ELECTRONIC BULLING AND AGGRESSION IN ADOLESCENTS

The demographic, behavioral, and cognitive predictors of electronic bullying, electronic

victimization, and harm perception of electronic aggression

by

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ABSTRACT

Bullying is a pervasive problem in schools, but more recent attention has been given to bullying that takes place via electronic media. To study electronic bullying and aggression effectively research needs to consider the unique qualities of the electronic medium including its capacity for anonymity, disinhibition, public forum, and under-regulated content. Electronic bullying does not occur in isolation; therefore it must be studied in relation to peer processes that occur in the "real world." Research has neither uncovered the potential "real world" precursors of electronic bullying and aggression nor has it uncovered how students perceive the harmfulness of electronic aggression. The two studies presented here fill these gaps in the literature.

The first study examined the precursors of electronic bullying and victimization in a sample of grade 9 and 10 students who were followed longitudinally. Students were administered questionnaires assessing electronic bullying/victimization, perceived harm of electronic aggression, empathy, normative beliefs, and prosocial behavior. The results indicated that "real world" behaviors such as verbal bullying and prosocial behavior were precursors of electronic bullying, while victimization by social bullying and social aggression were precursors for electronic victimization. In addition, females, older students, and students with less prosocial behavior were at risk for involvement in electronic bullying. Implications for these findings include the importance of integrating interventions that foster positive behavior in the "real world" and online, particularly for students at highest risk for involvement.

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The second study examined students' harm perceptions of electronic aggression and how similar behavioral and cognitive factors may also influence perceptions of electronic aggression. Cross-sectional data were collected from students in grades 7 through 9 who were administered the same questionnaires above. Electronic bullying was perceived as more harmful than physical and social aggression, particularly for girls and students with highly prosocial behavior. Thus, electronic aggression is a very serious issue for students and education is needed to change the social norms for acceptable behavior in cyberspace. Consistent with social-cognitive theory, similar demographics and behaviors predicted electronic behavior and perceptions. Future research should continue to extend the social-cognitive model to electronic conflict.

CO-AUTHORSHIP

I assumed primary responsibility for the conceptualization, design, and execution of the research reported in this thesis. My supervisor, Dr. Wendy Craig, assisted in all aspects of this thesis and in the preparation of the manuscripts and appears as co-author on both manuscripts.

The research reported was based on longitudinal data from collaborative project with Heather McCuaig Edge, therefore Heather McCuaig Edge appears as a co-author on this manuscript.

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CHAPTER ONE

General Introduction

Bullying is a pervasive problem in schools that has received much attention in the fields of education and psychology (Eslea & Smith, 1998; Olweus, 1997; Smith & Brain, 2000). Bullying is a recurring relationship problem in which one person holds power over another (Pepler, DeJiang, Craig, & Connolly, 2008). In Canada, studies suggest that, on a weekly basis, 6% of students report bullying others, 8% report that they are victimized by bullying, and 1% report that they are both victimized and bully others (Volk, Craig, Boyce, & King, 2006). As such, bullying is a significant problem for students. Students who bully are at risk for other forms of aggression such as dating aggression (Pepler, Craig, Connolly, Yuile, & Jiang, 2006), delinquency (Mugishima, Kiyonaga, & Takahashi, 1985), substance abuse (Gordon, Kinlock, & Battjes, 2004), and gang involvement (Holmes & Brandenburg-Ayres, 1998). In addition, individuals who frequently bully are at risk for later criminality (Sourander et al., 2007). Youth who are victimized are at risk for depression (Klomek et al., 2008), stress-related health problems (e.g., headaches, stomach aches; Fekkes, Pijpers, Fredriks, Vogels, & Verloove-Vanhorick, 2006), social anxiety, loneliness, social withdrawal, and isolation (Storch, Brassard, & Masia-Warner, 2003). In more extreme cases, individuals who are victimized are at risk for suicidal thoughts and suicide (Barker, Arseneault, Brendgen, Fontaine, & Maughan, 2008). There are several subtypes of bullying including physical (e.g., pushing and shoving), verbal (e.g., insults and slander), racial/ethnic (e.g., racial slander),

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religious (e.g., comments directed toward one religious beliefs), disability (e.g., bullying content directed towards a physical or mental disability), social (e.g., spreading gossip or rumors, social exclusion, or mean gestures), and electronic bullying. With the increase in internet usage in recent years, electronic bullying has become particularly prevalent with estimates of electronic harassment in Canada around 21% (Beran & Li, 2005).

Electronic bullying is defined as harmful actions that are communicated via electronic media and are intended to embarrass, harm, or slander another individual (Li, 2006). The electronic medium has several unique qualities that make social interaction, as well as social conflict in cyberspace qualitatively different. First, the online environment provides anonymity, particularly for those perpetrating aggressive acts. Second, computer communication creates a physical distancing and possible anonymity that can result in disinhibition. That is, without seeing the social being with whom one is communicating, there is a tendency to demonstrate less restraint in one's interactions and pay less attention to social conventions. Third, the online environment has the capacity to combine both private and public social contact simultaneously. For example, while individuals share information with their close friends on their Facebook© wall posts they are also communicating this information to an entire network of friends, their friend's friends, and possibly the entire World Wide Web. The balance of private and public in online social contact is new to human cognition, and therefore mistakes are frequently made where personal information becomes public. Finally, electronic media, unlike television and radio, are much less regulated. Content that is deemed inappropriate, hurtful, or derogatory is not "owned" by any television or radio station. As such, there is no way to regulate content when it is not authored by any one entity, can be transmitted

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rapidly, and seen by an unlimited number of people with very little effort. To this extent, the risk factors for electronic bullying involvement and the consequences of electronic bullying involvement may be different than those of real-world bullying involvement. Therefore, it is important to study electronic bullying and aggression separately from other forms of bullying and aggression. However, electronic bullying does not occur in isolation, therefore electronic bullying and aggression must also be examined in relation to other forms of bullying. Many of the individuals involved in "real world" bullying may also be involved in electronic bullying (Raskauskas & Stoltz, 2007). Furthermore, individuals involved in both forms of bullying might very well be the most at-risk group of students because they are experiencing negative peer interactions in school and at home on their computers.

In the "real world" bullying and aggression literature, researchers have used a social-cognitive theory of social interactions to understand bullying and aggression. Social cognitive theory posits that social behaviors are shaped by social experiences and cognitions in an interactive process (Crick & Dodge, 1994). The studies presented here examine both "real world" social experiences and cognitions as they relate to electronic bullying involvement and perceptions of electronic aggression. The "real world" bullying literature has supported associations among bullying and other social experiences, such as prosocial behavior and victimization experience (Werner & Crick, 1999; Haynie, Nansel, Eitel, Crump, Saylor, Yu, & Simons-Morton, 2001). Furthermore, this literature has confirmed the link among cognitions, such as normative beliefs and empathy, and real world aggression (Kaukiainen, Björkqvist, Lagerspetz; Österman, Salmivalli, Rothberg, & Ahlbom, 1999; Herrenkohl, McMorris, Catalano, Abbott, Hemphill, & Toumbourou, 2007). The two studies presented here extend these findings

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to the electronic medium with the goal of determining whether these real world behaviors and cognitions are associated with electronic bullying and victimization.

Many recent studies have focused on individual's behavior in electronic media (Williams & Guerra, 2007; Li, 2006; Kowalski & Limber, 2007), but have ignored how individuals perceive themselves and the electronic medium in relation to themselves. The current study aimed to combine the examination of electronic aggression and bullying with an examination of students' perceptions of those behaviors. That is, we aimed to determine whether the unique qualities of electronic communication also make electronic aggression unique with respect to how harmful students view these destructive behaviors online. Guided by social-cognitive theory, we aimed to uncover the behaviors and cognitions that are associated with such perceptions.

The goal of Study 1 was to examine the real-world social behaviors, such as bullying, victimization, aggression, and prosocial behavior as precursors of electronic bullying and victimization. A second objective of Study 1 was to examine normative beliefs and empathy as cognitions that act as precursors of electronic bullying and victimization. To achieve these two objectives, high school students were recruited from one Canadian school. Students completed questionnaires at two time points that assessed their demographics, frequency of real world and electronic bullying and victimization, frequency of socially aggressive acts, frequency of victimization by social aggression, prosocial behavior, empathy, and normative beliefs about aggression. Hierarchical regression analyses examined the real world behaviors and cognitions that preceded involvement in electronic bullying and victimization.

One goal of Study 2 was to examine the differences in perceptions of harm of the different forms of aggression for each gender and grade. The second goal was to examine whether the social experiences of electronic victimization and prosocial behavior were predictors of harm perceptions of hypothetical electronic aggression scenarios. In addition, Study 2 examined the link among the cognitions used in study 1 (i.e., empathy and normative beliefs) and perceptions of electronic aggression. A sample of elementary and high school students were administered the questionnaires from Study 1 with the addition of a questionnaire assessing the harm perceptions of various forms of aggression. To determine the relative harm of various forms of aggression by gender and grade, a MANOVA was implemented. To determine the experiential and cognitive predictors of harm, a hierarchical regression was completed.

Both of these studies also provide a developmental context and a consideration of gender differences in bullying and aggression. Previous research has indicated that older students and girls are more involved in electronic bullying; therefore the first study examines the developmental change in electronic bullying and victimization from grade 9 to 10, while the second study examines, in more detail, the developmental change in electronic aggression perceptions from elementary school through the transition into high school. In addition, both Study 1 and 2 examine electronic involvement and perceptions as sex-linked processes whereby gender may predict electronic behavior and perceptions of those behaviors, but it may also interact with real world behaviors and cognitions to predict electronic bullying involvement and perceptions of aggression.

Examining real world behaviors and cognitions associated with electronic behaviors and perceptions of those behaviors together will provide an understanding of the individual and peer processes that are occurring online. This research examines risk longitudinally, which previous

electronic bullying research has yet to accomplish. Furthermore, this research moves beyond the basic prevalence of electronic behavior to more closely examine the unique contributions of real world behaviors and cognitions in the development of destructive electronic relationships and the perceptions of electronic behavior. The two studies presented here will provide information to guide intervention by creating an understanding of who needs particular help coping with electronic bullying. In addition, these studies provide preliminary evidence for the real world skills adults can foster to prevent destructive electronic relationships.

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CHAPTER TWO

THE DEVELOPMENTAL PRECURSERS OF ELECTRONIC BULLYING AND
VICTIMIZATION

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Abstract

Students involved in electronic bullying are also involved in traditional bullying. Research has not explored the specific real-world bullying subtypes, behaviors, and psychosocial characteristics that act as precursors to electronic bullying and victimization. The current study examined these precursors by administering questionnaires to 119 high school students at two time points. Hierarchical regressions were implemented to predict involvement in electronic bullying and victimization at Time 2. Results indicated that verbal bullying preceded electronic bullying for girls, while victimization by social bullying and social aggression were precursors for electronic victimization for all students. Being female, being older, and having low prosocial behavior were precursors for electronic bullying. The results suggest that processes underlying electronic bullying and victimization may be different.

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The Developmental Precursors of Electronic Bullying and Victimization

With society's increase in internet usage (Statistics Canada, 2004) and the increasing prevalence of online social interactions among adolescents (Lenhart, Madden, & Hitlin, 2005), electronic bullying has become an important issue for schools, parents, and students. Electronic bullying defined as harmful actions that are communicated via electronic media that are intended to embarrass, harm, or slander another individual (Li, 2006). Electronic bullying is prevalent in youth, with over 25% of students reporting that they have been bullied electronically (Li, 2007). Furthermore, 52% of students report that they know someone who has been electronically bullied (Li, 2007). There is very little known about electronic bullying and its precursors due to the fact that it has only recently come under scientific investigation. It is important to examine the developmental precursors of electronic bullying and victimization, as they can provide valuable information to guide electronic bullying prevention and intervention efforts. By identifying populations that are most at-risk for electronic bullying involvement, it is possible to develop early targeted intervention and effective prevention programs. The current study examined developmental precursors of electronic bullying and victimization, such as individuals' past experiences with real-world bullying and victimization, experiences with social aggression, as well as demographic and psychosocial characteristics.

For some children, involvement in bullying can begin early and continue throughout development, albeit in different forms. For example, individuals who bully are more likely to sexually harass others (Espelage & Holt, 2007), participate in dating aggression (Williams, Connolly, Pepler, Craig, & Laporte, 2008), and become gang members (Holmes & Brandenburg-Ayres, 1998). Thus, there is heterotypic continuity in bullying behavior. That

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is, there is developmental continuity of the use of power and aggression manifesting in different forms of bullying behavior. Research has examined the link between electronic bullying and real-world bullying, demonstrating that there is substantial overlap among individuals involved in real-world and electronic bullying and victimization. Rsakauskas and Stoltz (2007) reported that individuals with traditional bully status were likely to engage in electronic bullying and traditionally victimized youth were likely to be victimized electronically. While Rsakauskas and Stoltz examined the link between electronic- and real-world bullying, their study failed to examine the developmental continuity of real world and electronic bullying longitudinally. In addition, they examined the relationship among electronic bullying and general bullying, but ignored the potential developmental continuity that electronic bullying may have with specific types of real-world bullying (e.g., social bullying). The current study examined electronic bullying and victimization as the developmental continuation of real-world bullying longitudinally. Furthermore, the current study examined the potential relationship between specific forms of real-world bullying, such as social bullying and electronic bullying.

Electronic bullying and social bullying have two theoretical and conceptual similarities, the involvement of peers in the bullying process and the use of anonymity (Galen & Underwood, 1997; Kowalski & Limber, 2007). Social bullying, by definition, requires the participation of the peer group. Craig and Pepler (1998) found that peers are involved in 85% of real-world bullying episodes. Similarly, in order to perpetrate electronic bullying, participation from peers, and potentially the larger online community, is required. For both social and electronic bullying, anonymity is also essential because it provides a unique power relationship where the individual being victimized has little means to identify the aggressor, let alone stop the bullying. In electronic bullying anonymity is provided by the medium itself

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whereas in social bullying students can spread rumors and gossip anonymously by swearing peers to secrecy. Social aggression is also theoretically similar to electronic bullying. Social aggression is a behavioral construct which includes many of the same behaviors exhibited in social bullying, such as exclusion from groups, eye rolling, and rumor spreading. Social aggression is important to study separately from social bullying, as this construct is not inclusive of experiences with a power dynamic and repeated occurrence. The current study investigated whether involvement in social bullying, social aggression, and social victimization by means of aggression and bullying were "real world" precursors of involvement in electronic bullying and victimization. In addition to social bullying and aggression there may be similar individual vulnerabilities, such as demographic and psychosocial characteristics that may be predict involvement in electronic bullying.

The prevalence of various forms of bullying and victimization differ by gender and grade. Girls tend to use social aggression and electronic bullying more than boys (Crick & Grotpeter, 1995; Kowalski & Limber, 2007). Electronic bullying is 14% more prevalent in girls than in boys (Kowalski & Limber, 2007). Thus, there may be a stronger relationship between social bullying and electronic bullying in girls given that they tend to use both types of bullying more frequently. Girls also experience more social victimization than boys (Crick, Casas, & Ku, 1999). Therefore, it seems likely that electronic victimization will also be more prevalent among girls than boys. The prevalence of both social aggression and electronic bullying also increases with age (Bjorkqvist, 1994; Williams & Guerra, 2007). There is a peak in social aggression between the ages of 11 and 15 (Bjorkqvist, Lagerspetz, & Kaukiainen, 1992) and a similar peak in electronic bullying behavior at age 13 with a decline by age 16 (Williams & Guerra, 2007). There is also evidence for a developmental trend in the

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prevalence of social victimization, with social victimization increasing from childhood to adolescence (Crick, Nelson, Morales, Cullerton-Sen, Casas, & Hickman, 2001). There has been no research to date, however, that examines the developmental trend in electronic bullying from age 14 to age 15. This developmental period may be important to examine because it represents a period after the transition into high school when students are involved in the formation of individual and group identity (Kinney, 1993). Furthermore, several elementary schools often amalgamate into one high school, creating an environment with a larger group of students from which to choose friends. As such, the transition into high school provides an opportunity to create new social groups. This study assessed students aged 14 to 15, to determine whether these two age-groups differ in their involvement in electronic bullying and victimization.

In addition to demographic correlates, there may be psychosocial characteristics associated with social aggression that may also be developmental precursors for electronic bullying. For example, both empathy and normative beliefs about aggression are related to social aggression (Herrenkohl, McMorris, Catalano, Abbott, Hemphill, & Toumbourou, 2007; Kaukiainen, Björkqvist, Lagerspetz, et al., 1999). Several studies have demonstrated that low empathy is positively associated with socially aggressive behavior (Kaukiainen Bjorkqvist, Lagerspetz, et al.; Kaukiainen, Bjorkqvist, Osterman, & Lagerspetz, 1996). Consequently, in this study, we predicted that low empathy would be positively associated with later electronic bullying behavior. Research on the role of empathy in predicting social victimization, however, is limited and research has yet to explore how empathy directly relates to electronic victimization. Social cognitions supporting the use of aggression also predict aggressive behavior (Herrenkohl et al.).

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Accordingly, normative beliefs that aggression is acceptable may be predictive of involvement in electronic bullying. While research has thoroughly examined the link between normative beliefs and the perpetration of social aggression, research on social victimization has focused primarily on attribution biases of victimized individuals, with no research to date indicating the relationship between normative beliefs about aggression and victimization. Given the paucity of research in this domain, this study will be the first to clarify the relationship between normative beliefs about aggression and electronic victimization.

There may also be psychosocial strengths that are protective against social and electronic victimization, but act as risk factors for involvement in social and electronic bullying (Werner & Crick, 1999). Prosocial behavior is the most widely used behavioral predictor of aggression because it explores positive characteristics that can protect individuals from involvement in aggression. Prosocial behavior is defined as the ability to relate positively to the individuals in the peer groups to which one belongs (Eisenbberg & Mussen, 1989). In the case of both social aggression and electronic bullying, association with peer groups and networks are required to obtain power over another individual. Thus, increased prosocial behavior may facilitate the use of these forms of aggression, in that one needs friends to implement these aggressive behaviors and therefore must have a repertoire of prosocial behaviors that allow them to develop and maintain friendships. Furthermore, research on social aggression indicates that individuals who perpetrate social aggression are socially skilled (Kaukiainen, Björkqvist, Österman, et al., 1996). Given that both social aggression and electronic bullying invoke the use of peers in a similar way, prosocial behavior may positively predict participation in electronic

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bullying. This prediction, however, may be different for those who electronically bully and those who are victimized by electronic bullying. Contrary to social aggressors, socially victimized individuals tend to be socially isolated or unskilled (Crick & Grotpeter, 1996), indicating that a lack of prosocial behavior may actually predict increased electronic victimization. Taken together, we hypothesized that low empathy, normative beliefs that aggression is acceptable, and high levels of prosocial behavior would be predictive of involvement in electronic bullying. Conversely, we hypothesized that high levels of prosocial behavior would protect against being electronically victimized.

In summary, the specific objectives of the current study were to examine the developmental continuity of "real world" subtypes of bullying and electronic bullying, and to examine the behavioral, demographic, and psychosocial correlates of these behaviors. We hypothesized that social bullying, social aggression, and individual demographics and psychosocial characteristics would predict later electronic bullying, while social victimization, victimization by social aggression, and individual demographics and psychosocial characteristics would predict later electronic victimization.

<div align="center">Method</div>

Design

Data were collected longitudinally at two points in time, approximately six weeks apart. Prior to participation in the study, consent was obtained from all parents and participants. Participants were also provided a debriefing letter following completion of

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the study. This study was approved by the Queen's University's General Research Ethics Board and followed APA ethical guidelines.

Participants

The participants in the study were 119 students recruited from one Canadian high school. The sample of 119 was reduced to 80 due to attrition and incomplete data. The final sample consisted of 44 ninth grade and 36 tenth grade students. Fifty-nine percent of the sample was girls and 41% were boys. Mann Whitney U tests were conducted to compare individuals who were excluded from the analyses to those who were included. Students included in the analyses did not differ from those excluded on "real world" and online bullying or experiences of real-world and online victimization. Chi square analyses revealed that the proportion of females excluded from the analyses was larger than the proportion of males excluded (χ^2 (2) = 37.57, p < .001). There were no differences in the grade of participants included in and excluded from the analyses.

Measures

Questionnaires were administered to assess experiences with electronic and "real world" bullying and victimization, social aggression, victimization by social aggression, demographics, empathy, normative beliefs about aggression, and the prosocial behavior of each individual at two time-points. Principal component factor analyses were conducted to confirm the underlying structure of each of the measures, when there were more than two items to assess the construct. Items were excluded if their factor loading was below .3 or if the item was significantly impeding the reliability of the measure (i.e.,

reduced the reliability below .70) (DeVellis, 1991; Kline, 1994; Nunally, 1978). With the confirmed factor structure, mean scores for each factor were computed.

Electronic and Real-World Bullying Involvement

To measure participants' experiences with types of bullying, the WHO Bullying/Victimization questionnaire (Olweus, 1989) was used. This questionnaire consisted of 14 questions assessing the prevalence of engaging in physical, verbal, social, sexual, electronic, racial/ethnic/religious bullying, and disability bullying and victimization (one question for each type of bullying and victimization). Students responded on a five-point Likert-type scale whether they had been bullied or victimized "never" to "once a week" in the past four weeks.

Social Aggression and Victimization by Social Aggression

To evaluate participants' experiences with social aggression the Revised Social Experience Questionnaire was administered (RSEQ) (Paquette & Underwood, 1999). This questionnaire assessed the frequency of social events in participants' lives using a five-point Likert-type scale from "never" to "always". The questionnaire assessed prosocial behaviors (see below *Prosocial Behavior*) and social aggression (e.g. "How often do you make mean faces to hurt another kids' feelings?") as well as victimization by social aggression (e.g. "How often does another kid make mean faces at you to hurt your feelings?"). The social aggression subscale encompassed the previously named relational aggression subscale with the addition of two questions that focused on mean gestures. The reliability of the social aggression subscale used in the current study was α = .88, with the factor loadings on all seven items above .68. The reliability of the victimization

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by social aggression subscale was α = .94, with factor loadings on all seven items above .78. Higher scores on the social aggression subscale indicated highly aggressive behaviors and high scores on the victimization by social aggression subscale indicated frequent and diverse victimization by social aggression.

Demographics

Students reported on their gender and grade.

Empathy

The Davis Interpersonal Reactivity Index (DIRI) (Davis, 1994) measured components of empathy including concern for others, perspective taking, emotional identification with others, and personal distress (negative feelings in response to the distress of others). This index contained five items including "I try to look at everybody's side of a disagreement before I make a decision" and asked participants to respond on a five-point Likert-type scale with zero being "does not describe me well" and four being "describes me very well". The reliability of the scale in the current sample was α = .85. Factor loadings for all five items were above .64. Higher scores on the DIRI indicated a capacity to successfully empathize with others.

Normative Beliefs

The Normative Beliefs about Aggression Scale (NBAS) (Huesman & Guerra, 1997) measured participants' attitudes towards physical and verbal aggression. The subscale consisted of eight questions using a four point rating scale ranging from "not at all ok" to" perfectly ok" (e.g.: "It is generally wrong to get in physical fights with others"). In addition to the standard questions on the NBAS, students were also asked

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specific questions regarding normative beliefs about social aggression and electronic aggression. The reliability of the normative belief scale including the electronic and social aggression normative beliefs was $\alpha = .91$. The factor loadings for all 13 items were above .46. Higher scores on the NBAS represented strong beliefs that aggression is wrong.

Prosocial Behavior

To evaluate participants' prosocial behavior towards others the Revised Social Experience Questionnaire was administered (RSEQ) (Paquette & Underwood, 1999). This questionnaire assessed the frequency of social events in participants' lives using a five point Likert-type scale. The questionnaire assessed prosocial behaviors (e.g.: "How often do you do something nice for another student?") and social aggression (see above *Social Aggression*). In the current study, the prosocial behavior subscale had a reliability of $\alpha = .85$. All seven items had factor loadings above .55. High scores on the prosocial subscale of the RSEQ indicated a high frequency of caring, sharing, and helping behaviors towards peers.

Statistical Analyses

Descriptive analyses were conducted to examine the cross-sectional relationship among real-world types of bullying and electronic bullying and victimization before examining the relationship among them longitudinally. Correlation analyses were implemented to examine the relationship among the covariate, independent, and dependent variables for each set of regressions. Hierarchical regressions were implemented to assess the predictors of electronic victimization and bullying at Time 2.

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In Step 1 age and gender were entered, as well as the Time 1 outcome variables (e.g., electronic bullying or electronic victimization at Time 1). The second step of each regression included the independent variables of interest (i.e. real-world types of bullying or victimization, social aggression or victimization by social aggression, empathy, normative beliefs about aggression, and prosocial behavior). Each of the independent variables was centered on the variable mean to minimize multicollinearity (Aiken & West, 1991). The third step included any relevant interactions. This final step was removed from the model when all relevant interactions were non-significant. Significant interactions were further explored using simple slopes analyses.

<center>Results</center>

Prevalence and Overlap of Bullying and Victimization Types

The prevalence of electronic and real-world bullying and victimization in the current sample is listed in Table 2.1. The most prevalent forms of bullying and victimization were electronic, verbal, and social. Table 2.2 lists the overlap among real-world and electronic bullying and victimization. As hypothesized, there was significant overlap between real-world social bullying and electronic bullying, however, "real world" verbal bullying also overlapped with electronic bullying. "Real world" verbal and social victimization also significantly overlapped with electronic victimization. In sum, electronic bullying and victimization was common among students who were also involved in verbal and social bullying and victimization.

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Correlations among Individual Characteristics and Bullying and Victimization

The correlations among the variables of interest can be found in Tables 2.3 and 2.4. Electronic bullying and victimization were positively associated over time; therefore, they were treated as covariates in further analyses. Most types of "real world" victimization were correlated with electronic victimization at Time 2, and electronic bullying at Time 2 was significantly correlated with "real world" victimization as well (including social and sexual victimization). When the correlations among psychosocial characteristics were examined, empathy was positively correlated with normative beliefs, and prosocial behavior. Social aggression and victimization by social aggression were also correlated with both electronic bullying and electronic victimization at both time points. Victimization by social aggression was also correlated with also being socially aggressive.

Real-World Bullying Predictors of Electronic Bullying

Table 2.5 outlines the significant predictors for each of the three steps of the hierarchical regression predicting later electronic bullying. Girls and Grade 10 students were more likely to electronically bully at Time 2 than boys and Grade 9 students. The covariates (gender, grade, and electronic bullying Time 1) accounted for a significant proportion of the variance in electronic bullying at Time 2. None of the types of real-world bullying were significant predictors of later electronic bullying. Furthermore, the addition of these predictors did not provide a better prediction of electronic bullying. The interaction between verbal bullying and gender did significantly predict later electronic bullying, with female students having a stronger relationship between past verbal bullying and later electronic bullying than boys (t (1, 79) = 2.88, p = .005; Figure 2.1).

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The interactions between verbal bullying and gender accounted for a significant proportion of variance in electronic bullying at Time 2.

Real-World Victimization Predictors of Electronic Victimization

Table 2.6 outlines the significant predictors of electronic victimization at Time 2. Electronic victimization at Time 1 was the only covariate that significantly predicted electronic victimization at Time 2 (Table 2.6). Of the five types of real-world victimization, social victimization was the only significant predictor of later electronic victimization, however, the addition of real-world types of victimization to the regression did not account for a significant proportion of the variance in electronic victimization at Time 2. When interaction terms were added to the model a significant interaction between physical victimization and gender was found. Follow-up simple slope analyses indicate that this interaction was not significant, signifying that it was a spurious finding that was not further explored. Furthermore, the addition of interaction terms did not add to the prediction of later victimization.

Social Aggression, Demographics, and Psychosocial Characteristics Predicting Electronic Bullying and Victimization

This set of analyses examined whether there were individual factors such as social aggression, victimization by social aggression, empathy, prosocial behavior, and normative beliefs about aggression that were precursors of electronic bullying and victimization.

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Electronic Bullying

Table 2.7 outlines the significant predictors of electronic bullying at Time 2. Of the covariates, grade and gender significantly predicted bullying at Time 2, with girls and grade 10 students reporting more electronic bullying at Time 2 than boys and grade 9 students. The covariates accounted for 12% of the variance in electronic bullying at Time 2. Prosocial behavior positively predicted electronic bullying at Time 2. The addition of the independent variables provided a significant change in R^2 with 21% of the variance in electronic bullying Time 2 accounted for.

Electronic Victimization

A similar hierarchical regression was conducted to predict electronic victimization at Time 2. The results of these analyses are presented in Table 2.8. The covariate of electronic victimization at Time 1 positively predicted electronic victimization at Time 2, with the covariates predicting 40% of the variance in electronic victimization at Time 2. From the independent variables of interest, victimization by social aggression was a significant predictor of later electronic victimization. However, the independent variables together did not predict a significant proportion of variance over and above the variance predicted by the covariates.

Discussion

The goals of the current study were to examine the developmental continuity of specific forms of real-world bullying and victimization with electronic bullying and victimization; and to determine the social aggression, demographic, and psychosocial precursors of these behaviors. Overall, the findings indicated that there was some continuity

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between real world and electronic bullying. For girls, real world verbal bullying preceded electronic bullying, while victimization by social bullying and social aggression preceded electronic victimization for both boys and girls. Furthermore, demographic and psychosocial characteristics were developmental precursors for later electronic bullying; however, the same was not true for electronic victimization. These divergent findings for electronic bullying and victimization suggest that different individual and peer processes are associated with these two types of destructive relationships.

Contrary to our hypothesis that "real world" social bullying would precede electronic bullying involvement, verbal bullying was a precursor of electronic bullying for girls. When electronically bullying, students report that they most frequently do so by sending mean instant messages (Vandebosch & Van Cleemput, 2008), which is conceptually similar to using verbal insults to harm another. In effect, these behaviors achieve the same goal of harming another with words; however, the online environment provides anonymity and the physical distance that is not present in direct verbal face-to-face aggression. In effect, the online context allows verbal bullying to become more covert, and thus, an indirect form of aggression. Girls use more covert or indirect forms of aggression than boys (Bjorkqvist, et al., 1992). From an evolutionary perspective, researchers posit that girls use covert forms of aggression as a means to ensure safety and avoid physical aggression that might put them in more physical danger than boys (Campbell, 1999). The anonymity of the online environment may serve to minimize personal risk and physical harm, as well as minimize the likelihood of detection by peers and potential adult reprimands. Among adolescent girls, there are also social norms that support the use of covert aggression and sanction the use of overt forms of aggression (Crick, Bigbee, & Howes, 1996; Huesmann & Guerra, 1997). Thus, girls may choose to enact verbal aggression

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online to avoid social sanctions from their peers. Consequently, the cyberspace context may facilitate girls' use of verbal aggression, while still preserving the physical safety and conformity to social norms, making it an optimal outlet for girls' verbal conflicts.

While social bullying was not shown to be a developmental precursor of electronic bullying, victimization by social bullying was associated with later involvement in electronic victimization. In addition, victimization by social aggression was also associated with electronic victimization. These findings are consistent with the theoretical similarities of electronic bullying, social bullying, and social aggression including the use of larger peer groups, anonymity, and manipulation of social rules (i.e., enacting bullying behavior without violating social norms). Students who are socially victimized have difficulty maneuvering complex "real world" social rules (Fox & Boulton, 2005). These students may have increased difficulty in online social interactions because the social rules of cyberspace are more loosely formed and decoding social cues may be more challenging in the absence of facial expressions, gestures, etc. As such, the deficits in social interaction that socially victimized students have may make them increasingly vulnerable to electronic victimization. Furthermore, when students are socially victimized at school they may also gain a reputation as a "target" for social bullying, and hence the "real world" perpetrators transfer their pattern of behavior to their online interactions.

The unique characteristics of cyberspace may also put students of certain demographics at risk for electronic bullying. In the current study, individual demographic characteristics were risk factors for electronic bullying, however, the same individual demographics were not risk factors for electronic victimization. Consistent with this previous research, females and older

students were more likely to bully others than males and younger students (Kowalski & Limber, 2007; Williams & Guerra, 2007). Girls' social norms endorse indirect conflict (Crick, Bigbee, & Howes, 1996; Huesmann & Guerra, 1997). With its anonymity and lack of face-to-face contact, electronic bullying can be considered an indirect means of conflict, and therefore a less risky behavior that may be more acceptable in girls' peer groups than other forms of bullying. In addition, the electronic medium may be a context that heightens the risk for girls to bully others because there are fewer visual cues and consequently, girls may have less input to attend to than in traditional conflict situations (Berson, Berson, & Ferron, in press). Without these cues, girls may be more vulnerable to engaging in electronic bullying compared to boys. Older students may use cyberspace as a context for bullying because they have more experience with electronic social interaction and this experience may enhance the likelihood of using the technology both positively and negatively in their social interactions. Older students may use the technology more and, consequently, have the knowledge and skills to manipulate the electronic medium, making them more equipped to bully others online. In addition, older students have increased social intelligence (Kaukiainen, Bjorkqvist, Lagerspetz, et al., 1999) that may facilitate their manipulation of the electronic medium to achieve social goals. The combination of enhanced experience and social intelligence may be behavioral and cognitive contributions to their increased capacity to bully online.

Individual psychosocial characteristics were also developmental precursors of electronic bullying, but not electronic victimization. Of the psychosocial characteristics studied (empathy, normative beliefs about aggression, and prosocial behavior), prosocial behavior was the only characteristic related to electronic bullying. Contrary to our hypothesis, prosocial behavior was negatively related to electronic bullying. It is likely that the problems students

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with low levels of prosocial behavior have in the "real world" generalize to their online interactions and may result in electronic bullying. In addition, research shows that highly prosocial individuals are also less likely to maintain a hostile attribution bias in ambiguous situations (Nelson & Crick, 1999). Therefore, the ambiguity that accompanies the limited visual cues of electronic communication may heighten the likelihood of hostile interpretations of online social behavior for individuals with low levels of prosocial behavior. That is, students with low levels of prosocial behavior may have a bias to interpret others' potentially ambiguous online behaviors as aggressive and electronically bully in retaliation. Future research should examine the role of hostile attributions in electronic bullying. Nonetheless, enhancing prosocial behavior may be a target for electronic bullying prevention efforts. For example, bullying prevention programs could create opportunities to foster positive, helping behaviors towards peers at school that could change individuals' destructive patterns of social interaction in the "real world." This positive change in "real world" social interaction may generalize to online social interactions thereby decreasing electronic bullying. An example of such an approach is to educate students in cyber kindness behaviors that promote helping, caring, and citizenship in the "real-world" and online.

The distinct correlates of electronic bullying and victimization suggest that there are different pathways leading to these two types of harmful online experiences. For students who engage in electronic bullying, their online aggression may reflect their more general style of antisocial behavior. That is, they are aggressive in both real world and online peer interactions. In contrast, the salient mechanisms contributing to electronic victimization may reflect negative peer processes that typically underlie social forms of aggression and bullying. The finding that victimization by social bullying and social aggression in real world interactions predict future

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electronic victimization highlight that these students have significant problems in their peer groups (i.e., are more likely to be excluded, left out, or have rumors spread about them). Thus, their destructive peer interactions in the "real world" generalize to cyberspace, which may, in turn, potentially exacerbate problematic "real world" interactions. Future research should investigate the direct and indirect roles of individual characteristics and the peer context on electronic bullying and victimization, as well as the reciprocal interactions between real-world and electronic conflict.

Although there are many strengths to this study, there are some notable limitations pertaining to the sampling procedure and study design. First, there were a large proportion of students who were excluded from the analyses due to attrition and incomplete data. The proportion of female students excluded from the analyses was significantly different from the proportion of males, although there were still more female participants than male participants in the final sample. It is plausible that the most aggressive females were not present to participate in the second wave of data collection and consequently the results presented may be conservative. There was also a relatively low base-rate of reported bullying that may reflect a social desirability in responding to bullying questions. Despite the low base rate of electronic bullying and victimization, there were significant electronic bullying findings in the present study. Thus, the findings may actually under-represent the relationships among the constructs of interest.

The current study provides a unique contribution to the literature by examining the continuity of real-world behaviors with online behaviors. More specifically, this study provides evidence that past experience with social victimization is a developmental precursor of

electronic victimization, whereas verbal bullying, demographic characteristics, and prosocial behavior are developmental precursors of electronic bullying. The link between past social victimization and future electronic victimization provides support for bullying interventions that incorporate both "real world" and online components. It is important for teachers, parents, and professionals working with children to understand that experiences of victimization often start at school and over time can generalize to new contexts, including cyberspace. Thus, fostering positive social interactions in the "real world" may influence peer interactions online. For example, through social architecture adults can actively provide opportunities for students who have few positive interactions with peers or those who are frequently victimized to interact in "real world" or online groups with prosocial students which could reduce electronic bullying and victimization. Finally, understanding the risk for involvement in electronic bullying (i.e. girls, older students, and students with few prosocial interactions) facilitates early identification and intervention that is critical given the current growth in electronic media presence in adolescents' lives.

Table 2.1

Prevalence of Types of Bullying at Time One (N= 80)

Type of Bullying	Bullying (%)		Victimization (%)	
	Girls	Boys	Girls	Boys
Electronic	32	23	33	27
Physical	15	18	15	18
Verbal	40	48	55	54
Social	36	21	55	32
Racial	11	13	10	21
Sexual	4	6	23	12
Disability	2	6	7	3

Table 2.2

Overlap among Electronic Bullying and Victimization and Real-World Types of Bullying and Victimization (N= 80)

	Electronic Victimization (%)	Electronic Bullying (%)
Physical Victimization	8	8
Verbal Victimization	25**	24**
Social Victimization	27***	23***
Racial Victimization	5	4
Sexual Victimization	13**	11***
Disability Victimization	3	3
Physical Bullying	9	9*
Verbal Bullying	22**	24***
Social Bullying	18***	20***
Racial Bullying	1	4
Sexual Bullying	1	1
Disability Bullying	1	1

Note: Significance values are based on χ^2

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

Table 2.3

Correlations among Real-World and Electronic Bullying and Victimization (N = 80)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. EBT2[a]	-															
2. EBT1[b]	0.186	-														
3. EVT2[c]	0.229	0.236*	-													
4. EVT1[d]	0.254*	0.417**	0.650**	-												
5. SBT1[e]	0.119	0.618**	0.176	0.392**	-											
6. SVT1[f]	0.336**	0.307*	0.640**	0.684**	0.374**	-										
7. PBT1[g]	0.063	0.211	0.160	0.268*	0.254*	0.311**	-									
8. PVT1[h]	0.040	0.277**	0.367*	0.312**	-0.047	0.245*	0.196	-								
9. VBT1[i]	0.178	0.418**	0.199	0.277*	0.337**	0.197	0.279**	0.431**	-							
10. VVT1[j]	0.199	0.272*	0.397**	0.449**	0.234*	0.564**	0.093	0.513**	0.221*	-						
11. SexBT1[k]	0.118	-0.059	-0.007	-0.022	0.014	0054	0.119	0.521**	0.213	-0.027	-					
12. SexVT1[l]	0.519**	0.101	0.453**	0.471**	-0.006	0.519**	0.012	0.445**	0.116	0.349**	0.177	-				
13. RBT1[m]	0.114	0.024	-0.012	-0.110	0.127	0.036	0.285**	0.211	0.285*	0.023	0.202	0.027	-			
14. RVT1[n]	0.217	0.030	-0.060	-0.049	0.200	0.152	0.154	0.165	0.072	0.035	0.039**	-0.04	0.224*	-		
15. DBT1[o]	0.080	0.076	-0.372**	-0.023	0.259*	0.198	0.233*	0.357**	0.242*	0.075	0.381**	0.005	0.274*	0.203	-	
16. DVT1[p]	0.438**	0.022	-0.026	0.439**	0.052	0.403**	0.101	0.522**	0.091	0.311**	0.125	0.702**	0.131	0.137	0.053	-

[a]EBT2 = Electronic Bullying Time 2. [b]EBT1 = Electronic Bullying Time 1. [c]EVT2 = Electronic Victimization Time 2. [d]EVT1 = Electronic Victimization Time 1. [e]SBT1 = Social Bullying Time 1. [f]SVT2 = Social Victimization Time 1. [g]PBT1 = Physical Bullying Time 1. [h]PVT2 = Physical Victimization Time 1. [i]VBT1 = Verbal Bullying Time 1. [j]VVT2 = Verbal Victimization Time 1. [k]SexBT1 = Sexual Bullying Time 1. [l]SexVT2 = Sexual Victimization Time 1. [m]RBT1 = Racial/Ethnic Bullying Time 1. [n]RVT2 = Racial/Ethnic Victimization Time 1. [o]DBT1 = Disability Bullying Time 1. [p]DVT2 = Disability Victimization Time 1.

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

Table 2.4

Correlations among Covariate, Independent, and Dependent Variables (N = 80)

	1	2	3	4	5	6	7	8	9
1. Electronic Bullying Time 1	-								
2. Electronic Victimization Time 1	0.417**	-							
3. Electronic Bullying Time 2	0.186	0.254*	-						
4. Electronic Victimization Time 2	0.236*	0.650**	0.232	-					
5. Empathy	0.076	-0.018	0.011	0.091	-				
6. Normative Beliefs	-0.222*	0.115	0.107	0.089	0.226*	-			
7. Prosocial	0.187	0.125	-0.118	0.079	0.333**	0.178	-		
8. Social Aggression	0.390 **	0.513**	0.356**	0.398**	-0.099	-0.148	-0.058	-	
9. Victimization by Social Aggression	0.3114**	0.526**	0.236*	0.523**	0.016	0.080	0.124	0.566**	-

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

Table 2.5

Summary of Regression for Real-World Bullying Predicting Electronic Bullying (N = 80)

Variable	Cumulative R2	ΔR2	F	β
Step1: Covariates	**0.153**	**0.153**	**4.095****	
Gender (Female)				0.230*
Grade (Grade 10)				0.260*
Electronic Bullying Time 1				0.129
Step 2: Types of Bullying	**0.191**	**0.038**	**0.490**	
Physical				-0.025
Verbal				0.049
Social				-0.176
Sexual				0.073
Racial				0.112
Disability				0.046
Step 3: Interactions	**0.305**	**0.114**	**3.220***	
Physical x Gender				0.316
Social x Gender				-0.185
Verbal x Gender				0.312**

Note: All types of bullying were centered at their means.

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

Table 2.6

Summary of Regression for Real-World Victimization Predicting Electronic Victimization (N = 80)

Variable	Cumulative R^2	ΔR^2	F	β
Step1: Covariates	**0.402**	**0.402**	**17.13*****	
Gender (Female)				0.068
Grade (Grade 10)				-0.013
Electronic Victimization Time 1				0.644***
Step 2: Types of Bullying	**0.454**	**0.096**	**2.101**	
Physical				0.182
Verbal				-0.042
Social				0.288*
Sexual				0.109
Racial				-0.076
Disability				-0.034
Step 3: Interactions	**0.488**	**0.051**	**2.40**	
Physical x Gender				-0.721***
Social x Gender				0.250
Verbal x Gender				0.211

Note: All types of victimization were centered at their means.

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

Table 2.7

Summary of Regression for Demographics, Social Aggression, and Psychosocial Characteristics as predictors of future Electronic Bullying (N = 80)

Variable	*Cumulative R^2*	*ΔR2*	*F*	*β*
Step1: Covariates	**0.116**	**0.116**	**4.10****	
Gender (Female)				0.260*
Grade (Grade 10)				0.230*
Electronic Bullying Time 1				0.129
Step 2:	**0.209**	**0.134**	**3.00***	
Social Aggression				0.170
Empathy				0.049
Prosocial				-0.259*
Normative Beliefs				0.214

Note: All types of bullying were centered at their means.

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

Table 2.8

Summary Regression for Demographics, Victimization by Social Aggression, and Psychosocial Characteristics as predictors of future Electronic Victimization (N = 80)

Variable	Cumulative R^2	$\Delta R2$	F	β
Step1: Covariates	**0.402**	**0.402**	**17.13***	
Gender (Female)				0.068
Grade (Grade 10)				-0.013
Electronic Victimization Time 1				0.532***
Step 2:	**0.414**	**0.044**	**1.35**	
Victimization by Social Aggression				0.219*
Empathy				0.135
Prosocial				-0.085
Normative Beliefs				-0.032

Note: All types of bullying were centered at their means.

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

Figure Caption

Figure 2.1. Interaction of Verbal bullying and Gender on later Electronic Bullying.
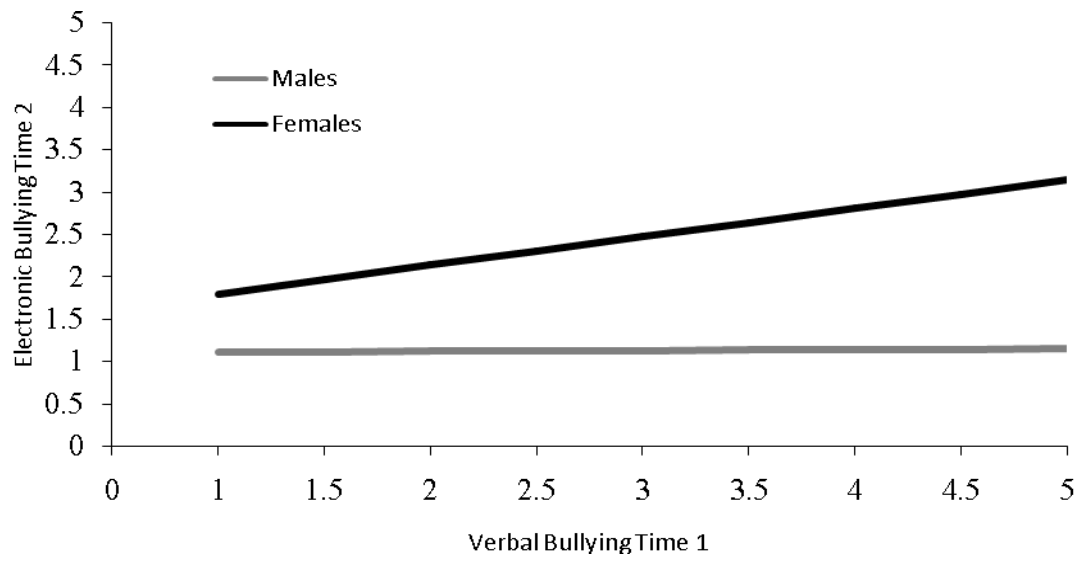
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CHAPTER THREE

A SCOIAL-COGNITIVE EXAMINATION OF ELECTRONIC AGGRESSION HARM
PERCEPTIONS

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Abstract

Electronic aggression is unique in its audience, depersonalization, and personalization. Therefore, we hypothesized that electronic aggression would be perceived as more harmful than other forms of aggression, particularly for girls. According to social-cognitive theory, we also hypothesized that past experiences with peers and cognitions would be associated with perceptions of harm. The sample was 220 grades 7 to 10 students who were administered questionnaires to assess perceptions of aggression, electronic victimization experience, prosocial behavior, empathy, and normative beliefs. A MANOVA yielded a two-way interaction of gender and perceived harm of aggression subtypes, whereby females rated electronic, social and verbal aggression as more harmful than boys, while the genders did not differ on physical aggression. A multiple regression analysis indicated a positive association between prosocial behavior and perceived harm of electronic aggression. These results have implications for electronic bullying interventions and internet service-providers' policies.

A Social-Cognitive Examination of Electronic Aggression Harm Perceptions

Electronic aggression is distinct from and potentially more harmful than traditional aggression. The medium in which electronic aggression takes place allows a person to potentially remain anonymous when electronically harassing others, which is not typical in traditional aggression (Raskauskas & Stoltz, 2007). This anonymity of the online aggressors implies that victimized individuals frequently do not know who is targeting them online (Ybarra & Mitchell, 2004), creating a unique power dynamic whereby the aggressor may maintain sole power to resolve the conflict. Aggressors are also separated from the recipient and the consequences of their actions in online interactions. In this way, electronic aggression is depersonalized and individuals who perpetrate electronic aggression may not recognize the harmfulness of their actions and therefore engage in potentially more harmful behaviors than if they were face-to-face (Ybarra & Mitchell, 2004). Furthermore, the audience for electronic aggression is potentially larger than that of traditional aggression. Insults, slander, and incriminating pictures are accessible to the public when information is placed in the public domain via the internet, therefore the embarrassment associated with electronic aggression may be more widespread and distressing. Finally, researchers theorize that people view the electronic medium as personal space despite knowing that most of the information they share online is available for the public (Whitty & Carr, 2004). Consequently, aggression in this medium has the negative consequences of an intimately personal attack with the additional harm of public embarrassment. Thus, in this research we predict that electronic aggression will be perceived as more harmful than "real world" forms of aggression. Furthermore, there may be some individual characteristics, such as gender, victimization experience, prosocial behavior, empathy, and normative beliefs about aggression that may be associated with

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perceptions of harmfulness of electronic aggression. This study examines the relationship between these individual characteristics and perceptions of harm of electronic aggression.

There is limited research examining the perceptions of electronic aggression's harmfulness or the factors that are associated with its harm. However, there is evidence demonstrating gender differences in the perception of harm for social and verbal aggression, with girls finding these forms of aggression more harmful than boys (Coyne Archer, & Eslea, 2006; Galen & Underwood, 1997). Kowalski, Limber, and Agatston (2008) theorize that social aggression is similar to electronic aggression in that the perpetrator is removed from the target of the aggression and social rules are manipulated in both forms of aggression. Given the similarity of social aggression and electronic aggression, it seems likely that there will be a similar gender difference for harmfulness ratings of electronic aggression. Furthermore, due to the unique qualities of electronic aggression, such as its increased intensity due to depersonalization, public forum, and intrusive presence, electronic aggression may be perceived as more harmful than other forms of aggression (i.e., physical, verbal, and social). In addition to gender differences in perceptions of harm of aggression scenarios, there may be other individual characteristics that are associated with differential perceptions of harm.

Social-cognitive theory provides a guiding framework for this study and it posits that an individual's interpretation of the world is created through an integration of one's past social experiences and learned cognitions. More specifically, an individual's past experiences with peers and learned cognitions can influence one's interpretation of aggressive situations (Crick & Dodge, 1994). Social-cognitive theory postulates that past experiences with peers create

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representations called schemas that guide future interpretation of social situations (Crick & Dodge). In addition, the cognitions one brings to a situation (e.g., empathy and beliefs about aggression) can also influence how individuals decode the cues of an aggressive scenario. Thus, in the context of this study, we predict that experiences with peers, empathy, and beliefs about aggression will be associated with perceptions of harm of electronic aggression.

There is some evidence indicating that there are individual differences in emotional reactions to electronic aggression. Patchin and Hinduja (2006) found that youth who report being bullied online most often feel either frustrated, angry, or unaffected (42.5%, 39.8%, and 43.4% respectively), indicating that not all individuals perceive electronic aggression similarly. Consistent with social-cognitive theory, past experiences with victimization may be one factor that can account for these differences in the perception of electronic aggression. From a social-cognitive perspective, victimized individuals might encode their own experiences as harmful and this memory of harm might be salient when they are decoding the cues in situations similar to their own experience. Consistent with this premise, previous research indicates that individuals targeted by online harassment are more likely to be distressed by the harassment if they have experienced prior harassment (Wolak, Mitchell, & Finkelhor, 2007). Consequently, we predicted that individuals with experiences of electronic victimization would positively predict harm perceptions of hypothetical electronic aggression scenarios.

Perceptions of harm may also be associated with students' prosocial behavior. Prosocial behavior is a measure of an individual's helping, caring, and sharing behaviors with peers. When prosocial individuals are presented with a hypothetical "real world"

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scenario about an upsetting event, they attribute greater experienced threat to the actor in the scenario than aggressive individuals (Bengsston & Persson, 2007). Hence, prosocial skills were positively associated with perceptions of harm of upsetting events. In this study, we extend this research to perceptions of harmfulness of electronic aggression. We predict that prosocial individuals may perceive hypothetical electronic aggression scenarios as increasingly harmful. Similarly, empathy and normative beliefs may also be related to perception of harmfulness of electronic aggression.

Empathy is defined as an emotional response paired with the cognitive ability to take the perspective of others (Eisenberg & Mussen, 1989). Individuals with a high capacity for empathy may be able to actually "feel" the distress of another as well as use their perspective-taking ability to understand the impact of aggression on others. Thus, individuals with high empathy may vicariously experience the emotion and distress of a hypothetical scenario and, therefore perceive it as increasingly harmful. Consistent with this hypothesis, students who report high empathy are increasingly likely to defend victimized individuals (Gini, Albiero, Benelli, & Altoe, 2007), likely because their empathy allows them to more clearly understand the harm inflicted upon the individual being victimized. Empathy may be particularly important in harm perceptions of electronic aggression because the online environment does not necessarily provide the visual cues associated with face-to-face interactions. Therefore, only students who are highly skilled in taking the perspective of others will be able to do so with such impoverished cues. Consequently, we predicted that empathy will be positively associated with perceptions of electronic aggression's harm.

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Normative beliefs about aggression is another cognition that may also influence the way individuals perceive their social world. For example, when an individual believes that aggression is an acceptable means to achieve a goal then he or she may also underestimate the harm associated with his or her aggressive actions. Consistent with this notion, Boldizar, Perry & Perry (1989) report that aggressive individuals endorse beliefs that aggression is an acceptable means to achieve a goal and place little value on victim suffering. Therefore, normative beliefs about aggression and perceptions of harm may be compatible cognitive processes that are inextricably linked. Thus, individuals who are more accepting of aggressive behavior may also perceive the behavior as less harmful than those who are less accepting of aggressive behavior. In the current study, we predicted that normative beliefs supporting the use of electronic aggression would be negatively associated with the perceived harmfulness of electronic aggression.

This study had two goals. The first goal was to compare the perceptions of harmfulness associated with electronic aggression to that of other forms of aggression. We predicted that electronic aggression would be perceived as more harmful than physical, verbal, and social "real world" aggression. In addition, we hypothesized that females would perceive verbal, social, and electronic aggression as more harmful than boys. The second goal was to examine the "real world" experiences with peers and cognitive capacities that might be associated with individual differences in the harm perception of electronic aggression. We predicted that perceived harmfulness of electronic aggression would be positively associated with the frequency of experiences with electronic victimization, prosocial behavior, empathy, and normative beliefs that aggression is acceptable. Taken together, this research will enhance our

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understanding of the harm associated with electronic aggression and the social-cognitive factors that influence perceptions of harm.

Methods

Design

The data for this study was collected in 4 schools; one elementary school and 3 secondary schools in southern Ontario at one time point. Before participation in the study, consent was obtained and after completion of the study, participants were provided with a debriefing letter. The students completed the questionnaires during one class period and were asked to fill out the questionnaire independently. Approval to conduct the survey was received from the Queen's University General Research Ethics Boars and followed APA ethical guidelines.

Participants

There were originally 270 participants recruited, however, the sample was reduced to 220 as a result of incomplete data. The final sample consisted of 131 girls and 89 boys in grades 7 (n = 9), 8 (n = 21), 9 (n = 109), and 10 (n = 81). Mann Whitney U tests were conducted to compare individuals who were excluded from the analyses and those that were included. Students in the analyses did not differ from those excluded on perceptions of harm for the four types of aggression, participation in electronic victimization, normative beliefs about electronic aggression, prosocial behavior, empathy, or ratings of perceived harmfulness for any of the scenarios provided. Chi square analyses confirmed that there were no differences in the proportions of males and

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females that were excluded from the analyses, and there were no differences in the proportions of 7th, 8th, 9th, and 10th graders excluded from the analyses.

Measures

Questionnaires were administered to assess the harmfulness of "real world" and electronic aggression scenarios, gender, age, electronic and "real world" experience with victimization, and psychosocial characteristics of participants in the study. Principal component factor analyses were conducted to ensure the underlying structure of each of the measures when there were more than two items to assess the construct. Items were excluded if their factor loading was below .3 or if the item was significantly impeding the reliability of the measure (i.e. reduced the reliability below .70). With the confirmed factor structure, mean scores for each factor were computed.

Harmfulness of "real world" and Electronic Forms of Aggression.

A revised version of the Social Behavior Questionnaire (RSBQ) (Galen & Underwood, 1997) was administered to assess the perceived harmfulness of various types of aggression. The SBQ provides vignettes describing physical, verbal, and social aggression towards an individual and asked participants to rate how harmful the scenario would be if it had happened to them. To assess the harmfulness of electronic aggression we added two vignettes that described two events that previous research indicates are the most prevalent forms of electronic bullying (i.e.: instant messaging and mean comments on social networking sites) (Vanderbosch & Van Cleemput, 2008). Several items from the original SBQ combine both physical and verbal aggression. The current study used two separate vignettes to isolate ratings of physical (e.g.: You are at your locker getting

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your books when the person at the locker next to you bumps you out of the way knocking your books on the floor) and verbal aggression harmfulness (e.g.: "You are walking by a group of people on your way to class and someone in the group yells, "Ugly comin' through."). The RSBQ used here contains eight items, with four subscales: physical, verbal, social (e.g.: "Four people in your grade are talking about a movie they have just seen when you walk up to the group. The group sees you, stops talking, and turns away with their noses turned upwards."), and electronic aggression (e.g.: You go visit your Facebook page to see what pictures people have posted. You notice a picture of you and untrue comments underneath it). The harmfulness of physical and verbal aggression scenarios were limited to one item; therefore the reliability cannot be determined. The reliability of the social aggression subscale in the current study was $\alpha = .78$ with factor loadings for both items being above .8. The reliability of the new electronic aggression vignettes was $\alpha = .81$, with the factor loadings for the two vignettes being above .80.

Demographics

Students were asked to provide their gender and grade. Grade, rather than age, was used to capture both the developmental stage and the characteristics of the peer group.

Electronic and "real world" Bullying

To measure participants' experience with each type of bullying the WHO Bullying/Victimization questionnaire (Olweus, 1989) was used. This questionnaire consisted of 14 questions assessing the prevalence of engaging in physical, verbal, social,

sexual, electronic, racial/ethnic/religious, and disability bullying and victimization. Students were to respond whether they had been bullied or victimized on a 5 point Likert-type scale from "never" to "once a week" in the past four weeks.

Prosocial Behavior

To evaluate participants' prosocial behavior towards others the RSEQ (Paquette & Underwood, 1999). This questionnaire assessed the frequency of social events in participants' lives using a five point Likert-type scale. The questionnaire assessed prosocial behaviors ("How often does another kid do something that makes you feel happy?") and social aggression (subscale described in Study 2). High scores on the prosocial subscale of the RSEQ indicate a high frequency of caring, sharing, and helping behaviors towards peers. In the current study the prosocial behavior subscale had a reliability of $\alpha = .85$. All seven items had factor loadings above .55.

Empathy

The Davis Interpersonal Reactivity Index (DIRI) (Davis, 1994) measured components of empathy including concern for others, perspective taking, emotional identification with others, and personal distress (negative feelings in response to the distress of others). This index contained five items including "I try to look at everybody's side of a disagreement before I make a decision" and asked participants to respond on a five-point scale with zero being "does not describe me well" and four being "describes me very well." The reliability of the scale in the current sample was $\alpha = .85$. Factor

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loadings for all five items were above .64. Higher scores on the DIRI indicate an ability to successfully empathize with others.

Normative Beliefs about Electronic Aggression

The Normative Beliefs about Aggression Scale (NBAS) (Huesman & Guerra, 1997) measured participants' attitudes towards physical and verbal aggression. The scale consists of eight questions using a four point rating scale ranging from "perfectly ok" to "not at all ok." An example is, "It is generally wrong to get in physical fights with others." In addition to the standard questions on the NBAS, students were also asked specific questions regarding normative beliefs about social aggression and electronic aggression. Higher scores on the NBAS represent strong beliefs that aggression is wrong. The current analyses will only use the normative beliefs about electronic aggression subscale. The reliability of the normative belief about electronic aggression subscale was $\alpha = .91$ with factor loadings for the two question being above .92.

Results

Prevalence of Electronic Victimization

The prevalence of electronic victimization in the sample listed by gender and grade is listed in Table 3.1. Very few students from grades seven and eight reported electronic victimization, however, grades 9 and 10 students reported electronic victimization at rates equivalent to previous studies (Williams & Guerra, 2007).

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Harmfulness of Scenarios for Boys and Girls

To compare the harm ratings of electronic aggression and other "real world" forms of aggression a-priori paired t-tests were administered. A-priori comparisons of the harmfulness of electronic aggression to the harmfulness of the three forms of "real world" aggression indicated that electronic aggression was perceived as more harmful than social (t (218) = 4.16, p = .043) and physical aggression (t (218) = 33.87, p < .001). On the other hand, student's ratings of harmfulness did not differ between electronic and verbal aggression scenarios (Figure 3.1).

To examine gender and grade differences in harmfulness of aggression scenarios a 4 (within subject factor: physical, verbal, social, and electronic aggression) x 2 (between subject factor: gender) x 4 (between subject factor: Grade) mixed model ANOVA was conducted. An alpha level of .05 was used for omnibus test of within and between subject effects. Multivariate criteria were used for interpretation of the mixed model ANOVA because the Maunchy's test of sphericity was significant (*Maunchy's W* = .69, χ^2 (5) = 79.8, p < .001), rendering univariate tests of within subjects effects inaccurate. Box's M test indicated that the assumption of homogeneity of variances was not violated (*Box's M* = 92.5, F (50, 4346) = .002). Results from the mixed model ANOVA indicated that the mean harmfulness ratings were significantly different for the four types of aggression (F (3,210) = 12.02, p < .001, η_p^2 = .15), which is consistent with the results of the a-priori t-tests above. Females rated the different forms of aggression as more harmful than males (F (1,212) = 16.5, p < .001, η_p^2 = .07). There was also a significant main effect of grade (F (3, 212) = 2.98, p = .02, η_p^2 = .05); however, follow-up Sheffe comparisons did not indicate any differences in mean harm rating among the

four grades. There was an interaction between type of aggression and gender (F (3, 210) = 2.66, p = .049, η_p^2 = .04). Follow-up analyses for the interaction were conducted using four independent t-tests with a Bonferroni correction (α = .01). Results displayed in Figure 3.1 indicated that females rated social (t (218) = -5.76, p < .001), verbal (t (218) = -6.09, p < .001), and electronic aggression (t (218) = -6.37, p < .001) as more harmful than males. Males and females did not differ in their harmfulness ratings of physical aggression. There was no significant grade by aggression type interaction, nor was there a three-way interaction among gender, grade, and aggression type.

Psychosocial Characteristic and Victimization History as Predictors of Harmfulness

To examine individual victimization experiences and psychosocial characteristics as predictors of the harmfulness of electronic aggression correlations were first implemented among all continuous variables of interest. Table 3.2 indicates that prosocial behavior was associated with both harmfulness ratings of electronic aggression and empathy. Normative beliefs were also associated with the frequency of electronic victimization. Most importantly, none of these correlations exceeds .80; therefore multicollinearity was not problematic in further analyses.

A hierarchical multiple regression was implemented to determine the individual characteristics associated with the perceived harmfulness of electronic aggression. Gender and grade were used as covariates, with frequency of electronic victimization, normative beliefs about aggression, empathy, and prosocial behavior as predictors of the perceived harmfulness of electronic aggression scenarios. Step 1 of the hierarchical regression included the two covariates, step 2 added the independent variables, and step 3

included all relevant interactions (including gender by each individual characteristic, normative beliefs by empathy, normative beliefs by prosocial behavior, and prosocial behavior by empathy). Step 3 was removed from the model, as none of the interactions demonstrated significance.

Table 3.3 outlines the significant predictors for each of the two steps in the hierarchical regression predicting the perceived harm of electronic aggression. Of the covariates, gender was a significant predictor of harm perception with girls perceiving electronic aggression as more harmful than boys. The covariates accounted for a significant proportion of the variance in the harmfulness of electronic aggression (Table 3.3). In step 2 of the model, prosocial behavior was the only significant predictor of the perceived harmfulness of electronic aggression scenarios. The addition of the variables representing individual characteristics of interest did not provide a better prediction of the harmfulness of electronic aggression.

Discussion

The goals of the current study were: 1) to compare the harmfulness of electronic aggression to that of other forms of aggression in males and females and 2) to examine the peer experiences and cognitions that were associated with perceptions of harm of electronic aggression. Electronic aggression scenarios were perceived as more harmful than most "real world" forms of aggression. Furthermore, girls perceived verbal, social, and electronic aggression as more harmful than boys. Finally, only prosocial behavior was associated with students' harmfulness ratings of electronic aggression. Consistent with social-cognitive theory,

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electronic aggression is perceived as more harmful than electronic aggression, particularly for females and individuals who have positive "real world" experiences with peers.

As hypothesized, electronic aggression scenarios were perceived as more harmful than physical and social aggression, likely because of its unique qualities, including its public forum. Victimization online has the potential to create significant public embarrassment because thousands, or even millions of people in an online community can potentially witness the aggression. When rating the perceived harm of electronic aggression scenarios students may be taking into consideration the public embarrassment that could ensue from public aggression on websites such as Facebook©. In addition, time is distorted in online social interaction. Electronic aggression can be present on the World Wide Web much longer than an aggressive "real world" interactions. In a sense, electronic aggression transcends time and can be a constant reminder of the victimization one has experienced. Furthermore, object-relations theorists suggest that cyberspace contains the components of both personal and public space (Whitty & Carr, 2004). That is, individuals know that the information they post is public, yet their Facebook© pages, instant messages, and emails may actually contain self-disclosure that is more akin to a personal diary than a public announcement in a newspaper. As such, students may view electronic aggression as an extreme invasion of privacy that may be associated with heightened perceptions of harm.

Given the explanations above, it was surprising that there were no differences between students' perceptions of harm for electronic and verbal aggression. We speculate that these findings reflect the similarities between these two forms of aggression. That is, the most common form of electronic aggression includes text insults via instant messages (Vandebosch

& Van Cleemput, 2008), which are essentially equivalent to verbal insults in "real world" placed in the context of cyberspace. These similarities may have influenced participants' harm ratings. More research is required to understand the differences and similarities of youth's perceptions of these aggressive behaviors in the different contexts ("real world" versus cyberspace).

We did, however, find gender differences in perceptions of harmfulness of the different forms of electronic aggression that was consistent with research on "real world" aggression (Galen & Underwood, 1997). Consistent with our suggestion that social and electronic aggression are theoretically similar, electronic aggression was perceived as more harmful for girls than boys. Electronic aggression and social aggression are covert, utilize a social network to implement harm, and are more common among girls than boys (Crick & Grotpeter, 1995; Kowalski & Limber, 2007). Galen and Underwood suggest that girls perceive social aggression as more harmful because of the importance they place on friendships and self-disclosure. Social aggression harms relationships and, as such, is an efficient means to thwart the important goal of friendship and self-disclosure, for girls in particular. Electronic aggression may serve similar functions as "real world" social aggression, given that girls tend to use electronic communication for social interaction (Odell, Korgen, Schumacher, & Delucchi, 2000) and are more likely to reveal personal information and self disclose in this medium than in face-to-face communication (Schouten, Valkenburg, & Jochen, 2007).Consequently, while the online environment may be a new means for girls to seek out their close, intimate friendships, the online environment may also be used to effectively harm others by degrading online relationships.

Given that boys' and girls' perceptions of harm of electronic aggression differ, it is important to understand other individual characteristics that may be associated with differential perceptions of harm. In the current study, increased prosocial behavior was positively related to perceptions of harm of electronic aggression. Students who are highly prosocial in their interactions with their peers are generally more kind and caring students (Eisenberg & Mussen, 1989). Their positive behaviors may be reciprocated by their peer group both in the "real world" and online. These students' positive social interactions shape their understanding and perceptions of relationships. Consequently, they may perceive aggression as harmful and characteristic of unhealthy relationships. They may also be more sensitive to its harmful effects. This interpretation is consistent with previous research demonstrating that prosocial individuals attribute greater experienced threat to actors in hypothetical scenarios than aggressive individuals (Bengsston & Persson, 2007). Highly prosocial individuals also demonstrate increased empathic concern for others (Radke-Yarrow & Zhan-Waxler, 1984); therefore, they may be more skilled at taking the perspective of others and understanding the potential impact of aggression on the recipient of electronic aggression.

While prosocial behavior and empathy were positively correlated in our study, empathy was not a predictor of harmfulness. Similarly, normative beliefs were not associated with perceptions of harmfulness. It is tenable that the relationship among these cognitions and perceptions of harm is more complex than a direct relationship. These cognitions may actually act as the mechanism through which past behavior is related to an individual's perceptions of electronic aggression. For example, an individual with past negative experiences with peers may develop a normative belief that the only way to obtain his or her goals is through aggression. This belief that aggression is acceptable might then influence the way that child

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views the world thereby influencing his or her harm perception. Future research should examine the relationships among past experiences, cognitions, and perceptions of harm longitudinally to determine whether past experience, through altering cognitions, influences harm perceptions of electronic aggression. Similarly, contrary to our hypothesis, past experience with electronic victimization did not predict students' perceptions of harm in electronically aggressive scenarios, contradicting past research by Wolak and colleagues (2007). According to social cognitive theory, individuals with past victimization experiences would have a memory of their own victimization that would intensify their perception of harm. However, recent pain research suggests that individuals who are victimized may experience a disruption in emotional regulation that essentially numbs the individual from further pain (DeWall & Baumeister, 2006). Therefore, future research should examine emotional responses as a mediator between past experiences with victimization and perceptions of harm.

Due to the nascent nature of electronic aggression research, the current study was exploratory and, as such, there are some areas for improvement for future studies. First, the current study is cross-sectional, thus causation cannot be inferred. Future studies should examine the causal paths among behaviors, cognitions, and perceptions of electronic aggression, by examining these factors longitudinally. A second limitation of this study is the small number of elementary school students relative to the large number of secondary school students in the sample. This distribution may have reduced the power for the developmental analysis of harm presented here. However, results indicated that the assumption of homogeneity of variance was not violated, despite the unequal cell sizes for the grade variable.

Future research should explore the development differences in harm perception with a larger elementary school sample.

The purpose of the current study was to determine the factors associated with harm perceptions of electronic aggression. Identifying the perceptions of harm of electronic aggression is important for two reasons. First, it provides policy-makers and the legal community with the evidence to argue the importance of placing more responsibility on website administrators to promptly report online misbehavior. Students may view electronic aggression as more harmful because the aggression is public and potentially present online for an unlimited amount of time. Prompt response and removal of online harassment by website administrators could mitigate the harm associated with electronic aggression. To support this policy change, it will be imperative for future research to use the hypothetical scenario methodology introduced here to experimentally manipulate the situational factors that may influence the perceived harm of electronic aggression. Second, outlining the perceived harm of electronic aggression allows practitioners to understand the impact of cyberspace on students' perceptions of aggression. The current study highlights that electronic aggression is a serious issue for students, which gives merit to the development of interventions for electronic bullying and victimization that mitigate the perceived harm of these experiences. In addition, it highlights the need for education surrounding the impact of electronic aggression in an effort to change the social climate of cyberspace such that electronic aggression is considered a violation of social norms in the same way that students view physical aggression as a violation of norms. In an effort to change the social climate of the internet, education should also include teaching positive online behaviors by fostering the positive contributions youth can make to the online social communities to which they belong. Given that girls are at heightened risk for the harm

associated with electronic aggression, they may need particular guidance in resolving conflicts online and education surrounding the dynamics of relationships in cyberspace. Finally, interventions that may be particularly helpful in reducing electronic bullying are those that aim to increase prosocial behavior in the "real world", which may indirectly decrease electronic aggression by changing the way students perceive the consequences of their online behavior.

Table 3.1

Prevalence of Electronic Victimization by Gender and Grade (N = 220)

Gender	Boys					Girls				
Grade	7	8	9	10	**Total**	7	8	9	10	**Total**
% Electronically Victimized	0	0	28	9	**18**	0	10	32	38	**31**

Table 3.2

Correlations among Experiences, Cognitions, and Harmfulness Perceptions of Electronic

Victimization (N = 220)

	1.	2.	3.	4.	5.
1. Harmfulness of Electronic Aggression	-				
2. Frequency of Electronic Victimization	0.065	-			
3. Normative Beliefs About Electronic Aggression	0.050	0.188**	-		
4. Empathy	0.121	0.069	0.016	-	
5. Prosocial Behavior	0.283**	0.070	0.456**	-0.009	-

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

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Table 3.3

Social Experiences and Cognitions as predictors of Electronic Aggression Harm Ratings

(N = 220)

| Variable	Cumulative R2	ΔR2	F	β
Step1: Covariates	**0.156**	**0.156**	**21.2*****	
Grade(older)				-0.083
Gender(female)				0.394***
Step 2:	**0.164**	**0.023**	**1.5**	
Electronic Victimization				0.028
Empathy				-0.035
Prosocial				0.172*
Normative Beliefs about Electronic Aggression				-0.014

Note: All continuous variables were centered on the mean.

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

Figure Caption

Figure 3.1. Comparison of Males and Females on Mean (SD) Perceptions of Harmfulness

of Four Types of Aggression.

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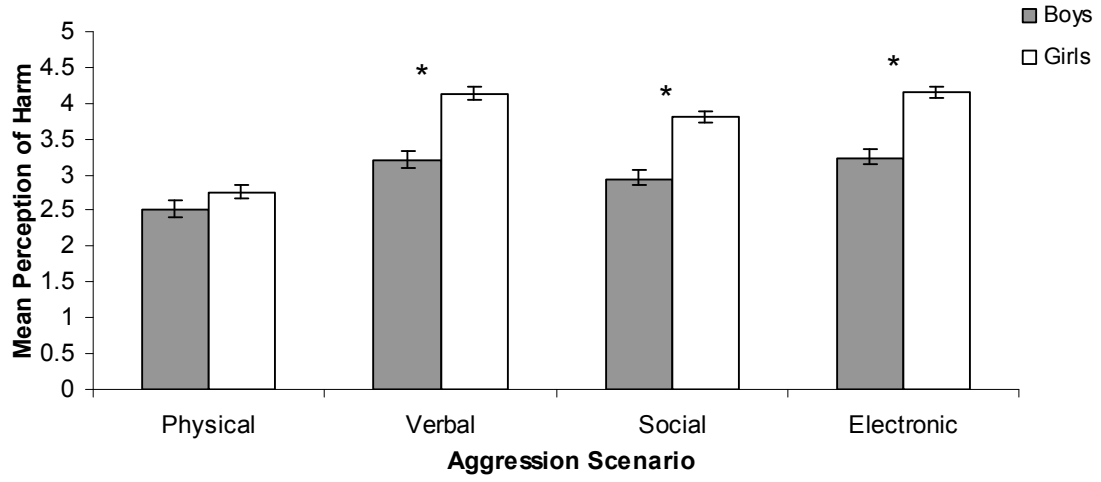
CHAPTER FOUR

General Discussion

The results of these two studies confirm that "real world" behaviors and demographics are associated with electronic bullying and victimization, as well as harm perceptions of electronic aggression. For example, girls, and older students were more frequently involved in electronic bullying (Study 1). Girls also perceived electronic aggression as more harmful (Study 2). In addition, prosocial behavior was associated with electronic bullying (Study 1) and perceptions of harm (Study 2). Electronic bullying was also related to "real world" forms of bullying in that verbal bullying and social victimization were precursors of electronic bullying and victimization, respectively (Study 1). However, electronic aggression may be a more serious issue for students, given that students perceived it as more harmful than social and physical aggression (Study 2).

The relationships among demographic, behavioral, and cognitive characteristics (i.e., perceptions of harm) in these two studies indicate that there may be complex relationships among these factors that are consistent with social-cognitive theory. Social cognitive theory postulates that "real world" behaviors and cognitions interact to produce individuals' future behaviors and perception of the world (Crick & Dodge, 1994). These social-cognitive processes are also likely to occur in the online environment. For example, in Study 1 behaviors such as bullying, victimization, aggressive experiences, and prosocial behavior predicted future electronic behaviors, while in Study 2 some of the same behaviors (i.e., prosocial behavior) also predicted perceptions of harm of electronic aggression, which can be considered a cognitive interpretation. The studies presented here are the first to extend social-cognitive theory of aggression to electronic aggression.

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Furthermore, these studies examine these relationships with respect to "real world" behavior, while also taking into account the qualities that may the electronic medium unique.

Consistent with social-cognitive theory, there are similar demographic predictors for electronic behavior and perceptions of electronic behavior. In Study 1, gender and grade predicted involvement in electronic bullying. Similarly, the results of Study 2 indicated that gender, but not grade, was associated with harm perceptions of electronic aggression. These divergent findings indicate that there may be different processes underlying the influence of gender and grade on electronic bullying behavior. Girls were both more involved in electronic bullying and perceived hypothetical aggression scenarios as more harmful than boys. Girls may participate in electronic bullying more frequently because it is a successful way to damage the most salient goal for adolescent girls: friendship (Galen & Underwood, 1997). The online environment is characterized by increased social communication and self-disclosure for girls (Odell, Korgen, Schumacher, & Delucchi, 2000; Schouten, Valkenburg, & Jochen, 2007), therefore it may have become the most important environment for girls to connect with friends because it is independent from the influence of parents and teachers. Consequently, girls may perceive electronic aggression as very harmful because it can negatively impact their most intimate friendships. In turn, girls may use electronic bullying and aggression, precisely because it is more harmful and, therefore, an efficient means to gain power and status. The results from the two studies presented here can only offer speculation as to the motivation for girls' electronic bullying. Future research should examine whether girls use electronic bullying to gain power and status and if they use the medium primarily to gain power and

status over other girls. Grade was another demographic that was related to bullying involvement. Older students may be more involved in bullying because they have more experience with social interaction online and they may have a greater cognitive skill for online social interaction that makes them more successful in bullying others online. However, this cognitive skill for online interaction may not be related to perceptions of harm. Demographics, such as gender, were not the only common predictors among electronic bullying and perceptions of harm.

Prosocial behavior predicted both electronic bullying and harm perceptions of electronic victimization. Contrary to the gender finding, highly prosocial behavior predicted decreased involvement in electronic bullying and increased perceptions of harm. Therefore a similar, but reverse process may be occurring in this case. Students who have few prosocial interactions with others may have few means to gain power and status because they may have fewer friends (Smith, 1950). These individuals may then turn to electronic bullying because they do not have any other resources available to gain popularity or power in their peer group. They may also be less likely to perceive electronic aggression as harmful because they view such behavior as instrumental to achieving a goal. Cyberspace may be particularly attractive for individuals who lack prosocial skills because it is a medium that provides a unique opportunity to forge new identities (Turkle, 1995). Thus, these students may be using the online environment to experiment with new identities or new friendships that may provide them increased acceptance, popularity, or power. On the other hand, students who are highly prosocial may not need to electronically bully because they have already acquired power and status in their peer group. Similarly, due to their prosocial tendencies, they may also have a greater capacity to identify the harm

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associated with electronic aggression and bullying and consequently, less likely to engage in it. However, prosocial behavior is not the only "real world" behavior that predicted electronic bullying

The results of this study demonstrate that electronic bullying and victimization are related to "real world" bullying and victimization. For example, verbal bullying and social victimization and are two types of "real world" experiences that are theoretically similar to electronic bullying and victimization. In study 1, girls with a history of verbal bullying were at increased risk for electronic bullying. In addition, individuals who had a history of victimization by social means (i.e., exclusion, rumors, gossip, and mean gestures) were at increased risk for electronic victimization. These findings confirm the interrelationship between "real world" and electronic behavior. However, only specific forms "real world" bullying and victimization (i.e., verbal and social) predicted the onset of later electronic bullying and victimization. Cyberspace may be the ideal environment to enact the online equivalents of these "real world" behaviors because it allows students to achieve the same goals, with the added benefits of protecting oneself from social sanctions, adult reprimands, and physical danger. For example, verbal bullying has much the same outcome as texting mean comments and excluding someone from a Facebook group is parallel to excluding someone from your lunch table. However, the online environment makes these behaviors covert and thus reduces personal risk for aggressors.

While electronic bullying and "real world bullying" are similar in many ways, there are characteristics of cyberspace that make it a unique and potentially more harmful context for aggression. Electronic aggression was perceived as more harmful than social

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and physical aggression, suggesting that the anonymity, disinhibition, intermingling of public and private domains, and under-regulated, rapid transmission of content in the online environment may indeed make electronic social interaction a new frontier for bullying research. In sum, the two studies presented here highlight the importance of developing a social-cognitive model that can be applied to social interactions in cyberspace, taking into account the unique characteristics of electronic communication.

Future Directions

The recent attention given to the electronic behavior of adolescents in the past several years has focused on the prevalence and description of students' aggressive online behaviors. While the surge in research in this area reflects the growing prevalence of electronic communication (Statistics Canada, 2004), research in the electronic bullying and aggression literature has neglected the importance of theoretical models to guide our understanding of these behaviors. The current study is the first step towards using a social-cognitive model to understand electronic bullying and aggression and provides evidence for the utility of such an approach.

As such, future research should aim to build a cohesive model of electronic aggression that uses the social-cognitive models of "real world" social interactions as its guide. A social cognitive model of electronic aggression would need to include many of the demographic (i.e., gender and age), behavioral (i.e., prosocial behavior), and cognitive characteristics (i.e., perceptions of harm, normative beliefs, empathy) examined in these studies as well as characteristics such as attribution biases, peer influences, and emotion regulation that have been integral to the social-cognitive model of "real world" aggression

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(Crick & Dodge, 1994). Furthermore, a social cognitive model of electronic aggression also needs to incorporate influences that are unique to cyberspace including the interface students are using (e.g. Facebook©, instant messaging, email, etc.), anonymity of the "other", and publicity of the communication.

The studies presented here outline some individual process that may be occurring in electronic bullying and victimization, however, there is much more work to be done. There are many more individual social and cognitive influences that may predict involvement in electronic bullying and victimization. For example, students who have poorer social or computer skills may be at risk for electronic bullying. Furthermore, there are the external influence on electronic behaviors and cognitions to consider, including peers, parents, and teachers. While examining risk factors for negative electronic behaviors and cognitions, we also need to give special attention to possible protective influences that may be present. In the current study, prosocial students were less likely to electronically bully others; however the current literature has not provided any description of the positive behaviors that student may participate in online. For example, students console each other online, lonely students find online groups to which they can belong, students raise money for charitable organizations, and a plethora of other positive behaviors that have not yet been studied. We need to know how social interaction online can accomplish positive outcomes if we are to understand how to prevent and intervene in negative online peer interactions.

There has been no research to date that systematically examines the cognitions that may underlie electronic bullying and aggression. Future studies should give particular attention to the unique situational characteristics of cyberspace that may influence

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cognitions, such as perceptions of harm. For example hypothetical scenarios with differing levels of anonymity and publicity in different user interfaces could elucidate the particular characteristics of electronic aggression that influence perceptions of harm. As such, this information would provide the material to guide harm reduction approaches for electronic bullying and victimization.

Given the increase in internet usage, students, parents, and teachers also want to know "How do I help?'. Currently, there is limited scientific research to address this question. In combination with development of a social-cognitive model of electronic aggression, intervention research could provide valuable information to adults regarding what works to prevent electronic aggression. Such research could also provide an understanding of the underlying social, cognitive, and behavioral process that support these behaviors. Evidence based research will not only inform practice, but also contribute to the development of theory in this area.

Summary

While these studies have implications for future research into the social-cognitive model of electronic aggression, they also have direct implications for teachers, parents, and students. Girls are at particular risk for involvement in electronic bullying and perhaps the negative consequences associated with it (i.e., harm), therefore, girls may require specific education and intervention. Girls likely need help learning how to create and maintain healthy relationships online. They may also need particular skills in resolving conflicts with peers in the "real world" and online. One way to promote positive relationships online may be to foster prosocial behavior in the "real world" and in cyberspace by promoting

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cyber kindness and engaging in social architecture. Through social architecture, adults can arrange or organize and support new groups to foster new interactions and relationships which may minimize risk for those who are vulnerable to electronic bullying and victimization. Older student are also at higher risk for electronic bullying involvement, therefore prevention should start early to pre-empt later electronic relationship problems. It is also important to consider that destructive relationship problems online may not be easily detected by adults because students are often much more knowledgeable than adults when it comes to electronic communication. Consequently, adults need to be aware of the electronic activities of children and youth and be open to communicating about and monitoring these activities. Finally, teachers, principals, and other adults should give particular attention to the dynamics between relationship problems at school and those in cyberspace because relationship problems online may be associated with increased harm. Therefore, integrating "real world" and electronic bullying interventions can ensure that students receive consistent messages about relationships in all the spaces where they live, work, and play.

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