RELATIONSHIPS BETWEEN TRADITIONAL AND ELECTRONIC BULLYING
AND WELLBEING IN YOUNG ADOLESCENTS

By

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Abstract

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Research on traditional (face-to-face) bullying and victimization has led to an extensive body of knowledge about the psychosocial correlates of this phenomenon. Recent research into electronic (or cyber) bullying has shown many similar outcomes for bullies and victims. Multivariate hierarchical regression analyses tested whether electronic bullying would explain additional variance in outcome measures of internalizing and externalizing problems above traditional bullying/victimization. Unique amounts of variance contributed by each type of bullying were measured, and gender differences were also assessed. Participants were 148 6th-8th grade students (59% female; 69% Caucasian) from three rural northern California schools. Results showed that for the total sample, electronic bullying contributed variance in externalizing problems above traditional bullying alone. Electronic bullying victimization also added variance to internalizing problems above traditional victimization. For boys, the magnitudes of these relationships were stronger. For boys, electronic victimization was also found to explain variance in externalizing problems above traditional victimization. For girls, electronic bullying and victimization did not add to the variance in either externalizing or internalizing problems. Electronic and traditional forms of bullying/victimization appear to be correlated to similar maladjustment outcomes. The pattern of these associations are
not identical, indicating that electronic and traditional bullying/victimization should be considered as separate constructs with different relationships to adjustment outcomes. The current study also validated a new measure of electronic bullying/victimization (EBVS). Preliminary results indicate that the EBVS improves upon methodological limitations of previous measures.
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Table of Contents

Abstract .................................................................................................................................................. ii
Acknowledgements .............................................................................................................................. iv
List of Tables ......................................................................................................................................... viii
List of Appendices ............................................................................................................................... ix
Introduction ........................................................................................................................................... 1
Literature Review .................................................................................................................................. 6
   Intention ............................................................................................................................................... 7
   Repetition ........................................................................................................................................... 8
   Power differential .............................................................................................................................. 9
   Forms of traditional bullying ............................................................................................................ 10
   Forms of electronic bullying ........................................................................................................... 11
Prevalence ............................................................................................................................................. 14
   Prevalence rates of traditional bullying ......................................................................................... 14
   Prevalence rates of electronic bullying ......................................................................................... 15
Gender Differences ............................................................................................................................. 17
   Gender differences in traditional bullying ....................................................................................... 17
   Gender differences in electronic bullying ....................................................................................... 18
Bullying and Associations with Adjustment Problems ....................................................................... 20
   Traditional bullying ......................................................................................................................... 20
   Electronic bullying .......................................................................................................................... 27
The Relationship Between Traditional and Electronic Bullying .......................................................... 36
Research Question 3. ................................................................................................ 62
Research Question 4. ................................................................................................ 66
Research Question 5. ................................................................................................ 66
Secondary Analyses ...................................................................................................... 67
Discussion ......................................................................................................................... 73
Primary Study Questions .............................................................................................. 76
Limitations .................................................................................................................... 81
Recommendations for Future Research ........................................................................ 82
Conclusion .................................................................................................................... 84
References ......................................................................................................................... 87
Appendices ...................................................................................................................... 101
List of Tables

Table 1: Intercorrelations Among Study Measures .......................................................... 63

Table 2: Intercorrelations Between Bully/Victimization Measures and APS-SF
Internalizing and Externalizing Factors by Gender .......................................................... 64

Table 3: Results of Hierarchical Regression Analyses ..................................................... 65

Table 4: Results of Hierarchical Regression Analyses by Gender ................................... 68

Table 5: Correlations Between Study Variables and CBO/CBV ....................................... 72
## List of Appendices

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Letter to School Principals</td>
<td>101</td>
</tr>
<tr>
<td>B</td>
<td>Demographic Questions</td>
<td>104</td>
</tr>
<tr>
<td>C</td>
<td>Electronic Bullying and Victimization Scale (EBVS)</td>
<td>106</td>
</tr>
<tr>
<td>D</td>
<td>Cyberbullying and Online Aggression Survey Instrument 2010 Version</td>
<td>108</td>
</tr>
<tr>
<td>E</td>
<td>Parent Consent Form</td>
<td>110</td>
</tr>
</tbody>
</table>
Introduction

Antagonism and aggressive behaviors between peers are normal aspects of development, and generally constitute a minor aspect of overall social interactions of young people. Peer aggression behaviors become bullying when they can be classified as severe, repeated, and intentionally harmful acts (Olweus, 1978) of physical, social, and/or relational hostility. Involvement in bullying has been correlated with maladaptive developmental trajectories in victims (Biggs et al., 2010; Evans, Smokowski, & Cotter, 2014; Siegel, La Greca, & Harison, 2009) and bullies (Espelage & Swearer, 2003; Haltigan & Vaillancourt, 2014, Menesini, Modena & Tani, 2009). Relationships between bullying involvement and psychosocial maladaptation appear especially strong for bully-victims (those involved dually as bullies and victims; Gradinger, Strohmeir, & Spiel, 2009; Haltigan & Vaillancourt, 2014; Haynie et al., 2001).

At one time, bullying was considered a commonplace and even necessary part of growing up for boys (Storch & Ledley, 2005). Increased awareness of the potential negative associations of bullying behavior with psychosocial problems has led to decreased public endorsement of the “boys will be boys” attitude that condoned bullying as a normative aspect of childhood. Research also shows that aggressive acts toward peers are not solely aspects of boyhood, but occur in both male and female cohorts. Children involved as bullies, victims and bully-victims often exhibit psychosocial risk factors at a greater rate than their non-involved peers (Marini, Dane, Bosacki, & YLC-CURA, 2006). As parents and educators become more aware of the problems associated
with bullying and peer-to-peer aggression, tolerance of these behaviors is decreasing and interest in intervention and prevention is increasing (Michaud, 2009). Spurring increased public concern about bullying behaviors in young people are highly publicized media reports of extreme school violence and student suicides, in which bullying appears to be a motivating factor. Such extreme examples of adolescent interpersonal violence, however, do not represent the typical climate within classrooms and schools (Devoe & Bauer, 2010). Most children involved in bullying do not resort to taking such desperate actions. Bullies and victims have been found to be at risk for developing depression (Biggs et al., 2010) anxiety (Fredstrom, Adams, & Gilman, 2011; Siegel et al., 2009), substance use (Luk, Wang, & Simons-Morton, 2012, Peleg-Oren, Cardenas, Comerford, & Galea, 2012, Vieno, Gini, and Santinello, 2011), and academic and social problems (Nasel, Craig, Overpeck, Saluja, & Ruan, 2004). The U.S Department of Education and Justice (Devoe & Bauer, 2010) has proposed that in order to promote safe school environments a clear understanding of the day-to-day experiences of student’s safety concerns is needed.

While helpful in illuminating some of the apparent safety concerns of today’s youth, reports of incidence rates of violence and bullying fall short of describing the daily experiences of young people. These statistics are insufficient to provide an understanding of the possible psychological risk factors connected to these interpersonal experiences. As the avenues for interpersonal social interactions (and peer aggression) expand to include electronic media, our conceptualization of the psychosocial correlates of bullying involvement is further narrowed.
Electronic (or cyber) bullying has both many of the same core features of traditional bullying, as well as a number of dissimilar features (Kowalski & Limber, 2013). Young people may now experience being bullied, participate in bullying others, or become involved as both victims and aggressors at any point during their day-to-day lives; bullying is no longer confined to school hours (Juvonen & Gross, 2008; Patchin & Hinduja, 2006; Tokunaga, 2010). Electronic bullies are physically and temporally removed from their victims, leading some researchers to speculate that anonymity may increase the frequency of electronic perpetration making it more likely to occur than traditional bullying (Li, 2007; Twyman, Saylor, Taylor, & Comeaux, 2010). Researchers have also asserted the possibility for increased risk of negative outcomes in electronically versus traditionally victimized children due to the wider audience reached by online media (Twyman et al., 2010).

The expanding research-base on traditional bullying has promoted our understanding of the prevalence of this form of aggression, as well as provided a better understanding of the social climate within which contemporary adolescents abide. However, the newer phenomenon of electronic bullying has added new dimensions to the current adolescent social climate. Further research of prevalence and incidence rates, gender differences, and psychosocial correlates within the domain of electronic bullying is needed (Dempsey, Sulkowski, Nichols, & Storch, 2009; Klomek, Sourander, & Gould, 2010;). Research in these domains that focuses on the similarities and differences between traditional and electronic bullying is also needed (Fredstrom et al., 2011).
The current study seeks to further investigate how involvement in traditional and electronic bullying relates differently to social and emotional adjustment in middle school students. Research in which both traditional and electronic bullying involvement are measured within the same sample of participants is important in order to draw conclusions about the possible differential and additive relationships between traditional and electronic bullying behaviors and adjustment problems. When both types of involvement are measured within the same sample, meaningful comparisons can be drawn between the sizes of correlations of each type of bullying and victimization and the outcome measures.

In the current study, students were asked about their experiences as bullies and/or victims in both traditional and electronic settings. Using regression analyses, this information was correlated to students’ responses to questions about a variety of internalizing and externalizing problems. The inclusion of variety of measures of both internalizing and externalizing problems was anticipated to reveal subtle variations between the two types of bullying involvement, if they exist (Olweus, 2012). If electronic and traditional bullying are separate constructs, then it is possible that electronic bullying/victimization will be meaningfully associated to different adjustment problems or that the sizes of these magnitudes may vary by type of involvement. Should this be the case, inclusion of a variety of outcome measures may aide in the search for these differences.

In order to clearly explain the rationale for the research focus of the current study, a review of the current knowledge of the differences and similarities between traditional
and electronic bullying is presented. To begin, a discussion is presented on the most commonly used research definition of traditional bullying. Recent arguments and findings as to whether this definition is applicable to electronic bullying are then explored. The current debate about how to define and measure both types of bullying is indicative of the lack of a clear conceptualization of the electronic bullying construct, and the need for continued research in this area.

Next, an exploration into other similarities and differences between traditional and electronic bullying is presented. Comparisons between prevalence and incidents rates, and gender differences are frequently cited in the literature to support claims about possible relationships between traditional and electronic bullying. Comparisons in the literature between the various roles and forms of involvement are also discussed.

Comparing the various aspects of traditional and electronic bullying is a useful starting point for describing these phenomena. Additional research on differential associations with measures of wellbeing may help to clarify important questions about whether these two types of bullying are separate constructs or variations of the same behavior.

Finally, a theoretical basis is proposed for the necessity of deciphering the potential differences between traditional and electronic bullying as one step toward supporting the healthy development of young people.
The bullying research over the past several decades has explored the wide array of adjustment problems associated with bullying and bully victimization in young people (Dooley, Shaw, & Cross, 2012; Menesini et al., 2009; Modecki, Barber, & Vernon, 2012; Nasel et al., 2004; Perren, Dooley, Shaw, & Cross, 2010; Storch & Ledley, 2005). These phenomena occur in just about every country around the world (Nasel et al., 2004). This body of research has informed school personnel, government officials, and concerned parents about the risks associated with bully-involvement in young people. Bullying behavior has become a focus of school intervention and prevention programs in an effort to promote safe school environments (Espelage & Swearer, 2003; Vossekuil, Fein, Reddy, Borum, & Modzelesku, 2002).

As with most social phenomena, the topography of bullying has not remained static. As the social environment of young people has evolved to span both the physical and cyber worlds, bullying now occurs in both contexts. Researchers have begun investigating electronic (or cyber) bullying in an effort to better understand this new phenomenon, its relationship to traditional (in-school) forms of bullying and bully victimization, and its impacts on school safety and adolescent wellbeing.

An overview of current research on both types of bullying is provided next. This overview is followed by a discussion of similarities and differences between traditional bullying and electronic bullying. Finally, recent research is presented on relationships between each type of bullying and victimization behavior and psychosocial outcomes.

Definitions of Bullying
Bullying is generally defined in the literature as the repeated acts of aggression by a dominant peer against a less dominant individual for the intentional purpose of inflicting harm (Olweus, 1978). This definition of bullying continues to be utilized frequently in traditional bullying research.

Researchers investigating electronic bullying commonly utilize the traditional bullying definition, with the addition that the bullying behavior occurs via electronic media (i.e. over the Internet or through cell phone communication). Patchin and Hinduja (2010) state three key elements of electronic bullying: The behavior is “willful,” “repeated” and causes “harm” to the victim. These authors do not include the power differential criteria in their definition of electronic bullying. Other researchers do include this criterion as part of an operational definition. Vandenbosch and van Cleemput (2008), for example, posit that the power differential criterion is a central component of electronic bullying.

Debate about the merits of using the same criteria to define both traditional and electronic bullying is ongoing. The definition of traditional bullying may not be accurate for describing electronic bullying. Several, if not all, of the components of this definition appear less functional when they are applied to electronic bullying behaviors.

**Intention.** Intentionality is one of the key components of the traditional bullying definition. Vandenbosch and van Cleemput (2009) discuss problems in using intentionality to define electronic bullying. The authors propose that due to the impersonal nature of electronic communication the true intentions of a message may be ambiguous. What may appear on-screen as willfully harmful to the recipient (i.e. the
“victim”), may not have been so intended by the invisible youngster on the other end of the link. Yet, regardless of the sender’s intent, the receiver may incur harm and feel bullied. When bullying occurs face-to-face, the bully’s intentions are clearly visible to the victim. The physical separation inherent in electronic communication obscures the sender’s intentions and hides the recipient’s reactions.

**Repetition.** Similar confusion also exists about the applicability of the repetition criterion to electronic bullying (Slonje & Smith, 2008). Slonje & Smith (2008) point out that a single hurtful message, post, or picture may eventually circulate widely and be viewed by, and shared with, potentially thousands of peers. Even if that young person had not intended for his or her single message to be repeatedly distributed in cyber-space, this may be eventual the outcome. Using the standard of repetition, a youngster’s single act of indiscretion or meanness would not be classified as bullying behavior. However, the target of the indiscretion or meanness may feel victimized if and when negative images or posts are viewed and distributed repeatedly among his or her peers. Such exposure to online ridicule from many directions and for extended periods has the potential to be more harmful than a single interaction (Olweus, 2012). Defining electronic bullying, and classifying behaviors as electronic bulling and victimization, appears more challenging than may be the case for traditional bullying.

Vandenbosch and van Cleemput (2008) note a confusing aspect of the repetition criterion. They conducted a qualitative study of 279 students ($M$ age = 14.1 years) in 53 focus groups from a total of ten different schools. The students were asked questions about their experiences and perceptions of electronic bullying. The majority of
participants felt that an act of aggression qualified as being repeated even if the perpetrator first targets a peer in a face-to-face setting, then later targets the same person in cyberspace (or vise-versa). The majority of participants felt that such behavior meets the definition of electronic bullying because the aggression is repeated even though it occurred in different settings.

Power differential. Application of the final criterion of the Olweus definition of bullying, the presence of a power differential between bully and victim, is also problematic when studying electronic bullying. Some bullying researchers have proposed that within the cyber realm, technological prowess may be more important than physical or social power for classifying an aggressor as an electronic bully (Dooley, Pyzalski, & Cross, 2009). Anonymity of the perpetrator may also contribute to a victim’s feeling of powerlessness against the on-line perpetrator (Dooley et al., 2009; Mishna, Saini, & Solomon, 2009; Sticca & Perren, 2013).

Vandenbosch and van Cleemput (2008) report that when the targeted person was considered weaker (i.e. “strange, shy, small”) in real life (regardless of technological prowess) the electronic aggression was considered bullying by their study participants. However, when the targets were not considered inferior in real life, the students were less inclined to label electronic aggression against them as bullying (rather it was considered “cyber-teasing, cyber-arguing, or cyber-fighting”). Additional research is needed to substantiate the hypothesis that power imbalance is an aspect of the electronic bullying construct.
The confusion, of both students and researchers, about the definition of electronic bullying and whether it is a separate construct from traditional bullying may make measurement difficult and confound findings reported in the literature (Dooley et al., 2009; Gradinger et al., 2010; Menesini & Nocentini, 2009; Vandenbosch & van Cleemput, 2008). Wide ranges of incidence rates and gender differences have been reported for both types of bullying, possibly stemming from lack of consistency in definitions and operationalization of the constructs (Espelage & Swearer, 2003; Menesini & Nocentini, 2009; Vaillancourt et al., 2008).

Because there are a large and ever growing number of technological modalities available to young people, adolescents are interacting with each other at a rate and in a variety of manners that far exceed the social activities of the past. Instrumentation used to measure electronic bullying involvement that incorporates the most up-to-date modalities of social networking and Internet communication may provide more accurate information about the bullying and victimization experiences of participants (Olweus, 2012).

Additionally, research indicates that young people perceive electronic bullying that occurs in certain electronic modalities and contexts to be potentially more harmful than others (Vandenbosch & Van Cleemput, 2009). These authors posit that in order to improve accuracy of measurement, survey measures must more adequately assess both the full range of modalities available to electronic bullies, as well as the contexts in which the bullying behaviors occur.

**Forms of traditional bullying.** Olweus (1978) focused his original investigations on the physical perpetration of bullying behavior. More resent research now considers
traditional bullying to include acts of physical/overt and relational aggression (Archer & Coyne, 2005; Seigel et al., 2009). Relational aggression is described as behaviors aimed at injuring relationships among peers through manipulation of friendships (Archer & Coyne, 2005). Overt aggression is described as the more visible and direct forms of aggression from physical violence to dirty looks (Siegel et al., 2009).

**Forms of electronic bullying.** Research indicates that the concepts of overt and relational aggression used in the traditional bullying literature may also be components of electronic bullying (Dempsey et al., 2009; Li, 2007; Vandenbosch & Van Cleemput, 2009). In the electronic form, relational bullying can encompass online activities intended to harm current or future relationships. Tactics used for electronic relational-type bullying include gossiping via email, instant messages (IM), text messages, or posting derogatory comments on social networking sites such as Facebook, Twitter and SnapChat. Posting embarrassing pictures or videos on sites such as YouTube and Tumblr is considered another method for electronic relational bullying.

Direct or overt bullying online may involve sending threatening messages, posts, and pictures and videos via these same channels. Direct electronic bullying does not include face-to-face aggression. However, victims often perceive these online or cell phone threats as quite real and frightening (Ybarra, Mitchell, Wolak, & Finkelhor, 2006).

Other research has contradicted the hypothesis that forms of electronic bullying fit into comparable categorical distinctions as traditional bullying (Law, Shapka, Hymal, Olson, & Waterhouse, 2012). In a factor analytic study, Law et al., (2012) compared student conceptualizations of the constructs of traditional and electronic bullying. Using
data from the “Safe Schools and Social Responsibility Survey of Secondary Students” the authors found that item responses for traditional bullying and victimization loaded strongly on a different single factor than did responses for electronic bullying. Students appeared to make clear distinctions between the roles of traditional bullying (i.e. bully, victim, or witness), but they did not distinguish between these roles in electronic bullying. Participants tended to focus more on the modality of electronic communication rather than on roles. Students conceptualized the two types of bullying as being quite different. The authors conclude that these two types of bullying should be considered distinct constructs, and future research should take care to measure both traditional and electronic forms of aggression separately when attempting to measure relationships between bullying and wellbeing.

Another study utilized Latent Class Analysis to investigate differences between electronic bullying and four forms of traditional bullying (physical, verbal, social, and rumor spreading; Wang, Innoti, & Luk, 2012). Three distinct latent classes emerged. One class was deemed All-type bullies, and included participants with a high probability of engaging in electronic bullying and all four forms of traditional bullying. The second latent class was termed Social/Verbal Bullies, and the third class was termed Non-Involved. The authors report that participants endorsing participation as electronic bullies were more likely than non-electronically involved participants to engage in all forms of traditional bullying. The All-type-bully-group exhibited the highest rates of externalizing problems (substances use, and weapons carrying). Participants in the all-type-bully group were also more likely to be male. The authors contend that electronic bullying should not
be considered as the same behavior as traditional bullying simply manifesting through a different modality (Wang et al., 2012). Because electronic bullies appeared in this study to be more aggressive, more likely to be male, and more prone to adjustment problems (see also Gradinger et al., 2009 and Menesini et al., 2009), the authors propose that these individuals require targeted intervention protocols.

In a study investigating similarities and differences between electronic and traditional bullying, the authors report finding very little overlap between the two types of bullying (Kubiszewski, Fontaine, Potard, & Auzoult, 2015). This study included 1,422 French middle and high school students (57% male). In face-to-face anonymous interviews students were asked about their involvement in traditional bullying and victimization using the revised Bully/Victim Questionnaire (rBVQ; Solberg & Olweus, 2003), and their cyber bullying and victimization involvement using the Electronic Bullying Questionnaire (Kowalski & Limber, 2007). Internalizing and externalizing problems were also measured during the interviews. Students were asked about psychosocial problems using scales developed by Solberg and Olweus (2003). Results of the study indicated that very few of the students involved in electronic bullying were also involved in traditional bullying. The authors also report that the degree of psychosocial problems varied between the various types of involvement (electronic, school and electronic and school). When compared to non-involved peers, electronic only bullies showed less aggressive tendencies than school and combined-type bullies ($F = 71.22 \ [3, 1170], p < .001, \eta^2 = 0.19$), and electronic victims showed less psychological distress than school and combined-type victims ($F = 78.05 \ [3, 1170], p < .001, \eta^2 = 0.17$).
Kubiszewski et al. (2015) conclude that electronic and traditional bullying appear to be different constructs because outcomes for participants varied as a function of type of involvement, and participants’ type of involvement tended to remain distinct with little overlap.

**Prevalence**

**Prevalence rates of traditional bullying.** The number of adolescents involved with traditional bullying perpetration is generally reported to be around 10% (Nasel et al., 2004). Prevalence rates of individuals experiencing traditional bullying victimization ranges between 20-30% (McCabe, Miller, Laugesen, Antony, & Young, 2010; Siegel et al., 2009; Storch & Ledley, 2005). Rates of adolescents involved concurrently as both bullies and victims (i.e. bully-victims) are generally lower than rates found for either bullying or victimization alone. A 2001 study using in a large sample of U.S. middle-school students (grades 6 through 8), found that rates of frequent traditional bully-victimization (i.e. both bullying and being victimized three or more times over the past year) to be 3.9% (Haynie et al., 2001).

More recently, Peleg-Oren et al. (2012), conducted a study using a random sample of 44,532 middle school students in Florida. The authors investigated two types of traditional bullying behavior—verbal and physical. Physical bully-victim involvement was reported by 6.8% of participants, and verbal bully-victim involvement was reported by 17.3% of participants.
Prevalence rates of electronic bullying. Rates for electronic bullying and victimization vary widely within the literature. In general, the prevalence of electronic bullying falls within a similar range as traditional bullying. Between 3% and 20% of young people report being perpetrators of electronic bullying (Hinduja & Patchin, 2009; Sontag et al., 2011; Ybarra & Mitchell, 2004a).

Rates of electronic bullying victimization generally fall between 8% and 35% of young people (Dempsey et al., 2009; Hinduja & Patchin, 2009; Sontag, Clemans, Graber, & Lyndon, 2011). As found for traditional victimization, rates of electronic victimization are generally higher than rates of electronic perpetration.

Also in line with findings of traditional bullying prevalence, the number of adolescents involved as both electronic bullies and victims is lower than that of either bullies or victims. Wide variation between studies also exists in reported incidents rates of bully-victimization. Peleg-Oren et al. (2013) found that 2.9% of their large random sample of Florida middle-school students were involved as electronic bully-victims. Another study of middle and high-schools (Mishna, Khoury-Kassabri, Gadalla, & Duciuik, 2012) found that 25.7% of the total sample of 6th-7th and 10th-11th graders ($N = 2186$) were involved as electronic bully-victims. Of the sub-sample of 6th-7th graders ($N = 1019$), 24.3% of participants were involved as electronic bully-victims (Mishna et al., 2012).

Contrary to the aforementioned rates, Olweus (2012) has argued that rates of electronic bullying and victimization are actually far lower than rates of traditional bullying and victimization. Olweus (2012) asserts that media sources and researchers
have over-estimated rates of electronic bullying. Olweus (2012) believes this over-
estimation is contributing to a misperception that electronic bullying as an increasingly
occurring, and insidious problem. Using a previously published study (see Olweus &
Limber, 2010), the author averaged reported rates of bullying and victimization over the
four years of data collection (2007-2010; $N = 440,000$ for the total sample). Olweus
(2012) reports that the average percentage of electronic (cyber) bullying was 2.8%, and
electronic (cyber) victimization was 4.5%.

Hinduja and Patchin (2012) offer a rebuttal of the assertions made by Olweus
(2012). These authors report much higher occurrence rates than those offered by Olweus
(2012). Across the 7 studies they have conducted and the 35 papers they have edited for
peer-reviewed journals Hinduja and Patchin (2012) found occurrence rates for electronic
bullying between 17-20% and between 20-24% for electronic victimization. Hinduja and
Patchin (2012) take issue with the low rates of occurrence cited by Olweus, but they are
in agreement with Olweus’ assertions that rates do not appear to have increased
significantly over time, and that significant overlap between traditional and electronic
bullying involvement is common.

Neither Olweus, nor Hinduja and Patchin offer a rationale for the discrepancies in
their reported occurrence rates. However, closer inspection of differences between the
measures used in their studies of electronic bullying reveals important differences in
methodology. These researchers employ similar definitions of electronic bullying, but
different measurement criteria. Olweus, using a revised version of the Olweus Bullying
Questionnaire (OBQ), is measuring point prevalence rates. The OBQ asks about
experiences as bully or victim in the past month. Hinduja and Patchin use a measure of electronic bullying that measures both point prevalence (within the past month) and lifetime incidence rates. This measure asks respondents to first report their level of experience with repeated involvement in electronic bullying (as bully and victim) at any point in their lives. Following this initial question are sets of questions assessing involvement as bully and/or victim during the past 30 days.

Prevalence rates also appear to vary by age between electronic and traditional bullying and victimization (Turner, Exum, Brame, & Holt, 2013). Rates of traditional bullying involvement tend to peak in middle-school, whereas electronic bullying involvement appears to peak during high-school (Turner et al., 2013). These age differences may contribute to discrepancies in frequency rates reported in the literature. As a result, there is little agreement about prevalence rates in the current literature on electronic bullying.

**Gender Differences**

Another area of disagreement within the bullying literature is statistics of gender differences. Traditional bullying research has improved accuracy about these differences through careful study of interactions between sex and form of bullying or victimization. Electronic bullying research is still in the early stages of parsing out these types of interactions.

**Gender differences in traditional bullying.** When traditional bullying is not broken into the relational and overt categories, males appear to engage in more bullying
than females (Prinstein, Boergers, & Vernberg, 2001). Evidence shows that gender
differences appear, however, when both forms of traditional bullying are included in the
data analyses (Prinstein et al., 2001).

A study using 566 high school-aged adolescents (44.7% male, 55.3% female)
from a southern New England city found gender differences only on scores of overt
agression (boys $M = 1.63$, $SD = .78$, girls $M = 1.27$, $SD = .52$) and victimization (1.43,
$SD = .62$, girls $M = 1.29$, $SD = .49$; Prinstein et al., 2001). The same study found that girls
and boys scores did not differ significantly on measures of either relational aggression
(boys $M = 1.64$, $SD = .72$, girls $M = 1.57$, $SD = .57$) or relational victimization (boys $M =
1.169$, $SD = .67$, girls $M = 1.56$, $SD = .56$). While boys appeared to be equally involved in
overt and relational aggression, girls reported involvement in relational aggression
significantly more often than overt aggression. Prinstein et al. (2001) note that the effect
sizes for these differences are small ($\eta^2 = .07$ to .14).

**Gender differences in electronic bullying.** Gender differences between rates of
electronic bullying and victimization reported in the literature vary widely between
studies. A meta-analysis of recent literature (Tokunaga, 2010) reported an overall lack of
gender differences. Turner et al. (2013) also report finding no significant gender
differences in electronic victimization in their sample of middle and high-school students
($N= 1847$).

Other studies, however, have found significant differences related to gender.
Perren et al. (2010) found that boys (12.9%) were more often electronic bullies than girls
(5.9%; $\chi^2 = 31.1$, $p < .001$). Dempsey et al. (2009) found a small but significant gender
difference \( \chi^2 \) \{1\} = 11.80; \( p < .001 \) with more girls experiencing cyber-victimization than boys (17% vs. 11%).

Studies looking at the predictive value of gender on electronic bullying involvement have also produced conflicting reports. Juvonen and Gross (2008) found gender was not a significant predictor of repeated electronic bullying. Conversely, Pornari & Wood (2010) found gender was a significant predictor of electronic aggression with girls more likely to be aggressors than boys \( (OR = 1.66, p < .05) \). Study participants included 339 students (47% male) in 7th to 9th grade attending a school in the United Kingdom (Pornari & Wood, 2010).

As previously mentioned, gender differences between specific forms of electronic bullying have been little studied. The assertion that electronic bullying involvement can be separated into relational and direct forms of involvement (or possibly other classification systems) has yet to be substantiated.

Gender differences were found in a recent study that explored these differences in terms of modality of electronic communication usage (Menesini, Calussi, & Nocentini, 2012). In this study, males more than females appeared to utilize text messaging and posting photos and videos of victims to bully others. Males more than females tended to publicly insult their victims on websites and in chat rooms. Females and males were equally likely to bully others using insults via cell phones, instant messages and blogs. Female victims tended to more often be targets of hurtful text and instant messages, blog posts, and phone calls than boys, but only when these incidents were infrequent. When
incidents occurred frequently, males and females were bullied via these modalities at equal rates.

**Bullying and Associations with Adjustment Problems**

**Traditional bullying.**

*Externalizing behaviors in traditional bullies.* Evidence indicates that bullies, more often than non-involved peers, generally experience a lower quality of school adjustment and higher rates of substance use (Nasel et al., 2004). The Nasel et al. (2004) study involved 113,200 students between the ages of 11 and 15 years. Participants’ reports of bullying others varied widely (from 3% to 20%) between the 25 different countries examined in the study.

Menesini et al. (2009) report that externalizing behaviors (i.e. delinquency and aggression) were reported by the bullies in their study at significantly higher rates than those who were victims or non-involved. Their study used a sample of 1,278 Italian students who ranged in age from 13 to 20 years. About 12% of those sampled were found to be in the bully-only category.

A revised and translated version of the Olweus Anonymous Questionnaire was used to gather information about bullying involvement from students in the sample. Responses were dichotomous—either affirming or denying occurrence of a behavior or experience.

A potential limitation of the Menesini et al. (2009) study is that only one experience of peer-aggression was needed to classify a student as a bully. This may have
inflated the number of reported bullies in this study. Other studies typically define bullying as an ongoing and repeated behavior. Solberg and Olweus (2003) established that using a cut-off point of “two to three times a month” of bullying or being bullied allows for detecting meaningful differences between bully-involvement and non-involvement.

The Retrospective Bullying Questionnaire (see Menesini, 2004) was used with participants above the age of secondary school and asked for retrospective accounts of their bullying involvement. The data from both questionnaires were combined to assess the stability of bullying experiences as they relate to psychosocial problems (which were assessed using Achenbach’s Youth Self-Report scale, previously translated). Participants reporting bullying behavior reported more externalizing problems than victims or non-involved youth ($F [3,475] = 15.15, p < .001, \eta^2 = .09$). No significant difference in symptomatology was found between stable and late role bullies.

Substance use is another externalizing-type problem associated with bullying behavior. Kaltiala-Heino, Rimpelä, Rantanen, and Rimpelä (2000) report that excessive alcohol use was most common among bullies ($OR 8.2, CI 6.1-11.2$), surpassing that of victims, bully-victims and non-involved students. Vieno et al. (2010) conducted a study of 2667 Italian middle and secondary school students and found that across three types of traditional bullying (physical, verbal, and relational) bullies had greater odds of smoking ($ORs$ are 3.88, 2.88, 2.14 respectively) and drinking ($ORs$ 4.79, 3.54, and 2.97) as compared to non-involved peers.
**Internalizing behaviors in traditional bullies.** Bullying research indicates that bullying behavior may not be related solely to externalizing problems. Some research has shown that traditional bullies also experience internalizing problems such as depression (Esplelage & Swearer, 2003; Slee, 1995), whereas other researchers have found depression to be negatively associated with bullying (Haynie et al., 2001).

In a sample of 353 Australian students (average age = 10.3 years), Slee (1995) reported a significant correlation between bullying in boys and depression ($r = .36, p < .001$). The correlation between bullying in girls and depression did not reach significance. The Slee (1995) sample included lower to middle-class children. All participants completed a series of self-report measures. Bullying involvement was measures using the Peer Relations Self-Rating Scale (Rigby & Slee, 1993). Several additional questions were included in the surveys to measure frequency and severity of bullying involvement. Depressive symptoms were measures using the Depression Self-Rating Scale (DSRS; Brileson, 1981). Results of the regression analysis were significant for the overall model that included traditional bullying, victimization, and age ($R^2 = .33, p < .05$).

Young people involved in traditional bullying are at greater risk of experiencing suicidal ideation (Patchin & Hinduja, 2010). These authors investigated suicidal ideation in a sample of 2,000 middle-school students in the United States. In this study, bullies scored significantly higher on a measure of suicidal ideation than did their non-involved peers ($b^* = .16, p = .001$).

Using a sample of 5,302 Finnish children Klomek et al. (2009) conducted a longitudinal study to investigate the association between bullying and suicide attempts.
and completions in young people. The researchers used data collected from informant-reports and self-reports of bullying beginning at age 8, records of hospitalizations for suicide attempts by age 25, and death records of completions by age 25. The authors report that males who were frequent bullies ($OR = 9.1$) showed greater suicidal behaviors than their non-involved counterparts. Females engaging in frequent bullying in this study were not more likely than victims or non-involved peers to show suicidal behavior.

Further research is needed in order to substantiate the hypothesis that co-occurring internalizing and externalizing behaviors are associated with traditional bullying perpetration. Such research must investigate the correlations between a broader range of internalizing-type problems and bullying behavior.

**Externalizing behaviors in traditional bullying victims.** Research on the relationships between traditional bullying victimization and externalizing symptomatology is limited. Some research indicates that substance use may be an externalizing-type risk factor for peer-victimized young people (Tharp-Taylor, Haviland, & D’Amico, 2009). Other researchers have reported findings to the contrary (Vieno et al., 2010). Again, further investigation may be required to understand the possible overlap in types of symptomatology associated with the various roles of bullying involvement.

Tharp-Taylor et al. (2009) found strong support for the hypothesis that victimization is more strongly associated with alcohol, marijuana, cigarette, and inhalant (AMCI) use even after controlling for previous use. In this study 925 sixth, seventh, and eight graders (ages 10-14) were given surveys to assess involvement in mental and
physical bullying, as well as frequency of AMCI substance usage. Each participant was surveyed twice—once in the fall of 2004, and once in the spring of 2005.

Looking at relative risk ratios after controlling for alcohol use at Time 1, students of both genders experiencing mental victimization ($RRR = 2.89, p < .001$) and females experiencing physical victimization ($RRR = 1.62, p < .01$) were more likely to use alcohol at Time 2 than non-involved peers.

Another study found differing results. These researchers compared substance use between traditional bullies, victims, and bully-victims (Vieno et al., 2010). The authors found that traditional victims had the lowest odds of smoking ($OR$s for physical, verbal, and relational victimization are 2.57, 1.16, 1.36) and drinking ($OR$s for physical, verbal, and relational are 3.19, 0.84, 1.58) as compared to non-involved peers (Vieno et al., 2010).

No other available research has been found that investigates the correlations between other types of externalizing problems and bully-victimization. Studies that continue to explore substance use problems, as well as other externalizing behaviors in victims of bullying are warranted to provide additional data on this relationship.

**Internalizing behaviors in traditional bullying victims.** Unlike the limited information available regarding relationships between externalizing problems and victimization, a wealth of research has been conducted into relationships between internalizing problems and traditional bullying victimization.

Storch and Ledley (2005) reviewed the growing body of literature related to in-school bullying. The authors report that victimization from relational aggression is
consistently correlated with symptoms of anxiety and depressive disorders for both genders, while victimization from overt aggression seems associated with depression mainly in boys. Siegel et al. (2009) also found that relational aggression was most strongly correlated with social anxiety symptoms in the adolescent victims in their sample. Biggs et al. (2010) also report that peer-victimization that persists over time is predictive of internalizing problems for young people.

In the longitudinal study conducted in 2009 by Siegel et al. the effects of peer-victimization on anxiety symptoms were investigated in a sample of 228 high school students from Southern Florida. The researchers hypothesized that those students experiencing relational and reputational victimization would have higher scores of social anxiety than those experiencing overt victimization on an initial measurement, and on a measurement two months later.

The authors expected that social anxiety would predict peer-victimization. The Social Anxiety Scale for Adolescents (SAS-A) and the Revised Peer Experiences Questionnaire (R-PEQ) were administered twice over a two-month interval. No meaningful gender or age differences were found. For all cases, social anxiety was moderately correlated with every category of peer victimization addressed in the study ($r$ were between .22 and .44 at the initial measurement, and $r$ were between .18 and .35 two months later). Social anxiety was the strongest predictor of relational victimization in girls ($b^* = .13, p < .05$) (Siegel et al., 2009).
In a separate study, traditional victimization was also significantly correlated with depression problems in a sample of Australian adolescents (females $r = .48$, $p < .001$; males $r = .53$, $p < .001$; Slee, 1995).

A study investigating maladaptive outcomes for stable versus infrequent victimization found that more severe victimization experiences led to more pronounced negative outcomes in young people (Menesini et al., 2009). The authors used t-tests to examine which internalizing symptoms differed significantly between the stable and later occurring victimization experiences. They found anxiousness and depression problems to be greater for the stable victim group ($t [112] = 3.07$, $p = .003$) over the later occurring victimization group.

Suicidal behaviors are an internalizing problem beginning to be investigated in the bully-victimization research. Suicides associated with bully-victimization have been a growing focus in the media in recent years. Several studies have shown that young people involved in traditional bullying are at an increased risk for suicidality. Klomek et al. (2009) report that males experiencing frequent victimization ($OR = 6.5$) showed greater suicidal behaviors than their non-involved counterparts. Females who were frequent victims ($OR = 4.2$) also showed greater suicidal behaviors than female who were bullies or non-involved.

Patchin and Hinduja (2010) found that traditional victimization was significantly associated with suicidal ideation ($R^2 = .067$). These authors also report that traditional victims were more likely to experience suicidal ideation ($b^* = .23$, $p = .001$) than their traditional bullying or non-involved peers.
**Electronic bullying.** Electronic-based social interactions can pervade into all aspects of a young person’s life, and continue long after face-to-face contact has ended for the day. Many previously safe and/or private settings (i.e. the child’s home and bedroom) are now filled with social exchanges between peers. Many of these interactions are unmonitored by parents or other adults. The Internet and cell phones provide avenues through which bullying can become a constant and insidious problem for many young people (Patchin & Hinduja, 2006; Tokunaga, 2010).

**Externalizing behaviors in electronic bullies.** Electronic bullying has been correlated with many of the same externalizing problems associated with traditional bullying perpetration.

High rates of violent mindedness and aggression were reported for electronic bullies in a study utilizing a large sample of Spanish participants (Calvete, Orue, Estéves, Villardón, & Padilla, 2010). This study examined the correlations between cyber-bullying and four subtypes of electronic aggression (proactive, reactive, relational, and direct), as well with as beliefs about the justification of violence. Participants included 1,431 Spanish secondary school students. Significant relationships between cyber-bullying behavior and proactive aggression ($b^* = .34, t = 8.29, p < .001$) and justification of violence ($b^* = .08, t = 2.20, p < .05$) were reported. The proactive aggression style is marked by externalizing symptomatology characterized by serious lack of concern for others, and a desire to dominate peers (Mash & Wolfe, 2010).

The Calvete et al. (2010) study used an extensive measure of cyber-bullying behaviors (The Cyberbullying Questionnaire, CBQ; Calvete et al., 2010). The 14-item
scale was designed to examine a broader array of electronic bullying behaviors than scales used by previous researchers. This may have contributed to the high rate of reported student involvement (44.1%; Calvete et al., 2010).

Sontag et al. (2011) also report that electronic bullies were significantly higher on proactive ($F[3,238] = 18.88, \eta^2 = .19$) and reactive aggression ($F[3,238] = 10.59, \eta^2 = .12$) than non-aggressors. Participants in this study completed surveys during the 2006-2007 school year. This data was collected during a larger study (Adolescent Peer Experiences; APEX) from two states in the Southeast. Participants ($N = 300$) were from two schools and were in grades 6 through 8. Significant variations within age and SES between the two schools were discovered leading the researchers to control for school as a confounding variable. After also controlling for social desirability (as measured by the Marlow-Crown Social Desirability Scale-Version 2 adapted for children; see Strahan & Graber, 1972), electronic bullying was significantly correlated with every externalizing variable measured in this study ($r$s between .22 and .47).

Other externalizing problems have been associated with electronic bullying, including conduct problems and hyperactivity (Sourander et al., 2010). Sourander et al. (2010) conducted a population-based study of adolescents in Finland. They examined the associations between several internalizing, externalizing, and somatic problems in 2,438 seventh and ninth grade students. Every student (excluding those in classes for children with mental or physical disabilities) attending school in two large Finnish cities were given self-report measures designed to assess cyber-bullying and victimization,
traditional bullying and victimization, psychopathology (Strengths and Difficulties Questionnaire- SDQ), psychosomatic issues, and school environment.

Odds ratios for children reporting electronic bully-perpetration indicated a significant risk of conduct problems ($O_R = 4.7 \ [95\% \ CI \ 2.9-7.7]$), and hyperactivity ($O_R = 3.8 \ [95\% \ CI \ 2.4-6.0]$). Electronic bullies had the highest odds of conduct problems, and the next highest odds of hyperactivity problems. Electronic bully-victims had the highest odds of hyperactivity problems (Sourander et al., 2010).

Similar to findings for traditional bullying, significant relationships have been found between substance use problems and electronic bullying. Ybarra and Mitchell (2004b) found 20 - 25% of the cyber-bullies in their sample reported cigarette and alcohol use. Differences between substance use in electronic bullies and non-involved students were not assessed for significance in the Ybarra and Mitchell (2004b) study, which makes interpretation problematic.

Vieno et al. (2011) compared odds of smoking and drinking between electronic bullies, victims, and bully-victims as compared to non-involved peers. In this study of Italian middle and secondary school students (Vieno et al., 2011), electronic bullies had the second highest odds of smoking ($O_R = 2.47$; electronic bully-victims had higher odds, and victims had lower odds). However, the electronic bullies in this study had the highest odds of alcohol use ($O_R = 3.10$).

Sourander et al. (2010) conducted a detailed investigation of substance use in their study of Finnish adolescents. The authors asked participants about their rates of alcohol use, frequency of getting drunk, and rates of smoking. Electronic bullies were
found to have slightly lower odds of alcohol use occurring more than once a week \((OR = 6.1 \ [95\% \ CI \ 3.5-10.6])\) than electronic bully-victims, and the highest odds of alcohol use occurring more than once a month \((OR = 2.5 \ [95\% \ CI \ 1.7-3.7])\). A similar pattern emerged for reported drunkenness with electronic bullies showing slightly lower odds than bully-victims for getting drunk weekly or more often \((OR = 5.0 \ [95\% \ CI \ 2.7-9.5])\), and the highest odds for getting drunk at least monthly \((OR = 2.4 \ [95\% \ CI \ 1.7-3.5])\). Odds of smoking on a weekly or daily basis was highest in the electronic bully category \((OR = 2.9 \ [95\% \ CI \ 2.0-4.4])\).

**Internalizing behaviors in electronic bullies.** The focus of most research on psychosocial correlates of bully-perpetration, both traditional and electronic, tends to center on relationships between bullying and externalizing problems. As with the traditional bullying research, however, electronic bullies appear to also exhibit problematic internalizing issues, as well. Perren et al. (2010) found that of their Australian and Swiss 7th through 10th grade participants, those reporting electronic bullying activities also reported increased levels of depression symptoms \((r = .24, p < .01)\). Electronic bully-perpetration was also significantly correlated with depressive symptomatology \((r = .19, p < .01)\) in a study of high school students in British Columbia (Bonanno & Hymel, 2013).

Bonanno and Hymel (2013) conducted hierarchical regression analyses to determine the relative contributions of several different forms of traditional and electronic bullying on depression and suicidal ideation. In this analysis, electronic bullying contributed a significant amount of variance to the outcome measure of
depressive symptoms ($R^2 = 0.14, b^* = .16, p < .05$) and suicidal ideation ($R^2 = 0.14, b^* = 2.20, p < .001$). (Bonanno & Hymel, 2013).

The Bonanno and Hymel (2013) study included 399 urban Canadian high school students (57% female) in 8th-10th grade ($M$ age = 14.2 years, $SD = .91$). Students completed three self-report surveys. Bullying involvement was measured using a 10-item survey adapted from the Olweus (1993) questionnaire. The bullying questionnaire included definitions of, and questions related to, both traditional and electronic bullying. Item responses were recorded using a 5-point Likert-type format. Depression was measured using the Center for Epidemiological Studies Depression Scale (CED-S; see Radloff, 1977). This is a 20-item scale, which uses a 4-point Likert-type response format. Suicidal ideation was measures using the Suicidal Ideation Questionnaire-JR (SIQ-JR; see Reynolds, 1987). The SIQ-JR is a 15-item scale, utilizing a 6-point Likert-type response format.

Another study (Patchin & Hinduja, 2010) reported similar results regarding suicidal ideation. In this study, electronic bullies were more likely than non-involved children to experience suicidal ideation ($b^* = .17, p < .001$). Participants in the Patchin & Hinduja (2010) study consisted of 2,000 6th through 8th graders, from 30 different middle schools. The authors report that after controlling for sex, race, and age cyber aggression contributed to about 4% of the variation in suicidal ideation ($R^2 = .040, b^* = .17, p < .001$) in their sample.

**Externalizing behaviors in electronic bullying victims.** As is the case in the traditional bullying victimization research, associations between externalizing problems
and electronic victimization are not a focus of investigation. When studies do report these correlations they are generally far weaker than the relationships between electronic bully-perpetration and eternalizing problems.

Evidence of substance use problems has been investigated in several studies on electronic bullying victimization. Among the roles of electronic bully-involvement, victims appear to have the lowest odds of substance use. However, electronic victims have been found to have higher odds of substance use than non-involved peers. Because findings indicate that electronic victimization appears to contribute a small, but significant amount of variance in substance use problems, further investigation is warranted. Vieno et al. (2010) found that electronic victims had an odds ratio of 1.88 ($p = .01$) for smoking compared to non-involved peers, and an odds ratio of 2.77 ($p < .001$) for drinking compared with non-involved peers.

**Internalizing behaviors in electronic bullying victims.** Perren et al. (2010) examined the relationship between both traditional and electronic forms of bullying and depressive symptoms in two different sample populations (Australian and Swiss). For the combined Australian and Swiss sample, electronic victimization was significantly associated with depression ($r = .18, p < .01$). The authors report that the predictive power of electronic victimization for symptoms of depression increased as the frequency of electronic victimization increased ($z = 4.83, p < .001$).

The participants in this study included 1,320 Australian 8th to 10th graders from four religiously oriented middle-class schools and 374 Swiss 7th to 9th graders from 19 different classrooms from a variety of schools. Different scales were utilized to measure
electronic bullying experiences and depression symptoms in the different samples, therefore interpretation of results is limited. The Swiss cyber-bullying measure included only two items (versus six in the Australian scale). Potential differences in the psychometric qualities of these two scales may contribute to artificial differences in the data and indicate a need to corroborate the results with further study. As the magnitudes of effects were not reported it is also difficult to extrapolate the meaningfulness of the differences between the dissimilarly sized samples.

Sontag et al. (2011) provide some additional evidence that depression symptomatology may higher in electronic bulling victims than non-victims, though the reported magnitude of effect is small. Significant differences in rates of depression were reported between victims of cyber aggression, victims of traditional aggression, and combined victims as compared with non-victims ($F[3, 241] = 8.31, p < .01, \eta^2 = .04$).

In an investigation of another internalizing factor, Juvonen and Gross (2008) report that in their study of 12 to 17-year-olds, a greater number of experiences of electronic victimization was correlated to an increased risk of social anxiety. This study investigated whether electronic victimization contributes to social anxiety independent of traditional victimization using hierarchical regression analysis. After controlling for gender and age of the 1,454 participants (who were users of a “popular teen Web site”), electronic victimization did appear to be discretely and significantly associated with social anxiety symptoms ($b^* = .31, p < .05$).

Other studies have also reported that frequency and severity of electronic victimization appears to be correlated with a greater risk of psychosocial maladjustment.
More frequent and extreme electronic victimization is correlated to higher likelihood of reported internalizing problems (Tokunaga, 2010; Wang, Nasel, & Iannotti, 2010).

Researchers are also investigating whether the correlations between psychosocial correlates of electronic bullying involvement remain significant after controlling for the more traditional forms of bullying involvement. One study (Dempsey et al., 2009), measured associations between victimization by overt, relational, and cyber bullies and outcomes of depression and anxiety in a sample of 1,684 middle school children (ages 11 to 16 years) from schools in the Southern U.S. (48% male; 52% female). The Social Anxiety Scale for Adolescents (SAS-A; La Greca, 1998) and The Center for Epidemiology Studies Depression Scale (CES-D; Radloff, 1977) were used to measure the dependent variables in this study. Bullying involvement was measured using the Revised Peer Experiences Questionnaire (RPEQ; Prinstein, 2001). The RPEQ has two subscales that measure overt and relational bullying. Additionally, four items measuring electronic bullying victimization were included in the RPEQ for this study (Dempsey et al., 2009).

Initial hierarchical regression analyses controlling for gender showed significant correlations between cyber-victimization and depression ($R^2 = .07, b^* = .23, p < .05$) and anxiety ($R^2 = .12, b^* = .32, p < .05$). After controlling for gender and overt and relational bullying, only the correlation between cyber-victimization and anxiety remained significant ($R^2 = .26, b^* = .15, p < .05$).

Menesini et al. (2012) found electronic bullying to explain a significant amount of variance on measures of somatic complains for males ($R^2 = .09, b^* = .28, p < .001$) and
females ($R^2 = .03, b^* = .20, p < .001$). Similar results were reported for anxiety and depression in males ($R^2 = .09, b^* = .30, p < .001$) and females ($R^2 = .04, b^* = .21, p < .001$). Electronic bullying also explained a significant amount of variance for withdrawal symptoms, but only in male participants ($R^2 = .02, b^* = .17, p < .01$). Participants in this study included 707 junior high and high school students (51% female) from 10 different schools in Tuscany, Italy. The mean age of students was 14.6 years ($SD = 1.5$ years). A previously developed measure of traditional and electronic bullying (see Menesini, 2008) was utilized. This self-report survey consists of four parts, two that address traditional bullying and victimization, and two that address electronic bullying and victimization. Items address bullying behaviors across a variety of modalities of electronic communication, and utilize a 4-point Likert-type response format.

Five scales from the Youth Self-Report Survey (Achenbach & Edelbrock, 1991; Pastorelli et al., 2002) were used to measure externalizing problems (aggressiveness and delinquency) and internalizing problems (somatic complaints, anxiety/depression, and withdrawal symptoms).

Other researchers investigating the relationship between electronic bullying and internalizing problems have focused on suicidal ideation in electronic victims (Klomek et al., 2010; Patchin & Hinduja, 2010). Patchin and Hinduja (2010) found electronically victimized youngsters to experience higher rates of suicidal ideation than both electronic bullies and non-involved participants ($b^* = .25, p < .001$) in their extensive sample. The proportion of explained variance for suicidal ideation was small ($R^2 = .074$). But, as Klomek et al. (2010) posit, the risk of suicide for children involved in all types of
bullying behaviors is great enough that research on, and screening for suicidal ideation in this population is paramount.

The Relationship Between Traditional and Electronic Bullying

Researchers have tended to treat traditional and electronic bullying as similar constructs. Yet, these two forms of aggression may, in fact, be quite distinct (Fredstrom et al., 2011). Whereas, these two types of bullying may be related to similar forms of adjustment problems, notable differences also exist. Many assertions in the literature have been made regarding the ways in which these two types of bullying are (or are not) related.

Regardless of the similarities/dissimilarities between the constructs, there remains a significant overlap in involvement in traditional and electronic bullying. Many young people appear to participate in both types of bullying, though they may not play the same role from one form to the other. Ybarra and Mitchell (2004b) found that 56% of the bully-victims in their sample also reported being victims of traditional bullying, and 49% of electronic bullies also reported being traditional victims. Estimates of the percentage of children who experience both electronic and traditional forms of victimization by peers range from 32% (Erdur-Baker, 2010; Ybarra & Mitchell, 2004a) to about 44% (Ybarra & Mitchell, 2004b).

Raskauskas and Stoldtz (2007) used a small sample ($N = 84$) of 13 to 18 year olds from two high schools on the west coast of the U.S. to examine the relationship between experiences of traditional and electronic bullying. Using logistic regression analyses the
authors found in-school victimization to be a significant predictor of electronic victimization (Nagelkerke $R^2 = .16$, $b^* = -1.52$, $p < .01$). Additionally, traditional bullying was found to be predictive of electronic bullying ($R^2 = .27$, $b^* = 3.05$, $p < .05$). In-school bullying was not significantly predictive of electronic victimization, and in-school victimization was not significantly predictive of electronic bullying.

Though the relatively small sample used in the Raskauskas and Stoldtz (2007) study was composed of 89% white, middle class students mostly above the age used for the current study, these results do indicate that conflicting findings exist within the literature in regard to whether traditional and electronic bullying activities are related.

Fredstrom et al. (2011) report that measuring both forms of bullying, rather than either form alone, allows for better explanation of the variability in psychosocial and psychological adjustment difficulties in young people. Using 802 ninth grade students from four Southeastern high schools in the U.S., Fredstrom et al. (2011) examined the correlations between in-school and electronic bullying involvement and six forms of psychological adjustment (i.e. self-esteem, social stress, anxiety, depressive symptoms, locus of control, and self-efficacy). Central to their investigation was determining whether the outcome results associated with electronic victimization remained significant after controlling for in-school victimization.

The authors found that, indeed, electronic victimization and in-school victimization are related to similar adjustment issues, but that each form contributes separate amounts of variance. This finding is potentially important for the accuracy of interpretation of future research results. Assessment of the differential contributions to
variance within the relationships between both traditional and electronic bullying involvement and psychopathology symptomatology is a primary focus of the current study.

**Early Adolescent Development and Bullying**

During early adolescence, children experience the ecological transition from the smaller and more personalized social settings of elementary school to the more complex and impersonal social settings of middle school (Bronfenbrenner, 1973). This transition exposes children to potentially confusing new school environments, and the challenging tasks of establishing new identity roles as student, friend, and individual (Barber & Olsen, 2004). The successful navigation of the stage-salient tasks of early adolescence includes the ability to establish appropriate autonomy outside of the family support system, build a healthy sense of personal identity and develop sound new peer relations (Cicchetti & Rogosch, 2002). If mastery of any of these developmental tasks is hindered, a child may struggle throughout adolescence and even into adulthood (Cicchetti & Rogosch, 2002).

Using the framework of developmental psychopathology, the experiences of bullying and victimization may contribute to or be a result of an impaired progression through the stage-salient tasks necessary for healthy development. To this end, the psychosocial adjustment problems known to be associated with bullying and victimization may, in part, stem from the failure of young adolescents involved with
these problematic behaviors to successfully traverse the ecological shift from elementary school to middle school.

Children, both boys and girls, are known to use various forms of peer aggression as a way of establishing a clear identity and peer affiliations within the social milieu of middle school (Pellegrini & Bartini, 2000). Adolescence is also a time when risk-taking behaviors tend to peak (Arnett, 1999). The risk of becoming involved in bullying may be especially strong for some young adolescents who struggle with the stage-salient tasks of establishing healthy peer connections and/or a positive sense of identity (Pellegrini & Bartini, 2000). Electronic social interactions—with the measure of autonomy they afford—may be a means of bullying toward which children, disinclined to bully in traditional settings, may be drawn.

In addition, children that find the transition to middle school especially stressful may have fewer psychosocial resources or a greater predisposition to psychological challenges (Farmer et al., 2011). Without such protective factors, these children may face greater difficulties with finding a safe place among their peers and building supportive friendships (Chung, Elias, & Schneider, 1998). In turn, these difficulties may put such children at greater risk of being victimized by bullies (Pellegrini & Bartini, 2000). It is possible that electronic social interactions—with the potential lack of adult oversight and invasiveness into any hour of a child’s private life—may put some adolescents that are able to avoid becoming targets of traditional victimization at risk of being targeted in electronic settings.
If bullying, generally, serves as a maladaptive strategy used by young adolescents in an effort to achieve the developmentally vital tasks of establishing identities and sense of place among their peers (Volt, Camilleri, Dane & Marini, 2012) it may be important to further our understanding of the possible differences between electronic and traditional bullying. If these two types of bullying are found to be distinct constructs, with unique associations to adjustment problems, it is possible that they each serve different functions in children’s attempts to weather the hazards of early adolescence, or serve similar functions, but for different children. There may be considerable co-occurrence between these bullying types for many young adolescents. But, if they are found to be different constructs they may serve different maladaptive developmental functions. Until it can be determined if the two types of bullying are separate and unique constructs, there is a risk that efforts to reduce bullying and provide appropriate functional replacement strategies that support healthy development will fail to be effective.

The current study is not intended to ascertain the potential developmental functions of bullying. Rather, the current study continues the investigative track of recent research in an effort to decipher the potential differences between bullying types and their differential associations with adjustment problems.
Statement of the Problem

Research on the psychosocial correlates of traditional and electronic bullying provides a preponderance of evidence about their associations with adjustment problems in young people. This research has led to researchers, schools, parents and governments programs to look for ways of reducing the negative outcomes related to bullying involvement. As electronic bullying becomes a more common aspect of adolescent social interactions, a better understanding of the specific dangers of this phenomenon and its relationship to traditional bullying is needed.

Understanding the similarities and differences between traditional and electronic bullying, and how they may contribute to negative developmental outcomes, has been addressed using a number of research approaches. Researchers have investigated which type of bullying-involvement young people view as more problematic (Slonje & Smith, 2008; Smith et al., 2008; Sticca & Perren, 2012). They have focused on differences between definitions of traditional and electronic bullying (Dooley, 2009; Tokunaga, 2010; Vandebosch & van Cleemput, 2009). Gender differences between the two types of involvement have also been examined (Ang & Goh, 2010; Slonje & Smith, 2008; Underwood & Rosen, 2011). Research on characteristic differences of youths involved in these two types of bullying has been conducted (Görzig & Ólafsson, 2013). The various research approaches have not yet found definitive conclusions about different associations between negative outcomes of traditional and electronic bullying behaviors.

Assertions have been put forth in the literature about which type of bullying may be more harmful to young people (Dempsey et al., 2009; Kowalski & Limber, 2007,
Olweus (2012) asserts that if traditional bullying effects were controlled in such analyses, effects for electronic bullying would be negligible.

Recently, researchers have begun to utilize multivariate approaches to investigate the differential contributions to adjustment problems of traditional and electronic bullying (Bonanno & Hymel, 2013; Fredstrom et al., 2011; Menesini et al., 2012). Without using such an approach, it has not been possible to make meaningful comparisons about traditional and electronic bullying. The body of literature using multivariate comparisons is relatively recent and limited in scope. This new focus of study is providing valuable information about the relationship between traditional and electronic bullying and their unique associations with adjustment problems.

Efforts to further this line of investigation are warranted. Additional research can show whether electronic bullying involvement relates to adjustment problems over and above traditional bullying involvement. To provide a more complete conceptualization of their differential contributions, studies must measure a wider array of internalizing and externalizing problems (Olweus, 2012). Multivariate analyses of the magnitudes of these relationships within a single study will provide information useful for answering questions about the unique associations between electronic bullying/victimization and wellbeing of adolescents.
Research Questions

**Research Question 1.** In a model of the relationship between bullying and internalizing problems, what amount of unique variance is explained by traditional bullying, and what amount of unique variance is explained by electronic bullying?

**Rationale.** Slee (1995) reported a small correlation between traditional bullying and depression in males ($r = .36, p < .001$) and females ($r = .25, p < .01$). Another study (Bonanno & Hymel, 2013) investigated the relationships between four types of bullying (verbal, social, physical, and cyber) and two internalizing variables (depression and suicide). After controlling for sex, a small and significant amount variance in depression ($R^2 = .116, p < .001$) and suicidal ideation ($R^2 = .10, p < .001$) was explained by a model including all three forms of traditional bullying. Of the traditional bullying types, verbal ($b^* = .25, p < .01$) and social ($b^* = .12, p < .05$) bullying were significantly related to depression. Verbal bullying was the only type significantly related to suicidal ideation ($b^* = .23, p < .001$). Given these findings, traditional bullying is likely to explain a small amount of unique variance with internalizing problems in the current study. However, insufficient evidence is available to make specific predictions here.

Perren et al. (2010) found a small correlation between electronic bullying and depression ($r = .24, p < .01$). Bonanno and Hymel (2013) also report a small association between electronic bullying and depression ($R^2 = .136, p < .05$) and suicidal ideation ($R^2 = .14, p < .001$). Again, electronic bullying is likely to contribute a small amount of unique variance for internalizing measures in the current study.
**Research Question 2.** In a model of the relationship between bullying victimization and internalizing problems, what is the amount of unique variance explained by traditional victimization, and what is the amount of unique variance explained by electronic victimization?

**Rationale.** Hawker and Boulten (2000) performed a meta-analysis of nine studies (with shared method variance) that reported correlations between traditional peer victimization and depression. The average correlation across these studies was $r = .45$ ($p < .0001$). This is considered a small to moderate effect size.

Fredstrom et al. (2011) report low correlations between traditional victimization and depression ($b^* = .17$, $p < .001$) and anxiety ($b^* = .22$, $p < .001$). After controlling for sex, a small and significant amount variance in depression ($R^2 = .184$, $p < .001$) and suicidal ideation ($R^2 = .278$, $p < .001$) was explained by a model including all three forms of traditional bully-victimization. Of the traditional victimization types, verbal ($b^* = .23$, $p < .001$) and social ($b^* = .23$, $p < .001$) bullying were significantly related to depression. Verbal bullying was the only type significantly related to suicidal ideation ($b^* = .52$, $p < .001$).

In the Fredstrom et al. (2011) study electronic bullying also contributed a small amount of explained variance in these two internalizing problems after controlling for traditional bullying ($\Delta R^2 = .029$, $p < .008$). Bonanno and Hymel (2013) also report a small correlation between electronic victimization and depression ($R^2 = .194$, $p < .05$) and suicidal ideation ($R^2 = .34$, $p < .001$). The authors report that electronic victimization
explained a small amount of variance over and above traditional victimization in depressive symptoms ($\Delta R^2 = .010, p < .05$) and suicidal ideation ($\Delta R^2 = .058, p < .001$).

Menesini et al. (2012) report univariate and multivariate effects of traditional and electronic victimization on internalizing problems (somatic problems, depression/anxiety, withdrawal). Menesini et al. found a small correlation between depression/anxiety and traditional victimization in males ($R^2 = .20, p < .001$) and females ($R^2 = .10, p < .001$) in the univariate analyses. Small correlations are also expected between internalizing problems and traditional bullying victimization in the current study. Menesini et al. (2012) examined univariate analyses of relationships between electronic victimization and depression/anxiety. Significant relationships between these variables were found for males ($R^2 = .09, p < .001$) and females ($R^2 = .04, p < .001$), though they were smaller than those found for traditional bullying victims. Menesini et al. (2012) found that electronic bullying uniquely explained a small amount of variance in depression/anxiety after controlling for traditional victimization in males ($R^2 = .21$) and females ($R^2 = .11$). Similar results are expected in the current study.

**Research Question 3.** In the relationship between bullying and externalizing problems, what is the amount of unique variance explained by traditional bullying, and what is the amount of unique variance explained by electronic bullying?

**Rationale.** Menesini et al. (2012) found small relative correlations between traditional bullying and two measures of externalizing problems (aggressive behaviors and delinquent behaviors). The authors performed separate analyses for males and females. Traditional bullying in males showed low correlations for aggressive behaviors
Traditional bullying in females also showed small correlations for aggressive behaviors ($R^2 = .24$) and delinquent behaviors ($R^2 = .18$).

Menesini et al. (2012) examined the relationship between the two externalizing problems and electronic bullying for males and females. Electronic bullying in males showed small correlations with aggressive behaviors ($R^2 = .12$) and delinquent behaviors ($R^2 = .21$). For females, low correlations were reported between electronic bullying and aggressive behaviors ($R^2 = .12$) and delinquent behaviors ($R^2 = .09$).

Sontag et al. (2011) report small correlations between electronic bullying and proactive aggression ($\eta^2 = .19$) and reactive aggression ($\eta^2 = .12$). Similarly, Calvete et al., (2010) found small a correlation between electronic bullying and these same externalizing variables (proactive and reactive aggression, $R^2 = .13$).

In addition to investigating univariate relationships, the Menesini et al. (2012) study utilized hierarchical regression analyses to examine the amount of variance electronic bullying contributed to externalizing problems after controlling for traditional bullying. In all the externalizing variables measured, except delinquent behaviors in females, electronic bullying contributed a small, but significant amount of variance over and above that which was explained by traditional bullying. After controlling for traditional bullying in males, electronic bullying uniquely explained 21% of variance in aggressive behaviors, and 29% of variance in delinquent behaviors. After controlling for traditional bullying in females, electronic bullying uniquely explained 25% of variance of aggressive behaviors.
**Research Question 4.** In a model of the relationship between bullying victimization and externalizing problems, what amount of unique variance is explained by traditional victimization, and what amount of unique variance is explained by electronic victimization?

**Rationale.** Research on relationships between bully-victimization and externalizing problems is mainly limited to substance use problems. Traditional victimization was found to increase the odds of substance use for male and female victims of bullying over their non-involved peers (Tharp-Taylor et al., 2009; Vieno et al., 2010). Vieno et al. (2010) also report on the relationship between substance use and electronic victimization. The authors found that although the youths reporting electronic victimization had the lowest odds of substance use compared to electronic bullies and bully-victims, the odds of their substance use was higher than for their non-involved peers. The current study will investigate relationships between substance use and other forms of externalizing problems.

**Research Question 5.** Are there differences by gender in the relationships between the predictor and outcome variables, when each of the models 1 – 4 are run separately for boys and girls?

**Rationale.** As previously noted, findings on gender differences vary between studies for both forms of bullying and victimization. Separate analyses will allow for an examination of potential gender differences in regard to the magnitudes of relationships between form of bullying and internalizing and externalizing problems. Comparing
correlations between the separate analyses will provide a greater depth of information than can be found by controlling for gender or examining interactions.
Methodology

Participants

Middle school students from schools in Northern California were recruited for participation in the current study. Participants were in grades 6th (8.2%), seventh (66%) and 8th (25.9%). The student ages ranged from 11 to 15 years ($M = 12.61$, $SD = .774$). Most participants (70.1%) reported their ethnicity as white; the remainder identified as bi-racial (11.1%), Native American (8.3%), Hispanic (4.9%), Asian (2.8%), African American (1.4%) and other (1.4%). The ethnic diversity of the sample was in line with that of the various schools that participated. The final sample included a total of 148 students (60.5% female). One case was considered an invalid outlier and excluded from the final sample due to extreme survey responses.

Procedure

Participant recruitment began with the distribution of letters of inquiry (Appendix A) to principals of Northern California public and parochial middle schools. Due to very low initial response rates from schools, three consecutive waves of letters of inquiry were mailed to schools at increasing distance from Humboldt State University. A total of approximately 75 Northern California middle schools were solicited for participation. Schools that responded with interest to the letter of inquiry were contacted and invited to participate in the study. Data for the final sample was collected at three different middle schools. One of these schools allowed two waves of sampling, in which two different
cohorts of seventh grade students were surveyed. The first wave of data collection was conducted in the spring of 2014, and the second wave was conducted in the winter of 2015.

Based on results from previous studies, small effect sizes were anticipated. Three multivariate studies cited previously, reported small effects and included sample sizes of $N = 399$ (Bonanno & Hymel, 2013), $N = 707$ (Menesini et al., 2012), and $N = 802$ (Fredstrom et al., 2011). A sample of 500 students was initially targeted for participation in order to capture a large enough base-rate occurrence for data analyses and to produce generalizable results. Due to the low rate of response from schools, preliminary analyses were run on the current sample to test whether meaningful results could be ascertained from the smaller-than-anticipated sample size. Initial evidence from preliminary analyses indicated that the smaller sample appeared to be adequate for conducting the tests outlined in this study. Participant recruitment was concluded and a final sample of 148 students was utilized for this research.

Measures

**Demographic information.** Demographic questions assessed sex, age, ethnicity and grade level (Appendix B). Several questions investigated frequency of Internet and cell phone use, and whether the participant had an Internet connected cell phone (smart phone). Other questions relating to availability of Internet access and each student’s personal ownership and location of internet connected computers within the home were also included in the demographic section of the surveys.
Bullying and victimization.

Traditional bullying. Traditional bullying/victimization was measured using the Reynolds Bully Victimization Scale (RBVS; Reynolds, 2003). This scale consists of 46 items that are divided into two individual scales. The Bullying scale (23 items) measures both overt and relational-type behaviors perpetrated against others. The Victimization Scale (23 items) also measures overt and relational-type bullying incurred by the individual.

The response format of the RBVS uses a four-point response scale (0 = “never”, 5 = “five or more times”). Categories for cutoff scores have been established for the RBVS. Students endorsing at least several of the items as occurring three or four times (a score of 2 on the individual item) are thought to evidence “moderately severe” bullying involvement. Inclusion of a measure utilizing such a response format is considered imperative for the current study because bullying, by definition, is peer-aggression experienced in a repeated manner. Some amount of aggression between peers is commonplace, and this behavior is generally considered normative when it occurs infrequently (i.e. once or twice [a score of 1] or sometimes [a score of 2] as measured on the RBVS; Reynolds, 2003).

The RBVS has been found to have strong internal consistency for both the Bullying Scale (α = .94 for males, and α = .89 for females) and the Victimization Scale (α = .93 for both males and females). A high test-retest reliability score for the total scale has also been demonstrated (rtt = .81; Reynolds, 2003). The psychometric properties of the RBVS were rigorously tested using a large national standardization sample. The
RBVS has been found to be a viable method of group assessment to determine potential problem bullying and victimization behaviors in students ranging in age from 8 to 19 years (Reynolds, 2003).

**Electronic bullying.** A new scale has been developed to measure electronic bullying and victimization (Appendix C). The Electronic Bullying and Victimization Scale (EBVS) addresses many of the methodological problems previously discussed. The EBVS is expected to better assess electronic bullying and victimization experiences. The new scale improves upon other scales currently in use in the electronic bullying research by utilizing multiple items instead of a single global item, including items that target a wide array of electronic bullying modalities, wording items to indicate the behavior was intended to harm or was perceived as harmful, and including a response format using a 4-point scale.

The EBVS consists of 38 items that are divided into two individual scales. The Electronic Bullying Scale contains 20 items. The Electronic Victimization Scale contains 18 items. A pilot study using 78 university students (78% female) was conducted to test the psychometric properties of the EBVS. These initial results indicate that the combined subscales of the EBVS evidence strong reliability. Subscales of the EBVS were also assessed individually; a Cronbach’s alpha of .96 was found for the Bullying subscale, and a Cronbach’s alpha score of .91 was found for the Victimization subscale. The Bullying subscale showed a test-retest reliability of .89, and the Victimization subscale test-retest reliability was found to be .71.
Criterion validity of the EBVS was assessed in the pilot study by comparing scores on the EBVS with the Cyberbullying Offending and Cyberbullying Victimization Scales (Hinduja & Patchin, 2010). The victimization subscale of the EBVS was correlated with the Cyberbullying Victimization Scale (Hinduja & Patchin, 2010). The victimization subscales of the two measures are correlated at $r = .67$, which is considered to show evidence of good criterion validity. The bullying subscales correlated somewhat lower at $r = .52$.

Following the pilot study, the EVBS was modified slightly and the new version was used for the current study. Several of the items in this version have been reworded or replaced to improve readability. Some items have been removed in an effort to avoid redundancy. Alterations to the modified version are considered minor, and it is expected to measure the same components of electronic bullying and victimization as the original version.

For the purpose of providing further validation of the EBVS (in its modified version), the Cyberbullying Offending Scale and the Cyberbullying Victimization Scale (Hinduja & Patchin, 2010) was included in the survey packets (Appendix D). The Cyberbullying Offending Cyberbullying Victimization Scale uses a 5-point response format that ranges from “never” to “every day,” using the past 30 days as a timeframe. Internal consistencies of $a = .76$ were reported for the Cyberbullying Offending Scale, and $a = .74$ for the Cyberbullying Victimization Scale (Hinduja & Patchin, 2010). Scores on Cyberbullying Offending and Cyberbullying Victimization Scales were not utilized in the analysis for the current study’s research questions. However, in an effort to further
assess criterion validity of the EBVS for use with middle school-aged children, comparison between scores on the EBVS and the Cyberbullying Offending and Cyberbullying Victimization Scale were conducted. The bullying subscale of the EBVS and the Cyberbullying Offending Scale were correlated at $r = .64, p < .001$. The victimization subscale of the EBVS and the Cyberbullying Victimization Scale were correlated at $r = .66, p < .001$. These correlations are considered moderate criterion validity and provide further evidence of the validity of the EVBS. Furthermore, this analysis indicates that the EBVS is a valid measure for use in middle school aged children.

**Internalizing and externalizing problems.** The Adolescent Psychopathology Scale-Short Form (APS-SF; Reynolds, 2000) was employed to measure levels of psychopathology symptomatology. The entire scale, including all 12 individual measures, was included in the survey packets. Eight of these 12 scales were utilized to measure the internalizing and externalizing problems of interest in the current study. Composite scores for internalizing and externalizing problems were created. The externalizing measures are: Conduct Disorder (CND), Oppositional Defiant Disorder (OPD), Substance Abuse (SUB), and Anger/Violence Proneness (AVP). These four measures were summed to create a composite externalization T-score. The internalizing measures include: Posttraumatic Stress Disorder (PTSD), Generalized Anxiety Disorder (GAD), Major Depression (DEP), and Suicidal Ideation (SUI). These four measures will be summed to create a composite internalization T-score.
The APS-SF individual subscales been found to have high internal consistency scores for its standardized sample of 12 to 14 year olds (between $a = .79$ and $a = .91$: Reynolds, 2000). Content validity of the measure was supported by moderately high median item-to-total scale correlations found for the total sample, which ranged from $r_{ii} = .38$ to .68 (Reynolds, 2000). Reliability of the APS-SF is supported by strong test-retest coefficients between .76 and .91.

The total APS-SF scale consists of 110 items. Forty-seven of these items were incorporated into the composite externalization scale, and 42 of the items were included in the composite internalization scale.

**Investigators and Procedure**

After initial contact with interested schools was made, a packet of information was sent to the contact person designated by each school. The packet included a copy of the parent consent form (see Appendix E), the student assent form and a sample copy of the questionnaire used for data collection. Several schools initially interested in participation declined upon review of the questionnaire. Typical reasoning offered for declining included, parent/administrator concerns that students may be negatively impacted by exposure to the questions pertaining to depression and suicidality, and administrator concerns that their student population had too little experience with the questions of interest to add meaningful data to the study, and concerns that study participation would take needed academic time away from teachers and students.
The three schools that chose to participate were provided with a sufficient number of copies of the parent consent forms to distribute to the parents/guardians of all eligible students. The consent forms provided a brief description of the study, its potential risks and benefits to students and the schools, a statement that students may discontinue the survey at any time, and procedures regarding protection of anonymity. Contact information for the primary investigator and the faculty supervisor for this research was also supplied to parents/guardians in the informed consent letter.

Teachers at each of the three schools distributed the parent/guardian consent forms to each eligible student, and gave students instructions to give the forms to their parent/guardian(s), have their parent/guardian read and sign the form and return it to class by a specified deadline. Parents/guardians were asked to indicate (by checking the appropriate box) if they were giving or withholding consent for their student to participate.

Each school was offered an opportunity to include a raffle to incentivize return of the consent forms. Only the second school chose to use the raffle, which was made available during both waves. All students that returned a consent form (regardless of whether approval for participation was given or denied by the parent/guardian) were given a raffle ticket and entered into a drawing for their choice of a $10 iTunes gift card, or a $10 Target Store gift card. One student from each class period won a card of their choice.

The first school to participate permitted all 6th, 7th, and 8th grade students to take part in the study. Approximately 55% of the eligible students received parent/guardian
approval and completed the survey. In the second school to participate, the entire cohort of 7th grade science students were made eligible for participation in each wave. For wave 1, approximately 29% of eligible students received parent/guardian consent and completed survey. Wave 2 had a higher participation rate, with 42% of eligible students completing the survey. The final school (a small parochial school) allowed all 8th grade students to be eligible for participation. Of the eligible 8th students, 83% completed survey with parent/guardian consent.

On the day of data collection at each school, students with parent/guardian consent were provided with verbal instructions for completing the survey and a copy of a student assent form which outlined the purpose of the study and explained to students that participation was voluntary.

Procedures for data collection in each school were discussed with each school’s contact person. Prior to the day of data collection, a plan for administration of the surveys was established based on the needs of each school. Students in both waves of the second school, and students at the parochial school complete the survey packets in their classrooms during class time. Students at the first school were divided by grade level, and each grade completed the packets in the school library one grade level at a time. At each data collection site, this researcher was present to provide instructions, answer questions and ensure that students were not disturbed while completing their surveys. Contact information for the primary investigator and the school’s counsellor or designated faculty member were also provided in the assent forms. Completion of the entire survey packets required approximately 45 minutes.
Prior to beginning the surveys, students were informed (both verbally and within the text of the assent forms) that their surveys were anonymous, only for the researcher’s use, and were not for school use. All participants were informed that they may discontinue participation at any time during the survey without risk of adverse consequences from the school. In order to protect the students’ anonymity, the researcher did not obtain student names.

**Data Analyses**

Study data were analyzed using multivariate regression analyses. Five separate models were tested. The two outcome variables are internalizing problems and externalizing. Each were tested for gender differences by rerunning the first four models separately for males and females. These models are described in detail in the Results section.

The statistics of interest were the $R^2$ value, the $\Delta R^2$ value and the squared semi-partial correlations. The $\Delta R^2$ value was utilized to examine information on whether electronic bullying and victimization could explain a significant amount of variance for the outcome variables over and above the amount of variance explained by traditional bullying and victimization. The semi-partial correlations enabled direct examination of the amounts of unique variance that each type of bullying and victimization contributed to the outcome variables.
Benefits, Potential Risks and Management of Risk

The study was anticipated to provide several benefits. The schools choosing to participate were provided with actual rates of traditional and electronic bullying activities of their students. Such information may be useful to administrators in determining if some form of protective action is indicated.

Information provided by the current study that allows for comparisons between traditional and electronic bullying involvement has been thus far limited in scope in the current literature. Studies employing univariate analyses has limited inferential utility. This study’s multivariate analyses using a single sample, allows for more nuanced interpretations of the differential contributions to adjustment problems made by the separate types of bullying involvement.

Previous research has shown that minimal risk is attributable to administration of self-report measures to students on the sensitive topic of suicide ideation (Gould et al., 2004). Gould et al. (2004) reported that for students evidencing depression symptoms taking the self-report measure of suicidal ideation reduced their scores on a diagnostic distress measure. It appears that responding to such questions in this manner was somewhat helpful for participants with depressive symptomatology.

The measures used in the survey packets were anticipated to cause little to no psychological harm. However, there is a possibility that completing the measures included in the proposed study could be stressful to certain students. In the event that a student felt the need for support, contact information for the school’s counselor was
provided in the form, along with a brief description of what help the school counselor could offer students in need of support. The primary investigator was on-site during and after testing at each school. No students requested support, and no student-reported stress was communicated to any of the school counselors or this researcher.
Results

Preliminary Analyses

Prior to conducting hierarchical regression analyses, several preliminary procedures were performed. First, the reliability of each of the measures used for analyses were assessed. Each of the subscales evidenced strong internal consistency as measured by Cronbach’s alpha scores above .80. Reliability coefficients are reported in Table 1. Intercorrelations between each of the measures’ subscales are also presented in Table 1. Intercorrelations between bully/victimization measures and APS Internalizing and Externalizing factors broken down by gender are presented in Table 2.

The final preliminary analysis was investigation of relationships between age and bullying and victimization. The correlations between age and each of the bullying and victimization subscales (traditional and electronic) were small ($r = .003, p = .97$ to $r = - .225, p = .01$). Controlling for age was not conducted as part of the analyses presented herein.

Primary Analyses

Each of the models analyzed in the current study included traditional and electronic bullying and victimization as predictor variables. The composite scores of internalizing problems was utilized as the outcome variable in Models 1 and 2. The composite scores of externalizing problems were entered as the outcome variable for
models 3 and 4. Results of the hierarchical regression analyses for each model are presented in Table 3.

**Research Question 1.** In Model 1, a small multiple correlation was found ($R^2 = 0.05$, $p = .03$) between bullying of both types and internalizing problems. A non-significant $\Delta R^2$ correlation in this model indicated electronic bullying did not contribute significantly to the relationship over and above traditional bullying. Both semi-partial correlations were also non-significant.

**Research Question 2.** A significant $R^2$ correlation between victimization experience and internalizing problems was found in Model 2. Electronic victimization was added in the second block of the regression, and the significant $\Delta R^2$ indicated that electronic victimization added to the relationship above that which was explained by traditional bullying alone ($\Delta R^2 = .036$, $F[1, 143] = 5.57, p = .02$). The semi-partial correlation for traditional victimization was non-significant. However, electronic victimization had a significant semi-partial correlation indicating that it uniquely contributed to the variance in internalizing problems.

**Research Question 3.** Externalizing problems were shown in Model 3 to be significantly correlated with both types of bullying behavior ($R^2 = .153$, $F[2, 143] = 12.91, p = .001$). Electric bullying explained a small, but significant amount of variance over and above traditional bullying for externalizing problems ($\Delta R^2 = .04$, $F[1, 143] = 6.80, p = .01$). Individually, both significant semi-partial correlations of traditional and
Table 1: *Intercorrelations Among Study Measures*

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*Note.* Values in diagonal are internal consistency reliability.

*p < .05  **p < .01  ***p < .001
Table 2: Intercorrelations Between Bully/Victimization Measures and APS-SF

*Internalizing and Externalizing Factors by Gender*

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<th>Measure</th>
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<th>Girls APS-SF Externalizing</th>
<th>Boys APS-SF Internalizing</th>
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*Note: *p < .05 **p < .01*
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<th>$R^2$</th>
<th>$\Delta R^2$</th>
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\* $p < .05$  \** $p < .01$  \*** $p < .001$
electronic bullying indicate each explained significant proportions of the variance in externalizing problems.

**Research Question 4.** A small, but significant correlation between externalizing problems and victimization experience ($R^2 = .092, F[2, 143] = 7.24, p = .001$) was found in Model 4. Here, however, the $\Delta R^2$ was non-significant when electronic victimization was added in the second block of the model. The semi-partial correlation was significant for traditional victimization, but not for electronic victimization.

**Research Question 5.** Model 5 examined gender differences by running each of the above four models separately for boys and girls. Results of the hierarchical regression analyses for each model for boys and girls are presented in Table 4.

In Model 1, bullying was only significantly correlated with internalizing problems for boys in the sample ($R^2 = .167, F[2, 54] = 5.40, p = .007$). However, neither of the semi-partial correlations for traditional and electronic bullying in boys reached significance. The correlations between bullying behaviors and internalizing problems were all non-significant for girls.

Results of gender differences in Model 2 showed a significant correlation between victimization and internalizing problems in boys ($R^2 = .189, F[2, 54] = 6.29, p = .004$), but not for girls. In boys, electronic victimization added a small, but significant amount of variance over and above that which was added by traditional victimization ($\Delta R^2 = .062, F[1, 54] = 4.13, p = .047$). The semi-partial correlations for boys indicate that both traditional and electronic victimization explained a significant amount of the variance in the regression equation in internalizing problems in the boys. Here again, none of the
correlations between victimization experience and internalizing problems were significant for girls.

Bullying and externalizing problems were significantly correlated for both boys ($R^2 = .284, F[2, 54] = 10.71, p = .001$) and girls ($R^2 = .073, F[2, 85] = 3.37, p = .039$) in model 3. However, only the $\Delta R^2$ and semi-partial correlations were significant for boys. Electronic bullying in boys added significantly to the association with externalizing problems beyond what was added by traditional bullying ($\Delta R^2 = .057, F[1, 54] = 4.31, p = .042$). The semi-partial correlations showed that for boys both traditional and electronic bullying added significantly to the regression equation. The semi-partial correlations for girls, however, showed that neither traditional nor electronic bullying added significantly to the regression equation in externalizing problems.

Model 4 revealed that victimization was significantly associated with externalizing problems in boys ($R^2 = .245, F[2, 54] = 8.77, p = .001$) but not girls. For boys, electronic bullying added significantly to the variance over and above traditional bullying ($\Delta R^2 = .104, F[1, 54] = 7.43, p = .009$). The semi-partial correlations for male participants revealed that traditional and electronic victimization both uniquely explained a significant amount of the variance in the regression equation for boys.

**Secondary Analyses**

The study protocol included both demographic questions and a secondary measure of electronic bullying and victimization—the Cyberbullying Offending and Cyberbullying Victimization Scales (CBO/CBV, Patchin & Hinduja, 2010). Two
<table>
<thead>
<tr>
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<th>Problem</th>
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<th>$b^*$</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
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*p < .05  **p < .01  ***p < .001
secondary analyses were conducted. The first of which used the demographic questions to investigate relationships between access and use of technology by study participants and bullying and victimization experience. Information about technology use of study participants may be of use for drawing comparisons between sample characteristics in future studies. The second procedure used the CBO/CBV to test criterion validity of the EBVS.

Relationships between frequency of Internet and cell phone use and frequency of electronic bullying and victimization were examined. Participants were asked to indicate how many hours per day they spent using a computer online, and how many hours per day they spent using a cell phone online, and to rate their average number of visits to social networking sites per day. This third question used a 7-point response scale (1 = several times per day, 7 = never). Frequency of Internet use was not significantly related to electronic bully ($r = .047, p = .58$) or victimization ($r = .019, p = .82$) experience. Conversely, small, but significant correlations were found between frequency of social network site visits and with electronic bullying ($r = -.189, p = .02$) and victimization ($r = -.176, p = .03$). The negative correlations here indicate that a higher number of reported visits to social networking sites was correlated with higher scores on the electronic bully and/or victim measures.

Next, responses to three demographic questions about participants’ smartphone use were analyzed. These questions were as follows: Can you connect to the Internet on your phone, do you get and send instant text messages on your cell phone, photos on your cell phone? Of these three questions, only being able to send and receive photos was
significantly correlated with electronic victimization \( (r = .203, p = .02) \). Students that could access photos on their cell phones were slightly more likely to report being electronically bullied.

The final secondary analysis examined correlations between both EBVS subscales and the CBO and CBV scales and are presented in table 5. Moderately strong criterion validity was found for the EBVS: The correlation between the EBVS bullying subscale and the CBO was moderately high, as well as between the EBVS victimization subscale and the CBV scale.
Table 5: Correlations Between Study Variables and CBO/CBV

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<td>.292***</td>
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</table>

*Note.* Correlations in bold represent tests of concurrent criterion-relate validity of the EBVS bullying and victimization subscales.

* CBO = Cyberbullying Offending Scale, CBV = Cyberbullying victimization Scale

* * * $p < .001$  
** $p < .01$  
* $p < .05$  
$\ast$ $p < .05$  
$\ast\ast$ $p < .01$  
$\ast\ast\ast$ $p < .001$
Discussion

Findings of the current study support and extend recent research in several ways. The multivariate analyses provide further evidence that electronic and traditional bullying are related to problems of adjustment in young people, but they appear also to be related differently to these problems. The current study supports previous findings of gender differences, showing that boys and girls involved in bullying/victimization exhibit different adjustment outcomes. The current study also provides validation of a new electronic bullying/victimization measure and supports previous research on methods of improving measurement of electronic bullying.

Social networking media and technologies are evolving at a rapid rate of change, making achieving accurate measurement of electronic bullying and victimization comparable to hitting a moving target. One of the current study objectives was to build on previous literature regarding challenges related to measurement of electronic bullying in order to design an up-to-date measure. Previous research has shown the importance of broad-spectrum measurement tools that address the many types of media and modalities used by electronic bullies (Fredstrom et al., 2011). To capture an accurate measurement of bullying/victimization, the current study utilized the EBVS scale, developed to include a wide array of up-to-date electronic modalities. Stronger correlations were found between the EBVS subscale and the outcome measures than were found using the CBO/CBV scales (Patchin & Hinduja, 2010). The CBO/CBV includes fewer items related to cell phone and text-based bullying than the EBVS. The increased specificity of items in the EBVS is thought to have more accurately measured overall electronic
bullying behavior. Correlations between the EBVS and the traditional bullying/victimization measure (RBVS; Reynolds, 2003) were also stronger than those found between the CBO/CBV (Hinduja & Patchin, 2010) scales and the RBVS (reported in Table 5).

The main objective of the current study was to research the differential associations between bullying/victimization type and adjustment problems in young people. Though generally, the results of the current study are in line with previous research, some correlations were smaller than expected given previous findings (Bonanno & Hymel, 2013; Cole et al, 2016; Fredstrom et al., 2011, Salmivalli, Sainio, & Hodges, 2013). No research findings reporting on semi-partial correlations were identified in the literature. Therefore, contrasts of these statistics within the context of similar research was not possible.

Previous research has shown that rates of traditional bullying tend to peak during late elementary school, whereas electronic bullying rates tend to increase into high school (Fredstrom et al, 2011; Messias, Kindrick, & Castro, 2014; Turner, Exum, Brame, & Holt, 2013). The majority of participants in the current study were in 7th grade. These students were likely to be experiencing decreasing incidents of face-to-face bullying among their peers, whereas their use of cell phones and social media sites for socializing was just emerging.

Because reported incident rates of overall bullying and victimization were low, and the range of ages of participants is narrow in the current study, associations were smaller than in previous research. However, the methodology of the study is considered
sound and results, though preliminary, indicate that follow-up analyses and/or replication using similar procedures may produce useful new information.

Several sample characteristics may have also influenced the rate of reported bullying and victimization experiences, and reduced the magnitudes of correlations. Schools from which participants were drawn may have lower than average incidents of bullying. All three of the schools were actively implementing bullying prevention and coping skills education programs. Participants are from small-towns and schools with high parent involvement. Harassment from peers may be less likely to go unnoticed. Parent involvement may also provide learning and reinforcement of effective coping strategies, reducing the risk of maladjustment outcomes (Evans et al. 2014). A previous finding shows student-reported rates of bullying are lower when parents and schools take bullying behavior seriously (Hinduja & Patchin, 2013).

Finally, the sample was drawn from rural, low-population density areas of Northern California. These geographic factors may influence the access to and use of technology-based communications, and by default, reduce the likelihood of electronic bullying and victimization.

The discussion of the analyses presented next should be qualified in light of the aforementioned methodological factors and sample characteristics. Results are provisional, and discussion of limitations and recommendations for future research are outlined in the subsequent section.
Primary Study Questions

In Model 1, the Pearson correlations between internalizing problems and each bullying type were similar to previous findings (Bonanno & Hymel, 2013; Perren et al., 2010; Slee, 1995). Looking only at depression in bullies, Perren et al. (2010) and Slee (1995) found $R^2$ values between .10 and .16. Across the four internalizing measures in the current study (suicidal ideation, depression, anxiety and PTSD) the $R^2$ coefficient was half the magnitude of the lower range value of these previous studies. Though the correlation was small, that does not make it negligible per se. Especially as suicidal ideation was one of the internalizing problems measured, even a small correlation is important to investigate closely. Patchin & Hinduja (2010) reported an $R^2$ of .04 between electronic bullying and suicidal ideation, and consider this a meaningful degree of association.

When the model was run separately for boys and girls, the multiple regression coefficient increased for boys, yet the $\Delta R^2$ and squared semi-partialials all remained non-significant. The design of the current study allows for investigation of unique contributions to internalizing problems of each bullying type using the squared semi-partial correlations. These analyses show that neither type of bullying was individually responsible for the significant $R^2$. Given these results, it is clear that factors other than involvement in bullying are contributing to internalizing problems in the participants reporting bullying. Though this finding differs from Slee (1995) and Perren et al. (2010),
it adds impetus for further investigation of the relationships between bullying and internalizing problems.

Model 2 results were somewhat similar to those of Model 1. The first order correlation between the aggregate internalizing problems variable and traditional victimization was lower than previous single-variable comparisons (Siegel et al., 2009; Slee, 1995), but on par with others (Bonanno & Hymel, 2013; Fredstrom et al., 2011). The first order correlation for electronic victimization and internalizing problems was similar to previous findings of single-variable studies (Bonanno & Hymel, 2013; Fredstrom et al., 2011). The multiple regression analysis of the total sample produced an $R^2$ value within the range of previous findings (Bonanno & Hymel, 2013; Fredstrom et al., 2011). Victimization significantly predicted reported internalizing problems, and after controlling for traditional victimization, electronic victimization uniquely explained 3.6% of the variance for the total sample.

Other research (Kowalski & Limber, 2012; Sontag et al., 2011), has also shown the two forms of victimization to be differentially and uniquely associated to internalizing problems. The current analysis provides additional evidence that these two forms of bullying are distinct. Surprisingly, after electronic victimization was added to the initial regression equation, the unique variance contributed by traditional victimization was no longer significant. This was an unexpected finding, as the two similar studies conducted previously found both types of victimization to uniquely add variance to their internalizing variables (Bonanno & Hymel, 2013; Fredstrom et al., 2011).
When the model was run for boys and girls separately, all correlations for girls were non-significant. But for boys, all correlations were significant, and unlike in the analysis of the total sample, traditional victimization added unique variance. Interestingly, traditional victimization actually explained more of the variance in the relationship for boys than did electronic victimization.

Both previous studies employed larger sample sizes, and had higher rates of reported bullying and victimization among their participants. These factors increased their power above that of the current study, and possibly contributed to the discrepancy of results.

Similar to previous findings, results of Model 3 shows that higher rates of bullying involvement significantly predicted higher rates of reported externalizing problems for the total sample. The multiple regression coefficient was within the range of previous findings (Bonanno & Hymel, 2013; Fredstrom et al., 2011; Menesini et al., 2012). After controlling for traditional bullying, electronic bullying explained 4% of the variance over and above traditional bullying. Previous multivariate research reporting on unique associations of externalizing problems and electronic bullying over and above traditional bullying is limited, and no findings with which to compare the analysis in Model 3 are available. For participants in the current study, traditional and electronic bullying involvement both individually contributed to externalizing problems with similar degrees of magnitude.

When gender differences were assessed, the outcome variables were differently predicted by bullying experience for girls and for boys. The association between bullying
and externalizing problems was stronger for boys than girls. Only for boys did bullying (both traditional and electronic) add unique variance to the relationship. Traditional bullying added more unique variance (6.6%) than electronic bullying (5.7%). Unlike the findings for girls in Model 2 (internalizing problems), the $R^2$ correlation in step 1 was significant in Model 3 for girls. Neither type of bullying uniquely explained the variance in girls reporting externalizing problems.

Bullying victimization was also predictive of externalizing problems as shown in Model 4. Previous research about the associations between victimization and externalizing problems is very limited and restricted mainly to substance use (Tharp-Taylor, 2009; Vieno et al., 2010). Model 4 looked at the relationship between all four aggregated forms of externalizing problems and bully victimization. Contrary to expectations based on traditional bullying literature, externalizing problems and victimization were more strongly associated in this sample than were internalizing problems and victimization. Of the four models, only externalizing problems and bullying behavior showed a stronger correlation. Unlike Model 2 (internalizing problems and victimization), Model 4 showed that after controlling for traditional bullying, electronic bullying did not add significant variance in the total sample. Traditional bullying was the only model variable that contributed to the relationship (4.2%).

Here again, attenuation and gender effects likely contributed to the non-significant contribution of electronic victimization in this model. When the model was run separately, the multivariate correlation in step one for boys more than doubled in magnitude from that found for the total sample. For boys, electronic bullying
victimization contributed slightly more unique variance (10.4%) than traditional bullying victimization (9.2%).

The current study provides further support for the need to conduct research that addresses the two types of bullying as separate and unique constructs that potentially serve as different functional strategies for children attempting to navigate the challenges of early adolescent development. At this point, we cannot assume that the two different types of bullying serve different functions, or that the different victimization settings present different risky environments for vulnerable children. Though there is mounting support for the need for research into these possibilities.

Previous research has provided evidence that adolescents view traditional and electronic bullying differently (Vandenbosch and van Cleemput, 2008). Studies also show that the two bullying types do not fit the same definitional criteria. Further, evidence points to the possibility that while some young people are involved in the same roles in across contexts, many engaging in bullying or being victimized in one setting are not engaging in bullying or experiencing victimization in the other setting (Erdur-Baker, 2010; Ybarra & Mitchell, 2004a). The current study supports previous findings showing that traditional and electronic bullying are differently and separately related to psychosocial problems. All of these factors together support the possibility that the two types of bullying may serve different developmental functions, and create different settings of risk for vulnerable youth.
Limitations

There are several limitations to the current study. Results should be interpreted within the framework of the limitations outlined here. First, the size of the sample was small, and statistical power was low. Generalizability of results is limited by the small and rather homogeneous participant pool. The students in the sample were from small cities in rural areas of Northern California. The results of this study may not generalize to more urban populations. The population from which the sample is drawn, however, may be similar to many rural areas of the United States. Such areas may be underrepresented in the current research literature (Evans et al. 2014), and therefore the current study can provide useful information about areas in need of further research. Specifically, larger samples may be able to further investigate and expand upon the gender differences found in the current sample.

The low response rate from schools solicited for participation is a second limiting factor. Few of the schools contacted agreed to participate. Principals indicated reasons for declining participation that may have restricted the heterogeneity of the sample. One such reason cited several times was that the school’s students were currently inundated with information and surveys about bullying. Participation in the study was thought to add too much additional focus on the issue. These schools were likely experiencing occurrences of problematic bullying, whereas schools willing to participate may be atypical in their lower rates of bullying among their students. Another reason often cited by administrators was that parents and staff had voiced discomfort with survey questions.
pertaining to psychosocial problems—especially those addressing suicidality and substance use. Possibly these were issues currently being exhibited by the student populations, leading to parent/administrator fears of making problems worse. Finally, the self-reporting measurement method used in the current sample is known to have limitations related to false-responding, participant confusion about meaning of questions and response fatigue. Steps were taken to reduce response reactivity, ensure survey questions were written at or below a 5th grade reading level, and to provide participants with adequate time for unhurried surveys completion. It should be noted, that none of the participating schools were able to provide space for students to complete the surveys privately, so some reactivity may have resulted.

**Recommendations for Future Research**

The strength of the association between bullying victimization and externalizing behaviors found for boys was surprising. These preliminary results warrant follow-up study to determine if they are replicable or spurious. The is one of the most under-researched relationships in the bullying literature and one potentially in need of greater focus. Given that only for boys did victimization (both types) added significantly to externalizing outcomes, future studies will need to compare outcomes across genders.

The method of examining gender differences used in the current study provided more detail than studies that only control for gender effects in their analyses. Breaking down each model separately for girls and boys added important information that would not have been obvious if gender had been added as a step in the hierarchical regression.
This method of analysis is a strength of the current study, allowing for a better understanding of the relationships analyzed. Clearer information about gender differences may be found in future studies if this method is utilized. Future multivariate studies of gender effects should run separate analyses whenever possible. The lack of significance between female involvement and adjustment problems in three out of the four models was unexpected and warrants follow-up investigation. Studies with larger samples and more typical rates of female bullying/victimization may find meaningful relationships not detected in the current analyses.

The current study did not find age effects, and previous research is mixed regarding age differences of bullying involvement and corresponding maladjustment. Future longitudinal, large-sample research is needed to continue the investigation of age differences, especially as previous work shows that traditional and electronic bullying peak at different ages. Studies that follow large groups of students from late elementary school through high-school will provide vital information about how patterns of involvement and presentation of adjustment issues change over time for youth involved in each type of bullying/victimization.

The small sample size of the current study also negated the inclusion of several important bullying and victimization categories. Previous research has found different outcomes for bully-victims (individuals that bully and are bullied by others) in traditional, electronic and combined settings (Gradinger et al., 2009; Haltigan & Vaillancourt, 2014; Menesini et al., 2012; Sourander et al., 2010). Other research has also found that many students that are traditional bullies and victims are likely to also to be
electronic bullies and/or victims (Mishna et al., 2012; Raskaukas & Stoltz, 2007). Future research including these important categories of bullying/victimization in similar hierarchical analyses may provide a more comprehensive breakdown of explained variance of each variable.

Inclusion of additional predictor variable such as social support, level of parental involvement, presence of in-school anti-bulling programs, etc. are also important for future multivariate research. Adding these variables to the models may allow more of the overall variance in internalizing and externalizing problems to be explained.

Finally, further validation of the EBVS, and frequent updating and revision of the scale is needed. The EVBS has not yet been tested in high-school aged students or in urban settings. The addition of items referencing bullying/victimization in online gaming activities and in several new social networking applications may further improve the scale’s validity.

**Conclusion**

Overall, the current study supports previous findings that students that bully or are victimized in an electronic setting do not necessarily exhibit the same pattern of adjustment problems as students that bully or are victimized in face-to-face settings. The current findings show that experiences of bullying and victimization are associated with a variety of behavioral and psychological problems in young adolescents, and the context in which the bullying or victimization occurs relates to those outcomes.
Middle school is one context during which children’s social interactions and relationships are rapidly transforming, and adolescents are at risk of engaging in bullying and/or victimization (Farmer et al., 2015). The stage-salient tasks of achieving autonomy, strong peer relationships and healthy self-identities come into focus during this developmental phase (Cicchetti & Rogosch, 1999). The transition to middle school can be stressful for young adolescents, as it tends to bring together children that may be unfamiliar to one another, and with diverse backgrounds, characteristics and social skills (Chung et al, 1998). Young adolescents are expected to traverse this new social terrain, while establishing a place within the crowd, making friends and fitting in. If the middle school environment presents inadequate support for the healthy development of an individual, this lack of person-environment fit may lead to problematic developmental outcomes for the individual (Eccles et al., 1993).

From the perspective of developmental psychopathology, it would be likely that if such an individual is unable to achieve the stage-salient tasks of establishing positive peer relations and healthy identity formation within the social environment, he or she is at risk of seeking out maladaptive strategies in an effort to fit in. Bullying others may be one such strategy (Eccles et al., 1993; Pellegrini & Bartini, 2000). Victimization may be the converse outcome for other children lacking appropriate protective factors in their environments to meet their particular psychological needs (Pellegrini & Bartini, 2000; Haltigan & Vaillancourt, 2014).

In order to support children’s healthy development during the sometimes perilous middle school years, it is imperative that they are afforded many opportunities and
resources to master the stage-salient tasks of early adolescence. To this end, bullying research must take steps to continue the investigation of the differences between bullying/victimization across the traditional and electronic settings. Only then can we begin to better understand the different functions they serve and risks they present to adolescents struggling to achieve the developmental tasks of adolescence. And only then, can we begin to identify the appropriate functional replacement skills needed to help children and teens overcome or avoid involvement as bullies and victims.
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Examining the differential roles of medium, publicity, and anonymity for the


Vaillancourt, T., McDougall, P., Hymel, S., Krygsmana, A., Miller, J., Stiver, K., &


Appendices

Appendix A Letter to School Principals

HUMBOLDT STATE UNIVERSITY

Department of Psychology
January 2014

Dear Principal:

My name is Jessica Rismiller Robinson and I am a master’s student in the Academic Research program through the Psychology department at Humboldt State University. I am currently completing my thesis and am writing to request your permission to draw upon your students for participation in my study.

My study looks at traditional (in school) and electronic (internet/phone texting) bullying in middle school students. Specifically, my study will examine these forms of bullying and bully-victimization and their relationship with measures psychological well-being in middle school students. The principal benefit to this study is the contribution of information that may help inform the development of more effective bully intervention programs, especially if electronic bullying shows to be a major source of distress related behavior. Risks include possible fatigue or mild discomfort from completing measures that relate to bullying.

Student participation in the study is completely voluntary. A parent permission letter with a description of the study will be sent to parents and their signed permission will be required for their child to participate. The responses of students will be anonymous and participation will be confidential. Completed questionnaires will be locked in a secure file at Humboldt State University. I am including a copy of the parental consent letter/form that I plan to send parents for their review and consent.

Students for whom informed consent is obtained will be asked to complete several questionnaires that examine bullying in school and on the internet, and several surveys on social and emotional well-being. All measures will be group-administered will take place during a school period that is most convenient for you and your teachers. The survey should take no longer than 45 minutes to complete.
All participating schools will get a summary of the overall findings, and specific information on bullying attitudes at their school. All school names and identification information will be kept confidential and not disseminated.

Should you have any questions, please feel free to contact me at (707) 498-5799, or jlr123@humboldt.edu or Dr. William Reynolds (professor/thesis advisor) at (707) 826-3162 or wr9@humboldt.edu. I would appreciate if you would check off one option on the following page and return the form to me in the included stamped envelope as soon as possible.

Sincerely,

Jessica L. Rismiller Robinson

HUMBOLDT STATE UNIVERSITY
Department of Psychology
ATTN: Jessica L. Rismiller Robinson

RELATIONSHIPS BETWEEN TRADITIONAL AND ELECTRONIC BULLYING AND WELL-BEING IN MIDDLE SCHOOL STUDENTS

Please return this page in the stamped self-addressed envelope at your earliest convenience.

Your willingness to consider this request is greatly appreciated. Thank you.

______ Yes, my school would like to participate in your study.

______ I am interested, but would like you to contact me to answer some questions.

______ No, my school does not wish to participate in your study.
Appendix B Demographic Questions

School Survey Information Sheet

This is a survey to help us understand students in school. There are no right or wrong answers. Please answer honestly – no one will be able to connect your answers to you - but it would help us to understand students if you would give honest answers to all of the questions. Be sure to fill out both the front and back of all pages. Thank you.

Do not put your name on any of the pages. If at any time you feel like stopping, you may do so.

Please do not talk while filling out the surveys. Please answer the questions below and on the attached sheets. Please answer all questions.

1. How many brothers and sisters do you have?_____ 2. How many really good friends do you have? _______

3. On school nights, what time do you usually go to sleep? ____pm  What time do you usually wake up?___am

4. In the past 6 months have you been bullied, hit, called bad names, teased, excluded from groups, or picked on by other students at school? 1 2 3 4 5 None of the time Rarely Some of the time A lot of the time Nearly all of the time

5. In the past 6 months have you been bullied, called bad names, teased, excluded from groups, or picked on by other students on the Internet or by text messages? 1 2 3 4 5 None of the time Rarely Some of the time A lot of the time Nearly all of the time

6. In the past 6 months have you told a teacher or other adult in school that you were being bullied, hit called bad names, teased, or picked on? Yes2 No1 If Yes, how many times?_____

7. In the past 6 months have you told your parents you were bullied at school? Yes2 No1

8. In the past 6 months have you stayed home or skipped school because you were afraid of being bullied, hit called names, or picked on in school? Yes2 No1 If Yes, how many times?__________

Do you have a cell phone? Yes2 No1 If Yes, can you connect to the Internet on your cell phone? Yes2 No1
Do you get and send instant or text messages on your cell phone?  Yes\textsubscript{2}  No\textsubscript{1}
Photos on your cell phone?  Yes\textsubscript{2}  No\textsubscript{1}
About how many hours a day do you spend watching TV during the school week? ________
On the weekend? ________
Do your parent(s) check on what you are looking at on the Internet?
\begin{itemize}
  \item None of the time\textsubscript{1}
  \item Rarely\textsubscript{2}
  \item Some of the time\textsubscript{3}
  \item A lot of the time\textsubscript{4}
  \item Nearly all of the time\textsubscript{5}
\end{itemize}
When was the last time you used the Internet:
\begin{itemize}
  \item In the past\textsubscript{1}
  \item In the past\textsubscript{2}
  \item In the past\textsubscript{3}
  \item 1 or 2 weeks ago\textsubscript{4}
  \item More than 2 weeks ago\textsubscript{5}
\end{itemize}
How many hours a day do you usually spend using the Internet? _____
How many hours would you like to spend? _____
How many hours a day do you spend on personal e-mail or text messaging? ________

\begin{tabular}{|c|c|c|c|c|}
\hline
On your last report card, which of the following best describes the grades that you received? & Mostly A's & Mostly A's & B's & Mostly B's & Mostly B's & C's & Mostly C's & Mostly C's & D's & Mostly D's & Failing grades \\
\hline
Mostly A's & Mostly A's & Mostly B's & Mostly B's & Mostly C's & Mostly C's & D's & Mostly D's & Failing grades \\
\hline
\end{tabular}

Have your grades in school this year gotten:
\begin{itemize}
  \item Much better\textsubscript{2}
  \item Better\textsubscript{1}
  \item Stayed the same
  \item Much worse
  \item Worse
\end{itemize}

On the back of this page and the next are a number of questions about how students feel about themselves and things in general. Please answer each question truthfully, and as you really feel. These questions will help us understand how students in school are feeling. Take your time and read each question before answering. Thank you.
### Appendix C Electronic Bullying and Victimization Scale (EBVS)

Listed below are things that people sometimes experience. Circle the number that shows how often you have done or experienced these things in the past year.

<table>
<thead>
<tr>
<th>Item</th>
<th>Never</th>
<th>Once</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I tried to crash someone’s email account to be mean to that person.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Someone I know upset me by sending me a mean email.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. I put an embarrassing video of someone on YouTube.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. I felt really bad when someone I know put embarrassing pictures or words about me on Facebook (or another SNS).</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. I sent an email to someone I know in order to be mean or hurtful.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. I was upset when someone said embarrassing things about me in a chat room or on a website.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. I tried to hurt someone’s feelings by blocking them from my Facebook page.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. I was really upset by a scary cell phone call from someone I know.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. To be mean, I shared an email someone sent me without the person’s permission.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10. I sent someone a word or picture text message to scare them in a mean way.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11. I felt really hurt by someone blocking me from their Facebook on purpose.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12. I felt scared by things someone I know put about me on Facebook.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13. I was upset when someone shared an embarrassing picture text of me with others.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14. I’ve tried to scare someone in a mean way by posting a video of them on YouTube.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15. I was very upset when someone I know sent me a mean instant message.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16. I was very upset when someone else shared my private email with their friends.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17. I called on a cell phone to scare a person.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18. I was very upset when someone I know put mean pictures or comments about me on Facebook (or another SNS).</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19. I was very upset when someone I know said mean things about me in a chat room or on a website.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20. I felt scared by things someone I knew put about me on YouTube.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>21. I sent a mean instant message to someone I know.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>22. I was very upset when someone tried to crash my email account to be mean to me.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>23. I sent other people an embarrassing picture text of someone I know without that person saying it was okay.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>24. I was very upset when someone I know sent me a scary text message (with words or pictures).</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>25. I posted things about someone in a chat room or on a website to embarrass them.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>26. I felt scared by things about me that someone put on a website or chat room.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>27. I tried to pick on someone I know by putting a mean video of them on YouTube.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td>-----------------------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>28.</td>
<td>I sent a text message (with words or pictures) to someone I know to be mean.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>29.</td>
<td>I posted embarrassing things (pictures or words) about another person on Facebook (or another SNS).</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>30.</td>
<td>I said mean things about someone in a chat room or on a website to hurt them.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>31.</td>
<td>Someone put a mean video of me on YouTube.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>32.</td>
<td>I was really embarrassed when another person put a mean video of me on YouTube</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>33.</td>
<td>I tried to scare someone I know by putting bad things about them on Facebook (or other SNS).</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>34.</td>
<td>I was very upset by a mean text (with words or pictures) from someone I know.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>35.</td>
<td>I felt scared by an instant message from someone I know.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>36.</td>
<td>I tried to scare someone I know by sending a mean instant message to them.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>37.</td>
<td>I tried to hurt someone I know by putting mean things (words or pictures) about them on Facebook.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>38.</td>
<td>I sent a scary email to someone I know.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>39.</td>
<td>Someone called my cell phone to pick on me.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>40.</td>
<td>I tried to scare someone by putting bad things about them on a website or chat room.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>41.</td>
<td>Someone I know upset me by sending me a scary email</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>42.</td>
<td>I used a cell phone to mess with another person on purpose.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Appendix D Cyberbullying and Online Aggression Survey Instrument 2010 Version

Cyberbullying Victimization

Cyberbullying is when someone repeatedly harasses, mistreats, or makes fun of another person online or while using cell phones or other electronic devices.

I have seen other people being cyberbullied.
Never  Once  A few times  Several times  Many times
In my lifetime, I have been cyberbullied.
Never  Once  A few times  Several times  Many times
In the last 30 days, I have been cyberbullied.
Never  Once  A few times  Many times  Every day

In the last 30 days, I have been cyberbullied in these ways...
Never  Once  A few times  Many times  Every day
Someone posted mean or hurtful comments about me online
Someone posted a mean or hurtful picture online of me
Someone posted a mean or hurtful video online of me
Someone created a mean or hurtful web page about me
Someone spread rumors about me online
Someone threatened to hurt me through a cell phone text message
Someone threatened to hurt me online
Someone pretended to be me online and acted in a way that was mean or hurtful to me

In the last 30 days, I have been cyberbullied in these online environments...
Never  Once  A few times  Many times  Every day
In a chat room
Through email
Through computer instant messages
Through cell phone text messages
Through cell phone
PictureMail or VideoMail
On MySpace
On Facebook
On a different social networking web site (other than MySpace or Facebook)
On Twitter
On YouTube
In virtual worlds such as Second Life, Gaia, or Habbo Hotel
While playing a massive multiplayer online game such as World of Warcraft, Everquest, Guild Wars, or Runescape
While playing online with Xbox, Playstation, Wii, PSP or similar device)
Cyberbullying Offending

Cyberbullying is when someone repeatedly harasses, mistreats, or makes fun of another person online or while using cell phones or other electronic devices.

In my lifetime, I have cyberbullied others.
Never  Once  A few times  Several times  Many times

In the last 30 days, I have cyberbullied others.
Never  Once  A few times  Several times  Every day

In the last 30 days, I have cyberbullied others in these ways...
Never  Once  A few times  Many times  Every day
I posted mean or hurtful comments about someone online
I posted a mean or hurtful picture online of someone
I posted a mean or hurtful video online of someone
I spread rumors about someone online
I threatened to hurt someone online
I threatened to hurt someone through a cell phone text message
I created a mean or hurtful web page about someone
I pretended to be someone else online and acted in a way that was mean or hurtful to them

In the last 30 days, I have cyberbullied others in these online environments...
Never  Once  A few times  Many times  Every day
In a chat room
Through email
Through computer instant messages
Through cell phone text messages
Through cell phone
PictureMail or VideoMail
On MySpace
On Facebook
On a different social networking web site (other than MySpace or Facebook)
On Twitter
On YouTube
In virtual worlds such as Second Life, Gaia, or Habbo Hotel
While playing a massive multiplayer online game such as World of Warcraft, Everquest, Guild Wars, or Runescape
While playing online with Xbox, Playstation, Wii, PSP or similar device

Hinduja & Patchin (2010)
Dear Parent or Guardian:

We are writing to ask permission for your child to participate in a research project that we are conducting at your child’s school. Ms. Jessica Rismiller Robinson under the supervision of Dr. William Reynolds, Professor of Psychology at Humboldt State University, is conducting a project that is looking at internet and school bullying. Students in grades 4 through 8 will fill out a paper-and-pencil survey that will take about 45 minutes to complete. Students will complete surveys of bullying, and social and personal well-being that have been used with other students in school settings. Students will also complete a new questionnaire on internet bullying.

The responses your child gives will be completely **anonymous**, which means that your child will never be asked to write his or her name or give any other information that could identify him or her on the survey. Also, your child’s participation will be kept completely confidential. All data and documentation that we collect, including this consent form, will be kept locked in a secure file at Humboldt State University. The results of this study may be published. We will provide your child’s school with a review of the results. No individual student information will be reported in our results.

The survey will include questions about bullying and social and personal well-being that have been used with students in school settings and there have been no negative effects from answering the questions. We do not expect that your child will be exposed to any risks while participating in this study, although he or she may feel mildly fatigued or embarrassed. Your child will also be informed that he or she may refuse to participate when the survey is given out. Also, they may stop at any time. Participation is voluntary and there will not be any compensation for your child’s participation.

It is important that educators and researchers increase their understanding of internet and school bullying. The information collected for this study may be useful to both local schools as well as other educators and researchers interested in this topic.
If you have any questions about this research you may contact Jessica Rismiller Robinson at (707)498-5799 or jlr123@humboldt.edu or William Reynolds at 707-826-3162 or wr9@humboldt.edu. If you have any concerns regarding this project, or any dissatisfaction with any part of this study, you may contact the IRB Chair, Dr. Ethan Gahtan, at eg51@humboldt.edu or (707) 826-4545. If you have questions regarding your rights as a participant, you may report them to the IRB Institutional Official at Humboldt State University, Dr. Rhea Williamson, at Rhea.Williamson@humboldt.edu or (707) 826-5169.

Your child’s school administration has reviewed this project and feels that it can be valuable to the school.

Please complete the Consent Form on the next page stating if you will allow your child to participate in this study. If you do not give permission, please state this on the form.

We would greatly appreciate it if you would have your child return the attached form to his or her school within the next three days. Forms may be returned to the main school office.

Thank you in advance for considering your child’s participation in this project.

HUMBOLDT STATE UNIVERSITY

Relationships Between Traditional and Electronic Bullying and Well-Being in Young Adolescents

INFORMED CONSENT FORM

I have read the attached form that describes the study on internet and school bullying. I understand that Jessica Rismiller Robinson will answer
any questions I may have concerning the investigation or the procedures at any time. I understand that my child’s participation in this research is voluntary and that my child may refuse to participate in the study at any time.

**Please check one of the two options below and have your child return this form to the school within three days**

___ I give informed consent for my child to participate in this study.

___ I do not give informed consent for my child to participate in this study.

Child’s full name (please print) ________________________________ Grade: _____

Parent/legal guardian’s printed name ________________________________

Parent/legal guardian’s signature ___________________ Date ____________

Thank you for your consideration.

Please have your child return this form to the school office as soon as possible.