University of Alberta

Adolescents' Coping Strategies in Hypothetical Bullying Scenarios: The Influence of Bullying Type, Gender, and Reported Frequency of Bullying Involvement

by

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Abstract

The current study investigated the types and effectiveness of strategies female and male adolescents generated in response to hypothetical bullying situations, based on bullying type, and participants reported frequency of bullying involvement. Participants were 225 junior high school students. Students were asked to generate as many strategies as possible in response to four bullying scenarios. Additionally, they completed the Peer Relations Questionnaire (PRQ), which assessed their reported frequency of bullying or victimization. Results revealed that females generated significantly more help-seeking and assertive strategies than males. Adolescents were more likely to respond with aggressive strategies to the physical bullying scenario, to seek help in response to the physical or verbal bullying scenarios, and to generate non-confrontational strategies in the relational bullying scenario. Females generated significantly more effective strategies than males, but overall adolescents generated less than effective solutions. There were small negative correlations between reported frequency of bullying and victimization and solution effectiveness. The results suggest that adolescents do not always know how to effectively address bullying, thus, educating adolescents on different types of bullying and strategies to solve bullying dilemmas is essential.

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Introduction

On Wednesday October 10, 2012, the story of Amanda Todd was broadcast across Canadian media outlets. She was a victim of cyber bullying who committed suicide. Stories like Amanda's poignantly highlight the negative developmental effects associated with bullying victimization, emphasizing the need for attention on this issue. Numerous studies have documented the adverse consequences of bullying, suggesting negative implications for all players involved regardless of their role. For example, victims of bullying may experience negative consequences ranging from difficulties concentrating in the classroom, declining academic performance, missing school, psychosocial problems, frustration, anger, sadness, emotional distress, anxiety, shame, destruction of self-confidence and self-esteem, and social phobia (Beightol, Jevertson, Gray, Carter, & Gass, 2009; Beran & Li, 2007; Patchin & Hindjua, 2010; Scaglione & Scaglione, 2006; Tokunaga, 2010; Ybarra & Mitchell, 2004). Involvement as a bully or bully-victim has also been associated with adverse outcomes on self-esteem (Patchin & Hindjua, 2010).

Bullying has been documented as, and continues to be, a major concern affecting society, especially with our youth. Bullying peaks in early adolescence, during the transitional period from elementary to middle school (Lester, Cross, Shaw, & Dooley, 2012). Canadian studies have reported rates of adolescent involvement in bullying ranging from 20%-50% (Canadian Council on Learning, 2008; Craig & McCuaig-Edge, 2008; Li, 2006; Mishna, Khoury-Kassabri, Gadalla, & Daciuk, 2012; Pepler et al., 2006). The high prevalence rates of

bullying involvement combined with the adverse outcomes of involvement in bullying highlights the need for further research into this pressing social issue.

The issue of bullying has attracted the attention of politicians at the provincial and national levels. In Alberta, Bill 3, The Education Act, came into force in November 2012. Section 31 of The Education Act outlines the responsibilities of students who are referred to as "partners in education." Subsection (e) of Section 21 has indicated a requirement that all students "refrain from, report and not tolerate bullying or bullying behaviour directed toward others in the school, whether or not it occurs within the school building, during the school day or by electronic means." A teacher or principal may suspend a student from school or from any school activity for having breached part of section 31, as outlined in section 36 of the Education Act. At the national level, the federal government has also been asked to respond. In conjunction with the Canadian Red Cross, a new national anti-bullying and anti-discrimination strategy will involve 48,000 youths who will be trained to conduct anti-bullying workshops in communities across Canada (Blackman, 2013).

Although changes brought forth with The Education Act represent a step in the positive direction, other system-level changes need to be made to address bullying. At the school level, bullying prevention initiatives such as the Pink Shirt Day and the Olweus Bullying Prevention Program have been implemented in Alberta schools, and additional ideas and resources for developing such prevention programs have been made available on the Alberta Education website. At the individual or student-level, another major interest is focused on

adolescents' current efforts to cope with their experiences and involvement in bullying. Although previous studies have examined the generation and use of coping strategies in response to hypothetical bullying (Camodeca & Goosens, 2005; Craig, Pepler, & Blais, 2007; Fields & Prinz, 1997; Kristensen & Smith, 2003; Smith et al., 2001; Tenenbaum, 2011), there is insufficient support for patterns of strategy use and generation based on bullying type and reported frequency of bullying involvement, when considering gender. The present study seeks to extend existing research on adolescents' strategy generation in response to hypothetical bullying scenarios. An understanding of how these factors impact strategy generation can be useful to inform school psychologists, educators, parents, and students about appropriate means of responding to bullying dilemmas.

The present study investigated the types of strategies that adolescents generated in response to four hypothetical bullying situations. Specifically, the present study examined (a) differences in the types of strategies females and males generated in response to each hypothetical bullying scenario; (b) differences in the effectiveness of strategies females and males generated in response to each hypothetical bullying scenario; and (c) the relation between reported frequency of bullying involvement and the types and effectiveness of strategies generated.

Literature Review

The following chapter provides a review of the bullying literature, including a discussion of how to define bullying in relation to aggression and how to categorize types of bullying. An examination of differences in regards to age, gender, bullying form, and bullying role will also be presented, followed by a review of the coping literature, as it pertains to bullying. An evaluation will be provided in terms of research that has been conducted in regards to gender and bullying involvement differences in generation of strategies to cope with bullying. A brief discussion of the effectiveness of these strategies will be presented and finally, research questions and hypotheses of the present study will be discussed.

Theoretical Underpinnings

Before delving into the bullying and coping literature, it is essential to highlight the theoretical foundations which contribute to an understanding of this literature. According to Thomas (2005), theory can provide an explanation of how the facts fit together. A theoretical framework can be applied to conceptualize the etiology of bullying and the generation of strategies as a means for coping. As well, this framework can provide structure and cohesion to the empirical research presented below on bullying and coping.

Ecological theory. Ecological theory is useful to conceptualize the origins of bullying. Bronfenbrenner's ecological theory (1993; as cited in Thomas, 2005) viewed development as the product of, and interaction between, variables within multiple levels of systems. Bronfenbrenner (Thomas, 2005) identified the

microsystem as the adolescent's immediate environment, which includes their roles and interpersonal relations in institutions and groups such as the family, school, and peer groups. The next level, the mesosystem, accounts for the relations between two or more microsystems. For example, the influence of family experiences on peer interactions would be considered at this level. The exosystem involves links between the setting and context, in which there is an indirect influence on the immediate setting in which the adolescent lives. For example, school board decisions and bullying legislation which have an impact on an adolescent would be classified as occurring within the exosystem.

From an ecological perspective, bullying originates from the interaction between variables within multiple levels of systems. Because of the multifaceted influence of each system and the interactions within each system on development, it can be difficult to determine the influence of one system completely independently from another. Nonetheless, for specific research purposes it is practical to focus on one level. The present study is situated at the microsystem level.

Bullying

The most widely recognized and accepted definition of bullying was proposed by Olweus. According to Olweus (1993), bullying consists of a repeated physical, verbal or psychological attack in which a person or group exercise an action of power over another person or group with the intent of causing fear and/or harm. The three main characteristics of bullying identified in this definition

are repetition, intent to harm, and an imbalance of power. Repetition refers to the fact that victimization is not an isolated one-time event, but rather it continues over time. Power relates to the power imbalance created between the bully and the victim, where the victim is in a position in which he or she cannot easily defend him or herself. Intention can be a difficult concept to explain, although it seems to be connected with repetition. The fact that bullying is repetitive can illustrate the intention to harm, since conduct is not an inadvertent or isolated incident (Langos, 2012), and the perpetrator may not be caught.

Although Olweus's definition has been widely used there are some potential concerns with measuring bullying in terms of these three key characteristics. Despite researchers' view that repetition, intent to harm, and an imbalance of power are integral to the operational definition of bullying, student definitions of bullying rarely include these three characteristics (Vaillancourt et al., 2008; Ybarra, Boyd, Korchmaros, & Oppenheim, 2012). Rather, the majority of student definitions of bullying included a reference to aggressive behaviours (Vaillancourt et al. 2008). Bullying has therefore been proposed to be a subset of aggression, characterized by a less-powerful person or group being repeatedly and unfairly attacked (Olweus, 1993; Rigby, 2002). The characteristics of repetition, power, and intention can help to distinguish all types of bullying from mere aggression where the power imbalance may not be present, or a person may not experience ongoing victimization.

Defining bullying has practical and empirical applications. A definition can be used for measuring and conceptualizing bullying or it can be applied to the

development and implementation of an intervention. Differences in reported prevalence rates of bullying may be moderately affected by the definition provided. Ybarra, Boyd, Korchmaros, and Oppenheim (2012) indicated that a definition-based measure is based on an assumption that the definition will be read and understood, and this approach may challenge respondents whose experiences differ from the definition provided. Variations in the definition may reflect distinctions between bullying and other types of aggression. Vaillancourt et al. (2008) demonstrated that when students are provided with a definition of bullying, they are likely to report less victimization than students who are not given a definition. Prevalence rates in the literature also vary based on predetermined frequency categories. Solberg et al. (2007) defined bullying as "two or three times a month," which resulted in a more stringent prevalence rate than if they had operationalized bullying as "once or twice a month." Although prevalence rates have varied widely based on different definitions used, Canadian studies have shown that a minimum of 20% of adolescents were involved in bullying every year (Canadian Council on Learning, 2008; Craig & McCuaig-Edge, 2008; Pepler et al., 2006). These prevalence rates are indicative of the significant percentage of youth that are impacted by bullying every year.

The definition of bullying is in a continual state of evolution. Two key factors that have contributed to changes in the definition of bullying include technological advances and a historical progression from direct to indirect forms of bullying. Categorizing bullying into types (physical, verbal, relational, and cyber) and forms (direct and indirect) has allowed researchers to capture and

explain some of the evolutions to the traditional definition of bullying as provided by Olweus (1993). Additional categorizations based on age and gender help illustrate the varying prevalence rates of bullying.

Bullying type. Four distinct types of bullying have been identified in the literature: physical, verbal, relational, and cyber (Wang, Iannotti, Luk, & Nansel, 2010). Physical, verbal, and relational types of bullying can be referred to as traditional forms of bullying, because they typically occur in person, whereas cyber bullying occurs via electronic media (Law, Shapka, Hymel, Olson, & Waterhouse, 2012; Wang et al., 2010; Ybarra et al., 2011). Direct interactions between bullies and victims are typically classified as physical or verbal bullying. Physical bullying refers to one person exerting physical power over another individual (Atlas & Pepler, 1998), and may include hitting, kicking, punching, or physically stealing a person's belongings. Verbal bullying refers to verbal comments such as yelling, cursing, name calling, teasing (Law et al., 2012; Rivers & Cowie, 2006). Relational bullying may be a direct or indirect type of bullying that occurs in person, face-to-face, or behind a victims' back, and impacts relationships. Relational bullying may include behaviours such as name calling, isolation from peers, gossip, rumor spreading, and social exclusion (Rivers & Cowie, 2006). Although Wang, Iannotti, Luk, and Nansel (2010) found that most students reported bullying occurred most frequently at school, changes to widespread access to digital technology have introduced new opportunities and means for bullying to occur (Ybarra & Mitchell, 2007). A definition of cyber bullying can result from a literal approach to interpreting "cyber" and "bullying"

(Langos, 2012), where bullying is defined based on Olweus's definition (1993), and cyber means generated by technology. By applying this definition, cyber bullying is characterized by a power differential between those who bully and those who are victimized, repeated harm over time, and an intention to harm (Olweus, 1993).

A unique aspect of cyber bullying is that it occurs through a variety of technological media such as computers, mobile phones, or other information and communications technology (Kirkiakidis & Kavoura, 2010; Langos, 2012). Although one major distinction between traditional and cyber bullying is the medium through which bullying takes place, a more serious problem associated with cyber bullying is that it has an extended shelf life, by following a person home from school and eliminating the home as a safe environment (Kiriakidis & Kavoura, 2010; Patchin & Hinduja, 2010). Further, an isolated cyber bullying incident can leave an electronic trail, which may result in repeated harm over time from a single event or occurrence. Additional distinctions from traditional bullying have noted differences in cyber bullying such as potential anonymity of the bully, lack of parental supervision, and the ease of accessibility of a victim or target (Tokunaga, 2010).

Wang et al. (2010) found that the prevalence of involvement in bullying (as a bully or a victim) was highest for verbal bullying, compared to physical, relational, and cyber bullying. The most commonly reported types of bullying behaviours were calling someone mean names and social isolation (i.e., ignoring). The two most commonly reported types of victimization were types of verbal and

relational bullying: being called mean names and having rumours spread about them. Previous studies examining cyber bullying have typically reported prevalence rates from approximately 10 to 35% (Hinduja & Patchin, 2008; Li, 2007; Patchin & Hinduja, 2010), while other studies reported prevalence rates closer to 50% (Li, 2006; Mishna et al., 2012). These rates appear to be in line with the rates of traditional bullying (Canadian Council on Learning, 2008; Craig & McCuaig-Edge, 2008; Pepler et al., 2006). Several researchers have suggested a correlation between traditional and cyber types of bullying (Mishna et al., 2012; Schneider, O'Donnell, Stueve, & Coulter, 2012; Twyman, Saylor, Taylor, & Comeaux, 2010; Li, 2006). Twyman et al. (2010) indicated that the majority of children who were cyber bullies or victims reported they were also traditional bullies or victims. Schneider et al. (2012) discovered that nearly two thirds of all cyber bullying victims were also traditional bullying victims, and more than one third of traditional bullying victims were also cyber bullying victims.

Bullying form. Another categorization of bullying, briefly introduced in the previous section, is between direct and indirect forms (Langos, 2012). Early research on bullying focused on direct forms of aggression, while later research has considered a wider range of bullying behaviours that include covert forms of aggression. Direct bullying is characterized by a direct interaction between the bully and victim, intended to have a direct and immediate effect on the victim. Face-to-face, direct bullying may include physical bullying such as hitting and kicking, damaging the personal property of a victim, or verbally bullying the victim such as name-calling. Direct cyber bullying may include threats or name-

calling, occurring through electronic communications such as email, chat rooms, text messaging, and instant messenger (Kiriakidis & Kavoura, 2010). Conversely, indirect bullying consisted of relational types of bullying such as social exclusion and spreading rumors (Wang et al., 2009). Indirect cyber bullying behaviours may include intentionally excluding a classmate from an online group; posting jokes, rumours, gossip, or embarrassing comments about a classmate on the Internet which have the potential to spread to an infinite audience, and the victim may have knowledge of multiple recipients being privy to personal communication (Calvete, Orue, Estévez, Villardón, & Padilla, 2010; Langos, 2012; Pachin & Hinduja, 2010).

Indirect cyber bullying has maintained the same characteristics of bullying as outlined by Olweus (1993); however, these characteristics may take on a different meaning in the context of indirect cyber bullying. Repetition may refer to the number of times a comment or image can be viewed. As is the case for traditional bullying, the fact that bullying is repetitive can illustrate intention to harm; an indirect bullying role in cyber bullying affords anonymity and may be done without worry about repercussions of behaviour. Finally, indirect cyber bullying redefines the power imbalance between victim and bully (Calbete, Orue, Estevez, Villardon, & Padilla, 2010), which can occur simply as the result of the number of people who observe or act as bystanders to cyber bullying without intervening.

Bullying role. Many researchers have emphasized two categories of involvement in bullying: bullying and victimization. Additional categories have been reported in the literature, including bystanders, not involved, and bully-

victims (Marini, Dane, Bosacki, & Cura, 2006; Mishna et al., 2012; Peskin et al., 2006; Solberg et al., 2007; Wang et al., 2010). It has been suggested that 26-38% of people involved in bullying may be playing a dual role, acting as both the victim and the bully (Marini et al., 2006; Wang et al., 2010).

Victims. Research has suggested that victims are often those who experience peer relational difficulties, such as having fewer friends, having friends who are incapable of protecting them, or being rejected by the peer group (Coleman & Byrd, 2003; Hodges, Malone, & Perry, 1997; Lester et al., 2013; Marini et al., 2006); however, adolescents with friends are not exempted from victimization. These intrapersonal problems may precede, maintain, or result in consequence from victimization. Although it may not be possible to predict who will become a victim of bullying, additional risk factors associated with victimization include social anxiety, depression, loneliness, somatization, and low self-esteem (Goldbaum, Craig, Pepler, & Connolly, 2003).

It is also suggested that those who belong to a social group minority may be singled out. When Frisen, Jonsson, and Persson (2007) asked adolescents their opinions on why children were bullied, the majority of them indicated that it was related to the victims appearance (40%), closely followed by the victims behaviour (36%). Factors such as sexual orientation (e.g., Fedewa & Ahn, 2011), ethnicity (e.g., Koo, Peguero, & Shekarkhar, 2013), and the existence of a disability (e.g., Blake, Lund, Zhou, Kwok, & Benz, 2012) have been documented for their relation to an increased likelihood of victimization.

Bullying victimization has been associated with a number of adjustment difficulties in childhood, including emotional and behavioural problems (Bowes, Maugan, Caspi, Moffit, & Arseneault, 2010). Being a victim may produce such negative consequences as difficulties concentrating in the classroom, declining academic performance, missing school, psychosocial problems, frustration, anger, sadness, emotional distress, anxiety, shame, destruction of self-confidence and self-esteem, and social phobia (Beightol et al., 2009; Beran & Li, 2007; Patchin & Hinduja, 2010; Scaglione & Scaglione, 2006; Tokunaga, 2010; Ybarra & Mitchell, 2004). Bullying victimization has also been linked with an increased likelihood of psychological distress across all measures from depressive symptoms and suicidal ideation to reports of self-injury and suicide attempts (Ttfoi, Farrington, Losel, & Loeber, 2011). Rivers and Cowie (2006) also found that over half of students who were bullied reported contemplating self-harm behaviours or suicide as a result of being victimized at school.

Bullies. According to previous research, bullies tend to be aggressive, impulsive, and dominant in their interactions with others (Postigo, Gonzalez, Mateu, & Montoya, 2012; Rigby, 1997). Strohmeier, Wagner, Spiel, and von Eye (2010) suggested that bullies may have underlying motives such as a need for power or affiliation, or an inability to manage their anger effectively. Further, Strohmeier et al. (2010) reported bullying trends that were moderately to highly stable over time, suggesting bullies who engage in negative behaviours may receive reinforcement which can prompt the bullies' continued engagement in the behaviours. Card and Little (2007) make the important distinction between

instrumental aggression (i.e., deliberately enacted and directed toward obtaining desired goals) and reactive aggression (angry, often emotionally dysregulated, response to perceived offenses or frustrations). Evidence of the heterogeneity of bullies as a group is supported by differences in bullies who exhibit these two types of aggression; instrumental bullies, as opposed to reactive bullies, have been found to be quite intelligent and socially savvy (Card & Little, 2007).

Involvement in bullying, regardless of whether a person was involved as a bully or victim, was associated with lower levels of self-esteem (Patchin & Hinduja, 2010). The relationship between victimization and self-esteem was stronger than for bullying and self-esteem, indicating cyber bullying victimization had a greater influence on self-esteem than did being a cyber bully. Cyber bullies and/or victims also had higher scores on a suicidal ideation scale and had an increased probability of having attempted suicide than those not involved in cyber bullying. Ybarra and Mitchell (2004) found further support for the negative impacts of bullying involvement on bullies. They reported that bullies have more problematic behaviours than their victims, such as purposefully damaging property, physically assaulting a non-family member, or stealing. Victims had more emotional and behavioural difficulties than those who were not involved in cyber bullying (Ttofi et al., 2011; Ybarra & Mitchell, 2004). These results suggested that bullying was a crucial issue to address not only because of the influence on victims, but the influence on bullies as well. Further investigation is warranted on the influence of bullying on all participants involved.

***Bully-victims*.** Bully-victims represent a group who maintain some characteristics of bullies, and other characteristics of victims. Research into bully-victims has indicated that there may in fact be overlap between the subgroups of bullies and victims. It has been theorized that the anonymity afforded by the Internet allows victims to "get back at" a bully, and in fact become the bully themselves (Tokunaga, 2010), however, the directionality of this pattern has not been clarified. Unnever (2005) suggested that the bully-victim group was distinct from that of a pure bully or a pure victim, by highlighting differences in the types of bullying and victimization for bully-victims, bullies, and victims. In comparison to pure bullies, bully-victims were more likely to physically bully and less likely to verbally bully other students, and were more likely to be physically victimized than pure victims. Furthermore, bully-victims were less proactively aggressive, but more reactively aggressive than pure bullies, and were more proactively aggressive than pure victims.

Bully-victims may be at the greatest risk of negative mental, emotional, physical, and social outcomes (Lester et al., 2012). When compared to groups who were categorized as bullies, as victims, or as not involved, adolescent male bully-victims reported more problem behaviours, poorest psychological health, most physical injuries, and the poorest school attitudes (Stein, Dukes, & Warren, 2006). These findings have emphasized the importance of looking distinctly at bullies, victims, and bully-victims for differences in order to develop interventions that can reduce the negative long-term consequences associated with bullying involvement.

Social learning theory. Bandura's social learning theory can provide a theoretical framework to contextualize the complex social phenomena of bullying. When adolescents are presented with new social models, they seek to reproduce what they observe. This process, termed modeling, describes the imitation of a person's behaviour through direct or symbolic observation (Burton, Mehta, & Ray, 2003). Social cognition theorists such as Albert Bandura proposed that most of a child's learning comes from actively imitating or modeling what others say and do (Thomas, 2005). Although adults, and in particular parents, have been a primary model, peers and peer groups have also served as social models. Véronneau and Vitaro (2007) found that children who do not possess the social or cognitive skills necessary to gain acceptance by peers may observe and model "popular" peers to learn these skills.

Social learning theory may be an important determinant of which behaviours manifest and occur but behavioural principles (i.e., reinforcement) are necessary for the maintenance of such behaviours. Behaviourist principles of reinforcement dictated that children are most likely to model behaviours they see being reinforced in others, and to avoid engagement in behaviours they see being ignored or punished (Burton et al., 2003). Richard and Schneider (2005) reported that adolescents have a natural desire for social acceptance, which may become a primary focus. For example, adolescents will attempt to abide by peer group norms in order to avoid the negative consequences of failing to conform, such as anxiety and low self-esteem, which are often provoked by peer group rejection for

not fitting in (Véronneau & Vitaro, 2007). It is apparent that by adolescence, peers play a key role in the presentation and reinforcement of social behaviours.

Age. Bullying is a behaviour that exists across the lifespan. Reportedly, bullying peaks when students are transitioning from elementary school to middle school (Lester et al., 2012). Bullying has also been identified as a problem for other ages, existing in various forms in adulthood (Monks et al., 2009; Samnani & Singh, 2012), making this a prevalent issue across the lifespan. A significant portion of the bullying and cyber bullying literature is focused on the adolescence period, when there is a strong emphasis on peer relationships. Adolescence is a developmental period identified by the onset of puberty, and the transition out of childhood. Monks et al. (2009) suggest that in general, adolescents and adults used more indirect and less physically confrontational forms of bullying, which may be more "socially acceptable" and less easy to identify by on-lookers as bullying. Conversely, younger children were more likely to use direct and physical forms of bullying.

Adolescence. The transition out of childhood is accompanied by marked physical, cognitive, and social changes. In adolescence the amount of time spent with peers increases from previous stages (Lansford, Criss, Pettit, Dodge, & Bates, 2003). As children face these changes, they transition into a phase of identity exploration, with an emphasis on the development of a personal identity. Waterman (1985) defined a personal identity as an overarching set of personally meaningful values, beliefs, and future aspirations. Adolescence has been identified as a key time to develop a sense of self and a personal identity (Erikson,

1950; Marcia, 1966; Thomas, 2005). Erikson's model for psychosocial development outlined that from ages 12 to18 years, adolescents would face a major conflict referred to as the identity crisis. According to this model, adolescents passed through two stages of identity formation: identity versus isolation, and identity versus identity diffusion (Erikson, 1950; Thomas, 2005). Erikson suggested that peer-group affiliations and social interactions were essential to healthy identity development in adolescence, because these relations enabled adolescents to explore interests and ideologies, to test their abilities to form intimate peer relationships, and to relinquish psychological dependence on their parents while retaining a sense of belonging (Erikson, 1950). Adolescents working through an identity crisis may be more susceptible to the influence of others (Thomas, 2005), and may be at an increased risk for becoming involved in bullying.

Gender. When examining the prevalence of bullying based on gender, research has suggested no significant differences between the overall reported rate of involvement in bullying, when collapsing over the categories of bully, victim, or bully-victim (Bjorkqvist, 1994; Coyne, Archer, & Eslea, 2006). However, research has suggested differences in the types of bullying experienced by males and females (Bjorkqvist, 1994; Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010; Monks et al., 2009). Studies on direct and indirect bullying have consistently shown that males were more involved in direct bullying (e.g., physical and verbal bullying), whereas females were more involved in indirect bullying (e.g., rumor spreading and social exclusion) (Bjorkqvist, 1994; Monks et

al., 2009). Mishna et al. (2010) also found this to be true in cyber bullying where males were more likely to be victims and/or perpetrators of direct bullying (e.g., threatening) and females were more likely to be victims and/or perpetrators of indirect bullying (e.g., spreading rumors or pretending to be someone else).

Bullying summary. With an estimated 20% of adolescents involved in bullying every year (Canadian Council on Learning, 2008; Craig & McCuaig-Edge, 2008; Pepler et al., 2006), bullying is a significant event impacting Canadian adolescents. Although prevalence rates vary across age, gender, and bullying type (i.e., physical, verbal, relational, and cyber), it is apparent that a significant number of adolescents are involved in bullying and are therefore at risk for potentially negative impacts. A major consideration, and the focus of the current research, was how adolescents potentially tackle and solve bullying dilemmas.

Coping

The term coping has been applied to understand adolescents' responses to a stressful event (i.e., bullying) and what strategies they employ to buffer the negative impact of bullying involvement on adverse emotional and psychological outcomes (Garcia, 2009; Machmutow, Perren, Sticca, & Alsaker, 2012). According to Lazarus and Folkman (1984) the term coping refers to a conscious process of "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands [and conflicts among them] that are appraised as taxing or exceeding the resources of a person" (p. 141). Research has suggested that raising children to be independent, resilient, and strong problem

solvers can prepare them to face bullying (Scaglione & Scaglione, 2006), emphasizing the importance of cognitive and behavioural efforts to manage the stressful impacts of bullying involvement. These efforts, or strategies, are relevant for the sustainment of emotional and psychological well-being in response to bullying involvement.

Information-processing theory of social problem-solving. Dodge's (1986) information processing theory of social problem-solving can be applied to facilitate the understanding of strategy generation as a means of coping with bullying. According to this theory, adolescents apply past social experiences, social expectancies, and pre-existing knowledge, concepts, and attitudes to solve social problems. This approach states that adolescents solve social problems through a six-step process (Crick & Dodge, 1994). Initially, external and internal cues must be encoded and interpreted. Interpretation may consist of a causal analysis of the events that occurred and self-evaluations. Interpretations are typically guided or influenced by social schemata, scripts, and social knowledge, which may also be altered by the interpretation process. The third step involves formulating a goal to resolve the incident. For example, goals may be to stay out of trouble, get even with an instigator, or even to make a friend. The fourth step is to generate strategies to achieve the goal. Strategies generated may be based on past experiences, or if the situation is novel, they may construct new behaviours. The fifth and sixth goals involve evaluating the likely success of the potential strategies, followed by enacting the behaviour(s).

The information-processing theory of social problem-solving can be used to conceptualize the approach adolescents may take in tackling the issue of bullying. The information-processing theory of social problem-solving has been exemplified by the analysis of children's use of aggression as a problem-solving strategy. Applications to the empirical study of aggressive behaviour have consistently shown that aggressive participants perceive, interpret, and make decisions about social information in ways that increase the likelihood of their engagement in aggressive behaviours (Crick & Dodge, 1994; Dodge & Crick, 1990). This theoretical framework can also be applied to the understanding of adolescents' generation of passive, non-confrontational, help-seeking, or assertive strategies in response to social problems such as bullying. Following the same line of reasoning used by Crick and Dodge (1994) and Dodge and Crick (1990), it is assumed that adolescents' perceptions, interpretations, and decisions about the social situation will influence the type of strategies they generate.

Strategies to address bullying. Findings regarding adolescents' coping with bullying involvement have suggested a wide range of strategies are employed. Adolescents who were victimized cope by generating and using a variety of potential solutions (Lazarus & Folkman, 1984; Machmutow et al., 2012; Zeidner & Endler, 1996) including supportive strategies (e.g., seeking social support from adults, teachers, friends, or external institutions); technical strategies (e.g., report abuse buttons, blocking the sender); avoidant strategies (e.g., doing nothing, ignoring, distancing, selective attention); active strategies (e.g., seeking information, making plans, retaliation, confrontation); and problem-

focused strategies (e.g., altering the environmental pressures, barriers, resources, procedures). Previous research has demonstrated trends in strategy usage based on age, gender, and bullying involvement.

Developmental considerations. Aldwin and Revenson (1987) suggested that the use of coping strategies has a developmental sequence in childhood. For example, an act of thumb sucking can be viewed as a child's attempt to self-soothe in response to a difficult or stressful situation. The types of strategies employed in response to stressful social situations vary as a function of age. As children mature, they tend to become more aware of and use a wider variety of strategies (Fields & Prinz, 1997). Craig, Pepler, and Blais (2007) suggested that avoidance strategies such as ignoring or doing nothing increase in popularity with age. However, Camodeca and Goossens (2005) suggested that younger children are more likely to use avoidant strategies such as nonchalance and older children are more likely to use emotion-focused strategies such as retaliation. Fields and Prinz (1997) suggested that early adolescents had a tendency to use more emotion-focused strategies (e.g., cognitive restructuring and social support) but later adolescents and young adults used more problem-focused strategies (e.g., direct problem-solving, problem-focused aggression, and independent attempts to solve the problem) than emotion-focused strategies.

Gender. Some gender differences in the generation and use of strategies have emerged. Patterns of youth responses to bullying situations appear to be in line with the motivations for males and females behaviour in bullying involvement, and suggest a link between bullying involvement and type of

strategies employed. Bijttebier and Vertommen (1998) found support for the view that males' social coping skills may be more closely related to overt forms of aggression, and they were more likely to use aggressive strategies such as confrontation, physical aggression, revenge, or retaliation. Females' social coping skills reflected a correlate of social neglect and intentional exclusion from the peer group, and as a result they were more likely to use relational help seeking strategies such as telling someone. Previous studies (Kristensen & Smith, 2003; Smith et al., 2001; Tenenbaum, 2011) also found that females reported crying or seeking support from friends or adults more often, whereas males more often reported externalizing strategies such as fighting back.

Bullying involvement. When examining whether the strategies employed by bullies, victims, and bully-victims differ, it has been suggested that strategies to cope are linked to the motivations for involvement in bullying, as a bully, victim, or bully-victim. Bijttebier and Vertommen (1998) found that both victims and socially isolated children appeared to use more internalizing reactions, while both bullies and bully-victims showed elevated levels of externalizing strategies. Kristensen and Smith (2003) also reported that children classified as bully-victims engaged in externalizing (i.e., avoidance) behaviours significantly more than non-involved children and victims. This result is also consistent with Aland, Finland, Olafsen and Viemero (2000) who found that in response to stressful encounters at school bully-victims used more aggressive strategies and more self-destructive strategies, relative to victims and those who were not involved. Tenenbaum, Varjas, Meyers, and Parris (2011) discovered that victims most often used

problem-focused strategies, with particular emphasis on the use of externalizing and seeking social support.

Effectiveness of coping strategies. To examine whether strategies to cope with bullying were effective, Tenenbaum, Varjas, Meyers, and Parris (2011) asked victims of bullying, in grades four to eight, about their strategies. Despite preferences in the types of strategies employed, the overall consensus among the group was that their implemented strategies were ineffective in resolving their problems. Other researchers have also found support for the idea that adolescents use ineffective strategies to cope with bullying (Compas, Malcarne, & Fondacaro, 1988; Hampel, Manhal, & Hayer, 2009; Monks et al., 2009). Hampel, Manhal, and Hayer (2009) discovered that victims of any type of bullying were characterized by an increased use of ineffective coping strategies as well as heightened emotional and behavioural problems with the most unfavourable pattern among adolescents confronted with direct as well as relational victimization. Machmutow, Perren, Sticca, and Alsaker (2012) suggested that passive and non-confrontational strategies such as ignoring the problem, self-blaming, or doing nothing are also ineffective and non-productive reactions. Although these avoidance oriented strategies may be useful after a single aggressive incident, Tokunaga (2010) outlined that other strategies were more effective if the frequency and severity of the episodes increase, as they do in bullying. Compared to active approaches such as seeking help, Monks et al. (2009) reported that passive strategies such as crying are less effective. These

results have suggested that it is best to use an active approach or strategy that is specifically targeted at addressing the problem.

Studies examining problem-focused coping strategies, which are aimed at modifying the stressor by actively changing the external situation, suggest promising results. Hampel et al. (2009) found that adolescents categorized as victims who generated problem-focused coping strategies, as measured by a coping questionnaire, demonstrated diminished unfavourable effects on psychological functioning. Compas, Malcarne, and Fondacaro (1988) also suggested that generation and use of problem-focused strategies was associated with a decrease in emotional or behavioural problems, whereas the use of emotion-focused alternatives was associated with an increase in emotional or behavioural problems. When Kristensen and Smith (2003) examined adolescents' coping strategies in response to hypothetical bullying situations, their results further indicated the preference to use strategies of self-reliance/problem-solving, distancing, and/or seeking social support in response to bullying. The least used coping strategies were passive and aggressive strategies of internalizing or externalizing.

Coping summary. Numerous studies have examined how adolescents cope with bullying involvement by generating and using a variety of strategies (Camodeca & Goossens, 2005; Craig et al., 2007; Fields & Prinz, 1997; Kristensen & Smith, 2003; Smith et al., 2001; Tenenbaum, 2011). Generation and use of these strategies have been shown to vary across gender and bullying categorization (i.e., bully, victim, or bully-victim). The focus of the current

research was what strategies adolescents generate to potentially tackle and solve hypothetical bullying dilemmas.

The Present Study

Bullying is a pressing social issue, with reported rates of bullying ranging from 20%-50% (Canadian Council on Learning, 2008; Craig & McCuaig-Edge, 2008; Li, 2006; Mishna et al., 2012; Pepler et al., 2006). A wide range of adverse outcomes of involvement in bullying, such as difficulties concentrating in the classroom, emotional distress, or destruction of self-esteem, have been documented (Beightol et al., 2009; Beran & Li, 2007; Patchin & Hindjua, 2010; Scaglione & Scaglione, 2006; Tokunaga, 2010; Ybarra & Mitchell, 2004). The high prevalence rates of bullying involvement combined with the adverse outcomes of involvement in bullying highlights the need for further research into what is being done to address this pressing issue. Previous studies have examined how adolescents generate strategies to cope with bullying involvement (Camodeca & Goossens, 2005; Craig et al., 2007; Fields & Prinz, 1997; Kristensen & Smith, 2003; Smith et al., 2001; Tenenbaum, 2011); however, there is insufficient support for patterns of strategy generation based on gender and reported frequency of bullying involvement. The present study seeks to extend existing research on adolescents' strategy generation in responses to hypothetical bullying scenarios. Although the use of hypothetical scenarios is not novel, the present study also examined gender, bullying type (including cyber bullying), and reported frequency of bullying involvement (i.e., bullying or victimization), which

are factors that have not been considered or have demonstrated inconsistent findings in previous studies on coping with bullying.

The primary objective of this study was to examine the types of strategies formulated by early adolescents in response to four hypothetical bullying scenarios (physical, verbal, relational, and cyber). Specifically, the present study examined (a) differences in the types of strategies females and males generated in response to each hypothetical bullying scenario; (b) differences in the effectiveness of strategies females and males generated in response to each hypothetical bullying scenario; and (c) the relation between reported frequency of bullying involvement and the types and effectiveness of strategies generated.

Research Questions and Hypotheses

1. a) Are there differences in the type of strategies generated by adolescents based on the type of bullying (i.e., physical, verbal, relational, or cyber) depicted in the hypothetical scenarios? This question was exploratory in nature, thus no hypotheses were proposed.

1. b) Do males and females generate different strategies in response to the hypothetical bullying situations? Previous research indicates differences in the generation and use of strategies by males and females age 10 to 15 (e.g., Kristensen & Smith, 2003), so it was expected that males' and females' strategy generation would differ. Specifically, males were expected to generate more aggressive strategies, while females were expected to generate more assertive and help seeking strategies.

2. a) Are there differences in the effectiveness of strategies generated based on the bullying type (i.e., physical, verbal, relational, or cyber) depicted in the hypothetical scenario? This question was exploratory in nature, thus no hypotheses were proposed.

2. b) Are there differences in the effectiveness of strategies generated by males and females? In line with the prediction that females would generate more help seeking and assertive strategies, while males would generate more aggressive strategies, it was predicted that females would generate more effective strategies than males.

3. a) Do adolescents' frequency of reported bullying involvement (i.e., reported frequency of bullying or victimization) relate to strategy generation? Because adolescents learn through imitation and modeling (Bandura et al., 1961; Burton et al., 2003) it was expected that their reported frequency of bullying and victimization would be related to their generation of strategies to cope with bullying. This hypothesis was guided by trends in strategy generation based on role (Aland et al., 2000; Bijttebier & Vetommen, 1998; Kristensen & Smith, 2003; Postigo et al., 2012; Strohmeir et al., 2010) and the motivations for engagement in bullying and/or victimization. Specifically, it was hypothesized that adolescents who reported engaging in higher rates of bullying would generate more aggressive strategies, because people who report high rates of bullying tend to be aggressive or have difficulty controlling their anger (Postigo et al., 2012; Rigby, 1997; Strohmeir et al., 2010). Adolescents who reported higher rates of victimization were expected to generate more passive and non-confrontational

strategies, because people who report high rates of victimization tend to have peer relational difficulties (Coleman & Byrd, 2003; Hodges et al., 1997; Lester et al., 2013; Marini et al., 2006).

3. b) Do adolescents' frequency of reported bullying involvement relate to the effectiveness of strategies generated? It was predicted that adolescents who reported higher frequency of victimization would generate less effective approaches to cope. This hypothesis was supported by research (Compas et al., 1988; Hampel et al., 2009; Monks et al., 2009) suggesting that victims of bullying typically generate and use maladaptive strategies. Examining the effectiveness of strategies generated by adolescents with higher rates of bullying was exploratory in nature, thus no hypotheses were proposed.

Method

Participants

Two hundred twenty-five junior high school students (135 females and 90 males) participated in this study. The students were recruited from 7 different schools in both public and separate school boards in the greater Edmonton area. For this study, of the 1200 information letters that were distributed, 225 students (whose parents also agreed to participate in the larger study), were included for an overall participation rate of 19 per cent. The participation rate varied by school, ranging from 6 to 33 per cent. One hundred twenty-five students were in grade 7 and one hundred were in grade 8, with a mean age of 12.74 years. Demographic information was collected from parents of the participating students as part of a larger study. According to this data, the majority of adolescents' parents were born in Canada (79%), followed by Philippines (4.4%), England/UK (4%), India (2.2%), USA (1.3%), and Vietnam (1.3%). The majority of the participants' parents reported that their first language was English (81%).

Measures

Alternative solutions task. A revised version of the Alternative Solutions Task (Caplan, Weissberg, Bersoff, Ezekowitz, & Wells, 1986) was used to assess adolescents' abilities to generate alternative solutions to hypothetical bullying problems. Participants read four short scripts about peer interactions involving bullying (see Appendix A). Participants were instructed to imagine they were the story protagonist. The scripts used varied in theme and were related to well-known problems experienced by adolescences, including problems related to

physical, social/verbal, relational, and cyber bullying. After reading each script, participants were asked: “What would you do if this happened to you?” Participants were asked to think of and list as many solutions as they could for each situation.

Solutions were categorized as one of five types: aggressive, passive, help-seeking, non-confrontational, and assertive (see Appendix B). Aggressive solutions included actions such as direct physical assault on the person (e.g., hitting, pushing, fighting), third-party physical assault, object-oriented aggression (e.g., taking something), and verbal assaults. Passive strategies included solutions where the adolescent sacrificed his/her own rights and allowed the other party to achieve their goals (e.g., cry, walk away, do nothing). Help seeking solutions involved someone else in solving the problem by tattling, soliciting third-party advice (e.g., asking an adult for advice), or soliciting peer aid without physical aggression (e.g., getting help from peers). Non-confrontational solutions included those that allowed the adolescent to meet his/her own needs and avoid a confrontation, argument, discussion, or fight with another person. Examples of non-confrontational solutions were ignoring, actively pursuing own needs through ignoring, walking away, or waiting until the bully leaves. Finally, assertive solutions involved statements or questions used to assert or defend the adolescent’s rights, requests for a redirection of the other party’s behaviour, stated nonviolent threats or gestures, and information seeking (e.g., asking questions about the other party’s motives or perceptions).

Descriptive statistics, conducted as part of the larger study, revealed that overall, the most common type of solutions used across all of the scenarios were help seeking (36%), followed by assertive strategies (29%). The next most common type of strategies was non-confrontational strategies (20%), followed by aggressive strategies (11%). Lastly, passive strategies comprised approximately 4% of the total strategies. A frequency was derived for each of the adolescents' strategy types which allowed for the calculation of the percentage of students that reported at least one strategy from each type. Across all of the bullying scenario types, nearly 97% of adolescents reported at least one help seeking strategy. At least one assertive strategy was provided by 87% of adolescents, and at least one non-confrontational strategy was reported by 80% of adolescents. At least one aggressive strategy was reported by 41% of adolescents. Finally, 27% of adolescents provided at least one passive strategy.

Solutions were rated by two independent raters as Very Ineffective, Ineffective, Effective, or Very Effective (Caplan et al., 1986). These ratings were given a value of 1, 2, 3, and 4, respectively. The mean effectiveness rating of solutions was taken across each of the four bullying scenarios. Very ineffective responses included mainly aggressive solutions such as "I would hit back," "I would give dirty looks," or "I would get my friends to bully or shun the offender." Effectiveness was based on how well the solution maximized positive consequences and minimized consequences for the self and others, how plausible and possible the solutions were, and how much social skillfulness was displayed.

A frequency was derived for each of the hypothetical bullying scenarios which allowed for the calculation of the percentage of adolescents' strategies that were rated as effective or very effective. Approximately 70% of adolescents' strategies in response to the relational bullying scenario were rated as effective or very effective. Strategies in response to the physical and verbal bullying scenarios were rated as effective or very effective 62 and 60 percent of the time, respectively. Lastly, just over half of the strategies in response to the cyber bullying scenarios (54%) were rated as effective or very effective.

Two independent research assistants coded a random sample of 20% of the participant responses. Interrater reliability was calculated using Cronbach's alphas, which were as follows: $\alpha = .95$ (aggressive strategies), $\alpha = .62$ (passive strategies), $\alpha = .97$ (help seeking strategies), $\alpha = .99$ (non-confrontational strategies), and $\alpha = .97$ (assertive strategies). For the effectiveness ratings, the Cronbach's alpha was $\alpha = .77$.

Peer relations questionnaire (PRQ). The PRQ (Rigby & Slee, 1993) consists of a set of 20 questions (see Appendix A) which measure students' tendency to bully others, to be victimized by others, and to engage in prosocial behaviour in school. Six questions related to the tendency to bully others (e.g., "I like to make other kids scared of me"), six related to the tendency to be victimized by others (e.g., "I get picked on by other kids "), and four questions dealt with the tendency to act in a prosocial or cooperative manner (e.g., "I share things with others"). As well, there were four filler items.

Students responded based on how often each statement was true of them. The response categories included “never,” “once in a while,” “pretty often,” or “often.” Responses for each item were scored according to a 4-point Likert-like scale from never (1) to often (4). High scores on this measure indicate greater frequency of bullying, victimization, or prosocial behaviours. For the present study, scores were calculated for the bullying and victimization subscales only. The internal consistency reliabilities (Cronbach alphas) for these subscales were $\alpha = .71$ (bully) and $\alpha = .84$ (victim).

Procedure

After receiving ethics approval from the institutional review boards, administrators, and teachers, data was collected between October 2008 and May 2009. During this time, a research assistant visited classes at each of the seven schools chosen. An information letter outlining the study and procedures (see Appendix C) and consent forms (see Appendix D) were distributed for students to take home for their parent(s) to sign. Students who returned parent permission forms were asked to complete anonymous, self-report questionnaires in their classroom or library. Students were asked to complete questionnaires packages in school assigned blocks (60-90 min). Students who did not receive parental consent or chose not to participate were provided with reading material on bullying while their classmates completed the questionnaires. Participants were also given this material upon completion of the study. Students were given a list of approved resources and contacts if any concerns from participation in the study were raised.

Rationale for Analyses

As preliminary analyses, descriptive statistics were conducted for the strategies generated and for the effectiveness of adolescent solutions. These results are presented in Table 1 and Table 2, respectively. A series of repeated measures analyses of variance (ANOVAs) were used to assess possible interaction effects between gender and bullying scenario type for each of the five types of solutions generated on the AST. A repeated measures ANOVA was also conducted to examine possible interaction effects between bullying scenario type, gender, and the effectiveness of the solutions generated on the AST. Finally, Spearman correlations were carried out in order to determine whether there were associations between reported rate of bullying involvement and strategy type and between reported rate of bullying involvement and effectiveness of strategies generated for each of the four scenario types.

ANOVA assumptions. For the repeated measures ANOVAs that were conducted, some assumptions were made. To ensure the validity of the findings, these assumptions were tested and, where necessary, corrections were made. The *assumption of homogeneity of variance* states that the variance for all scores contributing to a level of the independent variable or combination of levels of independent variables is required. Results of Levene's test are non-significant for strategy effectiveness ($F_{(1,219)} = .310$, *ns*) and strategy type ($F_{(1,219)} = .763$, *ns*) indicating that the variances of scores contributing to levels of these variables are not significantly different, thus the assumption of homogeneity of variance is tenable.

The *assumption of sphericity* states that the variances of differences for all pairs of repeated factors must be equal. To test whether this assumption was violated, Mauchly's Test of Sphericity was run. This test simultaneously evaluates two assumptions: (1) that the levels of the within-subjects variable have equal variances, and (2) that the pairs of levels of the within-subjects variable are correlated to the same extent. When this assumption is violated, there is an increase in the Type I error rate (i.e., the likelihood of detecting a statistically significant result when one does not exist). In places where the data failed to meet this assumption, a Greenhouse-Geisser correction factor/adjustment was applied by multiplying the degrees of freedom for the *F* ratio by the respective epsilon value and evaluating the significance of *F* against these adjusted degrees of freedom.

Table 1

Means and Standard Deviations of Female and Male Strategy Generation Across Four Bullying Scenario Types

	Physical Bullying				Verbal Bullying				Relational Bullying				Cyber Bullying				Overall			
	Females[a]		Males[b]		Females[a]		Males[b]		Females[a]		Males[b]		Females[a]		Males[b]		Females[a]		Males[b]	
	$\bar{x}$	*SD*	$\bar{x}$	*SD*	$\bar{x}$	*SD*	$\bar{x}$	*SD*	$\bar{x}$	*SD*	$\bar{x}$	*SD*	$\bar{x}$	*SD*	$\bar{x}$	*SD*	$\bar{x}$	*SD*	$\bar{x}$	*SD*
Strategy type																				
Aggressive	.44	.91	.49	.80	.30	.59	.34	.69	.15	.42	.29	.67	.18	.42	.33	.66	1.08	1.87	1.48	2.41
Passive	.16	.83	.10	.34	.17	.41	.09	.29	.13	.33	.11	.32	.05	.22	.01	.11	.51	1.07	.30	.68
Help seeking	1.20	.67	.88	.56	1.20	.72	.88	.54	.98	.62	.78	.61	1.09	.58	.88	.56	4.47	1.88	3.39	1.62
Non-confrontational	.54	.96	.46	.60	.64	.74	.60	.61	.70	.76	.74	.73	.34	.51	.35	.53	2.23	1.95	2.18	1.82
Assertive	1.18	1.08	.76	.81	.83	.79	.59	.65	.93	.87	.53	.66	.87	.88	.48	.64	3.80	2.37	2.34	1.92

[a] $n = 133$. [b] $n = 88$.

Table 2

Means and Standard Deviations of Female and Male AST Effectiveness Ratings

	Females			Males		
	Mean	*SD*	*n*	Mean	*SD*	*n*
Scenario Type						
Physical bullying	2.81	1.07	134	2.43	1.07	90
Verbal bullying	2.74	1.01	133	2.53	.95	90
Relational bullying	2.94	.88	134	2.68	.90	90
Cyber bullying	2.70	1.03	134	2.30	.94	88

Results

Adolescent Solutions to Hypothetical Bullying Scenarios

To address research questions 1a and 1b, a series of repeated measures ANOVAs were conducted to determine whether the frequency and type of solutions generated varied by gender and type of bullying scenario. In each analysis, gender was the between-subjects variable with two levels. The type of bullying scenario was the within-subjects/repeated variable, which included the four types of scenarios: physical bullying, verbal bullying, relational bullying, and cyber bullying. For each of the five repeated measures ANOVAs, the frequency of one type of strategy was the dependent variable. Results were considered statistically significant when tests of within-subjects effects were significant at the .05 level. Table 3 presents the between-subjects and within-subjects effects revealed in each of the five analyses.

Aggressive strategies. Mauchly's test indicated that the assumption of sphericity had been violated (χ^2 (5) = 67.846, $p < .05$); therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity (ε = .814). The results show that the gender by scenario type interaction was found to be not significant for aggressive strategies, $F_{(2.44,535.07)} = .747$, *ns*, $\eta^2 = .003$.

A significant difference was found between the number of aggressive solutions reported across each of the hypothetical bullying situations, $F_{(2.44,535.07)} = 12.624$, $p < .01$, $\eta^2 = .055$. Subsequent post-hoc analysis, using Bonferroni correction revealed where these differences occurred. Specifically, adolescents

generated significantly more aggressive solutions for the physical bullying scenario (M = .47, SD = .06) than for the verbal (M = .33, SD = .04), relational (M = .22, SD = .04), and cyber bullying (M = .26, SD = .04) scenarios. The main effect of gender was not found to be significant, $F_{(1, 219)} = 1.935$, *ns*, $\eta^2 = .009$. Figure 1 displays aggressive solutions reported by males and females across each of the four scenario types.

Passive strategies. Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(5) = 200.95$, $p < .05$); therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity (ε = .61). The gender by scenario type interaction was not significant for passive strategies, $F_{(1.83, 401.55)} = .324$, *ns*, $\eta^2 = .001$. As well, no significant difference was found between the number of passive solutions reported across each of the hypothetical bullying situations, $F_{(1.83, 401.55)} = 2.59$, *ns*, $\eta^2 = .012$. The main effect of gender was also found to be not significant, $F_{(1,219)} = 2.820$, *ns*, $\eta^2 = .013$. Figure 2 provides a visual of these results.

Help seeking strategies. Mauchly's test indicated that the assumption of sphericity had not been violated ($\chi^2(5) = 2.642$, *ns*). The gender by scenario type interaction was not significant for help seeking strategies, $F_{(3,657)} = .921$, *ns*, $\eta^2 = .004$. When examining the help seeking solutions generated by adolescents, a significant within-subjects effect was revealed, $F_{(3,657)} = 4.736$, $p < .01$, $\eta^2 = .021$. Post-hoc analyses using Bonferroni correction revealed that significantly more help seeking strategies were generated in response to the physical bullying

scenario (M =1.03, SD = .04) and the verbal bullying scenario (M = 1.04, SD = .05) than the relational bullying scenario (M = .88, SD = .04). No other comparisons differed significantly. There was also a significant between-subjects effect revealed for gender, $F_{(1,219)} = 19.487$, $p < .001$, $\eta^2 = .082$. Specifically, females reported significant more help seeking strategies (M = 4.47, SD = 1.881) than males (M = 3.39, SD = 1.615). Figure 3 allows for an examination of female and male responses for help seeking solutions across each of the four scenarios.

Non-confrontational strategies. Mauchly's test indicated that the assumption of sphericity had been violated (χ^2 (5) = 61.998, $p < .05$); therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity (ε = .830). The gender by scenario type interaction was not significant for non-confrontational strategies, $F_{(2.49, 545.45)} = .431$, *ns*, $\eta^2 = .002$. There was a significant within-subjects effect for non-confrontational solutions, $F_{(2.49, 545.45)} = 15.688$, $p < 0.01$, $\eta^2 = .067$. Follow up post-hoc analyses using Bonferroni correction revealed that significantly more non-confrontational strategies were generated in response to the relational bullying scenario (M = .626, SD = .048) than the physical bullying scenario (M = .507, SD = .057) and the cyber bullying scenario (M = .345, SD = .035). As well, significantly more non-confrontational strategies were generated in response to the verbal bullying scenario than the cyber bullying scenario. No other comparisons differed significantly. The main effect of gender was not significant, $F_{(1,219)} = .039$), *ns*, $\eta^2 = .000$. Figure 4 illustrates non-confrontational solutions reported by females and males across each of the four scenarios.

Assertive strategies. Mauchly's test indicated that the assumption of sphericity had been violated (χ^2 (5) = 27.152, $p < .05$); therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity (ε = .919). The gender by scenario type interaction was not significant for assertive strategies, $F_{(2.76, 603.62)} = .581$, *ns*, $\omega^2 = .003$. A significant within-subjects effect was found for assertive solutions, $F_{(2.76, 603.62)} = 7.275$, $p < 0.01$, $\eta^2 = .032$. Post-hoc analyses using Bonferroni correction revealed that significantly more assertive strategies were generated in response to the physical bullying scenario (*M* = .965, *SD* = .068), than the verbal bullying scenario (*M* = .707, *SD* = .051), the relational bullying scenario (*M* = .726, *SD* = .055), and the cyber bullying scenario (*M* = .671, *SD* = .054). There was a significant between-subjects effect of gender, $F_{(1, 219)} = 23.083$, $p < .001$, $\eta^2 = .095$. Specifically, females generated significant more assertive strategies (*M* = 3.80, *SD* = 2.373) than males (*M* = 2.34, *SD* = 1.923). Figure 5 allows for the examination of these main effects.

Table 3

Summary of Repeated Measures ANOVAs for Strategy Type

Source	Strategy type	*df*	*F*	*p*	η^2
Gender	Aggressive	1	1.935	.166	.009
	Passive	1	2.820	.052	.013
	Help-seeking	1	19.487**	<.001	.082
	Non-confrontational	1	.039	.845	.000
	Assertive	1	23.083**	<.001	.095
Scenario type	Aggressive	2.44	12.624**	<.001	.055
	Passive	1.83	2.587	.808	.012
	Help-seeking	3	4.736**	.003	.021
	Non-confrontational	2.49	15.688**	<.001	.067
	Assertive	2.76	7.275**	<.001	.032
Gender x Scenario type	Aggressive	2.44	.747	.524	.003
	Passive	1.83	.324	.095	.001
	Help-seeking	3	.921	.430	.004
	Non-confrontational	2.49	.431	.731	.002
	Assertive	2.76	.581	.627	.003

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

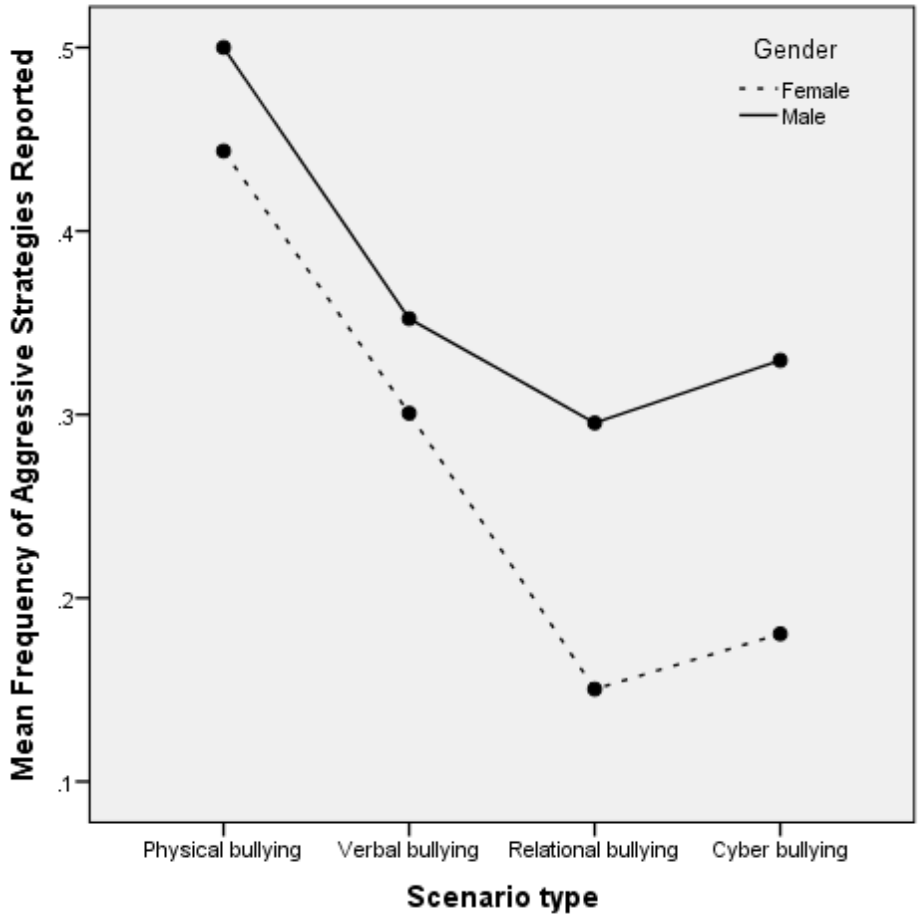

Figure 1. Scenario type by gender interaction for aggressive strategies reported

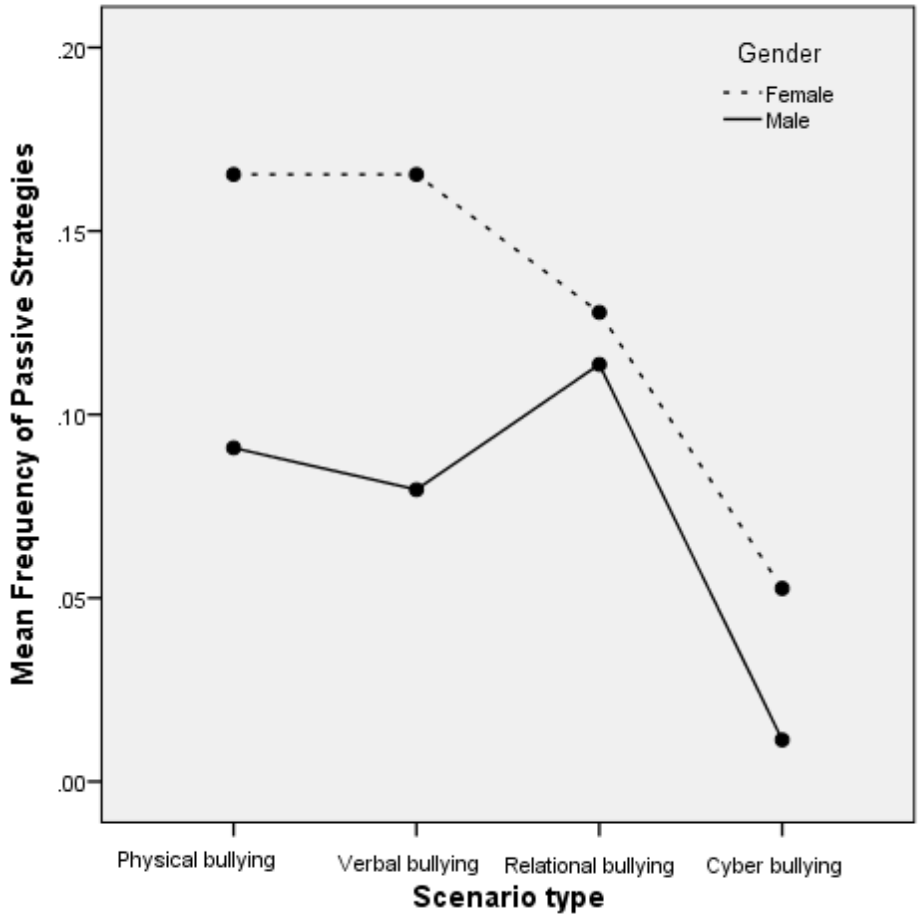

Figure 2. Scenario type by gender interaction for passive strategies reported

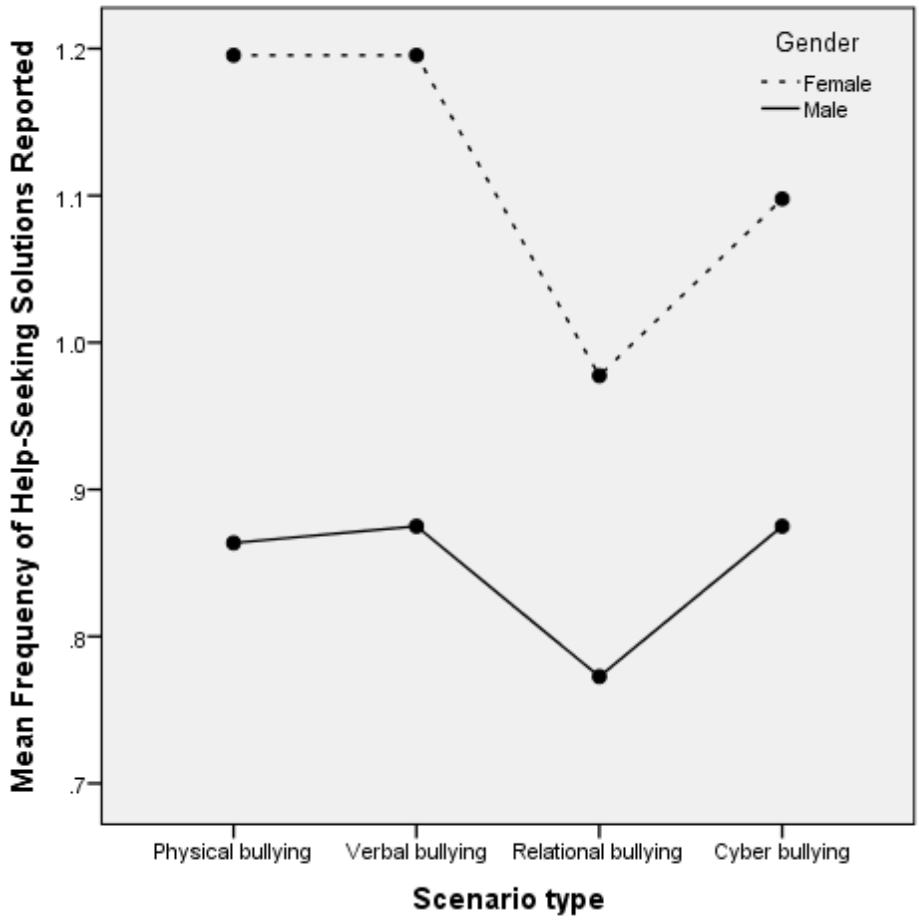

Figure 3. Scenario type by type by gender interaction for help seeking strategies reported

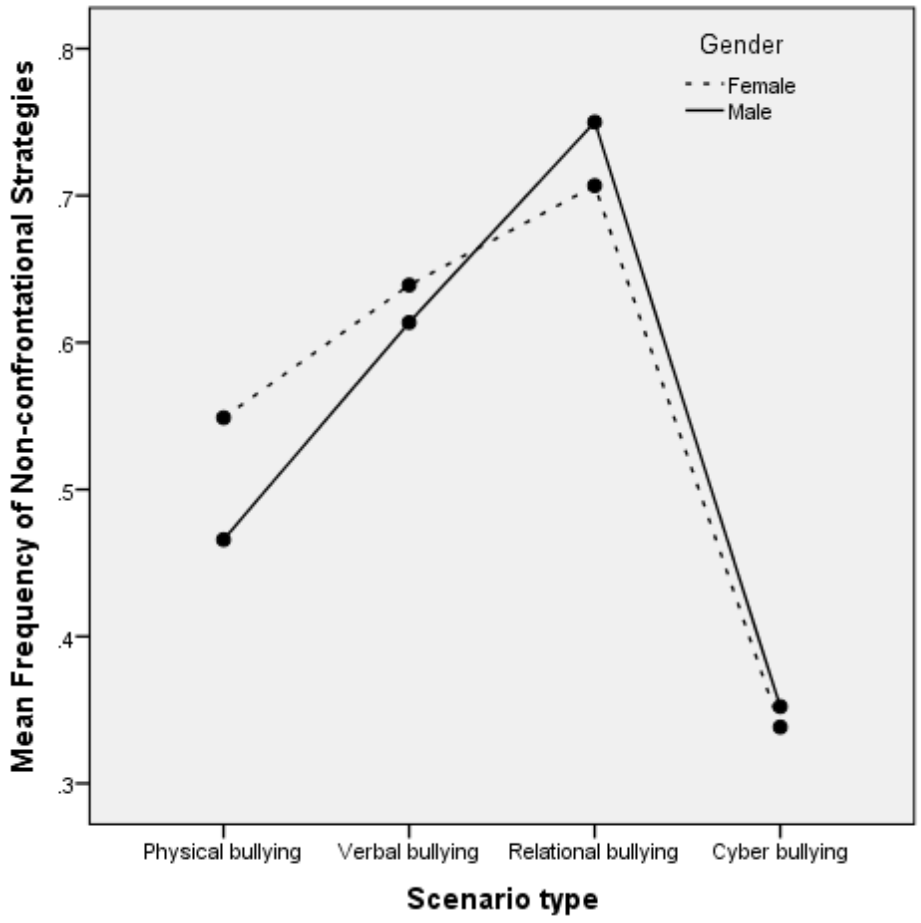

Figure 4. Scenario type by type by gender interaction for non-confrontational strategies reported

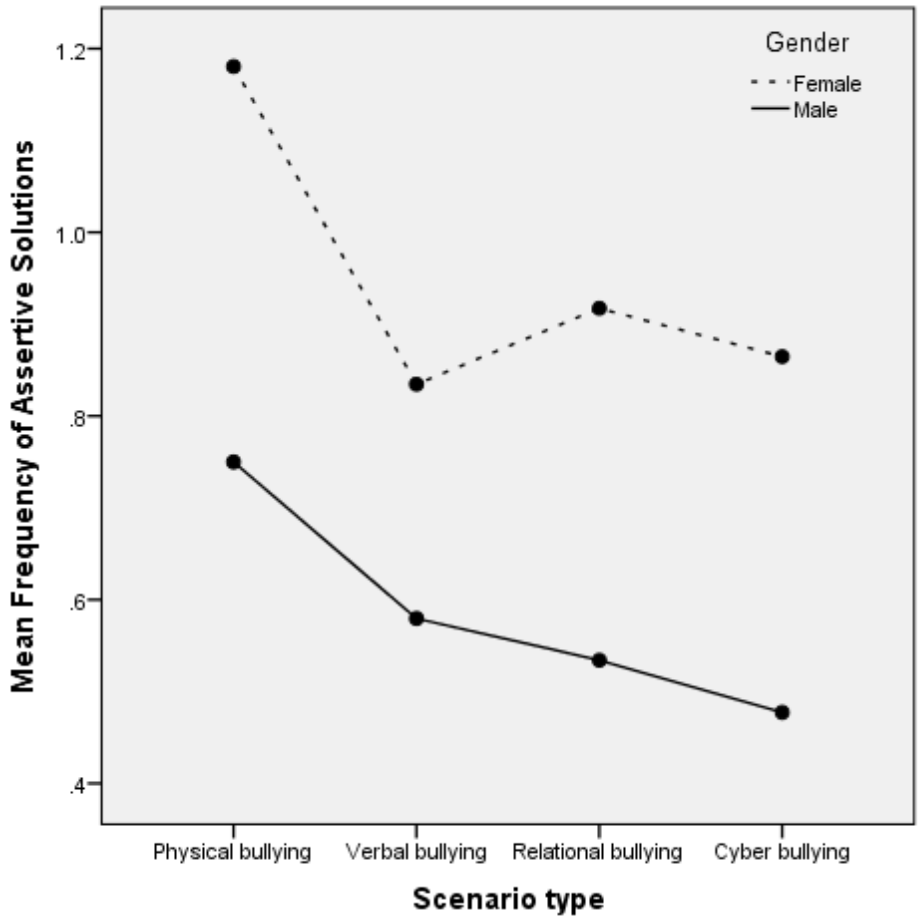

Figure 5. Scenario type by type by gender interaction for assertive strategies reported

Effectiveness of Solutions

To determine if differences existed in the mean effectiveness rating of strategies between the four types of hypothetical bullying scenarios, a repeated measures ANOVA was conducted. Scenario type was the within-subjects/repeated variable and included physical bullying, verbal bullying, relational bullying, and cyber bullying. Gender was the between-subjects factor. The mean effectiveness rating of strategies generated by adolescents was the dependent variable. Mauchly's test indicated that the assumption of sphericity had been violated (χ^2 (5) = 31.13, $p < .05$); therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = .91$). Table 4 shows a summary of the repeated measures ANOVA results.

Differences in effectiveness based on scenario type. Results of the repeated measures ANOVA revealed a significant main effect of scenario type, $F_{(2.73, 596.78)} = 6.508$, $p < .001$, $\eta^2 = .029$. Follow up t-tests for all possible pairwise comparisons were conducted using a Bonferroni correction. Results of these analyses revealed a significant difference in the mean effectiveness rating of strategies in response to the relational bullying scenario compared to the physical bullying, verbal bullying, and cyber bullying scenarios. Specifically, the mean effectiveness rating was significantly higher in response to relational bullying scenario (M =2.801, SD =.061) than the physical bullying (M =2.612, SD = .074), verbal bullying (M =2.630, SD =.068) and cyber bullying (M =2.494, SD =.068) scenarios. No other significant comparisons were reported.

Differences in effectiveness based on gender. Results of the repeated measures ANOVA revealed a significant main effect of gender, $F_{(1, 219)} = 8.923$, $p < .003$, $\eta^2 = .004$. Specifically, the mean effectiveness rating was higher for females than for males.

Gender by scenario type interaction. The gender by scenario type interaction was not significant, $F_{(2.73, 596.78)} = .822$, *ns*, $\eta^2 = .039$. Figure 6 provides a visual of the results for this analysis. Females provided the most effective strategies in response to the relational bullying scenarios ($M = 2.94$), and provided the least effective strategies for the cyber bullying scenarios ($M = 2.70$). As with females, males also provided the most effective strategies for the relational bullying scenarios ($M = 2.68$), and the least effective strategies for the cyber bulling scenarios ($M = 2.30$).

Table 4

Repeated Measures ANOVA for AST Effectiveness Ratings

Source	*df*	*F*	*p*	η^2
Gender	1	8.923**	.003	.039
Scenario type	2.73	6.508**	<.001	.029
Gender x Scenario type	2.73	.822	.472	.004

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

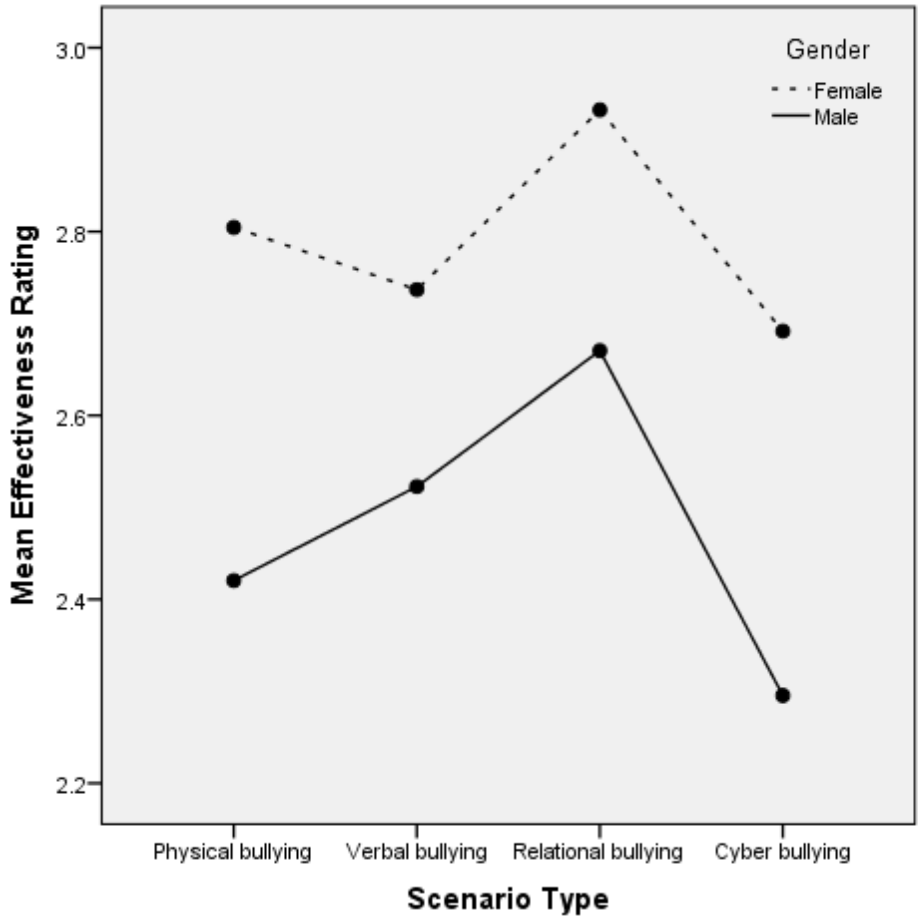

Figure 6. Scenario type by Gender Interaction for Mean Effectiveness Ratings

Associations with Reported Frequency of Bullying Involvement

Correlations were conducted to determine if the scores for involvement in bullying and victimization were related to the different strategy types. Correlations were also run to determine if the scores for involvement in bullying and victimization were related to the effectiveness of strategies generated in each of the four scenarios. In both cases, Spearman rank-order correlation coefficients were selected because the variables being correlated were on an ordinal scale, meaning they were presented by relative importance of order or magnitude, but not absolute values. Interpreting the correlations enables us to determine the strength and direction of association between two variables.

Solution type. Adolescents' reported frequency of victimization was positively correlated with their reported frequency of bullying (r = .288, p < .001), suggesting there are adolescents who would be categorized as bully-victims, due to their reported involvement in both bullying and victimization behaviours. The reported frequency of bullying was positively correlated with the number of aggressive strategies (r = .269, p < .001), and negatively correlated with the number of help seeking strategies (r = .213, p = .002). Reported frequency of bullying can explain approximately 7% of the variability in aggressive strategies (r^2 = .072) and approximately 4% of the variability in help seeking strategies (r^2 = .045). The correlations between reported frequency of bullying and passive, non-confrontational, and assertive strategies were not significant (r_s = .005, -.020, -.097, *ns*). Adolescents reported frequency of victimization was negatively correlated with the number of assertive strategies they generated (r = -.154, p =

.023). Approximately 2% of the variability in assertive strategies can be explained by reported frequency of victimization (r^2 = .024). The correlations between reported frequency of victimization and the other types of strategies (aggressive, passive, help-seeking, and non-confrontational) were not significant (r_s = .109, -.062, -.071, .012, *ns*). The frequency of aggressive strategies were positively correlated with the frequency of passive strategies (r = .201, p = .003) and help seeking strategies (r = .135, p = .045). The frequency of assertive strategies were positively correlated with the frequency of passive strategies (r = .164, p = .015), help seeking strategies (r = .268, p < .001), and non-confrontational strategies (r = .140, p = .037). No other correlations between the frequencies of different types of strategies were significant.

Solution effectiveness. The reported frequency of bullying was negatively correlated with the effectiveness of strategies (r = -.222, p = .001). The reported frequency of victimization was also negatively correlated with the effectiveness of strategies (r = -.155, p = .021). Reported frequency of bullying can explain approximately 5% of the variability in effectiveness of strategies (r^2 = .049), and reported frequency of victimization can explain approximately 2% of the variability in effectiveness of strategies (r^2 = .024).

Discussion

The current study examined the types of strategies that adolescents generate in response to hypothetical bullying scenarios as well as the effectiveness of these strategies. Additionally, the current study examined the association between the strategies generated and the adolescents' reported frequency of involvement in bullying. The following section will review the results of this study and provide an interpretation in relation to theory and practice. Limitations of the present study will be presented along with directions for future research. Finally, the implications of this research will be discussed.

Adolescent Solutions to Hypothetical Bullying Scenarios

One of the objectives of this investigation was to explore the types of solutions adolescents generated in response to hypothetical bullying scenarios. Adolescents' responses were examined to determine if there were any effects across scenario (i.e., physical, verbal, relational, cyber bullying) or gender. The results suggest that context is an important consideration for adolescents when responding to bullying situations, given that adolescents did not necessarily use the same strategies for all situations. These results have important implications for educating adolescents on problem-solving and coping skills in response to bullying.

Strategy type. Although aggressive solutions were among the least common strategies, at least 41% of adolescents generated at minimum one aggressive solution. When reviewing aggressive strategies, it became apparent that

adolescents did not generate aggressive strategies equally across hypothetical bullying situations. Rather, aggressive strategies were generated significantly more frequently in response to the physical bullying scenario, than the verbal, relational, or cyber bullying scenarios. Adolescents seemed more likely to generate solutions that imitated or modeled the bully's behaviour, based on the principles of social learning theory (Bandura et al., 1961). Because bullying is defined as a subset of aggression (Vaillancourt et al. 2008), the use of aggressive strategies in an attempt to solve the problem may have the opposite effect of solving the problem, and in fact perpetuate the cycle of bullying.

There were also significant differences in the number of help seeking solutions generated across the four scenarios. Significantly more help seeking strategies were generated in response to the physical and the verbal bullying scenarios than the relational bullying scenario. There are two potential explanations for why adolescents were more likely to ask for help in the physical and verbal bullying scenarios. First, it is possible that adolescents do not feel equipped to cope with these situations independently, and thus seek the help of others. Researchers posit that it is important for adolescents to involve others in solving bullying dilemmas because of the power imbalance between bullies and victims, which may be equalized with the help of an adult or a peer (Camodeca & Goossens, 2003). An alternative explanation is that adolescents may readily recognize physical and verbal bullying as serious forms of aggression and thus feel the need to involve others. Kochenderfer-Ladd (2004) found that seeking advice from others was positively related to the resolution of a bullying dilemma.

Help seeking strategies were least common in the cyber bullying scenario. Adolescents may have been less likely to seek help from others in response to the cyber bullying scenario out of fear of losing enjoyable privileges (e.g., having and using mobile phones and their own Internet access) or because of the expectation that an adult would either recommend ignoring the situation or be unable to offer any advice/suggestions due to unfamiliarity with cyber space (Machmutow et al., 2012). Adolescence is an important time for peer connections and independence from adults (Erikson, 1950), thus a successful approach to addressing cyber bullying should allow adolescents to maintain their autonomy while eliminating the negative impacts of victimization.

Non-confrontational strategies were also found to be generated differently by adolescents depending on the bullying scenario. Participants were more likely to generate non-confrontational strategies in the relational bullying scenario than the physical or cyber bullying scenarios, and more in response to the verbal bullying scenario than the cyber bullying scenario. In response to relational and verbal bullying, adolescents have been taught emotion-focused coping strategies such as learning the phrase "sticks and stones will break our bones but names will never hurt us," avoiding the bully, laughing it off, or agreeing with the bully (Guillain, 2011). Although these approaches have some merit, in that they allow an adolescent to meet their own needs, the use of these interventions does not combat the negative outcomes resulting from being the victim of bullying. Although Craig, Pepler, and Blais (2007) found that non-confrontational strategies such as ignoring were among the most popular used by early adolescents,

Machmutow et al. (2012) reported that helplessness reactions such as ignoring, withdrawing, and self-blame were positively associated with depressive symptoms, but assertive strategies were found to moderate the association between victimization and depressive symptoms. Goossens and Goossens (2005) have also suggested that solutions exhibiting social skills would be more ideal. For example, some anti-bullying interventions emphasize relationship-based practices and interpersonally skilled interactions, such as assertiveness training, counselling, peer mediation, and mentor or buddy programs (Murray-Harvey, Skrzypiec, & Slee, 2012).

When reviewing assertive solutions across the bullying types, significant differences were found. Adolescents responded with more assertive strategies in response to the physical bullying scenario than the verbal, relational, or cyber bullying scenarios. A possible explanation for these findings is that adolescents may more easily identify physical bullying, a type of overt aggression, than the other three types of bullying (Langos, 2012). Batsche and Knoff (1994) reported that physical attacks may be viewed as more serious because the damage is easily visible, compared to others forms of aggression (e.g., verbal intimidation, isolation, or exclusion) where it is less clear what actions constitute bullying. It is suspected that because physical bullying is most easily recognizable, adolescents may be more prepared to effectively recognize and deal with this form of bullying as opposed to the other three forms.

Gender. The present study hypothesized that there would be differences in female and male generation of aggressive, help-seeking, and assertive solutions to

the hypothetical bullying situations. The results of this study partially confirmed this prediction. When examining the types of strategies generated across all of the hypothetical bullying scenarios, females on average generated significantly more help seeking and assertive strategies than males. Previous research has also confirmed the trends that females reported seeking social support significantly more than males (Craig, Pepler, & Blais, 2007; Kristensen & Smith, 2003) or taking actions such as stating feelings (e.g., crying), info-seeking (e.g., finding out why they were excluded from the peer group, or socially skilled assertiveness (Bijttebier & Vertommen, 1998; Camodeca & Goossens, 2005). Although previous research suggested that males often use aggressive strategies (Camodeca & Goossens, 2005; Craig et al., 2007; Kochenderfer-Ladd, 2004), the prediction that males would generate more aggressive strategies than females was not confirmed.

The influence of gender on strategy generation highlights the necessity of educating adolescents on the various types of bullying, the appropriate ways to respond to each one, and ineffective strategies to combat bullying dilemmas. Gender stereotypes, such as the prevailing attitude that fighting and other forms of aggressive behaviour are a normal part of growing up (e.g., "boys will be boys") can be potentially harmful, by promoting the belief that this type of behaviour is acceptable (Batsche & Knoff, 1994). Interventions should seek to dispel such beliefs about aggressive strategies and other types of strategies, while teaching adolescents effective alternatives. Examining and addressing strategy generation

from an ecological lens can provide a more thorough understanding of the etiology of problem-solving skills for females and males.

Effectiveness of Solutions

Another primary objective of this study was to investigate the effectiveness of adolescent solutions generated in response to hypothetical bullying scenarios. For both females and males, strategies generated in response to the relational bullying scenario had higher mean effectiveness ratings than for the physical, verbal, and cyber bullying scenarios. Adolescents were least effective at responding to the cyber bullying scenario. Although females and males had similar patterns of responding based on the scenario type, females consistently generated more effective strategies than males.

Adolescents in the present study demonstrated some effective strategies; however, the average effectiveness ratings fell between ineffective and effective. These results support past research indicating that adolescents are unsure how to most effectively cope with bullying situations (Compas et al., 1988; Craig et al., 2007; Hampel et al., 2009; Monks et al., 2009). Further, previous research suggested that adolescents may be aware that their strategies are not effective in solving the problem (Tenenbaum, Varjas, Meyers, & Parris, 2011). In the present study, effectiveness was based on how well the solution maximized positive consequences and minimized consequences for the self and others, how plausible and possible the solutions were, and how much social skillfulness was displayed. It is possible that the efficacy of coping strategies appears different to the

adolescent employing it than to those observing and evaluating it (Snyder, 1999 as cited in Šléglová and Černá, 2011), suggesting that adolescents believe they are using more effective strategies than they really are. This explanation is consistent with Craig et al. (2007), who found that adolescent males who used aggressive and confrontational strategies to combat bullying believed them to be effective. This interpretation can be linked to the fifth step of Dodge's (1986) information-processing theory of social problem-solving, proposing that adolescents evaluate the likely success of their potential strategies based on a different set of criteria than those used to measure effectiveness in the present study. Therefore, an intervention targeted towards the social schemata adolescents' have may increase their cognitive framework and allow them to consider and select more effective strategies based on their social skillfulness.

The least effective strategies were generated in response to cyber bullying, an evolving and relatively new form of bullying. Paul, Smith, and Blumberg (2012) noted that adolescents do not perceive the same approach to traditional forms of bullying to be equally effective to combat the problem of cyber bullying. Cyber bullying is new and potentially more complex than traditional bullying. According to Erikson (1950), adolescents are in a state of identity vs. role confusion, where autonomy is a major concern. Technical (non-confrontational) strategies to address cyber bullying dilemmas may include blocking a sender, changing online identity, deleting harmful/threatening messages, and/or leaving a website (Perren et al., 2012; Šléglová & Černá, 2011). These strategies can pose a potential threat to an adolescents' autonomy, thus there needs to be more research

on effective approaches to address cyber bullying that maintain the adolescents' independence and autonomy, while also ensuring their emotional and physical well-being.

The least effective strategies were generated in response to cyber bullying, although adolescents' responses overall were less than effective. These results indicate that there is potential to increase the effectiveness of responding to bullying. Providing education to adolescents regarding cyber bullying, as well as the other forms of bullying, is essential. Teaching adolescents about the differences between the four types of bullying, methods of responding to each, and techniques that can generalize to multiple forms of bullying, can enable them to be informed about effective ways to solve social problems for each type of situation.

Association with Reported Frequency of Bullying

The final purpose of this study was twofold. The first aim was to determine if there was a relation between adolescents' reported frequency of bullying involvement (i.e., bullying or victimization) and the solutions they generated. The second aim was to determine if there was a relation between adolescents' reported frequency of bullying involvement and the effectiveness of solutions they generated.

Solution type. It was hypothesized that adolescents' with higher reported frequency of victimization would generate more passive and non-confrontational strategies, and adolescents with higher frequency of bullying would generate more

aggressive strategies. Consistent with expectations (Bijttebier & Vertommen, 1998; Kristensen & Smith, 2003; Olafsen & Viemero, 2000), there was a positive, albeit low, correlation between frequency of bullying and aggressive strategies. Additionally, a negative relationship was found between the frequency of bullying and the frequency of help seeking strategies. Given that the magnitude of these correlations is low, it is suspected that there are more variables than just frequency of bullying involvement that may account for the generation of different types of strategies. Despite the small magnitude of correlations, it is still meaningful to consider the presence of these significant correlations. When considering that bullies may have underlying motives such as a need for power, or that they are reinforced for their aggressive behaviours (Strohmeier et al., 2010) it is not surprising that adolescents with an increased likelihood of bullying may have been less likely to ask for help. If engaging in aggressive behaviours is fulfilling a need for an adolescent, they are likely to continue to engage in that behaviour based on the principles of reinforcement (Burton et al., 2003).

The hypothesis that adolescents with higher frequency of victimization would generate more passive and non-confrontational strategies was not confirmed, as there was no significant relation between victimization and passive or non-confrontational strategies. According to Camodeca and Goossens (2005), for young children (mean age of 11), the most frequently chosen intervention strategy against bullying was assertiveness, suggesting an awareness of the importance of mediation and assertiveness as effective approaches to stop bullying. Yet in the present study there was a negative correlation between rate of victimization and

assertive strategies. Adolescents with an increased rate of victimization may feel helpless if their experience of implementing strategies in their day-to-day life has been met without success. Kochenderfer and Ladd (1997) indicated that victims have the ability to display counter-aggression and retaliation, thus it is possible that the strategies generated in this study reflect a sense of frustration prompted by anger and powerlessness at being a victim of bullying (Camodeca & Goossens, 2005).

Solution effectiveness. The present study also aimed to determine if there was a relation between adolescents' reported rate of bullying involvement and the effectiveness of solutions generated. It was hypothesized that adolescents who reported higher frequency of victimization would generate less effective approaches. The findings of the present study supported this hypothesis, with the finding of an inverse relationship between rate of victimization and solution effectiveness. Hampel et al. (2009) discovered that victims of any type of bullying were characterized by use of ineffective coping strategies. The present study also found an inverse relationship between frequency of bullying and solution effectiveness, suggesting that adolescents who reported higher rates of bullying had lower effectiveness ratings for strategies generated. Overall, these results indicate that adolescents who are involved in bullying as bullies or victims have less than ideal coping strategies. It is unclear whether poor problem-solving skills are a risk factor for involvement in bullying, if poor problem-solving skills result from involvement in bullying, or if there is a third extraneous factor that is

responsible for the inverse relations found between frequencies of bullying and victimization, with solution effectiveness.

Limitations and Future Directions

The current study extends research in the area of bullying and provides insight into adolescent knowledge regarding strategies to effectively cope with bullying situations. Although many of the findings in the present investigation are supported by previous theory and research, some limitations have been identified and should be addressed by future research.

The first limitation of the present study concerns the participants and the inability to generalize the results. Limited demographic information was collected in the current study. Results from participants' parents suggest the majority of the parents were born in Canada, and their first language was English. This suggests that the population of this study was largely homogenous, and may not be generalizable to other populations. Additionally, participants in this study were those who volunteered to participate, thus it is possible that many students who bully or were bullied may not have chosen to participate. It is possible that students who participated in the study represent those who were infrequently exposed to bullying and therefore may not be representative of the majority of students who bully or were bullied. Future research in this area should include a more diverse representation of participants to assess potential cultural differences in type and effectiveness of solutions in response to bullying dilemmas.

The second limitation of the present study is the inability to generalize the results to adolescents' actions. In this study, adolescents were asked to respond to four short scripts involving hypothetical bullying scenarios. Although this approach generated valuable information on the types of strategies adolescents generate in response to different types of bullying, it cannot be assumed that the strategies adolescents generated in these hypothetical scenarios would match their actions in a real situation. Since it is unknown whether these solutions would actually be put into practice, a consideration for future research is to examine the strategies actually implemented in real-life bullying situations. Differences between what adolescents say they will do and what they actually do may provide insight into the factors associated with how adolescents respond to bullying and how effective their responses are. With Dodge's social information processing model in mind (Crick & Dodge, 1994), it is possible that adolescents are able to generate solutions to a problem (stage four), but may have more difficulty with the action phase of problem-solving (stages five and six). Barriers to implementation of strategies should be considered and addressed in future interventions.

Additionally it is possible that adolescents did not respond with all possible solutions that they know but rather used their past experiences to influence their generation of strategies that may or may not work. Future research should involve in-depth and extended interviews so that adolescents can be provided the opportunity to respond orally if desired, or be prompted to elaborate on their solutions for clarification. Another future consideration is to determine methods

of increasing solution effectiveness. A trial-and-error approach may be beneficial for adolescents to test new strategies out. This can be accomplished practically, by having victims keep track of strategies implemented in their daily lives and the outcomes of these strategies, or hypothetically, through role-play scenarios.

A final limitation of the current study is the use of a correlational design. Previous studies have categorized adolescents as bullies or victims based on their scores on a specific measure in relation to a cut-off point. This approach may result in a tendency to over- or under-estimate the number of bullies or victims. Although the correlational design was useful to identify relations among variables, a methodology that allows for the manipulation and controlled study of these variables in future studies would be beneficial. The present study found small associations between reported bullying involvement, strategy type, and solution effectiveness. The coefficient of determination was used to assess the proportion of variability in one of the variables that can be explained by the other variable. Results indicated that for all significant correlations, less than 10% of the variability in strategy type or effectiveness was explained by reported bullying involvement. Therefore, results of these correlations should be interpreted with caution given that over 90% of the variability in strategy type and effectiveness is unaccounted for. The presence of weak correlations does not indicate causation, but these results do suggest relationships that can be examined in follow-up studies. Future research should aim for longitudinal designs in which coping strategies and problem-solving skills are assessed at different time periods over a

longer duration, to determine if there is a causal inference between bullying involvement and coping strategies.

Conclusions and Implications

Despite the limitations of the study and areas in need of further research outlined above, the current study provides new insight and adds to the literature. The present study revealed how adolescents respond to bullying scenarios, the effectiveness of the solutions, and the association between the solutions and the adolescents' reported rate of involvement in bullying. Although adolescents demonstrated a tendency to seek help from adults and peers, they had less than ideal strategy generation in response to bullying situations. Adolescents may be lacking sufficient knowledge on the various forms of bullying, and effective ways of responding in each type of situation. The results of the present study have contributed to literature on bullying and problem-solving, and have provided information which can be useful for researchers, psychologists, educators, parents, and students, regarding appropriate and effective methods for solving bullying dilemmas.

Research areas for future consideration include adolescents' implementation of solutions in response to social dilemmas. Specifically, future studies should consider factors that influence strategies as well as potential barriers to the implementation of these strategies, by utilizing a methodology that allows for manipulation and controlled study of variables such as bully/victim involvement and strategies generated. In the present study, small associations

were found between bullying involvement and strategy generation and effectiveness. Further investigation of these patterns can help determine whether bullying or victimization is responsible for the generation of specific types of strategies.

There are also practical implications of the present results. It was demonstrated that adolescents generate different strategies based on their gender and reported bullying involvement, suggesting that characteristics about a person will influence the type of strategies they generate. Interventions to target bullying and combat the negative developmental impacts of bullying involvement should therefore take place as preventative approaches. According to Dodge's social information-processing approach, an important consideration is what an adolescent knows going into a bullying situation, because it may shape the strategies they generate as well as their evaluation of the effectiveness of those strategies. Overall, the findings from this research highlight the importance of education on the various types of bullying as a potential avenue of change for dealing more effectively with bullying. Teaching early adolescents about gender stereotypes, different types of bullying, and effective vs. ineffective strategies can change the information they have when presented with a social dilemma such as bullying, which will in turn influence the strategies they generate and implement.

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Appendix A

Measures

Student Form

Peer Bullying: An Examination of Parents' and Teens' Communication and Knowledge

Thank you for agreeing to participate in this research project. You will be asked to complete a variety of questionnaires that examine parenting, communication, and students' and their parents' attitudes toward and experiences with bullying situations. There are no right or wrong answers so be as honest as you can in your responses. Please be assured that your responses will be treated as confidential and will not be shared with anyone outside our research team.

Consider the following definition of bullying as you complete the questionnaires.

It is bullying, when one child is repeatedly exposed to harassment and attacks from one or several other children; harassment and attacks may be, for example, shoving or hitting the other one, calling him/her names or making jokes about him/her, leaving him/her outside the group, taking his/her things, or any other behavior meant to hurt the other one.

It is not bullying when two students with equal strength or equal power have a fight, or when someone is occasionally teased, but it is bullying when the feelings of one and the same student are intentionally and repeatedly hurt.

PRQ

Circle one of the answers underneath each statement to show how often each of the following statements are true of you.

1. I like playing sports.

Never Once in a while Pretty Often Very Often

2. I get good marks in class.

Never Once in a while Pretty Often Very Often

3. I get called names by others.

Never Once in a while Pretty Often Very Often

4. I give weaker kids a hard time.

Never Once in a while Pretty Often Very Often

5. I like to make friends.

Never Once in a while Pretty Often Very Often

6. I act up in class.

Never Once in a while Pretty Often Very Often

7. I feel I can't trust others.

Never Once in a while Pretty Often Very Often

8. I get picked on by others.

Never Once in a while Pretty Often Very Often

9. I am part of a group that goes round teasing others.

Never Once in a while Pretty Often Very Often

10. I like to help people who are being harassed.

Never Once in a while Pretty Often Very Often

11. I like to make others scared of me.

Never Once in a while Pretty Often Very Often

12. Others leave me out of things on purpose.

Never Once in a while Pretty Often Very Often

13. I get into fights at school.

Never Once in a while Pretty Often Very Often

14. I like to show others that I'm the boss.

Never Once in a while Pretty Often Very Often

15. I share things with others.

Never Once in a while Pretty Often Very Often

16. I enjoy upsetting wimps.

Never Once in a while Pretty Often Very Often

17. I like to get into a fight with someone I can easily beat.

Never Once in a while Pretty Often Very Often

18. Others make fun of me.

Never Once in a while Pretty Often Very Often

19. I get hit and pushed around by others.

Never Once in a while Pretty Often Very Often

20. I enjoy helping others.

Never Once in a while Pretty Often Very Often

AST

We are interested in the way you and your classmates respond to typical situations you might have to face from time to time. Read each situation and list as many ways as you can think of to show what you would do about each situation.

This is not a test. There are no right or wrong answers. We are interested in your ideas and opinions.

PB

You are in the classroom and you have handed in a worksheet at the teacher's desk. On the way back to your own desk, a student (who has bothered you before) sticks his foot out to trip you, and pokes you with his pencil. This student has bothered you before and whenever this student gets the chance, you are pushed or tripped or bothered.

What would you do if this has been happening to you? Try to think of as many solutions as you can and list them below.

VB

When you walk down the hallways during the breaks, a group of students give you “looks” and call you names. These students have been making negative comments about you and try to make you feel bad whenever they get the chance.

What would you do if this has been happening to you? Try to think of as many solutions as you can and list them below.

RB

Your teacher has just told the class to divide into groups for a group project activity. You approach two students who tell you that you can't join their group. When you are close enough to hear them talking, you hear them making rude comments about you.

What would you do if this has been happening to you? Try to think of as many solutions as you can and list them below.

CB

Some students from your school have posted messages on an internet site about you. They are spreading rumors about you and calling you names.

What would you do if this has been happening to you? Try to think of as many solutions as you can and list them below.

Appendix B

Alternative Solutions Test

Scoring Template

I. Quantifying Responses
All solutions offered by the participant in response to the four hypothetical problem situations fall into one of three categories. We are interested in the number of non-redundant solutions each participant articulates.

1 – Alternative Solution
-the participant would actually try
-in response to the depicted problem
-directed toward the specified goal of each problem situation
-can be verbal (asking, telling, yelling) or motoric (sharing, taking, playing)

2 – Solution Variant
-restatements of previous responses or variations on themes of earlier solutions

3 – Irrelevant Response
-fits neither of the above
-what the participant would not do
-are not goal-directed
-merely expressions of affect without accompanying action

II. Categorizing Responses for Content

1 – Aggressive
2 – Passive
3 – Help-seeking
4 – Nonconfrontational
5 – Assertive

III. Assessing Effectiveness of Solutions

1 – Very ineffective
2 – Ineffective
3 – Effective
4 – Very effective

-how well the solution maximizes positive consequences and minimizes negative consequences for the self and others,
-how possible and plausible the solution is, and
-how much social skilfulness is displayed.

Content Codes for Quantifying Responses

Each main content category contains a set of one or more subcategories. Subcategorization allows more reliable coding of the main content area and aids the determination of solution type and effectiveness of the solution

1. Aggressive
    1. Direct physical assault (hit, push, fight)
    2. Dirty look
    3. Object oriented aggression
    4. Verbal assault
    5. Trickery
    6. Enlist friends to bully or shun

2. Passive
    avoid
    use after he's done
    wait
    forget

3. Help seeking
    7. tattling
    8. soliciting 3rd party advice
    9. soliciting peer aid

4. Non-confrontational
    10. ignoring, walking away
    11. active pursuit of own needs
    12. blocking internet sites

5. Assertive
    13. positive self talk
    14. other-directed commands
    15. other-directed requests for change of cessation of behavior
    16. stated feelings
    17. info-seeking
    18. confront
    19. sharing
    20. verbalization of taking turns
    21. taking care of others' needs
    22. socially skilled requests
    23. socially skilled assertiveness

Appendix C
Information Letter

October, 2008

Dear Parent or Guardian:

I am a professor in the Department of Educational Psychology at the University of Alberta and am writing to ask for your participation in a study on how parents can make a difference in bullying prevention and intervention. I am looking for grades 7 and 8 students and one of their parents to participate. I will briefly explain the purpose of the study below.

I am interested in finding out about how much parents know about their children's involvement in bullying situations as bullies, victims, or bystanders and about how parents' and children's attitudes toward bullying affect children's involvement in bullying situations at school. I am also interested in examining how parenting influences the development of bullying or victimization behavior in adolescents. I am especially interested in how children and parents communicate with each other to solve physical, verbal, relational, and cyberbullying situations.

If you choose to participate in this study, you and your child will be asked to complete some questionnaires that assess both students' and parents' self-reports of bullying experiences (including cyberbullying), attitudes toward bullying, and parent-child communication practices. To assess adolescents' perceptions of parenting styles, children will complete a parenting style scale. To evaluate skills and knowledge in dealing with bullying situations, both parents and children will fill out open-ended problem-solving tasks based on scenarios dealing with different types of bullying. You may provide permission for your child to participate in this study even if you do not wish to participate in the parent portion of the study.

A trained doctoral student will visit your child's class where your child will complete the student questionnaires. The estimated time for students to complete these measures will be broken down into two class periods. Your child's principal has granted permission for us to conduct research in your child's school.

The Research Ethics Board requires me to tell you how I will use and store the information I collect from you and your child. The information I collect will be analyzed by me, or a member of my research team. The data will be used by one of my doctoral students, Tracy Muth, for her PhD dissertation. No one else will have access to any information I collect. The information will be stored in a locked room and will be shredded once it is no longer being used. The results of this study for the group of families as a whole may be presented or discussed publicly or published. Your family and any information you provide will not be identifiable.

In my experience, families find participating in this type of study to be informative. It is an opportunity for moms and dads to learn more about their children and their social relationships at school. In order to reduce existing bully problems in and out of the school setting and to prevent the development of new problems, adults at school and at home must be aware of the extent of the problem. This school-based research that involves both students and parents will provide opportunities for teachers, administrators, parents and students to work together to identify issues and strategies for maintaining a safe and caring environment in the schools. Since participation is completely voluntary, you and your child may withdraw from the study at any time.

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the Faculties of Education, Extension and Augustana Research Ethics Board (EEA REB) at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Chair of the EEA REB at XXX- XXX-XXXX.

Once the study is completed you will receive a summary of the general findings. One of my research assistants or I am available for one-on-one feedback sessions if you wish to have more detailed information.

Participating in this study may:
1. Lead to greater awareness of how much bullying is taking place at your child's school and on the Internet.
2. Increase parents' knowledge about their own and their child's strengths in the area of social problem-solving , as well as identify areas that may require attention.
3. Provide an opportunity for adults (parents and school staff) to work together in counteracting bully problems

Having your family's participation in this project will help me gain a better understanding of the importance of parent-child relations in counteracting bullying problems. As a token of appreciation, families who have both children and one parent participate will receive a $25 Chapters gift card. If you have any questions or concerns please do not hesitate to contact me at XXX-XXX or through email at xxx@ualberta.ca, or contact my research assistant Tracy Muth (xxx.@ualberta.ca or XXX-XXXX). Please complete the attached consent form and return it to your child's teacher.

I thank you for your time and consideration.

Sincerely,

Christina Rinaldi, PhD, RPsych

Appendix D

Consent Forms

PARENT CONSENT FORM
(Two copies: one to be kept by the participant,
and one signed and returned to the researcher)

I _____, hereby
(print name of Mother/Father – please circle one)

□□Consent

□□Do not consent

to allow my child _____
(print name of child)

to participate in this study. I understand that participation involves the following activities:

- During class time, my child will complete questionnaires relating to bullying, parenting styles, parent-child communication practices, and social problem-solving strategies

I _____, hereby
(print name of Mother/Father – please circle one)

□□Consent

□□Do not consent

to participate in this study. I will complete questionnaires relating to bullying, parent-child communication practices and social problem-solving strategies.

I understand that

- My family may withdraw from the research at any time without penalty
- All information gathered will be treated confidentially and used for the sole purpose of research
- Any information that identifies my family will be destroyed upon completion of this research
- My family will not be identifiable in any documents resulting from this research

I also understand that the results of this research will be used only in the following cases:

- Presentations and written articles for other developmental researchers, educators, parents, and schools
- General feedback sessions with individual families.

_____ _____
Signature of Parent Date signed

Please provide us with contact information in the event I need to contact you about your participation in this project.

_____ _____

Telephone number email address

For further information concerning the completion of the form, please contact Christina Rinaldi, PhD, University of Alberta, Department of Educational Psychology, Edmonton, AB, T6G 2G5 at XXX-XXX-XXX or my research assistant, Tracy Muth at XXX-XXX-XXXX.

STUDENT ASSENT FORM

**(Two copies: one to be kept by the participant,
and one signed and returned to the researcher)**

I _____, hereby
(print name of student)

□ □ Assent
□ □ Do not assent

to participate in this study. I understand that participation involves the following activities:

- During class time, I will complete questionnaires relating to bullying, parenting styles, parent-child communication practices, and social problem-solving strategies
- One of my parents/guardians will complete questionnaires relating to bullying, parent-child communication practices and social problem-solving strategies

I understand that

- My family may withdraw from the research at any time without penalty
- All information gathered will be treated confidentially and used for the sole purpose of research
- Any information that identifies my family will be destroyed upon completion of this research
- My family will not be identifiable in any documents resulting from this research

I also understand that the results of this research will be used only in the following cases:

- Presentations and written articles for other developmental researchers, educators, parents, and schools
- General feedback sessions with individual families.

_____ _____
Signature of Student Date signed

Please provide us with contact information in the event I need to contact you about your participation in this project.

_____ _____
Telephone number email address

For further information concerning the completion of the form, please contact Christina Rinaldi, PhD, University of Alberta, Department of Educational Psychology, Edmonton, AB, T6G 2G5 at XXX-XXX-XXXX or my research assistant, Tracy Muth at XXX-XXX-XXXX.