggests that electronic aggression and victimization is associated with higher rates of anger, anxiety, depression, and violence as compared to traditional face to face aggression for both the aggressor and the victim (Landoll & La Greca 2010; Li, 2010; Wang, Nansel, & Iannotti, 2011). In a recent study of 1,500 6th through 10th grade students from 43 countries (Wang et al., 2011), youth who were electronically victimized experienced significantly higher levels of depression than those victimized via face-to-face interactions, and similarly, youth who were electronic aggressors reported significantly high levels of depression compared to traditional aggressors. This is one of the only studies to date that examines the effects of both electronic aggression *and* victimization as well as contrasts electronic *and* traditional forms of victimization and aggression.

The current study was designed to extend research on this topic by investigating young adolescents' involvement in electronic aggression and victimization via two research goals. The first goal was to describe young adolescents' involvement in electronic aggression and victimization by examining the links between electronic victimization and aggression and (a) youth demographic characteristics (e.g., gender, ethnicity), (b) involvement in traditional forms of aggression and victimization, and (c) gender of the aggression/victimization context (i.e., same-sex aggressor -victim versus other-sex aggressor- victim dyad) guided by gender schema theory (Martin & Halverson,

1981; Martin, Ruble, & Szkrybalo, 2002). Using a social information processing framework, the second goal was to examine how electronic victimization and aggression are associated with adolescents' socioemotional well-being concurrently as measured by adolescents' perceived self-esteem and relationship efficacy.

This study focuses on electronic victimization and aggression in the developmental period of adolescence for several reasons. First, adolescence is a period of increasing autonomy and independence (Steinberg, 1993) and of greater access to technology (Lenhart, 2011). Between 6th and 7th grade, for example, most youth receive their first cell phone (Tokunuga, 2010) and internet use is prominent (Lenhart et al., 2010). Second, the cognitive advancements that characterize the period of adolescence also mean that peer aggression becomes more covert and strategic (Craig, Pepler, Connolly & Henderson, 2001; Crick, 1995). Together, the greater autonomy in combination with more access to electronic means of communication (i.e., cell phone, internet) and more sophisticated cognitive skills sets the stage for electronic forms of victimization and aggression. Finally, a recent meta-analysis showed that electronic victimization and aggression occurred most frequently in 7th and 8th grade, highlighting the importance of early adolescence as a period to study electronic victimization and aggression (Tokunuga, 2010).

Theoretical Overview of Social Information Processing and Gender Schema Theory

This study drew from social information processing (SIP) and gender schema theories to inform the study's hypotheses. SIP theory is a common framework for research on peer aggression (Crick & Dodge, 1994; Dodge & Coie, 1987; Sutton, Smith & Swettenham, 1999). SIP theory outlines how individuals cognitively interpret social

situations and construct and evaluate behavioral goals. SIP models broadly suggest that behavior is the result of processing information in the social environment during a series of interrelated steps that begins with encoding of social cues and culminates in goal directed behavioral responses (Crick & Dodge, 1994). Cues from the social environment are cognitively encoded and that information is then used by individuals as they formulate and enact an appropriate goal directed behavioral response. Over time this internal processing can become biased, due to social goals or individual differences in social information interpretation, increasing the likelihood of aggressive behavior (Dodge & Crick, 1990; Little, Henrick, Jones & Hawley, 2003; Pellegrini and Long, 2002; Sijtsema, Veenstra, Lindenberg and Salmivalli, 2009). During each step in the process children are making cognitive exchanges into their internal data base which is comprised of memory, rules, social knowledge and schemas.

Fundamental to the theory of SIP, is that social knowledge and schemas, mental scripts and working models, heavily influence each step of the SIP model of processing (Crick & Dodge, 1994). One important theory explaining children's social behavior is gender schema theory (Bem, 1983; Martin & Halverson, 1981; Martin et al., 2002). As children develop and interact with their social world they search for cues about gender (Martin & Ruble, 2004). According to gender schema theory, these cues get stored into cognitive knowledge structures, or schemas (Martin et al., 2002). As cues build up over time, children are able to piece together a picture and identify what it means to be a male and female in the society in which they live. These gender expectations become stored into a gender schema, informing children's future decisions about the behaviors they engage in. In line with SIP theory, these gender schemas influence children's social

information processing and behavior, providing information about gender-related conceptions of themselves and others, including social roles. There are various sources of pressure on children at all ages to act in gender typical ways; however, this pressure is suggested to increase in adolescence as social status becomes increasingly important and romantic relationships begin to become present (Carver, Yunger & Perry, 2003; Egan & Perry, 2001; Spence & Buckner, 1995). In the current study, SIP theory provides a basic framework for understanding how information from the social environment become processed and translate into behavior and gender schema theory provides a background for gender related information processing. Together these theories provide a foundation on which I hypothesize gender differences and correlates of electronic victimization and aggression.

Individual Characteristics and Relationship Context of Electronic Aggression and Victimization

The first goal of this study was to provide descriptive information about the individual characteristics and relationship context of electronic aggression and victimization. Few studies have investigated ethnic differences in the frequency of electronic aggression and victimization, but there is some evidence of ethnic differences in access to and use of technology (Jackson et al., 2007; Lenhart et al., 2010), which are likely to have implications for exposure to electronic victimization and aggression. In a recent nationally representative investigation on electronic use among teens (Lenhart et al., 2010), White non-Hispanic teens were slightly more likely to use the internet several times a day than Hispanic and non-Hispanic Black teens; however, there were no significant differences in availability or physical access. In addition, non-Hispanic White

and Black teens were slightly more likely to own cell phones than Hispanic (English-speaking) teens (Lenhart et al., 2010). Some research further suggests ethnic differences in the reasons that youth use the internet. Jackson and colleagues (2007) found, for example, that African American and Hispanic 7th and 8th graders were more likely to use the internet for entertainment and socialization purposes over education and learning than their White counterparts. It is possible that groups who use technology for entertainment and socialization may be more likely to be exposed to electronic victimization and aggression. Based on differences in access to and use of technology, this study explored the possibility of ethnic differences in electronic victimization and aggression.

The investigation of gender differences in electronic aggression and victimization has revealed inconsistent findings (Tokunaga, 2010). Some research shows that girls are at higher risk for electronic *victimization* than are boys (Dehue, Bolman, & Völlink, 2008; Kowalski & Limber, 2007; Kowalski, Morgan & Limber, 2012; Lenhart & Madden, 2007b; Ybarra & Mitchell, 2008). Yet, other studies reveal that girls and boys are equally likely to experience electronic victimization and aggression (Beran & Li, 2007; Didden et al., 2009;; Juvonen & Gross, 2008; Li, 2006, 2007; Patchin & Hinduja, 2006; Wolak, Mitchell, & Finklehor, 2007). It is important to note that there is substantial variability across these studies in adolescents' ages and in the definition and operationalization of electronic victimization and aggression that may contribute to these inconsistent findings regarding gender differences.

It is also important to consider the *gender composition* of the aggressor-victim dyad, particularly in adolescence, as youth spend increasing amounts of time in mixed-sex peer contexts (Juvonen & Graham, 2001). Although researchers have not yet

examined the gender composition of the aggressor-victim dyad in electronic aggression and victimization, scholarship on traditional victimization reveals that adolescents are targeted by both same-sex and other-sex peers (Juvonen & Graham, 2001), however same-sex peer groups remain a primary context for peer interactions during adolescence (Archer, 1992; Carver et al., 2003). Several studies have found, for example, that bullies in early adolescence were primarily boys, but victims were both boys and girls (Espelage, Mebane, & Swearer, 2004; Rodkin & Berger, 2008; Schwartz et al. 2001; Solberg & Olweus, 2003; Veenstra et al., 2007). The limited research on electronic aggression suggests that girls may be more likely to target other girls (Kowalski & Limber, 2007). In our society, aggression is less acceptable for girls in general than boys, and therefore, is likely to be processed as a less gender appropriate act for girls according to gender schema theory (Archer & Coyne, 2005; Campbell, 1999). It is possible that because of the increased pressure to act in gender appropriate ways during adolescence, girls are less likely to internally process aggression toward other-sex peers as an acceptable response because of the negative attention such an act could warrant. Therefore, in the current study I hypothesized that girls will engage in higher rates of same-sex aggression and lower rates of other-sex aggression than boys.

Little is known about overlap in youth's involvement in traditional and electronic forms of aggression and victimization. Thus, as part of the first study goal, I explore these associations. SIP theory argues that cues from the environment influence how individuals formulate and enact appropriate behaviors directed towards a goal. Previous work has linked aggression in early adolescence to goals of increased social status (Hawley, 2003; Little et al., 2003; Veenstra et al., 2007). Adolescents, who have goals of increased

status, are likely to perceive cues in their social environment as indicators of opportunity to act on these status goals, using aggression proactively. This is particularly true for indirect forms of aggression which, similar to electronic aggression, are indirect and covert in their nature. In the current work it is hypothesized that, just as face to face social cues may promote traditional aggression in youth, cues perceived through electronic communicative interactions can be processed in a similar way. Thus, it was expected that traditional and electronic means of aggression would be positively correlated.

Research suggests that victims of traditional and electronic aggression are identified and targeted by their peers because of their vulnerabilities and weaknesses (Olweus, 1978; Patchin & Hinduja, 2006; Topcu Erdur-Baker, Capa-Aydin, 2008; Ybarra, 2004; Veenstra et al., 2005). Specifically, over the past few decades, research consistently demonstrates that victims tend to be more depressed, insecure (Didden et al., 2009; Perry, Perry & Kennedy, 1992; Pellegrini, Bartini, & Brooks, 1998), less prosocial (Schwartz, 2000), lonelier, and have fewer friends (Boulton & Underwood, 1992; Nansel et al., 2001, 2004) than their peers. Thus, it is hypothesized that electronic aggressors may identify victims by similar weaknesses and vulnerabilities as traditional victims. Therefore in the current study, electronic victimization is hypothesized to be positively related to traditional forms of victimization.

Socioemotional Well-Being and Concurrent Involvement in Electronic Victimization and Aggression

The second goal of the study is to examine concurrent associations between electronic aggression and victimization and youth's socioemotional well-being, as

defined by self-esteem and perceived relationship efficacy. As elaborated in the literature review, this second goal is grounded in social information processing theory. Self-esteem is widely seen among scholars as an indicator of well-being during adolescence (Lucas, Diener, & Suh, 1996). Research has revealed that high levels of self-esteem are associated with happiness (Baumeister, Campbell, Kreuger & Vohs, 2003), positive self-concept (Hartner, 1985), academic success and life satisfaction among adolescents (Huebner, 1991). In addition, self-esteem also has been identified as a protective factor for adolescents against depressive symptomology and stress (Dumont & Provost 1999). Alternatively, low levels of self-esteem are associated with more depressive symptomology (Lasko et al., 1996; Rosenberg, Schooler, & Schoenbach, 1989), and higher rates of externalizing behavior and substance use in adolescence (DuBois, Bull, Sherman, & Roberts, 1998).

Electronic *victimization* has been associated with lower levels of self-esteem in two studies (Didden et al., 2009; Ybarra, Mitchell, Wolak & Finkelhor, 2006). The links between electronic *aggression* and self-esteem have yet to be examined, however. Research on traditional aggression and self-esteem shows that, in some cases, traditionally aggressive youth have significantly higher self-esteem than nonaggressive peers, and over time, aggressive behavior reinforces their high self-esteem (Menon et al., 2007; Baumeister et al., 2003). In the current study, it is hypothesized that electronic aggression will be positively associated with self-esteem and that electronic victimization will be negatively associated with self-esteem.

Relationship efficacy is a relatively new measure that reflects a construct that assesses efficacy in the context of social relations, similar to social competence (Zosuls,

Field, Martin, Andrews & England, 2012). Many different measures have been developed to assess children's social self-efficacy or ability to cultivate and maintain positive peer relationships (Bandura, Pastorelli, Barbaranelli, & Caprara, 1999; Ladd & Crick, 1989; Muris, 2001), however, most measures do not assess children's perception of their ability to develop and maintain positive relationships with same- *and* other-sex peers. For the purpose of this study, relationship efficacy refers to adolescents' cognitive perceptions of whether they are successful and socially competent in their interactions with both same- *and* other-sex peers (Zosuls et al., 2012).

Scholarship on traditional aggression suggests that the ability to socially strategize and carry out aggressive acts may be related to a heightened perception of efficacy (Menon et al., 2007). In the current study it was expected that electronic aggression also may be related to efficacy because electronic aggression is unique in that it offers one of the most technologically advanced strategies to perform manipulative, aggressive attacks (Tokenuga, 2010). It is expected that electronic aggressors will perceive themselves as having a higher sense of relational efficacy than nonaggressive peers. It is possible that electronic aggressors feel relationally efficacious because of their ability to manipulate their peers, using electronic media to gain this power. In the current study, it is hypothesized that this relation will be congruent with the same- and other-sex context of the aggression (e.g., same-sex peer aggression will be positively associated with same-sex relationship efficacy).

On the other hand, the experience of being electronically *victimized* is often associated with feelings of emotional distress (Topcu et al., 2008), loneliness (Ybarra, 2004), social anxiety and withdrawal (Beran and Li, 2007; Juvoven and Gross, 2008). It

is also possible that experiences of electronic victimization will be negatively associated with relational efficacy. Therefore, in the current study it is hypothesized that electronic victimization by same-sex peers will be negatively associated with perceived relationship efficacy in reference to same-sex peers, and similarly, electronic victimization by other-sex peers will be associated with relationship efficacy in other-sex peer contexts.

In line with research on traditional victimization and aggression (Olweus, 1978; Solberg, Olweus & Endersen, 2008), as a final step, this study will consider how youth who are both electronic victims and aggressors (aggressive victims), youth who are only electronic victims, youth who are only electronic aggressors, and youth who experience neither electronic victimization or aggression differ in their perceived self-esteem and relationship efficacy. Youth who are aggressive and also victims of aggression were first noted by Olweus (1978) and have been further identified to experience problems in multiple areas of functioning (Schwartz et al., 2001). Specifically, being an aggressor and victim was associated with higher instances of peer rejection, academic failure, emotional distress and behavior problems (Schwartz, 2000) as compared to those who are non-aggressive victims (i.e., victims only). Moreover, a review by Schwartz et al. (2001) indicated that aggressive victims experience significant relational problems as well, such as difficulties in their relationships with both peers and parents. Scholars investigating electronic aggression and victimization also have found that non-aggressive victims and aggressive victims can be distinguished in their adjustment (Kowalski & Limber, 2007; Werner, Bumpus & Rock, 2010; Ybarra & Mitchell, 2008). Thus, it was expected that aggressive victims in our sample will experience lower levels of self-esteem and

perceived relationship efficacy than their non-aggressive victims and other peers (i.e., aggressors and uninvolved peers).

Summary of Study Goals and Hypotheses

Electronic aggression and victimization is a significant problem that many youth face today (Tokunuga, 2010). The purpose of this investigation is to better understand the nature and correlates of electronic aggression and victimization. The first goal is to describe links between electronic victimization and aggression and youth demographic characteristics, involvement in traditional forms of aggression and victimization, and gender of the aggression/victimization context. It was hypothesized that girls would be more involved in both electronic aggression and victimization than boys and target same-sex peers more often than other-sex peers. Both electronic aggression and victimization are expected to be associated with traditional forms of victimization and aggression. The second goal was to explore associations between electronic aggression and victimization and adolescents' perceived relationship efficacy and self-esteem. Generally, self-esteem and relationship efficacy are expected to be positively associated with electronic aggression and negatively associated with electronic victimization. It is also hypothesized that electronic aggressors will report higher levels of self-esteem and relationship efficacy than their peers (victims, aggressive victims and uninvolved peers) and that victims and aggressive victims will report lower levels of self-esteem and relationship efficacy than aggressors and uninvolved peers with aggressive victims showing lowest levels.

Chapter 2

LITERATURE REVIEW

This literature review addresses theory and research related to the proposed study. First, trends in electronic aggression and victimization are presented and gender, contextual, and developmental trends are noted and discussed within the framework of gender schema theory. Second, social information processing (SIP) theory is presented as the underlying conceptual framework for this study. Last, self-esteem and relationship efficacy are discussed as important socioemotional functioning correlates of electronic victimization and aggression.

Electronic Communication: Definitions and Trends

Technology use has steadily risen as more electronic devices designed for communication and social networking emerge, influencing the speed, frequency, and methods that youth utilize to communicate with peers (Lenhart et. al, 2010). Electronic communication has increased among individuals of all ethnic backgrounds and age groups in the United States, but the highest rates of electronic communication are among adolescents and emerging adults (Lenhart et al., 2010). Rates of teenage cell phone use, for example, have risen from 45% in 2004 to 75% in 2010 (Lenhart et. al, 2010). Among teenage cell phone owners, 96% used text messaging, and over half (54%) in the United States texted on a daily basis (Lenhart et al., 2010; Monroe & Fodeman, 2011). Similarly, over three times as many youth ages 14 to 17 reported online internet usage in 2011 (i.e., 96%; Monroe, & Fodeman, 2011) as compared to 2004 (i.e., 25%; Lenhart & Madden, 2007b). With the various types of electronic media devices there are several types of communication available, and youth report using a broad repertoire of online

communication. For example, adolescents who use the internet are likely to use it for email (89%), instant messaging (75%) and social networking (80%) (Lenhart & Madden, 2007b; Lenhart et al., 2010).

Existing evidence suggests that electronic communication use differs by adolescent gender. Girls in early to late adolescence (i.e., 12 to 17 years of age) use electronic media more often, particularly as a mode of communication, as compared to boys of the same age (Lenhart et al., 2010; Lenhart & Madden, 2007b). Lenhart et al. (2010) reported that girls typically send and receive, on average, 50 more text messages per day than boys. Relatedly, internet use is also more prominent among girls. Werner and colleagues (2010), for example, found that 68% of the regular internet users in their sample of 6th through 8th graders were girls.

Victimization and Aggression

Peer aggression and victimization have been studied from early childhood through late adolescence, and existing research highlights developmental shifts over time in the nature of aggression and victimization (Craig et al., 2001). During early childhood, aggression is largely overt and reactive to an immediate social provocation (Craig et al., 2001; Dodge and Coie, 1987; Kochenderfer & Ladd, 1997). These overt forms of aggression typically involve either physical harm to another person or verbal insults. As children get older and develop language skills, physical aggression declines and verbal aggression towards peers increases (Craig et al., 2001). During the time in which children transition to late childhood and early adolescence, their cognitive capacity and ability to strategize and engage in reasoning increases (Craig et al., 2001; Keating, 2004).

At this time, youth transition from predominately engaging in overt aggressive behaviors to strategic, covert acts of aggression and girls start this shift earlier than boys, on average (Crick, 1996). Related to this developmental shift to covert, indirect aggression, decreases in overall rates of victimization from childhood to adolescence have been reported (Craig et al., 2001; Olweus, 1993).

Covert aggressive strategies have been referred to as relational, social and indirect aggression in the literature (Archer & Coyne, 2005). Some small differences exist in the ways that researchers conceptualize them (Archer & Coyne, 2005). Social aggression (Cairns et al., 1989) is defined in terms of the intended goal of manipulating social standing and group acceptance. Relational aggression, like social aggression, is also defined in terms of goals and is aggression with the goal of manipulating and damaging relationships and friendships (Crick, 1995). Indirect aggression is defined in relation to the covert form it takes rather than the goal behind the behavior (Archer & Coyne, 2005). It is a form of aggression designed to harm others with little social costs (Bjorkqvist, 1994). Extensive research in the field has been conducted on relational, social and indirect aggression. Recently, Archer and Coyne (2005) conducted a review of indirect, social and relational aggression among girls and established that, although these types of aggression differ slightly in technicality, they are essentially driven by the same motivations and social strategies and are defined by many of the same behaviors. Further, in their review, Archer and Coyne (2005) concluded that social, relational and indirect aggression are more similar than different in form and follow the same developmental trends and rates of occurrence. Therefore, for the purposes of this study, the term *relational aggression* will be used to refer to indirect, social, and relational acts

of aggression. In this study, relational aggression is a subscale of the traditional aggression measure.

Gender differences have been noted in several aspects of relational aggression and victimization in adolescence. First, girls use relational aggression at an earlier age than boys (Cairns et al., 2001). Second, girls use advanced relational strategies, such as spreading rumors as a means of damaging friendships, more often than do boys (Crick, 1995; Cairns et al., 2001). Third, girls are more aware of and distressed by relational aggression as compared to boys (French, Jansen, & Pidada, 2002; Paquette & Underwood, 1999), as indicated by individual verbal interviews of aggression and victimization from youth (Paquette & Underwood, 1999). These behavioral gender differences in aggressive behavior could be related to differences in girls' and boys' gender schemas. Youth are aware of pressure to conform to behave in ways that are consistent with gender-typed expectations, which, for girls, involves not appearing overtly aggressive (Archer & Coyne, 2005). In this sense, girls are limited to indirect forms of aggression, and therefore, they become more advanced in the indirect tactics they employ as opposed to boys who have been shown to be both indirectly and directly aggressive (Card et al., 2008). Together, these findings highlight the important role of gender in the study of relational aggression and victimization.

Distinct features of electronic aggression and victimization. Electronic aggression is defined as any act of aggression that can take the form of purposeful harassment, such as making unwanted, derogative, or threatening comments through electronic communication or spreading rumors, video clips, or altered photos that are offensive or embarrassing to the victim by posting them on an internet site or sending

them through electronic means (Mesch, 2009; Landol, 2010). Victimization, on the other hand, is receiving unwanted purposeful harassment in this form. Importantly, there are a number of distinguishing features of electronic aggression and victimization that set it apart from traditional forms of aggression and victimization. First, the bully and victim have no face to face interaction during the offense (Dooley, Pyszalski & Cross, 2009). Patchin and Hinduja (2006) found that people are less restrained and inhibited and more likely to communicate messages online that they would not communicate during face to face interactions. There is also concern that the lack of face to face contact results in less empathetic bullies because they do not experience the victim's immediate emotional reaction to the assault, leaving them less aware of the implications and less empathetic after the transgression (Slonje & Smith, 2008). Consequently, electronic aggressors are often contextually removed from their victims and fail to see the initial effects of their behaviors. This removal dulls the aggressor's ability to feel remorse, referred to as the 'online disinhibition effect' (Suler, 2004), which could aid in preventing future transgressions (Slonje & Smith, 2008; Nelson, Stockdale, Coyne, Hart & Robinson, 2010). Although causal associations have not been documented, two studies show that electronic aggression is associated with moral disengagement (Bauman, 2010; Pornari & Wood, 2010).

Second, it is unknown whether the power dynamic between electronic aggressors and victims mirrors the power differential between traditional bullies and victims. Some scholars believe that the lack of face-to-face contact empowers victims who are technologically savvy to retaliate (Patchin & Hinduja, 2006). Thus, it is possible that victims of electronic aggression may be more likely to retaliate than victims of traditional

forms of aggression because the lack of face to face contact in combination with electronic proficiency leads to retaliation. Consistent with this premise, Landoll and colleagues (2011) found relatively high correlations between electronic victimization and electronic aggression, indicating there are a substantial number of youth who are both an electronic victim and aggressor.

A third distinguishing feature is that electronic forms of aggression are often quickly disseminated to large numbers of people or posted publicly on the internet, providing widespread exposure of the victimization (Dooley et al., 2009). This is thought to increase distress felt by victims (Ybarra et al., 2006). Electronic aggression, as opposed to face to face aggression, has a potentially limitless audience. This potential for a large audience is thought to be related to increased distress felt by victims although no empirical evidence has substantiated this association (Tokunuga, 2010).

Although often widely dispersed or publicly posted, electronic victimization may be experienced in isolation (e.g., on the computer at home) and occurs outside of the physical peer context, and thus, may be processed without social input or peer support (Agatston, Kowalski, Limber, 2007; Tokunuga, 2010). This fourth feature could result in fewer public defenders of the victim and heightened victim vulnerability. Research suggests that youth often ignore victimization observed via social networking sites (Lenhart et al., 2011). In addition, adolescents are significantly more likely to encounter electronic forms of bullying while at home than in the school environment (Smith et al., 2008) and parents are often unaware that their sons or daughters are the targets of electronic victimization (Ybarra & Mitchell, 2004). The notion that bullying can strike at any time or place is problematic because it can leave victims with a heightened sense of

vulnerability and insecurity (Kowalski & Limber, 2007; Slonje & Smith, 2008). This is seen in adolescents' reports stating that electronic bullies leave them no route through which to escape, as they can reach them anywhere and anytime (Spears, Slee, Owens & Johnson, 2009).

A fifth distinguishing feature is that youth are left with an electronic, tangible record of the offense (Tokunuga, 2010). A single aggressive act online or electronically can leave a record that can be seen multiple times, and be shared and forwarded to large numbers of people in a short amount of time (Kowalski & Limber, 2007; Slonje & Smith, 2008), presenting victims with the opportunity to fixate on the act and revisit it often. There is concern that this constant referral to aggressive acts can lead to rumination and increased feelings of internalization and depression (Erdur-Baker, 2009).

Interrelations among electronic and traditional aggression and victimization.

Electronic media is also hypothesized to be another avenue for aggressive youth to harm others, broadening the means through which they are aggressive (Raskauskas & Stoltz, 2007; Werner et al., 2010). This "carryover" notion that youth who engage in traditional forms of aggression toward peers also engage in aggression via electronic media has received empirical support (Tokenuga, 2010). Specifically, several recent studies reveal correlations between traditional forms of aggression (physical, verbal, and relational) and electronic aggression, with relational aggression being a stronger predictor of electronic aggression than any other traditional form for youth 12 to 18 years of age (Raskauskas & Stoltz, 2007; Werner et al., 2010). Other studies comparing victims of traditional aggression to victims of electronic aggression support this notion as well. Juvonen and Gross (2008) found that as many as 85% of children and teens who were victimized

electronically were victims of traditional aggression as well. Further, Ybarra, Diener-West, and Leaf (2007), in a nationally representative sample, found that 36% of children experienced traditional and electronic victimization concurrently.

Although there is evidence that traditional aggression carries over to the electronic context, other studies point to important differences in the associations between traditional and electronic aggression and psychosocial adjustment. For example, Landoll, and colleagues (2011) found that electronic victimization was highly correlated with indirect traditional victimization; however, victims of electronic aggression were significantly more likely to exhibit internalizing symptoms than victims of traditional victimization. Landoll and colleagues' (2011) findings indicated that electronic forms of victimization were unique from relational victimization due to the increased likelihood of negative symptoms experienced by victims of electronic aggression. Further, in a recent study (Wang et al., 2011), victims of electronic aggression experienced significantly higher rates of depression than victims of traditional forms of aggression. Findings such as these underscore the need to further examine how electronic aggression and victimization are linked to traditional aggression and victimization and how electronic aggression and victimization link to youth adjustment.

Role of Gender in Electronic Aggression and Victimization. Findings regarding gender differences in electronic victimization and aggression are inconsistent. Several studies show that girls experience electronic *victimization* more frequently than boys (Dehue et al., 2008; Kowalski & Limber, 2007; Kowalski et al., 2012; Lenhart & Madden, 2007b; Ybarra & Mitchell, 2008; Ybarra et al., 2007). Yet, other studies find that girls and boys are equally likely to experience electronic forms of victimization and

aggression (Beran & Li, 2007; Didden et al., 2009; Juvoven & Gross, 2008; Li, 2006, 2007; Patchin & Hinduja, 2006; Wolak et al., 2007). These inconsistent findings may be due, in part, to differences across studies in the definition and measurement of electronic victimization and aggression and age differences in the samples.

Although findings regarding gender differences in frequency of electronic victimization are mixed, there are still some pieces of evidence pointing towards girls as a higher risk group for electronic aggression and victimization than boys. In two separate studies girls reported that they were more likely to choose electronic over traditional aggression strategies (Hinduja & Patchin, 2006; Kowalski & Limber, 2007). Further, in studies where researchers differentiated between victim/aggressor status and included aggressors, victims, and aggressive victims, research consistently shows that girls were more likely to be simultaneously involved in both electronic aggression and victimization than were boys (Werner et al., 2010; Wolak et al., 2007). And finally, there is evidence suggesting that girls in the school context are more likely than boys to be aware of electronic victimization and acknowledge that it is a significant problem (Agatston et al., 2007). Together, these studies provide some evidence suggesting that girls may be more likely to be involved in electronic aggression and victimization than boys. Further, it is important to note that electronic aggression is often relational in nature. Studies investigating relational aggression find that girls are slightly more likely to engage in relational aggression than overt aggression (for review see Archer & Coyne, 2005 and Card et al., 2008), so it is possible that electronic means provide early adolescent girls with easier access to employ forms of relational aggression toward peers.

Importantly, it is theoretically reasonable for girls to be more involved in electronic forms of victimization and aggression than boys. SIP theory highlights that over time cognitive processing can become biased due to individual interpretations of social situations (Crick & Dodge, 1994). Gender schema theory lends understanding to how individual's perception of gender influences the processing of social information, goal selection and social behavior. According to gender schema theory, within children's gender schema resides their perception of what their gender role expectation is within society, along with stereotypes associated with that role (Martin et al., 2002; Martin & Ruble, 2004). Children of all ages experience pressure from various sources to conform to their assigned gender roles by acting gender appropriately (Egan & Perry, 2001). Traditionally, girls are thought to be non-aggressive, prosocial and polite whereas boys are thought to be loud, rough and aggressive (Adler, Kless & Adler, 1992; Eder, Evans & Parker, 1995).

Girls' internal gender schema likely informs them that indirect forms of aggression, such as electronic aggression, are more acceptable because they adhere more to society's gender norms for girls than physical and verbal aggression (Archer & Coyne, 2005). This is because verbal and physical forms of aggression are overt in nature and easily observable. Such directness and overt confrontation are inconsistent with the feminine gender schema (Crothers, Field, & Kolbert, 2005; Archer & Coyne, 2005). Evidence for this in adults is seen in research showing a negative correlation between femininity ideals and direct aggression (Walker, Richardson & Green, 2010). Moreover, girls' peer groups are less accepting of girls who are physically aggressive, while boys' peer groups, on the other hand, are more accepting of direct forms of aggression (Archer

& Coyne, 2005). In order avoid being seen as confrontational and overtly aggressive, girls become manipulative, using covert means to aggress (Crothers et al. , 2005). This is important for girls to do when social status is of concern. For example, if girls are expected to act in more polite and social ways, directly aggressive behavior could result in negative attention from peers. If social status and prominence are a primary goal for aggression during early adolescence (Archer & Coyne, 2005; Crick & Dodge, 1994; Faris & Felmlee, 2011; Hawley, 2003; Veenstra et al., 2007), using aggression in ways that result in negative peer attention would be counterproductive.

Boys on the other hand are likely to be less motivated to use indirect forms of aggression such as electronic media (Archer & Coyne, 2005). While there is still opportunity for indirect forms of aggression in boys' social groups, direct forms are less 'taboo' than in girls' groups (Archer & Coyne, 2005; Benson & Archer, 2002). Given the role of masculinity in adolescent boys' culture (Galambos, Almeida & Petersen, 1990; Pleck, Sonenstein & Ku, 1993), physical and verbal forms of aggression may be more effective for boys than indirect forms, which could be considered weak and feminine. Since anger and aggression are more in line with traditional expectations of masculine behavior, boys are less stigmatized, than girls, when they engage in such behavior (Archer & Coyne, 2005). Simply put, the costs associated with direct forms of aggression are higher for girls than for boys in today's society (Archer & Coyne, 2005; Campbell, 1999). Therefore, while girls are socially processing information about their goals, and have arrived at an aggressive act as an adequate behavioral response, girls are hypothesized to be more likely to choose electronic aggression than boys because it aligns more closely with their gender-typed expectations than other forms of aggression.

Further, same-sex peer groups still remain a major context for socialization and interaction in early adolescence (Archer, 1992; Carver et al., 2003). It is expected that more opportunities for aggression will emerge within the same-sex peer context for girls because there is more interaction and emphasis on relationships and social status in girls peer groups as compared to boys (Archer & Coyne, 2005; Minton & Schneider, 1980). Girls' peer groups are more reliant on interdependence and connectedness than boys (see Gilligan, 2003; Minton & Schneider, 1980; Pipher, 2002) and further, their friendship groups and hierarchies are less stable than boys (Crothers et al., 2005). This instability and interdependence could result in a breeding ground for girls' same-sex aggression. It is possible that electronic media presents an even greater opportunity for girls' same-sex aggression because girls are already communicating more with same-sex peers using electronic media (Lenhart et al., 2010). Evidence for this is seen in some studies investigating electronic aggression and victimization have provided limited evidence that girls are more likely to target other girls than boys (Kowalski & Limber, 2007).

In society, men in general hold more power and exert more social influence than women (Carli, 1999; Pleck et al., 1993). As individuals develop, these broad societal norms impact gender schemas and expectations (Martin & Ruble, 2004). Since males are in a position of more power, it may mean that they are more likely than women to aggress against the other sex. It is possible that because aggression, in general, is less acceptable for girls than boys (Archer & Coyne, 2005; Campbell, 1999) and they hold less power (Carli, 1999), they are less likely to internally process aggression toward other-sex peers as an acceptable response. This is because of the negative attention such an act could warrant due to the violation of gender expectations for girls. Boys on the other hand, are

able to aggress towards both same- and other-sex peers without such a violation. Evidence for this has been found in research examining traditional aggression in adolescence indicating that girls are less likely to engage in aggression against other-sex peers than boys (Faris & Felmlee, 2011). Therefore, in the current study I hypothesized that girls will engage in higher rates of same-sex aggression and lower rates of other-sex aggression than boys.

Theoretical Associations between Traditional and Electronic Aggression and Victimization

Social information processing theory serves as the primary theoretical foundation for the hypothesized associations between traditional and electronic aggression and victimization. SIP theory has been used to explain aggression behavior in childhood and adolescence (Crick & Dodge, 1994). Specifically, SIP models suggest behavior is the result of processing information in the social environment during a series of interrelated steps that begins with encoding of social cues and culminates in a goal directed behavioral response (Crick & Dodge, 1994). When social cues are encoded, individuals formulate an appropriate goal for the situation and then derive and enact a goal directed behavioral response. When individuals are successful in executing their behavioral response and it results in the goal intended, they are more likely to engage in the same processing patterns in the face of similar contextual cues (Crick & Dodge, 1994). Over time this internal processing can become biased due to individual interpretations of social situations. Scholarship on individual differences in social information processing consistently shows that aggressive children process social information in biased ways that

increases their likelihood of engaging in aggression (Dodge & Crick, 1990). Specifically, the attribution of hostility to ambiguous social cues has been shown to increase the likelihood of engaging in aggressive behavior (Crick & Dodge, 1996).

During adolescence, another influence on the SIP of social stimuli is the overarching goal to gain status and social capital. Specifically, scholars such as Little and colleagues (2003) suggest that, in adolescence, acts of aggression, especially covert forms of aggression, such as relational aggression, are goal directed behaviors designed to gain status and social capital. As adolescents become more thoughtful and strategic in their behavior and concerned with popularity and social status, the goal of ‘getting ahead’ in status becomes increasingly prominent (Hawley, 2003). In this case aggression serves as a means for youth to manipulate peers for gains in social status (i.e., popularity) and is reinforcing, and therefore, beneficial for the aggressor (Veenstra et al., 2007). Taken together, these theories explain how youth encode social information and why they engage in strategies to manipulate their peers through acts of aggression. Based on the assumption that cues perceived through electronic communication may be processed in similar ways to those perceived through face to face interactions, it was hypothesized that traditional forms of aggression will be positively correlated with electronic aggression.

Researchers make the argument that victims of aggression are identified and targeted because they are vulnerable, weak and display aversive symptoms (Olweus, 1978; Veenstra et al., 2005). Specifically, over the past few decades, research consistently demonstrates that victims tend to be more depressed, anxious, (Pellegrini et al., 1999; Schwartz et al., 1998), less prosocial (Schwartz, 2000), and have fewer friends (Nansel et al., 2001, 2004) than their non-victim peers. Further, in a recent longitudinal

study by Kochel, Ladd and Rudolph (2012), internalization lead to subsequent victimization in 4th graders; however, victimization did not lead to internalization, indicating that victims may be targeted because of their personal characteristics. Similarly, research shows that electronic victimization is associated with emotional distress, anger, sadness (Patchin & Hinduja, 2006; Topcu et al., 2008; Ybarra, 2004), depressive symptomology (Didden et al., 2009; Ybarra, 2004) and social anxiety (Juvoven & Gross, 2008). There is no current longitudinal work, however, addressing causal processes linking electronic victimization and adjustment. Together, this body of work suggests that electronic aggressors may identify victims by similar weaknesses and vulnerabilities as traditional victims. Therefore, in the current study, the associations between traditional and electronic victimization are hypothesized to be positive (e.g., those who report traditional victimization will be more likely to report electronic victimization).

Electronic Victimization and Aggression and Adolescents' Socioemotional Functioning

The second goal of this study was to examine the concurrent associations between electronic victimization and aggression and adolescents' socioemotional functioning, as measured by self-esteem and perceived relationship efficacy. Prior research emphasizes the important role of peer relationships in youth's socioemotional development and functioning (Espelage & Swearer, 2003). Healthy peer relationships have been associated with increased self-esteem and more positive emotional well-being (Gavazzi, Anderson & Sabatelli, 1993), and negative peer interactions, such as bullying, have been

associated with poorer psychosocial adjustment (Kochenderfer-Ladd & Skinner, 2002; Nansel et al., 2001). This study draws on a SIP model (Crick & Dodge, 1994) and research on goal-oriented social behavior (Hawley, 1999; Pellegrini and Long, 2002; Veenstra et al., 2007) to address the relation between electronic aggression and victimization and adolescents' self-esteem and relationship efficacy.

Social information processing, socioemotional functioning and aggression and victimization. Scholars suggest that children structure the playground and schoolyard after the society in which they live and are socialized in (Hawley, Little, Pasupathi, 2002). Hawley and colleague's (2002) argue that schools are much like a "microsystem of society at large"; these scholars refer to individuals who are successful at navigating the social system using both prosocial and aggressive strategies as "bistrategic controllers." Evidence for this is seen in the ways that children develop social structures and organize activities as well as develop social hierarchies that are similar to the stratifications seen in society at large (Archer, 1992; Maccoby, 1998). Girls, on average, develop stronger, more established social networks than boys at an earlier age (Archer & Coyne, 2005), possibly due to social pressure to conform to gender norms in which a high value is placed on social relationship ties for girls (Crick & Zahn-Waxler, 2003). Aggression, therefore, may serve as an adaptive social tool that the aggressor can carefully use to increase status and popularity (Archer & Coyne, 2005; Crick & Dodge, 1994; Hawley, 2003; Veenstra et al., 2007). This level of control may render these youth a sense of social success in that they are able to gain status and dominance by using aggressive strategies, yet still remain favored by the social group. Support for this hypothesis is found in Hawley and colleague's (2002) work showing that

bistrategic controllers, those who demonstrate both aggression and prosocial behavior within the peer group, reported the highest levels of social control when compared to children who only employed either prosocial or aggressive behaviors to gain social control. The use of both behaviors can serve an innate biological need to be accepted by group members, but also to remain a good competitor over group members in a socially savvy way (Little et al., 2003).

Some scholars have focused on goal setting behavior as a motivation for aggressive behavior (Pellegrini and Long, 2002; Sijtsema et al., 2009; Veenstra et al., 2007). These perspectives on goal directed social behavior, much like the work of Little and colleagues (2001), argue that aggression in adolescence is largely serving a status goal. Status goals in adolescence may be related to gaining prestige and dominance over peers (Sijtsema et al., 2009) or increasing popularity. Although bullies are often rejected by their peers, they tend to be rated as popular on peer nominations, which may reflect the power that results from their aggressive behavior (Sijtsema et al., 2009). This combination of perceived popularity and social status/control the aggressor feels in relation to the aggressive act could lead the aggressor to feel as though they are relationally efficacious and increase their self-esteem.

SIP theory (Crick & Dodge, 1994) lends understanding to how children derive status goals from social environments and evaluate aggression as a means to gain status. Specifically, SIP theory suggests that all behavior is a result of observing information in the environment, encoding and processing those environmental cues, identifying a goal for the situation and crafting an acceptable response that brings the individual closer to

the goal. As individuals enact these goal directed responses, Crick and Dodge (1994) argue that the subsequent peer response impacts whether the goal directed response will be repeated in the future. For example, if one engages in an aggressive act such as forwarding an embarrassing text message of a peer to the peer group and the peer group responds favorably by laughing at the target and spending more time with the aggressor, the aggressor is rewarded with increased status and popularity. The aggressor may use this method of gaining popularity in the future because in this particular instance it worked and there were no ill effects of the act.

One of the first studies to find support for aggression being positively related to social status goals was Pellegrini's and Long's (2002) longitudinal study of youth transitioning through early adolescence. In their work they found that traditional forms of aggression increased youth's social status during 7th and 8th grade. It is possible that electronic aggression is also related to attaining social status and leads to social payoff for the aggressor. In fact, the speed at which electronic media operates coupled with the opportunity to quickly reach a large audience, such as on social networking sites and forwarded text messages, may make this an appealing method of aggression for early adolescents whose goals are to increase their social status.

Sijtsema and colleagues (2009) recently attempted a more thorough examination of adolescents' use of traditional forms of aggression in relation to status goals by comparing early childhood aggressors to adolescent aggressors. Using dyadic network analysis, they found that adolescent aggressors were more likely than early childhood aggressors to aggress proactively with a goal of attaining status. Further results of this

study found that aggressing towards others with a status goal leads to popularity and prestige, which in effect, confirms the aggressors' notion that aggression can result in social gains. This is in line with SIP theory (Crick & Dodge, 1994) in that goals that are successfully executed and result in the desired outcome are evaluated highly in future circumstances where that goal might be applicable. It is likely that electronic aggressors would evaluate aggression similarly because a) electronic aggressors are often removed from the emotional impact of the act on the victim dulling their remorse (Patchin & Hinduja, 2006) and b) electronic aggression is often seen by many peers (Lenhart et al., 2011), which may result in heightened notoriety and prestige for the aggressor. Successfully attaining social status and prestige could influence aggressors' perception of themselves. If the goal was to gain status and peer status was increased after the electronically aggressive act, while the aggressor was not faced with the victim's response, the entire act could be evaluated in a more positive light because the social payoff is likely the most salient event. Essentially, they are successfully manipulating relationships to attain higher status, which could lead them to evaluate themselves as more relationally efficacious and have a positive impact on their self-esteem.

Self-esteem and electronic aggression and victimization. Self-esteem is viewed as an important indicator of positive well-being in adolescence. Youth who have high self-esteem are also likely to report higher levels of happiness (Baumeister et al., 2003) and life satisfaction (Huebner, 1991) and less likely to experience depressive symptoms (Lasko et al., 1996; Rosenberg et al., 1998), exhibit externalizing behavior problems or engage in substance use (DuBois et al., 1998). It is possible that if youth are being targeted by their peers, they could process social information differently, leading to

different beliefs and values about oneself. In line with SIP theory, if youth are being targeted by aggressive acts, they may see social situations as opportunities for victimization. In turn, this processing could lead to overall decreased self-esteem. Evidence for this association is seen in a few studies showing the association between victimization and decreased self-esteem. For example, traditional forms of victimization have been associated with low levels of self-esteem (Olweus, 1993; Raskauskas & Stoltz, 2007), however, little work thus far has assessed the relation between electronic victimization and self-esteem. The two studies that have investigated these correlates showed that electronic victimization was associated with lower levels of self-esteem (Didden et al., 2009; Ybarra et al., 2006). Concurrent negative associations were found between electronic victimization and self-esteem among US adolescents (i.e., 12 to 17 years of age; Ybarra et al., 2006) and among special education students in the Netherlands (Didden et al., 2009). Because electronic media allows aggressors to attack victims across a wide range of environments, electronic media may be more strongly associated with lower self-esteem than traditional aggression. Victims of electronic media report feeling trapped unable to escape (Tokunuga, 2010), which could lead to increased feelings of distress. Similarly, in this study, it was expected that higher levels of electronic victimization would be associated with lower levels of concurrent self-esteem. In addition, the role of gender as a moderator of this relation will be explored.

The links between *electronic aggression* and self-esteem have yet to be examined among youth living in the U.S. Research on the associations between traditional aggression and self-esteem shows that, in some cases, traditionally aggressive youth have significantly higher self-esteem than their nonaggressive peers, and over time, the

aggressive behavior reinforces their high self-esteem (Menon et al., 2007; Baumeister et al., 2003). In early adolescence, aggression is often relational and related to status goals (Archer & Coyne, 2005; Crick & Dodge, 1994). SIP theory argues that, if individuals are successful in completing a goal, it influences their feelings and belief systems. Thus, if these adolescents do in fact increase their popularity through electronic aggressive acts, it could in turn promote their feelings of self-esteem. Therefore, in the current study it is expected that electronic aggression will be positively associated with self-esteem and the role of gender as a moderator will be explored. It is possible that because aggression in general is less accepted for girls, that electronically aggressive girls in the sample will experience lower self-esteem than boys.

Relationship efficacy and electronic aggression and victimization. Relationship efficacy is a relatively new construct and is similar to social self-efficacy (Zosuls et al., 2012). Social self-efficacy, defined as beliefs or perceptions of one's ability to perform behaviors that promote the development and maintenance of social relationships, has been related to peer relationship outcomes (Ladd & Crick, 1989). Although many different measures have been used to assess children's social self-efficacy or ability to cultivate and maintain positive peer relationships (Bandura et al., 1999; Ladd & Crick, 1989; Muris, 2001), most measures do not test the possibility that children may have different perceptions of their ability to develop and maintain positive relationships with same- and other-sex peers. This study extends research on relationship efficacy by measuring young adolescents' perceptions of their perceived relational efficacy in their interactions with both same- and other-sex peers. For the purpose of this study, relationship efficacy refers to adolescents' cognitive perceptions of whether they are

successful or socially competent in their interactions with their peers (Zosuls et al., 2012). Specifically, it measures youths' perceptions of how well they understand, know how to talk and act, be accepted by, be included by, work with and have fun with same- and other-sex peers (Zosuls et al., 2012).

The experience of being *electronically victimized* has been associated with feelings of emotional distress (Topcu et al., 2008), loneliness (Ybarra, 2004), social anxiety and withdrawal (Beran and Li, 2007; Juvoven and Gross, 2008). Because electronic victimization has been associated with social distress and internalization, it is also possible that experiences of electronic victimization will be negatively associated with relational efficacy. For example, an individual facing victimization by peers via electronic media could feel less competent in their social interactions with peers. In effect, they could process social information differently than non-victims, interpreting social situations as opportunities for victimization. Further, victims of aggression could be biased in their attribution of this experience blaming their social skill base for these negative interactions. If this is the case then it is possible that victims would feel decreased relationship efficacy compared to other non-victims. It is also possible that electronic aggressors see adolescents with low social skills as easy targets. Therefore, this study explored the associations between relationship efficacy and victimization. It is hypothesized that electronic victimization by same-sex peers will be negatively associated with perceived relationship efficacy in reference to same-sex peers, and similarly, electronic victimization by other-sex peers will be associated with relationship efficacy in other-sex peer contexts.

The ability to socially strategize and carry out aggressive acts may be related to a *heightened* perception of efficacy for *electronic aggressors* (Menon et al., 2007). In fact, in line with SIP theory, the goal of social status may lead to heightened sense of efficacy, both biases contributing to aggressive behavior. Hawley (2003) argues that acts of social aggression in adolescence are often centered on gaining social standing and power. It is possible that electronic aggressors process social information differently, feeling relationally efficacious because of their ability to manipulate their peers, using electronic media to gain this power. Because electronic aggression is unique in that it offers one of the most technologically advanced strategies to perform manipulative aggressive attacks (Tokunaga, 2010), it was expected that electronic aggressors will perceive themselves as having a higher sense of relational efficacy than nonaggressive peers and electronic victims. Specifically, it was hypothesized that electronic aggression will be positively related to perceived relationship efficacy within the corresponding sex of the target. For example, those who aggress primarily towards same-sex peers will have heightened perceptions of same-sex relationship efficacy, and similarly, those who aggress toward opposite-sex peers will have more positive perceptions of other-sex relationship efficacy.

Aggressor-victim categorization. Research suggests that aggressive victims (i.e., children and adolescents involved in both aggression and victimization) differ from their peers in adjustment and peer relationships (Bowers et al., 1992; Schwartz et al., 2001; Solberg et al., 2007). Specifically, being an aggressive victim is associated with higher instances of peer rejection, academic failure, emotional distress and behavior problems (Schwartz, 2000), as compared to those who are non-aggressive victims. Further, as compared to aggressor-only and victim-only youth, aggressive victims are more

ambivalent when reporting self-characteristics and characterize themselves as both more powerful and more negative in their interpersonal qualities (Bowers et al, 1992; Bowers et al., 1994). Aggressive victims also have been shown to have significant relational problems, including difficulties with familial and peer relationships (Bowers et al., 1992; Bowers et al., 1994; Schwartz et al., 2001).

Preliminary research on electronic aggressive victims yields similar distinctions between victims, aggressors and aggressive victims (Kowalski & Limber, 2007; Werner et al., 2010; Ybarra & Mitchell, 2008). For example, Kowalski and Limber (2007) found that aggressive victims were more likely than victims only to be aggressed upon by a sibling. Further, they found that aggressive victims had been aggressed upon more often in the past month than victims only. Therefore, a second step for goal two will be to categorize participants into four subgroups (i.e., aggressive-victims, aggressors, victims, and uninvolved peers) and examine group differences in youth's concurrent relationship efficacy and self-esteem. It was expected that aggressors only will have higher relationship efficacy and self-esteem than victims, aggressor/victims, and uninvolved peers. Victims are expected to have lower relationship efficacy and self-esteem than aggressors, aggressive-victims and uninvolved peers. Finally, aggressive-victims are expected to be lower in relationship efficacy and self-esteem than aggressors but higher than victims given that they have been on both the receiving and acting end of these behaviors.

Present Study

The goals of the present study were twofold. The first goal was to provide descriptive information about young adolescents' involvement in electronic aggression and victimization. Specifically, I will examine the relations between electronic victimization and aggression and (a) youth demographic characteristics (e.g., gender, ethnicity), (b) involvement in traditional forms of aggression and victimization, and (c) gender of the aggression/victimization context (i.e., same-sex aggressor -victim versus other-sex aggressor- victim dyad). There is evidence that girls are more likely to be electronically victimized and aggressive as compared to boys (Agatston et al., 2007; Dehue et al., 2008; Kowalski & Limber, 2007; Kowalski et al., 2012; Lenhart & Madden, 2007b; Landol et al., 2011; Ybarra & Mitchell, 2008). Based on this evidence and guided by gender schema theory, it is hypothesized that electronic aggression is a less costly form of aggression for girls as compared to other forms of aggression. This is because this covert, strategic form of aggression does not disrupt girls' adherence to their perceived gender expectations. Therefore, it is expected that girls will report more electronic victimization and aggression than boys, as boys are less confined to this particular form of aggression. It is also hypothesized that girls will engage in higher rates of same-sex electronic aggression and lower rates of other-sex electronic aggression than boys. Findings on differences in technology use and access are mixed (Jackson et al., 2007; Landoll et al., 2011), therefore this study explored the possibility of ethnic differences in electronic victimization and aggression. In addition, it is expected that traditional forms of aggression will be positively correlated with electronic aggression

and that electronic victimization will positively related to traditional forms of victimization.

The second goal of the study was to examine how electronic victimization and aggression are associated with adolescents' perceived self-esteem and relationship efficacy using concurrent data. Social information processing theory suggests that aggression is related to social goals (Crick and Dodge, 1994). Aggression can serve as a means for youth to manipulate peers for gains in social status (i.e., popularity) (Hawley, 2003). This process is reinforcing, and therefore, beneficial for the aggressor and negative for the victim (Pellegrini and Long, 2002; Sijtsema et al., 2009; Veenstra et al., 2007). In the current study, it is hypothesized that electronic aggression will be positively associated with self-esteem and that electronic victimization will be negatively associated with self-esteem. Further, adolescent gender will be explored as a moderator of the links between electronic victimization and aggression and self-esteem. It is also hypothesized that electronic victimization by same-sex peers will be negatively associated with perceived relationship efficacy in reference to same-sex peers, and similarly, electronic victimization by other-sex peers is hypothesized to be negatively associated with relationship efficacy in other-sex peer contexts. The moderating role of gender in the associations between electronic victimization and aggression and concurrent relationship efficacy will also be examined. Finally, it is also hypothesized that electronic aggressors will report higher levels of self-esteem and relationship efficacy than their peers (victims, aggressive/victims and uninvolved peers) and that victims and aggressive victims will report lower levels of self-esteem and relationship

efficacy than their peers (aggressors and uninvolved peers) with aggressive victims reporting the lowest levels.

Chapter 3

METHODOLOGY

The proposed study uses a data from a short-term longitudinal study (Co-PIs Richard Fabes, Carol Martin, & Erin Pahlke) designed to investigate the consequences and correlates of single-gender versus mixed-gender classes. This study was funded by the Challenged Child Project, a Presidential Intellectual Fusion Initiative at Arizona State University and by the T. Denny Sanford School of Social and Family Dynamics as part of the Lives of Girls and Boys Enterprise.

Participants

Participants were 826 students (49.9% female) who attended a middle school in the southwestern United States. Students were recruited as part of a larger study designed to examine the implications of single-gender versus mixed-gender classes for middle school students. The ethnic composition was 37.7% Hispanic, 32.1% Caucasian, 4.3% Asian-American, 3.6% African-American, 1.7% American Indian or Alaska Native, .8% other, and 19.8% multi-ethnic (i.e., chose two or more of the above categories). Participants' age averaged 12.51 years ($SD = .67$) and all students were in the 7th or 8th grade.

Procedures

Data used in the current study were collected during spring of 2011. Researchers obtained consent from the district and principal to implement the questionnaire to all students, in addition, information was sent out to parents who had the opportunity to revoke student consent. Surveys were administered during students' social studies class

by two to three research assistants (i.e., project research staff, graduate students, and faculty). A total of 60 minutes was allotted for students to complete the survey after they provided assent. Researchers remained available over the 60-minute period to answer questions as students completed the surveys. Surveys included measures assessing gender stereotypes, classroom stress, educational aspirations and expectations, and academic engagement. Measures used in the present study include youth demographic characteristics, electronic and traditional aggression and victimization, and relationship efficacy and global self-esteem. All students in the school were included in the study unless they were absent, their parents opted students out of the survey, or the students themselves refused to participate ($n = 181$). Thus, the overall participation rate was 82%.

Measures

Youth demographic characteristics. Youth reported their age in years and indicated whether they were male or female. Youth chose from the following categories in reporting their ethnicity/race: White, Black, Latino or Hispanic of Mexican descent, Latino or Hispanic (not of Mexican descent), Asian, American Indian or Alaska Native, other or multiethnic. According to the Arizona Department of Education, 46 % of the students in this junior high school qualified for either free or reduced lunch.

Traditional aggression. Traditional peer aggression was examined using a measure developed by Werner and colleagues (2010). This measure includes physical and verbal aggression items from the Bullying Scale (Bosworth et al. 1999) and relational aggression items from Werner and colleagues (2010) for a total of nine items. Each of nine items was rated on a 4-point scale ranging from 0 = *Never in the last 30 days* to 3 =

5 or more times in the last 30 days. These items have been used previously with children in the sixth through eighth grades (Werner et al., 2010). Students were asked to think about how often in the past 30 days they engaged in aggressive behaviors, including physical aggression (e.g., “How often in the past 30 days (about one month) did you push, shove, slap or kick other (female/male) students?”; 2 items), verbal aggression (e.g., “How often in the past 30 days (about one month) did you call other (female/male) students names?”; 2 items) and relational aggression (e.g., “How often in the past 30 days (about one month) did you spread rumors about other (female/male) students?”; 5 items). The scale was adapted so that adolescents answered each question about boys and then about girls (see Appendix A). A total aggression score was created by taking the average of the 18 items, with a Cronbach’s alpha of .90. A same-sex aggression score was created by taking the mean of the responses on all nine items when asked using their own sex as the target group and other-sex aggression score was created using the mean of the responses on all nine items when asked using the other-sex as a reference group. Cronbach’s alphas were .87 for same-sex and .86 for other-sex traditional aggression. In addition, subscale scores were created for physical, verbal, and relational aggression, and Cronbach’s alphas were .69, .79, and .89, respectively.

Traditional victimization. Traditional peer victimization was assessed using nine items identical to those measuring traditional aggression, with students rating how often they were the target of those behaviors once referring to same-sex peers and again to other-sex peers. A total traditional victimization score was created by taking the mean of all 18 items. Cronbach’s alpha was .90 for the total victimization score. Mean scores were created for same- and other-sex traditional victimization, respectively, and

Cronbach's alphas were .90 for both subscales. Scores were also computed for physical, verbal, and relational victimization by averaging the items that comprised each subscale. An example item is "How often in the past 30 days (about one month) did other students do these things to you: Other (female/male) students push, shove, slap, or kick you?". Cronbach's alphas were .75 for physical aggression (two items), .84 for verbal victimization (two items) and .87 for relational victimization (five items).

Electronic aggression. A four-item electronic aggression scale was created that was similar to the traditional aggression scale. Electronic media was defined on the questionnaire as, "any internet site (ex: Facebook, MySpace, twitter), texting, emailing, instant messaging (ex: Facebook chat, AOL, MSN), and picture messaging accessed through a computer, cell phone or other mobile device (ex: iTouch, iPad)". Each item was rated on a 4-point scale, ranging from 0 = *Never in the last 30 days* to 3 = *5 or more times in the last 30 days*. An example item is "How often in the past 30 days (about one month) have you posted, forwarded or sent mean messages, chats, pictures or videos of other (female/male) students by a form of electronic media?" Items were completed once in reference to girls and a second time in reference to boys. A total electronic aggression score was created by taking the average of the eight items. Cronbach's alpha was .80. A same-sex electronic aggression score was created by taking the mean of the responses on four items using their own sex as the target group and other-sex electronic aggression score was created using the mean of the responses on all four items when asked using the other-sex as a reference group. Cronbach's alphas were .65 for same-sex and .62 for other-sex electronic aggression.

Electronic victimization. Electronic victimization was assessed using four items identical to those measuring electronic aggression, with students answering how often they were the target of these behaviors. Students reported on being the target of victimization by same-sex peers and by other-sex peers. An example item is “How often in the past 30 days (about one month) have other (female/male) students posted, forwarded or sent mean messages, chats, pictures or videos of you by a form of electronic media?”. A total electronic victimization score was created by taking the average of the eight items; Cronbach’s alpha was .87. Mean scores were created for same- and other-sex electronic victimization. Cronbach’s alphas were .79 and .78, respectively.

Self-esteem. Global self-esteem was assessed using a 10-item scale developed by Rosenberg (1989). Youth were asked to rate statements such as “On the whole, I feel satisfied with myself,” using a 4-point scale (0 = *Strongly disagree* to 3 = *Strongly agree*). An average score was created with higher scores indicating higher levels of self-esteem. Cronbach’s alpha was .87.

Gender based relationship efficacy. Participants completed a 14-item scale of their perceived relationship efficacy (Zosuls et al., 2012). Participants rated the degree to which they felt efficacious in their relationships with boys (e.g., “How much do you feel like you understand boys?”) and with girls (e.g., “How much do you feel like you understand girls?”). That is, participants rated how well they felt they knew how to work with and understand their peers. Items were rated on a 5-point scale ranging from 1 = *Not at all* to 5 = *A lot*. A composite relationship efficacy score was created by taking the mean of all 14 items. Cronbach’s alpha was .82. Additionally, composite same- and

other-sex relationship efficacy scores were created by taking the mean of items that asked about same- and other-gender peers (seven items each). Cronbach's alpha's were .89 for same-sex and .91 for other-sex relationship efficacy.

Chapter 4

DATA ANALYTIC PLAN

The analyses for the proposed study will consist of preliminary item analyses and descriptive statistics with the goal of assessing whether the created measures (electronic aggression and victimization) and the adapted measures (traditional aggression and victimization scales) have good psychometric properties (e.g., high internal consistency, good variability, normally distributed responses). Once data are determined to have appropriate properties, analyses addressing goal one and two will be conducted respectively.

Preliminary Analyses

To determine the psychometric properties and response patterns on the electronic aggression and victimization scales, I will first conduct two separate confirmatory factor analysis (one for victimization and one for aggression) to ensure that each set of items represent a single factor. Next, I will conduct basic descriptive statistics and item analyses. Then I will examine histograms for homogeneity of variance across items. Finally, I will examine measures of variability (e.g., standard deviation, variance), skewness and kurtosis, and central tendency (e.g., mean, median) to ensure that the data are normally distributed.

Goal 1 Analyses

The first goal is to describe young adolescents' involvement in electronic aggression and victimization. This will be done by exploring the links between electronic victimization and aggression and (a) youth demographic characteristics (e.g., gender,

ethnicity), (b) involvement in traditional forms of aggression and victimization, and (c) gender of the aggression/victimization context (i.e., same-sex aggressor -victim versus other-sex aggressor- victim dyad). To test for gender and ethnic differences in girls' and boys' use of electronic aggression and victimization, I will conduct a 5 (Ethnicity: Hispanic, White, Black, Asian American and other) x 2 (Adolescent Gender) ANOVAs with electronic victimization and aggression as the dependent variables. The four ethnic groups are Hispanic, White, Black, and Asian American as the other ethnic subgroups did not have adequate sample sizes to include in this analysis. Bivariate correlations conducted for the sample as a whole and separately for girls and boys will examine the interrelations among electronic and traditional victimization and aggression. Lastly, to examine the gender context of electronic victimization, I will conduct 2 (Adolescent Gender) x 2 (Context: Same-Sex versus Other-Sex) mixed model ANOVAs with adolescent gender as the between group factor and context as the within-group factor. Dependent variables will be electronic victimization and aggression scores using the same- and other-sex subscales.

Goal 2 Analyses

The second research goal examines how electronic victimization and aggression are associated with adolescents' socioemotional well-being concurrently as measured by adolescents' perceived self-esteem and relationship efficacy. The first set of regressions will include control variables in the first step (i.e., traditional victimization), main effects in the second step (electronic victimization, adolescent gender) and the interaction between adolescent gender and electronic victimization in the third step. The dependent

variables will be self-esteem and relationship efficacy. A significant interaction will be probed using simple slopes tests (Aiken & West, 1991). A second set of regressions will include electronic aggression in place of electronic victimization. Additional regression will include same-sex electronic victimization and aggression and other-sex electronic victimization and aggression. Traditional victimization and aggression are included as control variables to evaluate whether electronic victimization and aggression are associated with self-esteem and relationship efficacy, above and beyond the effects of traditional victimization and aggression, respectively.

As a final step, four groups of youth will be created using the measures of electronic victimization and aggression: (1) victims only; (2) aggressors only; (3) aggressive victims; and (4) uninvolved peers. Then 4 (Aggressive Victim Group) x 2 (Adolescent Gender) ANOVAs will be conducted with self-esteem and relationship efficacy as the dependent variables. Follow-up Tukey HSD tests will be conducted to probe significant group and group x gender interactions.

Chapter 5

RESULTS

The goals of the present study were twofold. The first goal was to provide descriptive information about young adolescents' involvement in electronic aggression and victimization. Specifically, goal one is to describe the relations between electronic victimization and aggression and (a) youth demographic characteristics (i.e., gender, ethnicity), (b) involvement in traditional forms of aggression and victimization, and (c) gender of the aggression/victimization context (i.e., same-sex aggressor-victim versus other-sex aggressor-victim dyad). The second goal of the study was to examine how electronic victimization and aggression were associated with adolescents' well-being as measured by perceived self-esteem and relationship efficacy.

Preliminary Analyses

As a first step, data were examined for skewness and kurtosis. Scores for traditional and electronic aggression and victimization were positively skewed and kurtotic as indicated by scores above 2 and 7, respectively (Tabachnick & Fidell, 2001). Square root transformations were applied to these variables and transformed variables had skewness ratings below 1.96 and kurtosis ratings below 3.38. Means and standard deviations for all study variables are presented in Table 1, separately for girls and boys. Frequencies were examined to provide insights about the prevalence of electronic victimization and aggression among girls and boys in this sample. Specifically, I calculated the percentage of girls and boys who reported one or more instances of electronic aggression and electronic victimization in the past 30 days. In this sample, 61.3% of girls reported engaging in one or more electronically aggressive acts in the past

30 days compared to 38.7% of boys. In addition, 49.5% of girls reported experiencing one or more act of electronic victimization in the past month compared to 29.3% of boys.

Goal 1 Analyses

The first goal of this study was to provide descriptive information about young adolescents' involvement in electronic aggression and victimization by examining the links between electronic victimization and aggression and (a) youth demographic characteristics (e.g., gender, ethnicity), (b) involvement in traditional forms of aggression and victimization, and (c) gender of the aggression/victimization context (i.e., same-sex aggressor -victim versus other-sex aggressor- victim dyad). To test for gender and ethnic differences in girls' and boys' use of electronic aggression and victimization, I conducted 5 (Ethnicity: Hispanic, White, Black, Asian American and other) x 2 (Adolescent Gender) ANOVAs with electronic victimization and aggression as the dependent variables. Cohen's d was calculated for effect sizes, with $d = .20$ for a small effect, $d = .50$ for a medium effect, and $d = .80$ for a large effect (Cohen, 1988). For electronic victimization, no significant interaction emerged, but there was a main effect of gender, $F(1,813) = 5.52, p < .05, d = .39$, such that girls reported higher levels of electronic victimization as compared to boys (see Table 1 for means and standard deviations). Similarly, there was no significant interaction, yet there was a significant gender effect for electronic aggression, $F(1,813) = 12.35, p < .001, d = .48$. Means revealed that girls also reported higher levels of electronic aggression than did boys (also shown in Table 1). There were no significant ethnic group differences in electronic victimization, $F(4,813) = .87, ns$, or electronic aggression $F(4,813) = 1.8, ns$.

To describe the relations between traditional aggression and victimization and electronic victimization and aggression, bivariate correlations were calculated among all aggression and victimization variables (see Table 2). All correlations were positive and significant at $p < .001$, and ranged in magnitude from $r = .17$ to $r = .82$. It is notable that the inter correlations among the three traditional forms of victimization (i.e., physical, verbal, relational) are higher than the correlation between electronic victimization and each of these three forms of traditional victimization. Further, correlations among traditional forms of aggression were also higher than correlation between electronic aggression and each of these three forms of traditional aggression.

The final analyses for the first goal tested for adolescent gender by gender of the relationship context (i.e., same-sex dyad vs. other-sex dyad) differences in electronic victimization and aggression. Specifically, a series of 2 (Adolescent Gender) X 2 (Relationship Context: Same- vs. Other-Sex) ANOVAS were conducted with same-sex and other-sex electronic victimization as the within-group dependent variable in the first analysis and same- and other-sex aggression as the within-group dependent variable in the second analysis. For electronic victimization, there was a significant Adolescent Gender x Relationship Context interaction for victimization, $F(1,799) = 62.30, p < .001$. Follow-up analyses for this interaction showed that girls reported significantly higher rates of same-sex victimization ($M = .37, SD = .44$) than other-sex victimization ($M = .20, SD = .36$), $d = 1.02$. For boys, in contrast, there were no significant differences in same- ($M = .17, SD = .33$) and other-sex victimization ($M = .16, SD = .34$). Further, girls experienced higher rates of same-sex electronic victimization than boys, $F(1,811) = 51.33, p < .001$, but there were no significant differences between girls and boys rates of

other-sex victimization. For electronic aggression, there also was a significant interaction, $F(1,799) = 10.68, p = .001$. Girls reported that they were more likely to aggress upon same-sex peers than other-sex peers but boys did not.

In sum, goal one was to provide descriptive information about adolescents' involvement in electronic aggression and victimization. Significant gender differences were found indicating that girls engaged in electronic aggression and were victims of electronic aggression more frequently than boys. In contrast to evidence of gender differences, there were no significant ethnic differences in electronic victimization or aggression. Further, bivariate correlations revealed significant positive associations between traditional aggression and victimization and electronic victimization and aggression. Finally, girls engaged in higher levels of same-sex victimization and aggression than boys, further, girls reported higher levels of same-sex than other-sex victimization and aggression, whereas there were no differences between same- and other-sex victimization and aggression for boys.

Goal 2 Analyses

Goal two of this study was to examine how electronic victimization and aggression were associated with adolescents' socioemotional well-being, as measured by adolescents' concurrent ratings of perceived self-esteem and relationship efficacy. The first step for goal 2 was to conduct a series of hierarchical regressions to examine electronic aggression and victimization as predictors of relationship efficacy and self-esteem, after accounting for traditional aggression and victimization. The second step of goal 2 was to conduct two 4 (Electronic Involvement Group) x 2 (Adolescent Gender)

ANOVAs with self-esteem and relationship efficacy as the dependent variables to examine how aggression and victimization status *in combination* were related to relationship efficacy and self-esteem.

Gender Based Relationship Efficacy. In the first set of hierarchical regressions predicting same-sex relationship efficacy as the dependent variable, the first step included *same-sex* traditional aggression as a control variable, the second step included main effects (i.e., *same-sex* electronic aggression and adolescent gender), and the final step included an adolescent gender and same-sex electronic aggression interaction. There were no significant predictors in the first, second or third (final) step in the model (see Table 3, upper half). The second set of hierarchical regressions included *other-sex* electronic and traditional aggression predicting *other-sex* relationship efficacy as the dependent variable instead of same-sex scores (see lower half of Table 3). Results for the first step in the model were significant, $F(1, 717) = 7.74, p < .01$, with a significant effect for traditional aggression on other-sex relationship efficacy. In the second and third steps of the model, no additional predictors were significant (see lower half of Table 3).

To examine the unique contribution of electronic victimization on relationship efficacy, hierarchical regressions were computed with same- and other-sex relationship efficacy as the dependent variables (see Table 4). The first analysis included *same-sex* traditional victimization as a control variable in the first step, main effects of *same-sex* electronic victimization and adolescent gender in the second step and a gender by electronic victimization in the final step predicting *same-sex* relationship efficacy as the dependent variable. None of the three steps in the model accounted for significant

variance in same-sex relationship efficacy. Next, a similar hierarchical regression analysis included *other-sex* electronic and traditional victimization predicting *other-sex* relationship efficacy as the dependent variable is shown in the lower half of Table 4. This set of models was not significant.

A final hierarchical regression series was computed examining total scores (created by averaging same- and other-sex scores) for victimization, aggression, and relationship efficacy. The first step included traditional aggression as a control, main effects (electronic aggression and adolescent gender) in the second step, and the final step included an adolescent gender and electronic aggression interaction with relationship efficacy as the dependent variable (see upper half of Table 5). The first step, was not significant, but the second step in the model was significant, $F(3, 812) = 2.68, p < .05$, with a significant change in variance explained, $F \text{ change}(2,809) = 3.55, p < .05$; a significant main effect for adolescent gender emerged, such that girls reported higher relationship efficacy than boys (see upper half of Table 5). A second set of hierarchical regressions were computed with total traditional victimization in the first step as a control, main effects (electronic victimization and adolescent gender) in the second step, and the final step included an adolescent gender and electronic victimization interaction (see lower half of Table 5). Results for the first model revealed that the second step was significant, $F(3, 809) = 5.57, p < .01$, and a main effect was found for sex, such that girls in the sample reported higher total relationship efficacy scores. The interaction term was not significant in the third step.

Self-Esteem. To test the relation between electronic aggression and self-esteem a hierarchical regression was conducted (see upper half of Table 6). The first step included traditional aggression as a control, main effects (electronic aggression and adolescent gender) in the second step, and the final step included an adolescent gender and electronic aggression interaction and self-esteem as the dependent variable. The final step in the model was significant, $F(4, 813) = 21.75, p < .01$, and accounted for a significant increase in the variance explained, $F \text{ change}(1, 809) = 4.27, p < .05$. The interaction term was significant. To follow up on the interaction, the relation between electronic aggression and self-esteem was examined separately for boys and girls. Girls' electronic aggression was negatively related to self-esteem, ($\beta = -.22, p < .001$), $F(1, 406) = 19.72, p < .001, R^2 = .05$. The relation between electronic aggression and self-esteem was non-significant for boys, $F(1, 404) = .79, \beta = -.04, ns$. A similar hierarchical regression series was conducted for electronic victimization using traditional victimization as a control and self-esteem as the dependent variable (see lower half of Table 6). The second step was significant, $F(3, 810) = 36.21, p < .01$, and accounted for a significant increase in the variance, $F \text{ change}(2, 807) = 19.39, p < .01$. There was a main effect for adolescent gender, such that boys reported higher levels of self-esteem than did girls. The interaction term was not significant in the third step in the model (see lower half of Table 6).

Aggression and Victimization and Relationship Efficacy and Self-Esteem.

The second part of goal two involved examining how aggression and victimization status *in combination* were related to relationship efficacy and self-esteem. As a preliminary step, I created four groups (i.e., Victim Only, Aggressor Only, Aggressive-Victim, and

Uninvolved). The Victim Only group included youth who had experienced at least one episode of electronic victimization in the past month but had not engaged in electronic aggression in the past month ($n = 30$ girls; $n = 30$ boys). The Aggressors Only group were youth who had engaged in at least one instance of electronic aggression and had never been electronically victimized in the past month ($n = 78$ girls; $n = 61$ boys). The Aggressive Victim group included youth who had both experienced electronic victimization and been electronically aggressive at least one time in the past month ($n = 173$ girls; $n = 89$ boys). Finally, youth in the Uninvolved group were those who had not been victimized or aggressed electronically in the past month ($n = 127$ girls; $n = 226$ boys). A chi-square difference test was conducted to test adolescent gender differences in group membership. The chi-square test was significant $\chi^2 (1, N= 262) = 56.77, p < .001$. Examination of cell sizes suggests that girls are overrepresented in the Aggressive-Victim group and boys are overrepresented in the Uninvolved group.

Next, to test for group differences in relationship efficacy, I conducted a 4 (Electronic Involvement Group) x 2 (Adolescent Gender) x 2 (Relationship Efficacy Dimension: Same-Sex versus Other-Sex) mixed model ANOVAs with relationship efficacy as the dependent variable. There was a significant electronic involvement group effect ($F (3,812) = 3.656, p = .012$), but no other main effects or interactions. Follow-up analyses examined adolescents' average relationship efficacy (creating the mean of same- and other-sex efficacy because there was no interaction by efficacy dimension). Post-hoc comparisons revealed that aggressors had significantly higher perceived relationship efficacy ($M = 4.22; SD = .53$) than youth in the other three groups (aggressive-victims $M = 4.06, SD = .56, d = .32$; victims $M = 3.98, SD = .75, d = .38$; uninvolved $M = 4.07, SD =$

.61, $d = .28$) (see Figure 1). Turning to self-esteem, I conducted a 4 (Electronic Involvement Group) x 2 (Adolescent Sex) ANOVA. A significant electronic involvement group effect emerged, $F(3,810) = 11.23, p < .001$. Post-hoc comparisons revealed that uninvolved peers ($M = 3.14, SD = .56$), had significantly higher self-esteem than aggressive-victims ($M = 2.87, SD = .57, d = .48$) and victims ($M = 2.98, SD = .52, d = .29$), and that aggressors ($M = 3.06, SD = .66$) had significantly higher scores than aggressive-victims ($d = .30$) (see Figure 2).

In conclusion, the second goal of this study was to examine the associations between electronic victimization and aggression and self-esteem and relationship efficacy. Effects for *same-* and *other-sex* electronic aggression and victimization on *same-* and *other-sex* relationship efficacy were spurious and inconsistent. Electronic aggression was associated with lower self-esteem for girls, above and beyond the effects of traditional aggression. Further, electronic victimization was associated with lower self-esteem for both boys and girls controlling for traditional victimization. Importantly, the combination of youth's involvement in electronic victimization and aggression revealed links to concurrent self-esteem and relationship efficacy. Specifically, aggressors had significantly higher relationship efficacy than any other electronic involvement group. In addition, uninvolved peers reported higher self-esteem than aggressive-victims and victims, and aggressors had significantly higher self-esteem scores than aggressive-victims.

Chapter 6

DISCUSSION

The present study was designed to increase our understanding of involvement in electronic aggression and victimization during early adolescence, a time during which cell phone ownership and widespread internet access are peaking (Lenhart et al., 2010). The current study presents a new measure of electronic victimization and aggression that encompasses any aggressive act across a variety of electronic media outlets relevant to the adolescent developmental period. Specifically, the study described young adolescents' involvement in electronic victimization and examined the correlates of involvement, including youth demographic characteristics, traditional forms of aggression and victimization, and the gender of the aggression/victimization context. Finally, the present study also explored the associations of electronic victimization and aggression with youth's socioemotional well-being.

Describing Young Adolescents' Involvement in Electronic Aggression and Victimization

The first goal was to provide descriptive information about adolescents' involvement in electronic aggression and victimization using a measure developed for the existing study. Findings revealed that a large percentage of the school population reported involvement in electronic aggression and victimization. Specifically, in this sample, 61% of girls and 39% of boys reported being electronic aggressors within the past 30 days. Additionally, 50% of girls and 29% of boys reported that another peer had victimized them electronically in the past 30 days. These prevalence rates are higher than Patchin and Hinduja's (2010) recent work, in which they found that 23% of youth, ages

12-14, reported engaging in electronic aggression and 18% reported being recently victimized through electronic means. However, it is important to note that prevalence rates for electronic aggression and victimization range up to as high as 40% (Tokunaga, 2010). Further, these findings are higher than rates of traditional aggression among teens, where on average, 10% of youth report bullying and 17% of teenage youth report victimization (Olweus, 2010; Olweus & Limber, 2010). It is possible that this possible increase in prevalence is related to the easy access to peers that electronic media provides (Kowalski et al., 2012). Before this electronic age, school hours were the only time teens had unlimited access to all of their peers. Now, however, youth have ample time and opportunity to communicate via electronic means during the evenings and weekends. It is reasonable to conjure that with increased communication, there are increased opportunities for harassment as well, however, it is important to replicate these findings in future research.

Part of our descriptive findings attended to the role of adolescent gender in electronic aggression and victimization. Results of the present study supported my hypothesis and demonstrated that girls, in fact, are more at risk for involvement in electronic aggression and victimization than are boys, consistent with some (Dehue et al., 2008; Kowalski & Limber, 2007; Kowalski et al., 2012; Lenhart & Madden, 2007b; Ybarra & Mitchell, 2008) but not all prior work (Beran & Li, 2007; Didden et al., 2009; Juvonen & Gross, 2008; Li, 2006, 2007; Patchin & Hinduja, 2006; Wolak, Mitchell, & Finklehor, 2007). In this sample, girls were nearly twice as likely to be electronically aggressive and victimized as compared to boys. Thus, the current work provides support for findings that indicate girls are at higher risk than boys for involvement in both

electronic aggression and victimization (Agatston et al., 2007; Dehue, et al., 2008; Kowalski & Limber, 2007; Lenhart & Madden, 2007b; Landoll et al., 2011; Ybarra & Mitchell, 2008).

Moreover, these findings are in line with both social information processing and gender schema perspectives. It is possible that girls face a greater risk for electronic aggression because it fits best with their gender schema, culminating in a smaller cost than direct forms of aggression, such as physical or verbal aggression (Archer & Coyne, 2005). Indirect aggression is seen by scholars as a more adaptive form of aggression with less associated costs than direct aggression. This is especially true for girls because girls are thought to be more prosocial and less aggressive than boys, electronic aggression, offers a discrete form of aggression that is unlikely to be perceived by others as gender inappropriate (Archer & Coyne, 2005). Electronic aggression may be one of the most adaptive indirect forms of aggression available to girls (Tokunaga, 2010). First, electronic aggression is more discrete than physical or verbal forms of aggression which are overt and gather attention. Further, electronic aggression offers little to no face to face contact with victims and rapid dissemination, leaving electronic aggressors less likely to be seen and blamed for the act (Tokunaga, 2010). Second, since indirect aggression such as electronic aggression is so discrete, it could be most appealing to aggressive girls because it aligns with traditional gender role pressures more than other forms of aggression.

According to SIP theory, while evaluating an appropriate response for a situation, one's internal scripts, or schemas, play an important role in providing information about

what is an appropriate behavioral response and whether that behavioral response will be received by one's social group (Crick and Dodge, 1994; Martin, 2002; Martin & Ruble, 2004). While electronic aggression may be an attractive form of aggression to both boys and girls because it is discrete, girls have additional pressure to appear prosocial and less confrontational than boys making it even more appealing for them (Archer & Coyne, 2005).

In addition to testing adolescent gender differences in prevalence, this study is among the first to consider the gender context of the relationship in which electronic victimization and aggression occurs. Consistent with our hypothesis that girls will engage in higher rates of same-sex aggression and lower rates of other-sex aggression than boys, findings revealed a significant adolescent gender by gender of the relational context interaction. Specifically, girls were more likely to aggress toward same-sex peers than other-sex peers. Further, female victims reported that their aggressors were more likely to be female than male peers. For boys, in contrast, there were no significant differences in frequency of aggression toward or being targeted by same-sex versus other-sex peers. It is possible that because boys typically choose overt forms of aggression, that girls feel they are unable to harm boys using electronic aggression. It is also possible that girls feel powerless due to the unequal power differential between men and women (Carli, 1999) and that it is socially riskier for girls to target a boy than a girl.

The current study is consistent with evidence that girls are at risk for targeting same-sex peers (Kowalski & Limber, 2007; Wolak et al., 2007). These studies indicated that girls are likely to be simultaneously engaging in electronic aggression and

victimization with other female peers. To my knowledge, this is the first study to directly examine the gender context of electronic aggression and victimization using self-reports of both aggressors and victims. These findings provide evidence that girls are, in fact, electronically targeting girls more often than boys, as reported by both victims and aggressors. Given the findings regarding gender differences, it is clear that more research is warranted to understand the mechanisms behind girls' overrepresentation in electronic aggression and victimization.

Interestingly, there were no ethnic group differences in electronic victimization or aggression in this sample. This is noteworthy, given that studies investigating trends in electronic use among ethnic groups have yielded mixed findings. For example, Jackson and colleagues (2007) report that African American and Hispanic youth were more likely to use the internet for entertainment and socialization purposes than their White counterparts. More recently, Lenhart and colleagues (2010) report little to no differences in technology access and use among ethnic groups at this age. The present findings could reflect the recent widespread access of electronic media across the U.S. for teens in this age group. Greater equality in access to electronic media may underlie similarities in electronic victimization and aggression across ethnic groups. Nonetheless, additional replication of these findings in other samples will be important.

Finally as part of goal one, associations between electronic and traditional forms of victimization and aggression were examined. It was hypothesized that traditional and electronic forms of aggression and victimization would be positively related. The findings concerning the overlap in youth's involvement in traditional and electronic

forms of aggression provide support for the notion that electronic aggression is yet another avenue for aggressive youth to target peers (Raskauskas & Stoltz, 2007; Werner et al., 2010). In fact, associations between traditional and electronic forms of both aggression and victimization were positive, indicating that youth who are aggressive using traditional (face-to-face) methods are also likely to be aggressive via electronic means. In line with the SIP perspective, these results may suggest that electronic aggressors are interpreting cues similar to traditional aggressors that elicit aggressive behavior. This carryover effect is important because it is likely that if aggressors are using a broader repertoire of means to be aggressive, then victims are likely to be aggressed upon via both traditional and electronic means (Raskauskas & Stoltz, 2007; Werner et al., 2010). This may result in victims experiencing more instances of victimization, possibly compounding the negative effects on individual well-being. Regardless of the interpretation of this finding, it is clear that future longitudinal work is imperative to understand whether traditional forms of aggression in early childhood lead to electronic aggression as electronic media becomes accessible.

Links between Adolescents' Socioemotional Well-Being and Electronic Aggression and Victimization

The second goal was to examine the associations between indicators of socioemotional well-being and electronic victimization and aggression. Existing work highlights links between electronic aggression and victimization and some aspects of adjustment (Beran & Li, 2007; Landoll & La Greca 2010; Li, 2010; Li, 2007; Wang et al., 2011), but few studies have addressed socioemotional correlates such as relationship

efficacy and global self-esteem. Such correlates have been shown to be general indicators of well-being (Bandura et al., 1999; Lucas et al., 1996), and therefore, it is important to understand their links with electronic aggression and victimization. Further, SIP theory argues that if goal directed behavior is successful, then one's appraisals of abilities and efficacy increase related to that goal. It was hypothesized that if electronic aggression is related to the goal of social status, and social status is attained after aggressing, then aggressors would feel relationally efficacious. Thus, relationship efficacy and self-esteem were expected to be positively related to electronic aggression. On the other hand, it was expected that the experience of electronic victimization would be associated with lower levels of relationship efficacy and self-esteem.

I approached this second goal in two ways. First, I tested whether electronic aggression and victimization were linked to relationship efficacy and self-esteem above and beyond the effects of traditional aggression and victimization. Findings of the regression models revealed no consistent associations between electronic victimization and aggression and relationship efficacy. In terms of self-esteem, higher levels of electronic aggression were associated with lower levels of self-esteem, but only for girls. This is in line with previous research showing that traditional aggressive-victims are more likely to experience lower self-esteem than both aggressors only, and victims only (Alsaker et al., 2010).

Drawing on scholarship on traditional victimization and aggression (Olweus, 1978; Solberg et al., 2008), I identified subgroups of youth as aggressors, victims, aggressive-victims and uninvolved peers and tested group differences in relationship

efficacy and self-esteem. There is concern within this growing body of literature that girls are becoming involved in a coercive cycle of retaliatory electronic victimization and aggression (Werner et al., 2010). Girls in some studies are overrepresented in the electronic aggressive-victim category relative to boys (Kowalski et al., 2007; Wolak et al., 2007). Consistent with this prior work, girls in this sample were twice as likely as boys to be in the aggressive victim group. This finding is particularly important because it indicates substantial fluidity between the role of electronic aggressor and victim for girls. This could be due to the similarities between electronic and other forms of covert aggression that are more often used by girls than overt forms (Archer & Coyne, 2005), coupled with the increased likelihood for girls who are electronic victims to retaliate using electronic means (Kowalski & Limber, 2007). It is possible that electronic media provides covertly aggressive girls another avenue to attack their peers in a discrete way. The relative ease of electronic media leaves victims with an opportunity to retaliate with the touch of a button, thus increasing the possibility of retaliation with electronic aggression, becoming an aggressive-victim.

For relationship efficacy, youth categorized as aggressors reported significantly higher efficacy than those in the other three groups. This is in line with the social information processing perspective, in that electronic aggressors, who instrumentally manipulate their peers, feel relationally efficacious. That is, aggressors perceived themselves as more efficacious in social interactions and better able to understand and work with their peers than youth in the other three groups. This association is also similar to findings such as those found by Kaukiainen and colleagues (1999), showing a positive relation between social intelligence and indirect forms of aggression in children.

Essentially, electronic aggressors in this sample perceive themselves as effective socially, able to work well with, and understand their peers. This could be true because electronic aggressors are likely aggressing in light of social cues that elicit goals of social status, just as other indirectly aggressive youth at this age (Hawley, 2003; Little et al., 2003; Veenstra et al., 2007). If they are successful in status attainment, they then could feel like they are successfully socially manipulating their peers for their own gain. In line with SIP theory, if status increases due to carrying out an aggressive act, it is likely that this experience is interpreted positively by the aggressor, impacting their internal memory data base and beliefs becoming stored in their memory as an effective, low cost way to act upon environmental cues. While using electronic aggression proactively, such as this, is seen as a bias in the social information processing literature (Sutton et al., 1999), there is a growing body of research supporting the notion that, in early adolescence, aggression is linked to status goals and subsequent status attainment provides social advantages to aggressors (Sijtsema et al., 2009).

Findings regarding self-esteem revealed that aggressive/victims had significantly lower self-esteem than aggressors, victims and uninvolved peers. Interestingly, this association was not moderated by gender. It is possible that the experience of being both victimized and aggressive electronically reflects upon young adolescent SIP patterns including feelings about oneself, therefore being associated with low self-esteem. Importantly, as stated above, these findings mirror findings from previous studies on traditional aggressive/victims (Olweus, 2010). Furthermore, these results are similar to those found recently by Patchin and Hinduja (2010) indicating that 7th and 8th grade youth who were involved in electronic aggression and victimization had significantly

lower self-esteem than uninvolved peers. The fact that the current findings fail to replicate the gender by self-esteem interaction that emerged in the regression analyses underscores the need for future studies addressing gender. It is possible that these unequal involvement category group sizes contributed to the lack of significance for a gender interaction. Most importantly, girls were over 2 times more likely to be both aggressive and victimized electronically than boys. Because many of the girls in our sample who were aggressors were also victims of electronic aggression, this analysis may be reflecting the high rate of aggressive/victims among girls in the sample, compared to boys. Since the aggressive-victim category was largely comprised of girls, they were likely the biggest contributors to the present finding indicating that aggressive-victims experience the lowest self-esteem.

Limitations and Future Directions

This study offers a first step in providing information about young adolescents' involvement in electronic aggression and victimization, but it is not without limitations. First, the focus was on young adolescents in 7th and 8th grade as this is a developmental period when access to technology (cell phones, internet, social media) increases substantially. Although focusing on this age period increased our understanding of electronic victimization and aggression at this point in development, it will be important to include a broader age range in future work to capture changes across the developmental period of adolescence. This will allow researchers to understand how these processes operate over time as well as determine the stability of aggression and victimization within the electronic context throughout development.

Additionally, the present study is limited to a single school, within a specific region of the United States. This study took place in a high performing school in a middle class neighborhood. It is possible that students coming from middle class households have more access to a wider range of electronic media. Further, while the sample is ethnically diverse, it is reflective of the southwestern region of the United States. It is important for future work to examine different school and geographical locations with different ethnic compositions. Specifically, next steps in research should consider a nationally representative sample to address the general population of adolescents. This would allow researchers to determine whether there are overarching nationwide trends in electronic aggression and victimization. Such information is essential for the education of parents, school personnel and policy makers as well as vital for the development of effective nationwide campaigns and interventions on electronic forms of aggression and victimization.

Finally, the current work was limited by some methodological issues. First, because of time constraints and access, the study was comprised of only adolescent self-reports, which could introduce shared method and shared reporter bias to the results. Secondly, because the data were collected at one time point it was not possible to control for cohort effects. This is important because the sample was taken during the spring of 2010, which were particularly stressfully economic times nationwide. It is important for future work to follow multiple age groups across time in a cross-sequential design to compare across cohorts. Furthermore, although this study provides critical information about girls' increased risk for electronic aggression and victimization, future work is needed to disentangle the mechanisms behind this elevated risk for girls. Future

longitudinal work is fundamental to parse apart whether involvement electronic aggression in fact influences socioemotional well being. Further, future work should work towards outlining the reciprocal associations between traditional and electronic aggression and victimization.

Conclusion

Taken altogether, these results offer some insights into directions for prevention and intervention work. First, these findings suggest that girls are at greater risk for involvement in both electronic aggression and victimization than are boys. Interventions targeting girls in early adolescence may be particularly important. Of special concern is the overrepresentation of girls as both aggressors and victims, suggesting that girls are at risk for both experiences simultaneously. Moreover, girls in the sample reported aggressing towards and being victimized by other girls more than boys. As such, these findings suggest that girls are at risk for becoming entrenched in a cycle of electronic harassment, fulfilling both the role of the aggressor and victim at times. Further, our findings suggest that involvement in electronic aggression was associated with lower levels of self-esteem for girls. Again, this finding points to the potential importance of addressing electronic means of victimization and aggression for girls' well-being in early adolescence.

It will be important for future work to delineate the mechanisms underlying involvement in both electronic aggression and victimization. These findings underscore the increased risk girls face regarding electronic aggression and victimization involvement. Traditional bullying literature has identified aggressive/victims as the

highest risk group (Olweus, 2010), and the present findings regarding self-esteem indicate that electronic aggressive/victims may be an equally high risk group to consider. Findings such as these highlight the need for future longitudinal work in this area, moving beyond prevalence into uncovering the mechanisms behind involvement. Moreover, these findings emphasize the importance of educating parents and teachers about electronic victimization and aggression.

In sum, electronic means of communication are becoming an increasingly prominent part of the society in which we live, and access to electronic media has dramatically expanded in the past decade for teens, increasing in popularity and normativity among early adolescents (Lenhart et al., 2010; Tokunaga, 2010). Consequently, peer harassment has become progressively popular via electronic means during adolescence, and is related to significant adjustment difficulties (Didden et al., 2009; Juvonen & Gross, 2008; Patchin & Hinduja, 2006). It is important for future work to be done to understand electronic communication better to work towards a common goal of understanding and promoting youth's positive peer relationships and promote overall well-being.

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APPENDIX A

TRADITIONAL AGGRESSION MEASURE

How often in the last 30 days (about one month) did YOU:		Never	1 or 2 times	3 or 4 times	5 or more times
1. Push, shove, slap, or kick other <i>(female/male)</i> students	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Ignore other <i>(female/male)</i> students on purpose	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Say things about <i>(female/male)</i> students to make other students laugh	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Exclude <i>(female/male)</i> students	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Threaten to hit or hurt another <i>(female/male)</i> student	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Spread rumors about other <i>(female/male)</i> students	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Call other <i>(female/male)</i> students names	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Try to get your friends to turn against a <i>(female/male)</i> student	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Tease <i>(female/male)</i> students	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX B
ELECTRONIC AGGRESSION MEASURE

Please answer the following questions and *REMEMBER* Electronic Media refers to any **Internet site** (ex: Facebook, MySpace, twitter), **texting**, **emailing**, **instant messaging** (ex: Facebook chat, AOL, MSN), and **picture messaging** accessed through a **computer**, **cell phone** or **other mobile device** (ex: iTouch, iPad).

How often in the last 30 days (about one month) did YOU:		Never	1 or 2 times	3 or 4 times	5 or more times	
1.	How often have you posted, forwarded or sent mean messages, chats, pictures or videos of other <i>(female/male)</i> students by a form of electronic media?	female male	O O	O O	O O	O O
2.	How often have you done any of these things to other <i>(female/male)</i> students: ignored their friend request, removed them from your friends list or prevented them from joining a group or attending a social event via electronic media?	female male	O O	O O	O O	O O
3.	How often have you spread rumors or revealed personal secrets about other <i>(female/male)</i> students via electronic media?	female male	O O	O O	O O	O O
4.	How often have you threatened other <i>(female/male)</i> students via email, instant message, text message or any other form of electronic media?	female male	O O	O O	O O	O O

APPENDIX C

TRADITIONAL VICTIMIZATION MEASURE

How often in the last 30 days (about one month) did other students do these things TO YOU:

		Never	1 or 2 times	3 or 4 times	5 or more times
1. Other (<i>female/male</i>) students push, shove, slap, or kick you	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Other (<i>female/male</i>) students ignore you on purpose	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Other (<i>female/male</i>) students say things about you to make other students laugh	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Other (<i>female/male</i>) students exclude you	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Other (<i>female/male</i>) students threaten to hit or hurt you	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Other (<i>female/male</i>) students spread rumors about you	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Other (<i>female/male</i>) students call you names	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Other (<i>female/male</i>) students try to get other students to turn against you	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Other (<i>female/male</i>) students tease you	female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX D
ELECTRONIC VICTIMIZATION MEASURE

Please answer the following questions and **REMEMBER Electronic Media refers to any Internet site (ex: Facebook, MySpace, twitter), texting, emailing, instant messaging (ex: Facebook chat, AOL, MSN), and picture messaging accessed through a computer, cell phone or other mobile device (ex: iTouch, iPad).**

How often in the last 30 days (about one month) did other students do these things TO YOU:		Never	1 or 2 times	3 or 4 times	5 or more times
1.	How often have other (<i>female/male</i>) female students posted, forwarded or sent mean messages, chats, pictures or videos of you by a form of electronic media?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	How often have other (<i>female/male</i>) female students done any of these things to you: ignored your friend request, removed you from their friends list or prevented you from joining a group or attending a social event via electronic media?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	How often have other (<i>female/male</i>) female students spread rumors or revealed personal secrets about you via electronic media?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	How often have other (<i>female/male</i>) female students threatened you via email, instant message, text message or any other form of electronic media?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX E

GLOBAL SELF-ESTEEM (ROSENBERG, 1989)

The next questions are about you.

Please fill in only **ONE** response.

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
1. I am satisfied with myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. At times, I think I am no good at all.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I feel I have many good qualities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I am able to do things as well as most other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I feel I do not have much to be proud of.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I certainly feel useless at times.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I feel that I'm as good as others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I wish I could have more respect for myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I feel that I am a failure.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I take a positive attitude towards myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX F

GENDER BASED RELATIONSHIP EFFICACY (ZOSULS ET AL., 2012)

How much do you feel like you...	Not at all	Not really	A little bit	Pretty much	A lot
1. Understand <u>boys</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Understand <u>girls</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Know how to talk to <u>boys</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Know how to talk to <u>girls</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Know how to act around <u>boys</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Know how to act around <u>girls</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Know how to be accepted by <u>boys</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Know how to be accepted by <u>girls</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Know how to have fun with <u>boys</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Know how to have fun with <u>girls</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Know how to work with <u>boys</u> on school projects or assignments?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Know how to work with <u>girls</u> on school projects or assignments?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Know how to be included by <u>boys</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Know how to be included by <u>girls</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Table 1

Means and Standard Deviations of Measures

Variable	Girls		Boys	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Electronic Aggression	0.40*	0.38	0.23	0.34
Electronic Victimization	0.45*	0.55	0.26	0.47
Physical Aggression	0.51*	0.64	0.43	0.47
Physical Victimization	0.36*	0.54	0.45	0.61
Verbal Aggression	0.46	0.60	0.44	0.54
Verbal Victimization	0.45	0.61	0.44	0.64
Relational Aggression	0.49	0.49	0.43	0.46
Relational Victimization	0.44	0.51	0.39	0.59
Same-Sex Relationship Efficacy	4.41*	0.60	4.25	0.78
Other-Sex Relationship Efficacy	3.75	0.85	3.78	0.90
Global Self-Esteem	2.90*	0.60	3.31	0.54

Note: ^a* $p < .05$, ^b Aggression and Victimization range = 0-3, ^b Relationship Efficacy range = 1-5, ^c Self-Esteem = 1-4

Table 2

Summary of Correlations Among Aggression and Victimization Measures

Measure	1	2	3	4	5	6	7	8	9	10	11
1. Electronic Aggression	-	.58*	.42*	.27*	.48*	.22*	.51*	.26*	.01	.09	-.22*
2. Electronic Victimization	.61*	-	.25*	.29*	.34*	.46*	.35*	.56*	-.02	-.03	-.21*
3. Physical Aggression	.29*	.34*	-	.59*	.68*	.37*	.52*	.24*	-.02	.08	-.25*
4. Physical Victimization	.17*	.44*	.55*	-	.42*	.59*	.36*	.48*	.02	.04	-.31*
5. Verbal Aggression	.31*	.31*	.68*	.45*	-	.46*	.68*	.32*	-.09	.08	-.27*
6. Verbal Victimization	.22*	.51*	.41*	.74*	.51*	-	.37*	.75*	-.07	-.09	-.32*
7. Relational Aggression	.42*	.40*	.58*	.41*	.78*	.48*	-	.41*	-.02	.10	-.26*
8. Relational Victimization	.25*	.57*	.32*	.62*	.39*	.82*	.44*	-	-.04	-.06	-.25*
9. SS Relationship Efficacy	-.01	-.06	.01	.01	-.02	-.01	-.06	-.01	-	.40*	.09*
10. OS Relationship Efficacy	.09	.03	.16*	-.05	.12*	-.07	.09	-.07	.25*	-	.12
11. Self-Esteem	-.04	-.16*	-.15*	-.19*	-.10	-.23*	-.14*	-.23*	.12*	.11*	-

Note: ^a $p < .001$, ^b correlations above represent girls and below represent boys

Table 3

Summary of Same- (SS) and Other-Sex (OS) Electronic Aggression predicting Same- (SS) and Other-Sex (OS) Relationship Efficacy

Variable	β	SEB	R^2
<i>SS Relationship Efficacy</i>			
Step 1 - SS Traditional Aggression	-.055	.046	.003
Step 2 - SS Traditional Aggression	-.071	.051	
SS Electronic Aggression (EA)	.059	.072	
Sex	-.070	.053	.009*
Step 3 - SS Traditional Aggression	-.072	.051	
SS Electronic Aggression (EA)	.065	.092	
Sex	-.065	.067	
Sex X SS EA	-.010	.132	.008*
<i>OS Relationship Efficacy</i>			
Step 1 - OS Traditional Aggression	.103**	.073	.009**
Step 2 - OS Traditional Aggression	.099*	.084	
OS Electronic Aggression (EA)	.040	.098	
Sex	.052	.068	.010*
Step 3 - OS Traditional Aggression	.100*	.084	
OS Electronic Aggression (EA)	.026	.126	
Sex	.041	.081	
Sex X OS EA	.022	.180	.009*

*Note: *p < .05. **p < .01.*

Table 4

Summary of Same- (SS) and Other-Sex (OS) Electronic Victimization predicting Same- (SS) and Other-Sex (OS) Relationship Efficacy

Variable	β	SEB	R ²
<i>SS Relationship Efficacy</i>			
Step 1 - SS Traditional Victimization	-.021	.041	-.001
Step 2 - SS Traditional Victimization	-.010	.048	
SS Electronic Victimization (EV)	-.025	.075	
Sex	-.098*	.053	.005
Step 3 - SS Traditional Victimization	-.006	.048	
SS Electronic Victimization (EV)	.000	.087	
Sex	-.076	.062	
Sex X SS EV	-.046	.137	.005
<i>OS Relationship Efficacy</i>			
Step 1 - OS Traditional Victimization	-.050	.064	.009
Step 2 - OS Traditional Victimization	-.070	.076	
OS Electronic Victimization (EV)	.038	.111	
Sex	.019	.066	.010
Step 3 - OS Traditional Victimization	-.080	.077	
OS Electronic Victimization (EV)	-.013	.135	
Sex	-.013	.074	
Sex X OS EV	.089	.190	.009

*Note: *p < .05.*

Table 5

Summary of Total Electronic Victimization and Aggression predicting Total Relationship Efficacy

Variable	β	SEB	R ²
<i>Total Relationship Efficacy</i>			
Step 1 - <i>Total</i> Traditional Aggression	.034	.045	.000
Step 2 - <i>Total</i> Traditional Aggression	.006	.051	
<i>Total</i> Electronic Aggression (EA)	.068	.066	
Sex	.087*	.043	.006*
Step 3 - <i>Total</i> Traditional Aggression	.005	.051	
<i>Total</i> Electronic Aggression (EA)	.074	.086	
Sex	.092	.056	
Sex X <i>Total</i> EA	-.009	.117	.005
<i>Total Relationship Efficacy</i>			
Step 1 - <i>Total</i> Traditional Victimization	-.121*	.040	.013**
Step 2 - <i>Total</i> Traditional Victimization	-.133*	.047	
<i>Total</i> Electronic Victimization (EV)	.024	.049	
Sex	.077*	.042	.017**
Step 3 - <i>Total</i> Traditional Victimization	-.139*	.048	
<i>Total</i> Electronic Victimization (EV)	-.004	.058	
Sex	.053	.050	
Sex X <i>Total</i> EV	.051	.083	.017**

*Note: *p < .05. **p < .01.*

Table 6

Summary of Total Electronic Victimization and Aggression predicting Self-Esteem

Variable	β	SEB	R ²
Self-Esteem			
Step 1 - <i>Total</i> Traditional Aggression	-.233*	.043	.053**
Step 2 - <i>Total</i> Traditional Aggression	-.205*	.048	
<i>Total</i> Electronic Aggression (EA)	-.039	.063	
Sex	.184*	.041	.089**
Step 3 - <i>Total</i> Traditional Aggression	-.198*	.049	
<i>Total</i> Electronic Aggression (EA)	-.106*	.081	
Sex	.125*	.053	
Sex X <i>Total</i> EA	.102*	.111	.093**
Self-Esteem			
Step 1 - <i>Total</i> Traditional Victimization	-.276*	.038	.075**
Step 2 - <i>Total</i> Traditional Victimization	-.253*	.045	
<i>Total</i> Electronic Victimization (EV)	-.088	.046	
Sex	.192*	.040	.115**
Step 3 - <i>Total</i> Traditional Victimization	-.253*	.045	
<i>Total</i> Electronic Victimization (EV)	-.088	.055	
Sex	.161*	.048	
Sex X <i>Total</i> EV	.064	.078	.116**

Note: * $p < .05$. ** $p < .01$.

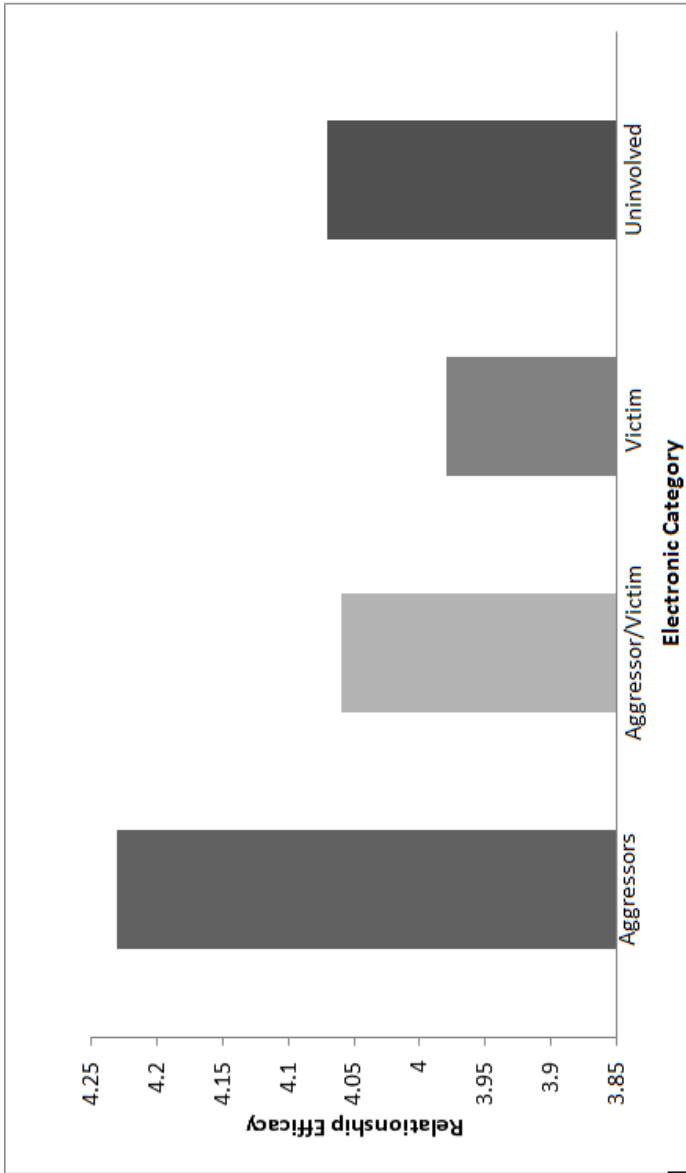


Figure 1.

Relationship efficacy by electronic involvement category

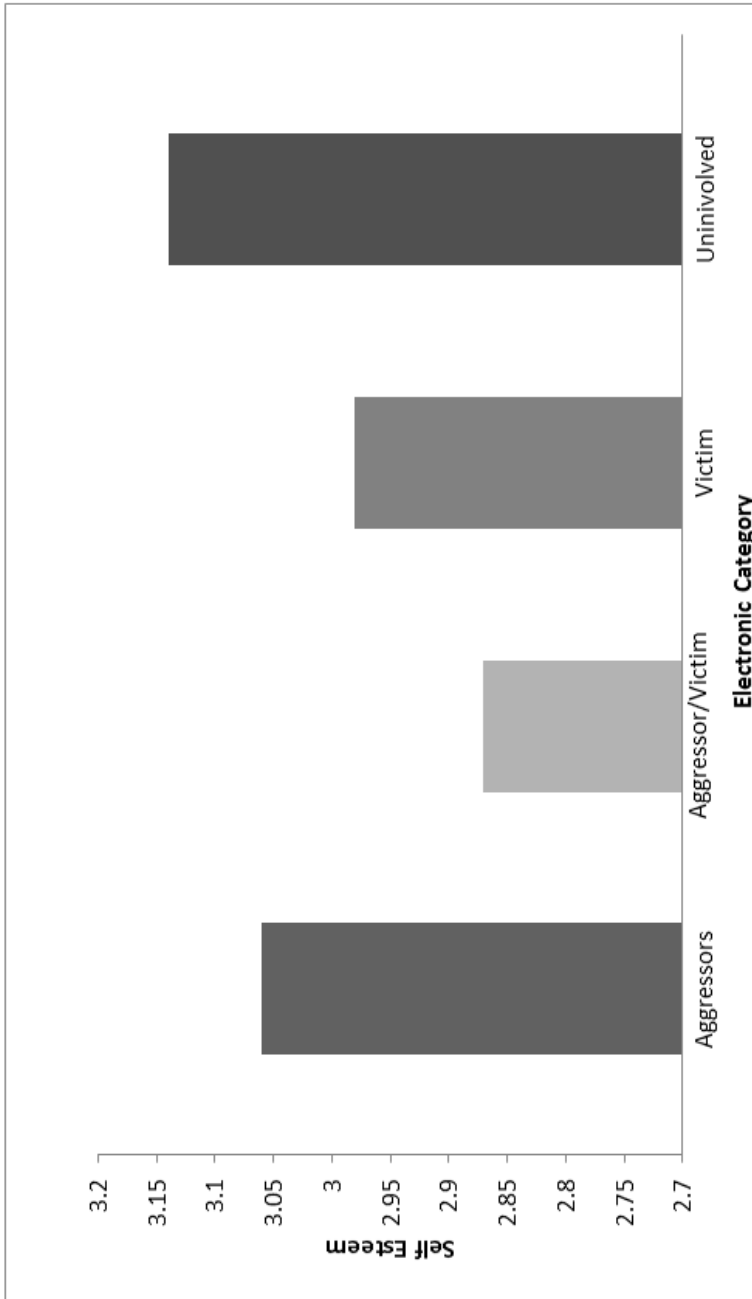


Figure 2.

Self-Esteem by electronic involvement category

