Bullying in Schools: The Power of Bullies and the Plight of Victims

Jaana Juvonen¹ and Sandra Graham²

¹Department of Psychology, ²Department of Education, University of California, Los Angeles, California 90095; email: j_juvonen@yahoo.com

Annu. Rev. Psychol. 2014. 65:159-85

First published online as a Review in Advance on August 5, 2013

The Annual Review of Psychology is online at http://psych.annualreviews.org

This article's doi: 10.1146/annurev-psych-010213-115030

Copyright © 2014 by Annual Reviews. All rights reserved

Keywords

aggression, emotional distress, school context, social cognitions, social dominance, social stigma

Abstract

Bullying is a pervasive problem affecting school-age children. Reviewing the latest findings on bullying perpetration and victimization, we highlight the social dominance function of bullying, the inflated self-views of bullies, and the effects of their behaviors on victims. Illuminating the plight of the victim, we review evidence on the cyclical processes between the risk factors and consequences of victimization and the mechanisms that can account for elevated emotional distress and health problems. Placing bullying in context, we consider the unique features of electronic communication that give rise to cyberbullying and the specific characteristics of schools that affect the rates and consequences of victimization. We then offer a critique of the main intervention approaches designed to reduce school bullying and its harmful effects. Finally, we discuss future directions that underscore the need to consider victimization a social stigma, conduct longitudinal research on protective factors, identify school context factors that shape the experience of victimization, and take a more nuanced approach to school-based interventions.

Contents	
INTRODUCTION1	60
Definition and Prevalence of Bullying	61
Stability of Bullying and Victimization	61
FORMS AND FUNCTIONS OF BULLYING BEHAVIORS 16	62
Direct and Indirect Forms of Bullying 1	62
Bullying and Social Dominance	64
Inflated Self-Views and Social-Cognitive Biases of Bullies	65
PLIGHT OF VICTIMS1	65
Victim Subtypes	65
Individual and Social Risk Factors	66
Cyclical Processes and Consequences of Peer Victimization	67
Mediating Mechanisms Underlying Psychosocial Problems	67
Mechanisms Underlying School Difficulties and Health Problems	68
BULLYING IN CONTEXT: CYBERSPACE AND SCHOOLS 1-	
Cyberbullying	69
The School Context	69
INTERVENTIONS TO PREVENT AND REDUCE BULLYING	
IN SCHOOL 1	71
Schoolwide Interventions	72
Targeted Interventions	
CONCLUSIONS AND FUTURE DIRECTIONS	
Longitudinal Research on Victimization	
Victimization as Social Stigma	
School Context Matters	76
Designing Interventions That Work	77

INTRODUCTION

Highly publicized school shootings and suicides by victims of chronic peer abuse have increased public concern about bullying. Although violent reactions to bullying are rare, awareness of peer maltreatment has generated a large body of research that allows us to better understand both the motives underlying bullying and its effects on victims. These studies, published largely since the late 1990s (Stassen Berger 2007), rely on two complementary research orientations: the American research tradition focusing on childhood aggression (e.g., Parke & Slaby 1983) and the Scandinavian research tradition illuminating the effects of aggressive behaviors on other children (Lagerspetz et al. 1982; Olweus 1978, 1993). Focusing on individual differences, the largely American studies provide insights into the social cognitions and relationships of bullies compared with their well-adjusted peers. In contrast, the Scandinavian research, stemming from a phenomenon known as mobbing, in which a group turns against one person (Olweus 1978), highlights the plight of victims as well as the group dynamics that encourage and maintain bullying behaviors.

In an effort to bridge these two traditions, we review the current research on both bullying perpetration and victimization. The review is divided into six sections. In the first section we define bullying and review its prevalence and the stability of bullying and victimization trajectories over time. The second section is devoted to bullying perpetration; we discuss the forms and functions of bullying as a subcategory of aggression in an effort to understand the motives and

social-cognitive mechanisms underlying the behavior. Turning to the plight of the victim in the third section, we review research on risk factors and the consequences of victimization, underscoring the cyclical processes between the two. After reviewing some of the social-cognitive and biological mechanisms that help account for the distress of victims, we examine in the fourth section the ways in which contexts (specifically, the school environment and electronic communication context) give rise to bullying and amplify the distress of the victim. In the fifth section we briefly review the main intervention approaches designed to reduce bullying in schools before considering future directions for research in the sixth and final section.

Definition and Prevalence of Bullying

Bullying involves targeted intimidation or humiliation. Typically, a physically stronger or socially more prominent person (ab)uses her/his power to threaten, demean, or belittle another. To make the target or victim feel powerless, the bully can resort to a number of aggressive behaviors (Olweus 1993, Smith & Sharp 1994). However, bullying entails more than aggression: It captures a dynamic interaction between the perpetrator and the victim. The power imbalance between the two parties distinguishes bullying from conflict. Although definitions of bullying frequently specify that it needs to be repeated (e.g., Olweus 1993), it is not clear that repetition is a required component, inasmuch as a single traumatic incident can raise the expectation and fear of continued abuse.

Bullying takes place among young children as well as adults in a variety of settings, but most of the research focuses on children and youth in schools (e.g., Juvonen & Graham 2001). Survey data indicate that approximately 20–25% of youths are directly involved in bullying as perpetrators, victims, or both (e.g., Nansel et al. 2001). Large-scale studies conducted in Western nations suggest that 4–9% of youths frequently engage in bullying behaviors and that 9–25% of schoolage children are bullied (Stassen Berger 2007). A smaller subgroup of youths who both bully and are bullied (bully-victims) has also been identified (e.g., Nansel et al. 2001).

Stability of Bullying and Victimization

Developmental psychologists have assumed some degree of temporal stability in bullying and victimization, although more is known about perpetration of bullying than about victimization. Several large, multinational studies have examined the stability of aggression from early childhood through adolescence (Dodge et al. 2006). With repeated assessments over many years and advances in methods for modeling developmental trajectories, these studies have identified latent classes of individuals who vary in terms of the stability of aggressive behaviors.

In one of the most comprehensive studies to date, six longitudinal data sets from Canada, New Zealand, and the United States were used to examine developmental trajectories of aggressive youth (Broidy et al. 2003). On the basis of samples comprising more than 5,000 boys and girls, all of the databases had comparable aggression measures, including items that capture bullying from middle childhood (ages 5–7) through at least adolescence. Robustly identified across all of the data sets was a class of chronically aggressive youths, representing 5–10% of the samples. Classes of increasing and decreasing aggression trajectories were also identified, a finding that underscores the instability of aggression over time. These discontinuous classes were less robust, and their size varied from 15% to 60% across the different longitudinal data sets. Assuming that a subset of aggressive youths in these multinational studies were bullies, it seems reasonable to conclude that a small percentage of youths, less than 10%, are likely to be chronic bullies throughout childhood. The most consistent evidence regarding the discontinuous trajectories documents desistance from physical aggression over time, suggesting that many childhood bullies

"age out" of their tendency to physically intimidate others by adolescence. However, we do not know whether physical aggression is replaced by others forms of bullying.

Comparable longitudinal research examining the stability of victims of bullying across child-hood and adolescence does not exist. Most victimization studies that address stability are relatively short term, usually spanning one or two years (e.g., Hanish & Guerra 2002, Juvonen et al. 2000), with a few extending to four or five years (e.g., Kochenderfer-Ladd & Wardrop 2001). Not surprisingly, stability coefficients are stronger when there is a shorter time interval between assessments (e.g., from the beginning to the end of a school year). Even within one school year, however, the stability estimates range from one-third (Juvonen et al. 2000) to approximately one-half (e.g., Fox & Boulton 2006).

Only a few studies of peer victimization have employed a latent class approach in which trajectories of victimization can be modeled, and none has aggregated data across multiple data sets. In one study of young adolescents, three latent classes were identified on the basis of self-reported experiences with bullying across three years of middle school: a frequently victimized class, a sometimes victimized class, and a nonvictimized class (Nylund et al. 2007). At the beginning of middle school, membership in these three classes was fairly evenly distributed: 20% of students were in the highly victimized class, 37% in the sometimes victimized class, and 43% in the nonvictimized class. By spring of eighth grade, only approximately 5% of students were in the victimized class, whereas the percentage of students in the nonvictimized class had increased to almost 70%. Hence, going from being the youngest to the oldest students in their schools, and transitioning from early to middle adolescence, was accompanied by a decline in experiences of victimization.

In summary, longitudinal research on bullying perpetration and victimization indicates more instability than stability. A host of changing factors, such as school transitions, probably contribute to the flux. However, this instability does not necessarily mean that bullying has no lasting effects. Although many temporarily victimized youths may subsequently appear adjusted, some of the symptoms and increased sensitivity to maltreatment persist after bullying has stopped (Rudolph et al. 2011). It is also important to consider the overlap among bully and victim groups over time. In one of the few studies that examined the co-occurrence of bullying and victimization longitudinally, 9% of the sample students who had reputations as bullies during childhood developed reputations as victims by adolescence, whereas approximately 6% who were childhood victims in the eyes of peers had become bullies three years later (Scholte et al. 2007). Thus, bullying perpetration and victimization are probably more dynamic than previously assumed.

FORMS AND FUNCTIONS OF BULLYING BEHAVIORS

Bullying takes many forms, ranging from name-calling and physical attacks to spreading of malicious rumors and sending embarrassing pictures online. Disentangling the "whats" from the "whys" of such behaviors, Little et al. (2003) maintain that any one form of aggression can be used for different purposes. For example, whereas a physical attack may capture a reaction to provocation, physical aggression can also be used proactively to intimidate a peer (see also Prinstein & Cillessen 2003). Although distinctions between different functions of aggressive behaviors are challenging to assess empirically, the conceptual differentiations help shed light on the motives underlying bullying behaviors. Before discussing these functions, we first review research on the forms of bullying—a topic that has received considerable empirical attention.

Direct and Indirect Forms of Bullying

Most forms of bullying can be classified as direct or indirect (Feshbach 1969, Lagerspetz et al. 1988). In contrast to direct confrontation (e.g., physical aggression, threats, name-calling), indirect

tactics include spreading of rumors, backstabbing, and exclusion from the group. In other words, the indirect forms frequently involve relational manipulation (Crick & Grotpeter 1995). Whereas the direct forms of bullying often involve intimidating, humiliating, or belittling someone in front of an audience, the indirect forms are designed to damage the targets' social reputation or deflate their social status while concealing the identity of the perpetrator (Björkqvist et al. 1992). That is, the bully is able to use the peer group as a vehicle for the attack (Xie et al. 2002) when relying on relationally indirect tactics.

Although one might expect a developmental progression from direct confrontation to reliance on indirect forms of aggression, inasmuch as the latter requires more sophisticated social understanding and skills (Rivers & Smith 1994), a recent meta-analysis of more than 100 studies did not reveal any reliable age differences in the use of direct versus indirect tactics (Card et al. 2008). This conclusion may be somewhat misleading, however, because some forms of aggression (e.g., the most covert tactics, such as spreading of rumors) are simply not studied among young children. Additionally, the lack of age differences between direct and indirect forms of aggression might simply reflect the heterogeneity of the types of behaviors that are grouped together. For example, although both name-calling and physical aggression are considered direct forms of aggression, only physical bullying is known to decreases with age (e.g., Brame et al. 2001).

Compared with age differences in preference for particular forms of aggression, gender differences have prompted a much livelier debate (e.g., Underwood 2003). Ideas of gendered forms of aggression are popular inasmuch as physical aggression is associated with males, whereas relational forms of aggression are considered to be the domain of females (hence the labels mean girls, queen bees, and alpha girls). What is the research evidence for such gender differences? If the question is whether boys are more physically aggressive than girls, the answer is a resounding "yes." At every age group and across races/ethnicities, social classes, cultures, and national boundaries, boys are more likely than girls to engage in physical forms of bullying such as hitting, kicking, and shoving (Archer 2004, Card et al. 2008, Dodge et al. 2006). Even the most physically aggressive girls are rarely as aggressive as the most physically aggressive boys (Broidy et al. 2003).

If boys are more physically aggressive, then are girls more relationally aggressive than boys? The answer to this question is more equivocal. Beginning in the 1980s with research by Finnish developmental psychologists (e.g., Lagerspetz et al. 1988), followed by the seminal research of Crick and colleagues in the United States (e.g., Crick & Grotpeter 1995; see review in Crick et al. 2007), researchers have documented that relational forms of inflicting harm on others (e.g., excluding a person from the group or spreading rumors to tarnish someone's reputation) were tactics more commonly employed by girls than by boys. Because girls were thought to value relationships more than boys, behaviors that harmed those relationships should be an especially effective form of aggression for them (Coyne, Nelson & Underwood 2011). Additionally, from an evolutionary perspective, girls who attack the reputations of other girls would be in a better position to compete for males (e.g., Artz 2005).

Two comprehensive meta-analyses conducted during the past decade (Archer 2004, Card et al. 2008) and one narrative review (Archer & Coyne 2005) have called into question popular beliefs about gender and relational aggression. Although girls use more relational than physical aggressive behaviors, there are no strong differences between the two genders in the use of relational aggression. Boys are just as likely as girls to enact behaviors that damage the reputation of peers or engage in exclusionary tactics. By middle adolescence, relational aggression probably becomes the norm for both genders as it becomes less socially acceptable for individuals to physically aggress against their peers (Archer & Coyne 2005). Moreover, the different forms of aggression are highly correlated. The meta-analysis by Card et al. (2008) reported an average correlation of r=0.76 between direct and indirect forms,

which means that approximately half of the variance in these two forms of aggression is shared.

In summary, bullying takes many forms. The indirect forms of bullying require considerable social insight compared with the direct and overt tactics that include name-calling and physical aggression. Although one might assume that these forms would vary developmentally, the only reliable difference is that physical aggression decreases with age. Robust gender differences are also documented only for physical aggression. Indirect forms of aggression that typically involve manipulation of relationships do not show a reliable gender difference, although girls who desire to aggress against their peers are likely to use relational tactics.

Bullying and Social Dominance

Why do youths resort to any form of aggression to bully their peers? Early studies suggested that childhood aggression stems from a lack of social skills or that aggressive behaviors reflect a budding antisocial personality (e.g., Olweus 1978). However, there is substantial evidence suggesting that indirect forms of aggression, in particular, demand sophisticated social skills (Björkqvist et al. 2000, Sutton et al. 1999) and that most bullies do not turn into violent adults because bullying behaviors are often short-lived (Broidy et al. 2003, Loeber & Hay 1997). To understand why some youths resort to bullying, even if temporarily, it is therefore critical to consider the motives and the possible social function(s) underlying the behaviors.

When bullying is defined as a form of instrumental behavior, researchers acknowledge that bullies are not necessarily lacking social skills or the ability to regulate emotions. Rather, there is evidence suggesting that bullies are cold and calculating, often lacking empathy (Gini et al. 2007, Jolliffe & Farrington 2006) and resorting to coercive strategies to dominate and control the behavior of peers (Ojanen et al. 2005, Pellegrini et al. 1999). Indeed, bullies score high when asked how important it is to be visible, influential, and admired (Salmivalli et al. 2005, Sijtsema et al. 2009).

Not only do bullies strive to dominate, they also frequently have high social status. Beginning in elementary school, some aggressive children are considered to be popular (Rodkin et al. 2006). By early adolescence, peer-directed hostile behaviors are robustly associated with social prominence or high status (e.g., Adler & Adler 1998, Parkhurst & Hopmeyer 1998). These findings are consistent with ethological research demonstrating that aggression is a way to establish a dominant position within a group (e.g., Hinde 1974). Hence, bullying perpetration can be considered a strategic behavior that enables youths to gain and maintain a dominant position within their group (Hawley 1999, Juvonen et al. 2012; also see Eder 1985, Merten 1997).

If bullying behaviors are more temporary than stable and indeed reflect desires to be powerful and prominent, then bullying should peak during times of social reorganization and uncertainty. Indeed, status enhancement is particularly important during early adolescence, which coincides with a transition from elementary school to middle school (LaFontana & Cillessen 2010). Not only do bullying behaviors increase during this developmental phase (Espelage et al. 2001, Pellegrini & Long 2002), but there is a particularly robust association between aggressive behaviors and social prominence after the transition to the new school (e.g., Cillessen & Borch 2006; Cillessen & Mayeux 2004). The establishment of a social hierarchy may be adaptive not only for the one who desires to be powerful, but also for the larger collective. A dominance hierarchy allows youths to navigate the social scene more safely as they learn how to align themselves and establish their position in the hierarchy (Juvonen & Galván 2008).

Taken together, bullying behaviors are not only proactive or instrumental forms of aggression, but they appear to be guided by social dominance motives that peak at times of social

reorganization associated with transitions. On the basis of the current evidence, it is difficult to determine whether these transitions involve mainly environmental changes (e.g., larger schools, increased anonymity) or whether the combination of environmental and developmental (e.g., pubertal) changes is involved in the creation of social hierarchies based on aggression.

Inflated Self-Views and Social-Cognitive Biases of Bullies

In light of the positive relation between aggression and high social status, it should come as no surprise that many aggressive youths have high and even inflated perceptions of themselves (e.g., Cairns & Cairns 1994, Hymel et al. 1993). For example, aggressive elementary school students overestimate their competencies not only in terms of their peer status but in terms of academic and athletic domains as well (Hymel et al. 1993). Moreover, peer-identified bullies rate themselves lower on depression, social anxiety, and loneliness than do youths who are socially adjusted (Juvonen et al. 2003).

There are multiple explanations for why aggressive youths, and bullies in particular, display (unrealistically) positive self-views. One set of explanations pertains to their information-processing biases. For example, one meta-analytic review shows strong support for a hostile attribution bias in aggressive youths (De Castro et al. 2002). This attributional bias to perceive ambiguous situations as reflecting hostile peer intent (Dodge 1993) may account for bullies' lack of emotional distress. They can maintain their positive self-views by blaming and aggressing against others instead of accepting personal responsibility for negative events (Weiner 1995).

It is also important to realize that the social feedback bullies receive from peers is more positive than negative. Youths rarely challenge bullies by intervening when witnessing bullying incidents (e.g., O'Connell et al. 1999), although most condemn bullying behaviors (Boulton et al. 2002, Rigby & Johnson 2006). Moreover, when bullying incidents take place, some bystanders reinforce the bullies by smiling and laughing (Salmivalli et al. 1998). Although peers typically do not personally like those who bully others, they are still likely to side with the bully in part to protect their social status, reputation, and physical safety (Juvonen & Galván 2008, Salmivalli 2010).

The research described in this section indicates that bullies think highly of themselves on the basis of the social feedback they receive. This favorable social feedback, combined with hostile attributional bias, allows bullies to feel good about themselves and perhaps to discount the harm they inflict on others. When peers do not challenge bullies' aggressive behaviors, bullying is maintained and even reinforced by the peer collective.

PLIGHT OF VICTIMS

Not surprisingly, victims of bullying display numerous adjustment problems, including depressed mood and anxiety (e.g., Hawker & Boulton 2000), psychosomatic problems (e.g., headaches and stomachaches; Gini & Pozzoli 2009), and academic difficulties (e.g., Nakamoto & Schwartz 2010). However, due to the correlational nature of this research, it is not clear whether bullying experiences cause these adjustment problems or whether signs of maladjustment make victims easy targets.

Victim Subtypes

Bullying is rarely targeted randomly. To understand what factors increase the risk of being bullied, it is useful to consider which type of reactions might be rewarding for bullies. In other words, who makes a "safe" target in making the bully feel powerful? Olweus (1993) described the most typical group of victims as submissive victims: those who are anxious, insecure, and sensitive (e.g., those

who often cry in response to bullying). This profile of submissive victims has received subsequent support from longitudinal studies showing that internalizing problems (e.g., Hodges & Perry 1999, Hodges et al. 1999) and, specifically, lack of confidence in social interactions (Egan & Perry 1998, Salmivalli & Isaacs 2005) increase the risk of being bullied. The unfolding of this sequence was particularly well demonstrated in an observational study that relied on a paradigm in which youths with peer relationship problems (a history of rejection by classmates) were exposed to a new set of peers in the context of contrived play groups. Boys who submitted to peers' hostile behaviors became increasingly targeted across subsequent play sessions (Schwartz et al. 1993). Consequently, they also became more withdrawn, providing evidence for cyclical processes between risk factors and consequences of victimization.

In addition to submissive victims, Olweus (1993) identified another group of chronic targets: provocative victims who resort to aggression, much like bullies. Perry et al. (1990) labeled the aggression displayed by these targets as ineffectual, suggesting that their failed attempts to retaliate against more-powerful bullies did not stop the bullying. Hence, these individuals may also make easy targets whose emotional response is rewarding for bullies. Members of this group, frequently labeled bully-victims or aggressive victims in subsequent studies, appear to have emotion regulation and attention problems akin to attention deficit and hyperactivity disorders (e.g., Bettencourt et al. 2012). When compared with bullies and victims, the comorbid bully-victim group shares some of the plight of victims (e.g., moderate levels of distress, high level of peer rejection) but not any of the social benefits associated with the high social status of bullies (Juvonen et al. 2003). Given that reactively aggressive victims constitute a particularly stable group of targeted youths (Camodeca et al. 2002), bully-victims may indeed represent a distinct risk group whose developmental trajectories continue to be problematic (also see Burk et al. 2010).

Individual and Social Risk Factors

In addition to specific psychological characteristics that might encourage a bully to target a specific youth, several nonbehavioral characteristics increase the risk of being bullied. For example, obesity (Pearce et al. 2002) and off-time pubertal maturation (Nadeem & Graham 2005, Reynolds & Juvonen 2010) place youths at elevated risk of peer ridicule and intimidation. Additionally, children with disabilities (Son et al. 2012) and LGBT (lesbian, gay, bisexual, and transgender) youths (e.g., Katz-Wise & Hyde 2012) are much more likely to be bullied compared with their "typical" peers. Thus, any condition or characteristic that makes youths stand out from their peers increases the likelihood of them being bullied.

Research on rejected social status (i.e., being disliked and avoided) shows that any nonnormative behaviors or physical characteristics that set a child apart from the group place them at risk of being shunned by their group. Wright et al. (1986) adopted the label social misfit to describe individuals whose social behavior deviates from group norms. In a study of boys living in cottages while attending summer camp for youths with behavior problems, aggressive boys were rejected in cabins where verbal threats and hitting were low-frequency behaviors, whereas withdrawn boys were rejected in cabins where aggression was normative (Wright et al. 1986). These findings have been replicated in other experimental studies (Boivin et al. 1995) as well as in large-scale classroom contexts (Stormshak et al. 1999). Although the lack of fit between an individual and a group is likely to increase the risk of rejection within the group, it appears that the marginal social status, in turn, increases the risk of prolonged or more severe peer victimization because these youths are unlikely to be supported or defended by any group members.

Interpersonal risk factors can contribute to increased risk of peer victimization in a few different ways. For example, emotional or behavioral problems may elicit bullying especially when the targets are lower in social status (Hodges et al. 1999). Adolescents suffering from depression are

likely to be bullied because they have difficulties in establishing friendships (Kochel et al. 2012). Marginal social status (Buhs et al. 2006) and lack of friends (e.g., Hodges & Perry 1999) may also function as independent risk factors for peer victimization over time (Hodges et al. 1999, Kochenderfer & Ladd 1997). Although peers, even close friends, do not necessarily stand up for victims of bullying, emotional support from a friend plays a critical role in how victims are affected by being bullied. For example, one recent study shows that although bullied youths are more likely to have internalizing problems over time, those victims who report receiving emotional support from a friend are protected (Yeung et al. 2012).

Taken together, individual risk factors (e.g., obesity, disabilities, LGBT status) that set a youth apart from the group (norm) increase the risk of bullying, especially in the absence of friends or when rejected by the group. However, when an obese child or a sexual minority youth has friends or is accepted by classmates, the chances of being bullied are decreased. Even just one friend can protect against being bullied and the degree to which victimized youth feel distressed (Hodges et al. 1999, Hodges & Perry 1999).

Cyclical Processes and Consequences of Peer Victimization

Many factors that place youths at risk of victimization (e.g., internalizing problems, lack of social connections) can also be considered consequences of peer victimization. To address the question of directionality, the authors of a recent meta-analysis computed effect sizes for two sets of studies: those in which internalizing problems were considered antecedents of subsequent peer victimization (11 studies) and those in which changes in internalizing problems were examined as consequences of victimization (15 studies). The effect sizes for the first set of studies ranged from r=-0.05 to 0.20, whereas those for the second set of studies ranged from r=0.04 to 0.41 (Reijntjes et al. 2010). Although the effects are somewhat stronger when internalizing symptoms are considered to be consequences of bullying experiences, the effect sizes do not statistically differ. Thus, the relationships between peer victimization and internalizing problems are reciprocal, probably reflecting cyclical processes over time.

Unless the reciprocal and possibly cyclical processes can be interrupted, victims of bullying are likely to manifest psychosocial difficulties later in life. In one of the most recent long-term longitudinal studies examining psychiatric outcomes in a large community sample across preadolescence to early adulthood, victims and bully-victims displayed elevated rates of psychiatric disorders in young adulthood (Copeland et al. 2013). Even when childhood psychiatric problems and earlier family hardships were controlled for, victims continued to have a higher prevalence of various anxiety-related disorders. Bully-victims, in turn, were at elevated risk of adult depression in addition to specific phobias and panic disorders. On the basis of additional evidence, bully-victims also appeared to be at the highest risk of suicide-related behaviors (Winsper et al. 2012).

Thus, the evidence suggests that victims of bullying are emotionally distressed both concurrently and over time. Even single incidents of bullying are related to increases in daily levels of anxiety (Nishina & Juvonen 2005). Although the associations between internalizing distress and victimization are likely to be cyclical, it is critical to understand the mediating mechanisms that account for the links between victimization and adjustment problems. In the following section, we turn to investigations that examine the underlying processes between peer victimization and psychosocial difficulties, as well as academic and health problems.

Mediating Mechanisms Underlying Psychosocial Problems

To understand reactions to negative social experiences, it is useful to consider the recipients' or targets' causal perceptions (attributions) of why they are mistreated. By relying on hypothetical

scenarios of bullying encounters in which the participant is asked to take the perspective of a victim (Graham & Juvonen 1998), middle-school students who were identified as victims of bullying by their peers were more likely to endorse attributions for bullying that were internal and uncontrollable by them (e.g., "I would not be picked on if I were a cooler kid," "Kids do this to me because they know I won't get them into trouble"). Capturing characterological self-blame (Janoff-Bulman 1979), such attributions partly accounted for the concurrent association between the victim's reputation and level of emotional distress. When examining similar associations over time, another study found that self-blame exacerbated the effects of victimization on internalizing problems (Perren et al. 2013).

Whereas self-blame may help account for why submissive victims are socially anxious and depressed, other-blame can in turn help explain why some victims of bullying want to retaliate in response to being bullied. Indeed, hostile attributions of negative peer intent partly account for why bullied youths experience increased externalizing problems over time (Perren et al. 2013). Thus, subjective interpretations of why victims are bullied enable us to understand the underlying mechanisms that account for or intensify the associations between bullying experiences and both internalizing and externalizing problems (Prinstein et al. 2005).

Mechanisms Underlying School Difficulties and Health Problems

Just as attributions help us comprehend how and why bullied youths display different types of psychosocial difficulties, such problems can in turn help us explain why bullied youths do not do well in school (e.g., Espinoza et al. 2013). Researchers are aware that victims of bullying are likely to be absent from school and to receive low grades from teachers (e.g., Juvonen et al. 2011). Testing a meditational model, Nishina et al. (2005) found that the association between earlier bullying experiences and subsequent school functioning (higher rates of absenteeism and lower grades) can be partly accounted for by emotional distress and somatic complaints. In other words, not only may victimized youths feel anxious, they may also suffer from headaches and other physical ailments that prevent them from coming to school.

An increasing number of studies document that victims of bullying indeed suffer from health problems (for a meta-analysis, see Gini & Pozzoli 2009). A possible physiological pathway by which peer victimization may give rise to health problems implicates the hypothalamic-pituitary-adrenal axis. By examining salivary cortisol samples, one study showed that peer victimization predicted poor health outcomes and that during a stress test victims had altered cortisol levels compared with their nonvictimized peers (Knack et al. 2011). Specifically, higher cortisol immediately after the stressor and lower cortisol 30 min after the stressor were associated with more health problems. These findings suggest that the association between peer victimization and poor physical health can be explained partly by differences in reactivity to stress detected at the neuroendocrine level.

Recent neuroimaging studies have, in turn, explored the underlying neural mechanisms associated with victimization in the form of social exclusion. College students who were led to believe that they were excluded by two others when playing an electronic ball-tossing game (*Cyberball*) showed increased activity in the dorsal anterior cingulate cortex (dACC) compared with those who continued to be included in the game. Moreover, increased dACC activity was associated with more self-reported feelings of stress following *Cyberball* (Eisenberger et al. 2003). The dACC is the same region that is activated when individuals experience physical pain. Studies with 12-and 13-year-old adolescents that used the same paradigm reported more activity in the subgenual anterior cingulate cortex (subACC) (Masten et al. 2011). Given that the subACC is a region associated with affective processes, the results suggest that adolescents have particular difficulty

handling the negative emotions associated with social exclusion (see review in Eisenberger 2012). Increased subACC activity following social exclusion in the study on adolescents was also associated with increases in depression 1 year later (Masten et al. 2011). These neuroimaging studies further demonstrate the ways in which the physiological responses of victims of bullying can help us understand their emotional and physical pain.

The above reviewed studies present solid evidence that peer victimization predicts increased adjustment difficulties and health problems over time (e.g., Arseneault et al. 2006), although many symptoms and victimization are likely to be cyclically related over time. In addition to social-cognitive mechanisms (specifically attributions about one's plight as a victim), physiological mechanisms, including neuroendocrine reactions to stress and neural mechanisms in response to social pain, can help explain the level of emotional distress. Emotional and physical stress, in turn, can help account for why victims of bullying often also struggle academically.

BULLYING IN CONTEXT: CYBERSPACE AND SCHOOLS

Thus far we have not said very much about the different contexts in which bullying takes place. Most bullying research is carried out in schools, where youths interact daily with their peers. Yet the online environment that so dominates the lives of today's youths is also a frequent context for peer abuse. In this section we first consider the relatively new topic of bullying in cyberspace. We then turn to factors in the school context that are related to increased rates of bullying and a heightened sense of vulnerability when victimized.

Cyberbullying

Labeled as cyberbullying, electronically mediated bullying involves texting via cell phone; emailing or instant messaging; or posting messages on social networking sites and in chat rooms. Much like bullying in general, cyberbullying can be either direct (i.e., threats or nasty messages are sent to the target) or indirect (i.e., malicious comments, pictures, and private messages are spread much like rumors). Although there are similarities between cyberbullying and other types of bullying in terms of bully-victim overlap and the emotional distress associated with such experiences (e.g., Kowalski et al. 2012), particular contextual features make cyberbullying distinct. Two of the unique features of electronic bullying are its speed and spread: Degrading messages can quickly reach not only the target, but also a vast number of other individuals (Patchin & Hinduja 2006, Ybarra & Mitchell 2004). Another feature associated with cyberbullying is anonymity. When screen names (that can be easily created and changed) are used to send instant messages or to take part in discussions in chat rooms, the identity of the perpetrator can be easily concealed. Such a sense of anonymity, combined with very limited social controls (i.e., monitoring), makes it easy to send a hostile message or post embarrassing pictures of someone (e.g., Slonnje et al. 2013). Because the lack of social cues in online communication also encourages greater self-disclosure (Mesch 2009), cyberspace may provide particularly fertile grounds for bullying. Such questions about the unique features of the online environment have yet to be explored in the cyberbullying literature, which thus far comprises mainly descriptive studies.

The School Context

Bullying is largely studied as a school-based phenomenon, but it is surprising how little empirical research has directly examined school factors as the context for peer victimization. Many student misbehaviors are related to school characteristics, including school size, urbanicity, teacher quality,

disciplinary practices, and percentage of ethnic minority students (Gottfredson 2001). However, these school context correlates are inconsistently related to bullying behavior (Bradshaw et al. 2009, Payne & Gottfredson 2004). Probably the most consistent school context correlate of bullying is school climate. To the degree that students do not feel accepted, supported, respected, and treated fairly in their schools, bullying is more of a problem (Bradshaw et al. 2009, Payne & Gottfredson 2004). In the following sections we highlight research on other school context factors that have been more uniquely linked to students becoming the victim of bullying.

Racial/ethnic diversity. A good deal of bullying research is conducted in urban schools where multiple ethnic groups are represented, but very little of that research has systematically examined ethnicity-related context variables such as the racial/ethnic composition of schools (Graham 2006). In part to address this void, one study examined sixth-grade students' experiences of vulnerability at school—defined as perceived victimization, feeling unsafe, feeling lonely, and having low self-worth—in 99 classrooms and 10 middle schools that varied in ethnic diversity (Juvonen et al. 2006). This study documented that greater ethnic diversity at both the classroom and school levels was related to a lower sense of vulnerability among Latino and African American students, including less self-reported victimization. The authors argued that power relations may be more balanced in ethnically diverse schools with multiple ethnic groups and that shared power, in turn, reduces incidents of bullying. (Recall the definition of bullying as a power imbalance.) Although a few studies have examined peer victimization in different ethnic groups (e.g., Hanish & Guerra 2000; also see Graham et al. 2009b), to our knowledge this is the first study to document the buffering effects of greater ethnic diversity.

Organization of instruction. In the school violence literature, the use of academic tracking has been associated with more disruptive behavior on the part of students who are grouped for instruction in low-ability tracks (e.g., Gottfredson 2001). The general argument has been that students who are exposed to a less demanding curriculum and to more deviant peers are at greater risk of antisocial behavior. There is no comparable literature documenting effects of the organization of instruction on the experience of victimization. However, one recent study examined the role of academic teaming in middle school on students' victimization experiences (L. Echols, manuscript submitted). Academic teaming is the practice of grouping students into smaller learning communities for instruction (Thompson & Homestead 2004). Students in these teams often share the majority of their academic classes, limiting their exposure to the larger school community. Although the social and academic benefits of teaming practices have been highlighted in the literature (e.g., Mertens & Flowers 2003), recent analyses suggest that teaming increased (rather than decreased) the experience of victimization for students who were not well liked by their peers (L. Echols, manuscript submitted). In other words, socially vulnerable adolescents who reside within small collectives may have few opportunities to redefine their social identities and instead become increasingly stigmatized.

Deviation from classroom norms. Previous sections of this article reviewed the psychological consequences of being the target of peer abuse. Many victims feel lonely, depressed, and socially anxious, and they tend to blame themselves for their harassment experiences. An important school context factor that may exacerbate these victim-maladjustment linkages is the extent to which victims deviate from the norms of their classroom. Like social misfits (Wright et al. 1986), victims might feel especially bad when they differ from most other students in their classroom.

Two recent studies on victimization and classroom norms are consistent with a social misfit analysis. Focusing on first graders, one study found that elevated levels of victimization and

emotional problems were reported by those residing in classrooms where most students got along well and were kind to one another (Leadbeater et al. 2003). To the extent that the first graders' own ratings were high in perceived victimization and deviated from the classroom norm, students were judged by their teachers to be depressed and sad. Similarly, a study of middle-school students documented that the relationship between victimization and social anxiety was strongest when sixth-grade students resided in classrooms that were judged by the their teachers to be orderly rather than disorderly (Bellmore et al. 2004). In this case the more orderly classrooms were those in which students on average scored low on teacher-rated aggression. In both studies, a positive classroom norm (prosocial conduct, high social order) resulted in worse outcomes for victims who deviated from those norms.

The above-described middle-school study also reported that victimization was more predictive of loneliness and social anxiety for students who were members of the majority ethnic group in their classroom (Bellmore et al. 2004). Being a victim when one's own ethnic group holds the numerical balance of power can be a particularly painful example of deviation from the norm. The evidence suggests that victims who are members of the majority ethnic group are more likely to endorse self-blaming attributions ("It must be *me*"), and self-blame, in turn, predicts adjustment difficulties (Graham et al. 2009a). Not only does more diversity with multiple ethnic groups that share the balance of power protect against victimization (Juvonen et al. 2006), but such diversity may also foster enough attributional ambiguity to ward off self-blaming tendencies (S. Graham & A.Z. Taylor, manuscript in preparation).

Thus, research on schooling as a context for bullying is still relatively recent. In the research reviewed we highlight context factors that predict victimization, such as low racial/ethnic diversity and academic teaming for instruction. With regard to the psychological consequences of bullying, we review research on the degree to which victims of bullying in particular classroom settings deviate from the local norms. The first-grade victim in a classroom where most peers are prosocial or the sixth-grade victim in a classroom where most of the students are from his or her ethnic group might have particular adjustment difficulties. A plausible mechanism is that victims who deviate from the norm are particularly vulnerable to self-blaming attributions.

INTERVENTIONS TO PREVENT AND REDUCE BULLYING IN SCHOOL

What can be done to prevent bullying? What works to get rid of it once it has been detected? As public awareness of the serious consequences of school bullying has increased, more attention than ever has been directed toward interventions that can provide answers to these questions. If we had been writing this article 10 years ago, the prevention/intervention literature would have been relatively sparse. For example, in 2001 we coedited one of the first comprehensive books on school bullying (Juvonen & Graham 2001), and that volume did not contain a single chapter on intervention. Today there is a growing international literature on school-based interventions; articles on intervention programs have been included in several edited volumes (e.g., Jimerson et al. 2009, Smith et al. 2004). Some of the programs involve the whole school, whereas others target at-risk individuals (typically bullies). Certain programs focus on prosocial skill building, whereas others rely on the punishment of undesirable behavior (e.g., zero-tolerance policies). The database of empirical studies is sufficiently large to have prompted at least three research syntheses within the past decade (Baldry & Farrington 2007, Smith et al. 2004, Vreeman & Carroll 2007). These syntheses have focused primarily on universal or schoolwide bullying interventions as opposed to targeted programs for bullies and victims, but we outline both types of approaches in the following sections.

Schoolwide Interventions

A schoolwide approach targets all students, their parents, and adults within the school, including administrators, teachers, and staff. Such programs operate under the assumptions that bullying is a systemic social problem and that finding a solution is the collective responsibility of everyone in the school. Systemic prevention requires changing the culture of the whole school rather than (or in addition to) focusing on the behavior of individuals or groups directly involved in bullying incidents.

Most schoolwide programs have their roots in the approach prescribed in the Olweus Bullying Prevention Program (OBPP) developed by Olweus (1993) in Norway. This approach requires increased awareness of the nature of the problem, heightened monitoring, and systematic and consistent responses to incidents of bullying. For example, students are asked to create their own rules about bullying, and they are provided with information about strategies for dealing with bullying and opportunities for classroom discussions about their experiences. Teachers and school staff receive training that includes strategies for preventing problems associated with bullying. Common across all program participants is knowledge of the school's rules about bullying, including what behaviors constitute bullying and what consequences students and staff will face if they engage in those behaviors. Evaluations of OBPP in Norway revealed decreases in self-reported bullying and victimization, decreases in teachers' and students' reports of other students' bullying, and increases in students' perceptions of a positive school climate (Olweus 1993). The success of OBPP in Norway fueled efforts to implement similar schoolwide programs in both Europe and the United States.

Two recent meta-analyses (Merrell & Isava 2008, Smith et al. 2004) and two narrative analyses (Baldry & Farrington 2007, Vreeman & Carroll 2007) of research on these Olweus-inspired antibullying programs provide evidence of the effectiveness of schoolwide approaches. Unfortunately, the effects are modest at best. When considering the reductions in incidents of bullying, only approximately one-third of the school-based interventions included in the Merrell & Isava (2008) meta-analysis showed any positive effects.

Several explanations have been offered for these disappointing findings. First, there is inconsistency in the degree to which the programs conformed to many of the principles of good intervention research, such as random assignment to treatment and control groups, careful monitoring of treatment fidelity, and appropriate intervals between pretests and posttests (Ryan & Smith 2009). Second, most interventions relied heavily on student self-reports of bullying—as target, perpetrator, or witness. Because whole-school approaches are designed to raise awareness of bullying, this increased consciousness might result in elevated reports of bullying, which could then mask treatment effects (Smith et al. 2004). Third, the Olweus intervention was implemented in Norwegian schools, where the norm is small classrooms, well-trained teachers, and relatively homogeneous student populations. An intervention developed in that setting may not be easily portable to other school contexts with very different organizational structures, student demographics, and staff buy-in (Limber 2011). Research on decision making about program adoption reveals that many teachers and administrators in American schools are reluctant to embrace whole-school interventions because they believe either that there is not enough time and space in the curriculum or that developing antibullying attitudes is primarily the responsibility of parents (Cunningham et al. 2009).

It would be premature to conclude that whole-school interventions are not effective inasmuch as some of the more recent programs not included in the previous reviews are showing promising results. One noteworthy program is KiVa, an acronym for *kiusaamista vastaan*, translated from Finnish as "against bullying" (Kärnä et al. 2011). Developed and implemented in Finland, KiVa differs from the Olweus program in its specific focus on bystanders or witnesses to bullying. KiVa

aims to develop among bystanders more empathy for victims and strategies to help victims when they are being harassed. A second noteworthy program is WITS (Walk Away, Ignore, Talk It Out, and Seek Help), developed in Canada (Leadbeater & Sukhawathanakul 2011). Focusing on the early grades, WITS raises awareness of the problem of school bullying and then teaches first-to third-grade students a set of social skills to help them resolve interpersonal conflicts. Although both KiVa and WITS have documented reductions in school bullying in Finland and Canada, respectively, neither has yet been evaluated in American schools. A third noteworthy recent program, and one that did originate in the United States, is Steps to Respect (Frey et al. 2009). Implemented during the elementary-school grades in the Pacific Northwest, Steps to Respect is unique in terms of its attention to relational aggression (e.g., gossip, ostracism) and the use of playground observation methods to assess changes in bullying behavior. With more rigorous experimental designs, manualized treatment, multiple informants, and long-term follow-up, all three of these programs are representative of a more current group of whole-school interventions that conform more closely to principles of good preventive interventions.

Targeted Interventions

Unlike schoolwide approaches that address the needs of everyone, a targeted intervention approach focuses on the 10–15% of youths who are involved in bullying incidents as bullies or victims, although research has concentrated almost exclusively on perpetrators rather than victims. The best known of these interventions emerge from the childhood aggression literature and are designed to address the dysfunctional thoughts and behaviors of the children who aggress against others. As described above, a dysfunctional thought pattern characteristic of some aggressive youths—many of whom are also bullies—is a hostile attributional bias, or the tendency to believe that peers are intentionally causing them harm, particularly in ambiguous situations (Dodge et al. 2006). Hostile attributional bias may be only one part of a larger set of deficits that interfere with adaptive social information processing. For example, Crick & Dodge (1994) proposed a five-step social-cognitive model that has become very influential in the bullying intervention literature. In that model, the information processing difficulties of bullies begin when they inaccurately interpret social cues associated with ambiguous peer provocation (e.g., someone is pushed while waiting in line and it is unclear why) and continue as they formulate goals, access from memory a repertoire of possible behavioral responses (e.g., "Should I retaliate or just ignore it?"), and finally choose a response.

One of the most extensive aggression interventions that includes social information-processing skills is Fast Track (e.g., Conduct Probl. Prev. Res. Group 2011). Begun in 1991 at four sites across the United States, Fast Track identified a sample of 890 kindergarten children at risk of conduct problems on the basis of parent and teacher reports. These children were then randomly assigned to either an intervention group or a no-treatment control group. Those in the intervention group participated in a year-long curriculum in first through fifth grades with weekly meetings that included training in social information processing, social problem solving, emotional understanding, communication, and self-control. The social-cognitive component was accompanied by individualized academic tutoring as needed, and there was a parent-training component as well. Intervention activities continued to tenth grade but were individualized in middle school and high school. Intervention participants showed improved social-cognitive skills and fewer conduct problems from the early elementary grades; remarkably, positive gains remained after the intervention ended (i.e., twelfth grade) for boys who were most at risk of conduct problems at entry into the Fast Track (Conduct Probl. Prev. Res. Group 2011).

Fast Track is a unique intervention because of its multiple components and longitudinal design. It is more of a demonstration project showing the potential of good intervention science

than a program that could be easily implemented by individual schools. However, other short-term and more streamlined social-cognitive interventions for aggressive boys have also reported improvements in both social information-processing skills and behavior. Examples of these targeted approaches are Brainpower (Hudley & Graham 1993) for elementary school–age boys and the Coping Power Program (Lochman & Wells 2004) for boys transitioning to middle school. Whether the short-term effects of these programs are maintained over time is not known.

No comparable interventions exist to alter the maladaptive social cognitions (attributional biases) of victims. Recall that victims are more likely to blame themselves for their harassment experiences ("It must be me") and that self-blaming attributions are related to mental health difficulties (Graham & Juvonen 1998). Thus, one intervention strategy might be to alter the victims' maladaptive thoughts about the causes of their plight. What more adaptive attribution might replace self-blame? In some cases change efforts might target behaviors (e.g., "I was in the wrong place at the wrong time"). The goal would be to help victimized youths recognize that there are responses in their repertoire to prevent future encounters with harassing peers. External attributions can also be adaptive because they protect self-esteem (Weiner 1995). Knowing that others are also victims or that there are some aggressive youths who randomly single out unsuspecting targets can help lessen the victims' tendency to feel humiliated because of self-blame (Nishina & Juvonen 2005). The idea of altering dysfunctional causal thoughts about oneself to produce changes in affect and behavior has produced a rich empirical literature on attribution therapy in educational and clinical settings (Wilson et al. 2002). There is no reason that the guiding assumption of that research cannot be applied to alleviating the plight of victims of bullying. Such an approach could be embedded in the context of a universal intervention program.

The schoolwide bullying prevention approach and the targeted intervention approach, although complementary, represent different schools of thought, and each has advantages and disadvantages. The schoolwide programs aim to build resiliency in all children and to create a more supportive school climate. As critiques of these programs have shown, how one determines that the school climate has actually changed for the better can be challenging. The targeted programs focus on the small number of youths at risk of negative outcomes. Whether or not the intervention has been successful is therefore easier to determine. However, because they rely on accurate identification, targeted interventions need to take into account what we know about the (in)stability of bully and victim status over time. Therefore, interventionists need to be aware of the possibility of false positives if identification is made at a single point in time. Interventionists must also guard against the risk of harmful (iatrogenic) effects that sometimes occur when youths with similar problems are aggregated together for treatment (Dodge et al. 2006).

Fidelity and sustainability, two important components of good interventions (Flay et al. 2005), are likely to be differentially achieved in the whole-school versus targeted approaches. Fidelity, or the consistency with which all of the components of the intervention are implemented, is probably easier to achieve in targeted approaches because there are fewer people, both adults (trainers) and children, to keep track of. With multiple activities at multiple levels involving multiple stakeholders, it is more difficult to monitor treatment fidelity in schoolwide programs, and indeed, that is one explanation for the disappointing findings in many of those interventions (Ryan & Smith 2009). However, sustainability may be easier to achieve in schoolwide programs. Systemic changes in individual students and adults at the classroom, school, and community levels are needed to build a foundation for long-term prevention of bullying. With the exception of Fast Track, most targeted interventions are imported from the outside, are implemented by the researchers, and are usually too short-lived to achieve the stakeholder buy-in needed to sustain them. Rarely are they powerful enough by themselves to maintain behavior change in individual children in the long term.

CONCLUSIONS AND FUTURE DIRECTIONS

Proposing future directions for research on school bullying requires that we distinguish between what the field already knows with much certainty—that is, what issues and complexities have already been resolved—and what issues, challenges, and complexities would benefit from continuing or new research. For example, the field probably does not need more studies in which the primary research goal is to document gender differences in rates of physical and relational bullying. Because the different forms of bullying (physical, verbal, and relational; or direct and indirect) tend to be highly correlated in research, there may be only limited theoretical payoff of more studies that seek to identify the unique correlates of each form.

On the basis of our understanding of school bullying as reviewed in this article, we suggest four directions for future research. None of the proposed directions can be discussed in detail, and surely they reflect our biases. We offer them as food for thought to enrich the study of bullying in schools.

Longitudinal Research on Victimization

Because the childhood aggression literature has a long history in both American and international research, that field has benefited from numerous longitudinal studies from multiple sites around the world that have identified the trajectories of aggressive children and the long-term risk factors associated with such behavior (Dodge et al. 2006). Consensus has emerged in longitudinal studies about the ways to assess aggressive behavior and the critical developmental periods that would need to be captured. These agreements have made it possible to aggregate data sets across multiple sites, yielding a robust picture of continuities and discontinuities in childhood aggression trajectories (e.g., Broidy et al. 2003). In part because American researchers did not begin to seriously study peer victimization before the 1990s, the field does not have a comparable multisite, multinational longitudinal literature on the trajectories of victims of bullying. Such studies are sorely needed. We know that the plight of the victim is a real one—socially, emotionally, physically, and academically—and that the underpinnings of that plight are biological, psychological, and contextual. What we do not know is why the experiences of victimization fluctuate over time, whether victim trajectories may decline developmentally (much like physically aggressive youths seem to "age out"), and what the undisputed long-term consequences of peer abuse are. Answers to these questions can be achieved only with collaborative longitudinal studies that cast a wide empirical net across age, time, setting, and measurement.

Victimization as Social Stigma

In this article we do not extensively discuss the individual characteristics of youths that put them at risk of victimization. Given space limitations, we mention almost in passing that youths who are ethnic or sexual minorities, are obese, or have mental and physical disabilities might be most at risk. A 2011 report on school bullying by the US Commission on Civil Rights confirms these as risk factors. After examining a compendium of school district data, legal briefs, and testimony of experts, the Commission concluded that "…bullying based on students' identities—such as their sex, race, ethnicity or national origin, disability, sexual orientation or gender identity, or religion—can be particularly damaging. Unfortunately these forms of bullying are all too common in American schools" (US Comm. Civ. Rights 2011, p. 8).

If these stigmatized social identities are among the major causes of victimization, it is surprising how unconnected the empirical literatures addressing these stigmas remain. For example, there is

a growing literature on the experience of school-based racial discrimination during adolescence, but most of that research has evolved from the adult racial discrimination literature, drawing few parallels to peer victimization research (Benner & Graham 2013). Similarly, childhood obesity research is largely found in the child health literature, despite knowledge that obese youths are often targets of peer harassment (e.g., Pearce et al. 2002); and research on bullying of LBGT youths, although increasing (e.g., Toomey et al. 2010), has not been well informed by the peer relations literature. Furthermore, none of the bullying interventions that we review herein specifically targeted any of these stigmatized groups.

We would like to see much more cross-fertilization between these separate social identity literatures and the school bullying literature. For example, are the correlates and mediating mechanisms associated with the plight of the victim the same in each of these stigmatized identities, or are they qualitatively different? Should schoolwide or targeted interventions be developed and tailored to each type of social stigma, or should the more general approaches in the bullying literature be expected to improve the plight of all victims, regardless of their stigmatized identity? Does it make a difference for the effectiveness of targeted intervention if an individual has multiple stigmatized identities that are experienced simultaneously (e.g., the ethnic minority boy who is LGBT)? We have no definitive answers to these questions. However, we believe that a more integrated developmental approach to social stigma—understanding commonalities and differences across particular identities and bringing this understanding to bear on intervention research—will move the bullying literature closer to addressing some of the most powerful social stressors of childhood and adolescence.

School Context Matters

Most bullying takes place at school and among schoolmates. Yet as our review shows, researchers know surprisingly little about the characteristics of schools that promote or protect against bullying by one's peers. One contextual characteristic that we believe to be particularly understudied is the racial/ethnic composition of classrooms and schools. A great deal of American bullying research is conducted in urban schools where multiple ethnic groups are represented, but not much of that research has examined the role that ethnicity plays in the experience of victimization. We do not think that ethnic group per se is the critical variable, given that there is no consistent evidence in the literature that any one ethnic group is more or less likely to be the target of bullying (Graham et al. 2009b). Rather, the more important context variable is whether ethnic groups are the numerical majority or minority in their school. Numerical minority group members appear to be at greater risk of victimization because they have fewer same-ethnicity peers to help ward off potential bullies (Hanish & Guerra 2002); youths who are victims as well as members of the majority ethnic group may suffer the most because they deviate from the norms of their group to be powerful (Bellmore et al. 2004); and ethnically diverse classrooms may reduce rates of victimization because the numerical balance of power is shared among many groups (Juvonen et al. 2006).

We view these studies as a useful starting point for a much fuller exploration of the ways in which school ethnic diversity can be a protective factor. Among the possible new directions for this research are the role of cross-ethnic friendships as sources of support and the degree to which students with stigmatized identities experience more acceptance and less harassment in ethnically diverse schools. Today's multiethnic urban schools are products of the dramatic changes in the racial/ethnic composition of the school-aged population in just a single generation. They are ideal settings in which to test hypotheses about the role of ethnic diversity in shaping the experience of victimization. Additionally, examination of ethnic diversity can provide some important insights

into protective factors that may also apply to other forms of diversity (e.g., students with disabilities, sexual minority youths).

Our review of the plight of the victim suggests the need for more studies on the degree to which schools are organized to be sensitive to developmental periods when youths may be most at risk. The middle-school transition, for example, appears to be a particularly vulnerable period in part because social dominance hierarchies become reconfigured and reestablished very quickly. We are struck by how little of the middle-school transition literature addresses bullying even though it is known to peak during these years. As we note above, some of the instructional practices that are designed to be both academically and socially supportive during transitions, such as small learning communities and academic teaming, may actually be risky for youths with reputations as victims (L. Echols, manuscript submitted). We would like to see a more systematic analysis by bullying researchers of other presumably sound pedagogical practices in schools that could be disadvantageous for youths at risk of victimization.

Designing Interventions That Work

The schoolwide intervention literature is large and increasing, but in some respects it is disappointing. Many of the programs simply do not work. Evaluations of these programs show that part of the problem is methodological; too many studies do not conform to good principles of prevention and intervention research. An important future direction is that interventions be designed with random assignments to treatment and control conditions, manualized treatments, careful attention to fidelity and dosage, multiple outcome measures, and longitudinal follow-up. The KiVa program that we introduce in our intervention section has many of these qualities and is showing promising results in Finnish schools (Kärnä et al. 2011). Strong school-based interventions should also address mediating and moderating mechanisms (Why does the treatment work, and for whom?). Our review identifies important social-cognitive mediators, such as attributions for victimization, and moderators, such as chronicity of abuse and the ethnic diversity of one's school, that could be included and examined in the next generation of school-based interventions.

Although interventions that take a whole-school approach are here to stay, we do not want to lose sight of the plight of the victims and a more nuanced approach to intervention that better acknowledges their plight. We conclude with three examples of what such an approach might entail. First, we know that school transitions are risky times for most youths, but especially for victimprone youths whose negative experiences might spike during those times. Preventive interventions that offer victims special support to navigate these turbulent transitions would be worthwhile. The buffering effect of even one friendship is well documented in the victimization literature, and these underutilized findings could be incorporated into a preventive approach. Second, most schoolwide interventions or even targeted interventions for bullies focus on changing direct forms of physical aggression and verbal aggression such as name-calling and insults. Our review also underscores that indirect forms of victimization such as social ostracism and cybertactics are particularly insidious because they can go undetected for long periods. A challenge for interventionists is to figure out a way to incorporate cyberbullying and other more covert forms of harassment that are not easily detected. Third, the social hierarchy literature reminds us to what extent popular and dominant youths control peer norms and the degree to which bystanders are unwilling to stand up to the bully or come to the aid of the victim. Intervention approaches that can harness the influence of these powerful youths toward more prosocial goals and norms are especially needed (for a recent example of such an approach, see Paluck & Shepherd 2012). It may not be necessary to take a top-down approach to schoolwide intervention if we can penetrate social norms and raise collective responsibility by working directly with the youth who most directly shape peer norms.

IMPLICATIONS FOR INTERVENTION

Popular and dominant bullies control the peer norms and the degree to which bystanders are unwilling to come to the aid of the victim. It may be necessary to penetrate social norms and raise collective responsibility by working directly with the youths who most directly shape peer norms.

SUMMARY POINTS

- Bullying perpetration and victimization are more unstable than stable, yet little is known about what accounts for the discontinuous trajectories of bullies or victims.
- 2. Bullying is likely to be motivated by social dominance that peaks at times of social reorganization associated with environmental (e.g., school) transitions.
- 3. The social prominence of bullies and their tendency to blame others partly explain their (overly) positive self-views, whereas bystander reinforcement explains why it is difficult to intervene with bullying behaviors.
- 4. Victims' reactions or responses to bullying (internalizing problems giving rise to submissive responses versus externalizing behaviors giving rise to hostile retaliation) may partly account for the continuous victim trajectories.
- 5. Unless youths have friends or are well accepted by their peers, individual risk factors (e.g., obesity, disabilities, LGBT status) that indicate a deviation from the group norm increase the likelihood of being bullied.
- When victims of bullying deviate from the group norms, they are particularly vulnerable because of their self-blaming attributions.
- 7. Peer victimization predicts increased adjustment difficulties and health problems over time; social-cognitive mechanisms (specifically attributions about one's plight as a victim) as well as physiological mechanisms, including neuroendocrine reactions to stress and neural mechanisms in response to social pain, can help explain emotional and physical health problems.
- 8. Fidelity of implementation is a challenge facing schoolwide antibullying interventions, whereas targeted intervention effects are difficult to sustain.

FUTURE ISSUES

- A multisite, multinational longitudinal literature on the trajectories of victims of bullying
 is needed to explain how the experiences of victimization fluctuate over time, how some
 children recover from their plight, and what the undisputed long-term consequences of
 peer abuse are.
- 2. Investigators should connect research on bullying with studies conducted on discrimination of potentially stigmatized groups based on sex, race, ethnicity or national origin, disability, sexual orientation or gender identity, and religion to understand the similarities among them and the unique features and consequences of each.

- 3. School contextual factors (e.g., ethnic composition of schools, organizational and instructional practices) that can protect youths from bullying and alleviate the social or physical pain associated with victimization experiences should be examined.
- 4. Researchers should further develop rigorously evaluated interventions in light of the most current research evidence on bullying and victimization that take into account the discrete features of contexts (e.g., school or online) in which bullying and victimization unfold and try to target the most insidious forms of bullying that are difficult for outsiders to detect.

DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

LITERATURE CITED

- Adler PA, Adler P. 1998. Peer Power: Preadolescent Culture and Identity. New Brunswick, NJ: Rutgers Univ. Press Archer J, Coyne SM. 2005. An integrated review of indirect, relational, and social aggression. Personal. Soc. Psychol. Rev. 9:212–30
- Archer J. 2004. Sex differences in aggression in real-world settings: a meta-analytic review. Rev. Gen. Psychol. 8:291–322
- Arseneault L, Walsh E, Trzesniewski K, Newcombe R, Caspi A, Moffitt TE. 2006. Bullying victimization uniquely contributes to adjustment problems in young children: a nationally representative cohort study. Pediatrics 118:130–38
- Artz S. 2005. To die for: violent adolescent girls' search for male attention. In *The Development and Treatment of Girlhood Aggression*, ed. D Pepler, K Madsen, C Webster, K Levene, pp. 135–60. Mahwah, NJ: Erlbaum
- Baldry AC, Farrington DP. 2007. Effectiveness of programs to prevent school bullying. Vict. Offenders 2:183–204
- Bellmore A, Witkow M, Graham S, Juvonen J. 2004. Beyond the individual: the impact of ethnic diversity and behavioral norms on victims' adjustment. *Dev. Psychol.* 40:1159–72
- Benner AD, Graham S. 2013. The antecedents and consequences of racial/ethnic discrimination during adolescence: Does the source of discrimination matter? *Dev. Psychol.* 49:1602–13
- Bettencourt A, Farrell A, Liu W, Sullivan T. 2012. Stability and change in patterns of peer victimization and aggression during adolescence. J. Clin. Child Adolesc. 27:1–13
- Björkqvist K, Österman K, Kaukiainen A. 2000. Social intelligence empathy = aggression? Aggress. Viol. Behav. 5:191–200
- Björkqvist K, Österman K, Lagerspetz KMJ. 1994. Sex differences in covert aggression among adults. Aggress. Behav. 20:27–33
- Boivin M, Dodge KA, Coie JD. 1995. Individual-group behavioral similarity and peer status in experimental play groups of boys: the social misfit revisited. *J. Personal. Soc. Psychol.* 69:269–79
- Boulton MJ, Trueman M, Flemington I. 2002. Associations between secondary school pupils' definitions of bullying, attitudes towards bullying, and tendencies to engage in bullying: age and sex differences. *Educ. Stud.* 28:353–70
- Bradshaw CP, Sawyer AL, O'Brennan LM. 2009. A social disorganization perspective on bullying-related attitudes and behaviors: the influence of school context. Am. J. Commun. Psychol. 43:204–20
- Brame B, Nagin DS, Tremblay RE. 2001. Developmental trajectories of physical aggression from school entry to late adolescence. J. Child Psychol. Psychiatry 42:503–12
- Broidy LM, Nagin DS, Tremblay RE, Bates JE, Brame B, et al. 2003. Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: a six-site, cross-national study. Dev. Psychol. 39:222–45

Presents a definitive review of research on gender differences in

various forms of

aggression.

- Buhs ES, Ladd GW, Herald SL. 2006. Peer exclusion and victimization: processes that mediate the relation between peer group rejection and children's classroom engagement and achievement? *J. Educ. Psychol.* 98:1–13
- Burk LR, Armstrong JM, Park J-H, Zahn-Waxler C, Klein MH, Essex MJ. 2010. Stability of early identified aggressive victim status in elementary school and associations with later mental health problems and functional impairments. *J. Abnorm. Child Psychol.* 39:225–38
- Cairns RB, Cairns BD. 1994. Lifelines and Risks: Pathways of Youth in Our Time. New York: Cambridge Univ. Press. 218 pp.
- Camodeca M, Goossens FA, Terwogt MM, Schuengel C. 2002. Bullying and victimization among school-age children: stability and links to proactive and reactive aggression. Soc. Dev. 11:332–45
- Card NA, Stucky BD, Sawalani GM, Little TD. 2008. Direct and indirect aggression during childhood and adolescence: a meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Dev.* 79:1185–229
- Cillessen AHN, Borch C. 2006. Developmental trajectories of adolescent popularity: a growth curve modelling analysis. J. Adolesc. 29:935–59
- Cillessen AHN, Mayeux L. 2004. From censure to reinforcement: developmental changes in the association between aggression and social status. Child Dev. 75:147–63
- Conduct Probl. Prev. Res. Group. 2011. The effects of the Fast Track preventive intervention on the development of conduct disorder across childhood. Child Dev. 82:331–45
- Copeland WE, Wolke D, Angold A, Costello EJ. 2009. Adult psychiatric outcomes of bullying and being bullied by peers in childhood and adolescence. JAMA 70:419–26
- Coyne SM, Nelson DA, Underwood M. 2011. Aggression in children. In The Wiley-Blackwell Handbook of Childhood Cognitive Development, ed. PK Smith, CH Hart, pp. 491–509. Oxford, UK: Wiley. 2nd ed.
- Crick NR, Dodge KA. 1994. A review and reformulation of social information processing mechanisms in children's social adjustment. *Psychol Bull.* 115:74–101
- Crick NR, Grotpeter JK. 1995. Relational aggression, gender, and social-psychological adjustment. Child Dev. 66:710–22
- Crick NR, Ostrov JM, Kawabata Y. 2007. Relational aggression and gender: an overview. In *The Cambridge Handbook of Violent Behavior and Aggression*, ed. DJ Flannery, AT Vazsonyi, ID Waldman, DJ Flannery, AT Vazsonyi, ID Waldman, pp. 245–59. Cambridge, UK: Cambridge Univ. Press
- Cunningham C, Vaillancourt T, Rimas H, Deal K, Cunningham L, et al. 2009. Modeling the bullying prevention program preferences of educators: a discrete choice conjoint experiment. J. Abnorm. Child Psychol. 37:929–43
- De Castro BO, Veerman JW, Koops W, Bosch JD, Monshouwer HJ. 2002. Hostile attribution of intent and aggressive behavior: a meta-analysis. *Child Dev.* 73:916–34
- Dodge KA, Coie JD, Lynam D. 2006. Aggression and antisocial behavior in youth. In *Handbook of Child Psychology: Social, Emotional, and Personality Development*, ed. W Damon, RL Lerner, N Eisenberg, pp. 710–88. Hoboken, NJ: Wiley. 6th ed.
- Dodge KA, Dishion TJ, Lansford JE. 2006. Deviant Peer Influence in Programs for Youth. New York: Guilford Dodge KA. 1993. Social-cognitive mechanisms in the development of conduct disorder and depression. Annu. Rev. Psychol. 44:559–84
- Eder D. 1985. The cycle of popularity: interpersonal relations among female adolescents. *Sociol. Educ.* 58:154–65
- Egan SK, Perry DG. 1998. Does low self-regard invite victimization? Dev. Psychol. 34:299-309
- Eisenberger NI, Lieberman MD, Williams KD. 2003. Does rejection hurt? An fMRI study of social exclusion. Science 5643:290–92
- Eisenberger NI. 2012. The pain of social disconnection: examining the shared neural underpinnings of physical and social pain. *Neuroscience* 13:421–34
- Espelage DL, Bosworth K, Simon TR. 2001. Short-term stability and prospective correlates of bullying in middle-school students: an examination of potential demographic, psychosocial, and environmental influences. *Violence Vict.* 16:411–26

- Espinoza G, Gonzales NA, Fuligni AJ. 2013. Daily school peer victimization experiences among Mexican American adolescents: associations with psychosocial, physical and school Adjustment. *J. Youth Adolesc.* In press
- Feshbach ND. 1969. Sex differences in children's modes of aggressive responses toward outsiders. *Merrill Palmer O.* 15:249–58
- Flay BR, Biglan A, Boruch RF, González Castro F, Gottfredson D, Kellam S, et al. 2005. Standards of evidence: criteria for efficacy, effectiveness, and dissemination. *Prev. Sci.* 6:151–75
- Fox CL, Boulton MJ. 2006. Longitudinal associations between submissive/nonassertive social behavior and different types of peer victimization. Violence Vict. 21:383–400
- Frey KS, Hirschstein MK, Edstrom LV, Snell JL. 2009. Observed reductions in school bullying, nonbullying aggression, and destructive bystander behavior: a longitudinal evaluation. 7. Educ. Psychol. 101:466–81
- Gini G, Albiero P, Benelli B, Altoè G. 2007. Does empathy predict adolescents' bullying and defending behavior? Aggress. Behav. 33:467–76
- Gini G, Pozzoli T. 2009. Association between bullying and psychosomatic problems: a meta-analysis. Pediatrics 123:1059–65
- Gottfredson DC. 2001. Schools and Delinquency. Cambridge, UK: Cambridge Univ. Press
- Graham S, Bellmore A, Nishina A, Juvonen J. 2009a. "It must be me": ethnic diversity and attributions for victimization in middle school. 7. Youth Adolesc. 38:487–99
- Graham S, Juvonen J. 1998. Self-blame and peer victimization in middle school: an attributional analysis. Dev. Psychol. 34:587–38
- Graham S, Taylor AZ, Ho AY. 2009b. Race and ethnicity in peer relationship research. In *Handbook of Peer Interactions, Relationships, and Groups*, ed. KH Rubin, WM Bukowski, B Laursen, pp. 294–413. New York: Guilford
- Graham S. 2006. Peer victimization in school: exploring the ethnic context. *Curr. Dir. Psychol. Sci.* 15:317–20 Hanish LD, Guerra NG. 2000. Predictors of peer victimization among urban youth. *Soc. Dev.* 9:521–43
- Hanish LD, Guerra NG. 2002. A longitudinal analysis of patterns of adjustment following peer victimization. Dev. Psychopathol. 14:69–89
- Hawker DSJ, Boulton MJ. 2000. Twenty years' research on peer victimization and psychosocial maladjustment: a meta-analytic review of cross-sectional studies. J. Child Psychol. Psychiatry 41:441–55
- Hawley P. 1999. The ontogenesis of social dominance: a strategy-based evolutionary perspective. Dev. Rev. 19:97–132
- Hinde RA. 1974. Biological Bases of Human Social Behaviour. New York: McGraw-Hill
- Hodges EVE, Boivin M, Vitaro F, Bukowski WM. 1999. The power of friendship: protection against an escalating cycle of peer victimization. Dev. Psychol. 35:94–101
- Hodges EVE, Perry DG. 1999. Personal and interpersonal antecedents and consequences of victimization by peers. J. Personal. Soc. Psychol. 76:677–85
- Hudley C, Graham S. 1993. An attributional intervention with African American boys labeled as aggressive. Child Dev. 64:124–38
- Hymel S, Bowker A, Woody E. 1993. Aggressive versus withdrawn unpopular children: variations in peer and self-perceptions in multiple domains. *Child Dev.* 64:879–96
- Janoff-Bulman R. 1979. Characterological and behavioral self-blame: inquiries into depression and rape. 7. Personal. Soc. Psychol. 35:1798–809
- Jimerson SR, Swearer SM, Espelage DL. 2009. Handbook of Bullying in Schools: An International Perspective. New York: Routledge
- Jolliffe D, Farrington DP. 2006. Examining the relationship between low empathy and bullying. Aggress. Behav. 32:540–50
- Juvonen J, Galván A. 2008. Peer influence in involuntary social groups: lessons from research on bullying. In *Understanding Peer Influence in Children and Adolescents*, ed. MJ Prinstein, KA Dodge, pp. 225–44. New York: Guilford
- Juvonen J, Graham S, Schuster MA. 2003. Bullying among young adolescents: the strong, the weak, and the troubled. *Pediatrics* 112:1231–37
- Juvonen J, Graham S. 2001. Peer Harassment in School: The Plight of the Vulnerable and Victimized. New York: Guilford

Represents one of the first edited volumes by American researchers on peer victimization in schools.

- Juvonen J, Nishina A, Graham S. 2000. Peer harassment, psychological adjustment, and school functioning in early adolescence. 7. Educ. Psychol. 92:349–59
- Juvonen J, Nishina A, Graham S. 2006. Ethnic diversity and perceptions of safety in urban middle schools. Psychol. Sci. 17:393–400
- Juvonen J, Wang Y, Espinoza G. 2011. Bullying experiences and compromised academic performance across middle school grades. 7. Early Adolesc. 31:152–73
- Juvonen J, Wang Y, Espinoza G. 2013. Physical aggression, spreading of rumors, and social prominence in early adolescence: reciprocal effects supporting gender similarities? J. Early Adolesc. In press
- Kärnä A, Voeten M, Little T, Poskiparta E, Kaljonen A, Salmivalli C. 2011. A large scale evaluation of the KiVa anti-bullying program: grades 4–6. Child Dev. 82:311–30
- Katz-Wise SL, Hyde JS. 2012. Victimization experiences of lesbian, gay, and bisexual individuals: a meta-analysis. J. Sex Res. 49:142–67
- Knack JM, Jensen-Campbell LA, Baum A. 2011. Worse than sticks and stones? Bullying is associated with altered HPA axis functioning and poorer health. *Brain Cogn.* 77:183–90
- Kochel KP, Ladd GW, Rudolph KD. 2012. Longitudinal associations among youth depressive symptoms, peer victimization, and low peer acceptance: an interpersonal process perspective. Child Dev. 83:637– 50
- Kochenderfer BJ, Ladd GW. 1997. Victimized children's responses to peers' aggression: behaviors associated with reduced versus continued victimization. Dev. Psychopathol. 9:59–73
- Kochenderfer-Ladd B, Wardrop JL. 2001. Chronicity and instability of children's peer victimization experiences as predictors of loneliness and social satisfaction trajectories. Child Dev. 72:134–51
- Kowalski RM, Morgan CA, Limber SP. 2012. Traditional bullying as a potential warning sign of cyberbullying. Sch. Psychol. Int. 33:505–19
- LaFontana KM, Cillessen AHN. 2010. Developmental changes in the priority of perceived status in childhood and adolescence. Soc. Dev. 19:130–47
- Lagerspetz KMJ, Björkqvist K, Berts M, King E. 1982. Group aggression among school children in three schools. Scand. 7. Psychol. 23:45–52
- Lagerspetz KMJ, Björkqvist K, Peltonen T. 1988. Is indirect aggression typical of females? Gender differences in aggressiveness in 11- to 12-year-old children. *Aggress. Behav.* 14:403–14
- Leadbeater B, Hoglund W, Woods T. 2003. Changing contexts? The effects of a primary prevention program on classroom levels of peer relational and physical victimization. J. Community Psychol. 31:397–418
- Leadbeater BJ, Sukhawathanakul P. 2011. Multi-component programs for reducing peer victimization in early elementary school: a longitudinal evaluation of WITS primary program. J. Community Psychol. 39:606– 20
- Limber SP. 2011. Development, evaluation, and future directions of the Olweus bullying prevention program. J. Sch. Violence 10:71–87
- Little T, Henrich C, Jones S, Hawley P. 2003. Disentangling the "whys" from the "whats" of aggressive behaviour. Int. Behav. Dev. 27:122–33
- Lochman JE, Wells KC. 2004. The coping power program for preadolescent boys and their parents: outcome effects at the 1-year follow up. 7. Consult. Clin. Psychol. 72:571–78
- Loeber R, Hay D. 1997. Key issues in the development of aggression and violence from childhood to early adulthood. Annu. Rev. Psychol. 48:371–410
- Masten CL, Eisenberger NI, Borofsky LA, McNealy K, Pfeifer JH, Dapretto M. 2011. Subgenual anterior cingulate responses to peer rejection: a marker of adolescents' risk for depression. *Dev. Pathopsychol.* 23:283–92
- Merrell K, Isava D. 2008. How effective are school bullying intervention programs? A meta-analysis of intervention research. Sch. Psychol. Q. 23:26–42
- Merten DE. 1997. The meaning of meanness: popularity, competition, and conflict among junior high school girls. Sociol. Educ. 70:175–91
- Mertens SB, Flowers N. 2003. Middle school practices improve student achievement in high poverty schools. Middle Sch. 7. 35:33–43
- Mesch GS. 2009. Parental mediation, online activities, and cyberbullying. Cyber Psychol. Behav. 12:387–93
- Nadeem E, Graham S. 2005. Early puberty, peer victimization, and internalizing symptoms in ethnic minority adolescents. J. Early Adolesc. 25:197–222

- Nakamoto J, Schwartz D. 2010. Is peer victimization associated with academic achievement? A meta-analytic review. Soc. Dev. 19:221–42
- Nansel TR, Overpeck M, Pilla RS, Ruan W, Simons-Morton B, Scheidt P. 2001. Bullying behaviors among US youth: prevalence and association with psychosocial adjustment. *JAMA* 285:2094–100
- Nishina A, Juvonen J, Witkow MR. 2005. Sticks and stones may break my bones, but names will make me feel sick: the psychosocial, somatic, and scholastic consequences of peer harassment. *J. Clin. Child Adolesc.* 34:37–48
- Nishina A, Juvonen J. 2005. Daily reports of witnessing and experiencing peer harassment in middle school. Child Dev. 76:435–50
- Nylund K, Bellmore A, Nishina A, Graham S. 2007. Subtypes, severity, and structural stability of peer victimization: What does latent class analysis say? *Child Dev.* 78:1706–22
- O'Connell P, Pepler D, Craig W. 1999. Peer involvement in bullying: insights and challenges for intervention. 7. Adolesc. 22:437–52
- Ojanen T, Grönroos M, Salmivalli C. 2005. An interpersonal circumplex model of children's social goals: links with peer-reported behavior and sociometric status. *Dev. Psychol.* 41:699–710
- Olweus D. 1978. Aggression in the Schools: Bullies and Whipping Boys. New York: Hemisphere Publ.
- Olweus D. 1993. Bullying at School: What We Know and What We Can Do. Oxford, UK/Cambridge, Mass.: Blackwell
- Paluck LE, Shepherd H. 2012. The salience of social referents: a field experiment on collective norms and harassment behavior in a school social network. J. Personal. Soc. Psychol. 103:899–915
- Parke RD, Slaby RG. 1983. The development of aggression. Handb. Child Psychol. 4:547-641
- Parkhurst JT, Hopmeyer A. 1998. Sociometric popularity and peer-perceived popularity: two distinct dimensions of peer status. J. Early Adolesc. 18:125–44
- Patchin JW, Hinduja S. 2006. Bullies move beyond the schoolyard a preliminary look at cyberbullying. *Youth Violence Twv. Tustice* 4:148–69
- Payne AA, Gottfredson DC. 2004. Schools and bullying: school factors related to bullying and school-based interventions. In *Bullying: Implications for the Classroom*, ed. CE Sander, GD Phye, pp. 159–76. San Diego: Elsevier
- Pearce MJ, Boergers J, Prinstein MJ. 2002. Adolescent obesity, overt and relational peer victimization, and romantic relationships. *Obesity* 10:386–93
- Pellegrini AD, Bartini M, Brooks F. 1999. School bullies, victims, and aggressive victims: factors relating to group affiliation and victimization in early adolescence. J. Educ. Psychol. 91:216–24
- Pellegrini AD, Long JD. 2002. A longitudinal study of bullying, dominance, and victimization during the transition from primary school through secondary school. *Br. J. Dev. Psychol.* 20:259–80
- Perren S, Ettekal I, Ladd G. 2013. The impact of peer victimization on later maladjustment: mediating and moderating effects of hostile and self-blaming attributions. *J. Child Psychol. Psychiatry* 54:46–55
- Perry DG, Williard JC, Perry LC. 1990. Peers' perceptions of the consequences that victimized children provide aggressors. *Child Dev.* 61:1310–25
- Prinstein MJ, Cheah CSL, Guyer AE. 2005. Peer victimization, cue interpretation, and internalizing symptoms: preliminary concurrent and longitudinal findings for children and adolescents. *J. Clin. Child Adolesc.* 34:11–24
- Prinstein MJ, Cillessen AH. 2003. Forms and functions of adolescent peer aggression associated with high levels of peer status. *Merrill Palmer Q*. 49:310–42
- Reijntjes A, Kamphuis JH, Prinzie P, Telch MJ. 2010. Peer victimization and internalizing problems in children: a meta-analysis of longitudinal studies. *Child Abuse Negl.* 34:244–52
- Reynolds BM, Juvonen J. 2010. The role of early maturation, perceived popularity, and rumors in the emergence of internalizing symptoms among adolescent girls. *J. Youth Adolesc.* 40:1407–22
- Rigby K, Johnson B. 2006. Expressed readiness of Australian schoolchildren to act as bystanders in support of children who are being bullied. *Educ. Psychol.* 26:425–40
- Rivers I, Smith PK. 1994. Types of bullying behaviour and their correlates. Aggress. Behav. 20:359-68
- Rodkin PC, Farmer TW, Pearl R, Acker RV. 2006. They're cool: social status and peer group supports for aggressive boys and girls. Soc. Dev. 15:175–204

Describes the first successful whole-school bullying intervention. Presents a current review of research on the multiple roles involved in bullying episodes.

Describes successful bullying interventions from around the world.

- Rudolph KD, Troop-Gordon W, Hessel ET, Schmidt JD. 2011. A latent growth curve analysis of early and increasing peer victimization as predictors of mental health across elementary school. J. Clin. Child Adolesc. Psychol. 40:111–22
- Ryan W, Smith JD. 2009. Antibullying programs in schools: How effective are evaluation practices? Prev Sci. 10:248–59
- Salmivalli C, Isaacs J. 2005. Prospective relations among victimization, rejection, friendlessness, and children's self- and peer-perceptions. *Child Dev.* 76:1161–71
- Salmivalli C, Lagerspetz K, Björkqvist K, Österman K, Kaukiainen A. 1998. Bullying as a group process: participant roles and their relations to social status within the group. *Aggress. Behav.* 22:1–15
- Salmivalli C, Ojanen T, Haanpää J, Peets K. 2005. "I'm OK but you're not" and other peer-relational schemas: explaining individual differences in children's social goals. Dev. Psychol. 41: 363–75

Salmivalli C. 2010. Bullying and the peer group: a review. Aggress. Viol. Behav. 15:112-20

- Scholte RHJ, Engels RCME, Overbeek G, Kemp RAT, Haselager GJT. 2007. Stability in bullying and victimization and its association with social adjustment in childhood and adolescence. J. Abnorm. Child Psychol. 35:217–28
- Schwartz D, Dodge KA, Coie JD. 1993. The emergence of chronic peer victimization in boys' play groups. Child Dev. 64:1755–72
- Sijtsema JJ, Veenstra R, Lindenberg S, Salmivalli C. 2009. Empirical test of bullies' status goals: assessing direct goals, aggression, and prestige. Aggress. Behav. 35:57–67
- Slonnje R, Smith PK, Frisen A. 2013. The nature of cyberbullying, and strategies for prevention. *Comput. Hum. Behav.* 29:26–32
- Smith J, Schneider B, Smith P, Ananiadou K. 2004. The effectiveness of whole-school antibullying programs: a synthesis of evaluation research. *Sch. Psychol. Rev.* 33:547–60
- Smith P, Sharp S. 1994. School Bullying: Insights and Perspectives. New York: Routledge
- Smith PK, Pepler D, Rigby K. 2004. Bullying in Schools: How Successful Can Interventions Be? Cambridge, UK: Cambridge Univ. Press
- Son E, Parish SL, Peterson NA. 2012. National prevalence of peer victimization among young children with disabilities in the United States. Child. Youth Serv. Rev. 34:1540–45
- Stassen Berger K. 2007. Update on bullying at school: science forgotten? Dev. Rev. 27:90-126
- Stormshak EA, Bierman KL, Bruschi C, Dodge KA, Coie JD. 1999. The relation between behavior problems and peer preference in different classroom contexts. *Child Dev.* 70:169–82
- Sutton J, Smith PK, Swettenham J. 1999. Bullying and "theory of mind": a critique of the "social skills deficit" view of anti-social behaviour. Soc. Dev. 8:117–27
- Thompson K, Homestead ER. 2004. 30 years of advocating for young adolescents: middle school students and parents through the 1970s, 1980s, and 1990s. *Middle Sch.* 7. 35:56–56
- Toomey RB, Ryan C, Diaz RM, Card NA, Russell ST. 2010. Gender-nonconforming lesbian, gay, bisexual, and transgender youth: school victimization and young adult psychosocial adjustment. *Dev. Psychol.* 46:1580–89
- Underwood MK. 2003. Social Aggression Among Girls. New York: Guilford
- US Comm. Civ. Rights. 2011. Peer-to-Peer Violence + Bullying: Examining the Federal Response. Washington, DC: US Comm. Civ. Rights
- Vreeman RC, Carroll AE. 2007. A systematic review of school-based interventions to prevent bullying. Arch. Pediatr. Adolesc. Med. 161:78–88
- Weiner B. 1995. Judgments of Responsibility: A Foundation for a Theory of Social Conduct. New York: Guilford
- Wilson T, Damiani M, Shelton N. 2002. Improving the academic performance of college students with brief attributional interventions. In *Improving Academic Achievement: Impact of Psychological Factors on Education*, ed. J Aronson, pp. 91–110. New York: Academic
- Winsper C, Lereya T, Zanarini M, Wolke D. 2012. Involvement in bullying and suicide-related behavior at 11 years: a prospective birth cohort study. J. Am. Acad. Child Adolesc. Psychiatry 51:271–82
- Wright JC, Giammarino M, Parad HW. 1986. Social status in small groups: individual-group similarity and the social "misfit." *J. Personal. Soc. Psychol.* 50:523–36

- Xie H, Swift DJ, Cairns BD, Cairns RB. 2002. Aggressive behaviors in social interaction and developmental adaptation: a narrative analysis of interpersonal conflicts during early adolescence. *Soc. Dev.* 11: 205–24
- Ybarra ML, Mitchell KJ. 2004. Online aggressor/targets, aggressors, and targets: a comparison of associated youth characteristics. *J. Child Psychol. Psychiatry* 45:1308–16
- Yeung Thompson RS, Leadbeater BJ. 2013. Peer victimization and internalizing symptoms from adolescence into young adulthood: building strength through emotional support. *J. Res. Adolesc.* 23:290–303



Volume 64, 2013

Contents

Prefatory	
Shifting Gears: Seeking New Approaches for Mind/Brain Mechanisms Michael S. Gazzaniga	.]
Biological Bases of Behavior	
The Endocannabinoid System and the Brain Raphael Mechoulam and Linda A. Parker	21
Vision	
Synesthesia Jamie Ward	49
Scene Perception, Event Perception, Object Recognition	
Visual Aesthetics and Human Preference Stephen E. Palmer, Karen B. Schloss, and Jonathan Sammartino	77
Attention and Performance	
Detecting Consciousness: A Unique Role for Neuroimaging *Adrian M. Owen	09
Executive Functions Adele Diamond 1	35
Animal Learning and Behavior	
The Neuroscience of Learning: Beyond the Hebbian Synapse C.R. Gallistel and Louis D. Matzel	69
Evolutionary Psychology	
Evolutionary Psychology: New Perspectives on Cognition and Motivation Leda Cosmides and John Tooby	01
Origins of Human Cooperation and Morality Michael Tomasello and Amrisha Vaish	31

Language and Communication
Gesture's Role in Speaking, Learning, and Creating Language Susan Goldin-Meadow and Martha Wagner Alibali
Nonverbal and Verbal Communication
The Antecedents and Consequences of Human Behavioral Mimicry Tanya L. Chartrand and Jessica L. Lakin
Intergroup Relations, Stigma, Stereotyping, Prejudice, Discrimination
Sexual Prejudice Gregory M. Herek and Kevin A. McLemore
Social Neuroscience
A Cultural Neuroscience Approach to the Biosocial Nature of the Human Brain Shihui Han, Georg Northoff, Kai Vogeley, Bruce E. Wexler, Shinobu Kitayama, and Michael E.W. Varnum
Organizational Climate/Culture
Organizational Climate and Culture Benjamin Schneider, Mark G. Ehrhart, and William H. Macey
Industrial Psychology/Human Resource Management
Employee Recruitment **James A. Breaugh** 389
Learning and Performance in Educational Settings
Self-Regulated Learning: Beliefs, Techniques, and Illusions *Robert A. Bjork, John Dunlosky, and Nate Kornell** 417
Teaching of Subject Matter
Student Learning: What Has Instruction Got to Do With It? Hee Seung Lee and John R. Anderson
Health Psychology
Bringing the Laboratory and Clinic to the Community: Mobile Technologies for Health Promotion and Disease Prevention Robert M. Kaplan and Arthur A. Stone
Research Methodology
Multivariate Statistical Analyses for Neuroimaging Data Anthony R. McIntosh and Bratislav Mišić

Social Network Analysis: Foundations and Frontiers on Advantage Ronald S. Burt, Martin Kilduff, and Stefano Tasselli	27
Indexes	
Cumulative Index of Contributing Authors, Volumes 54–64	49
Cumulative Index of Chapter Titles, Volumes 54–64	54
Errata	

An online log of corrections to *Annual Review of Psychology* articles may be found at http://psych.AnnualReviews.org/errata.shtml

It's about time. Your time. It's time well spent.

New From Annual Reviews:

Annual Review of Organizational Psychology and Organizational Behavior

Volume 1 • March 2014 • Online & In Print • http://orapsvch.annualreviews.org

Editor: Frederick P. Morgeson, The Eli Broad College of Business, Michigan State University

The Annual Review of Organizational Psychology and Organizational Behavior is devoted to publishing reviews of the industrial and organizational psychology, human resource management, and organizational behavior literature. Topics for review include motivation, selection, teams, training and development, leadership, job performance, strategic HR, cross-cultural issues, work attitudes, entrepreneurship, affect and emotion, organizational change and development, gender and diversity, statistics and research methodologies, and other emerging topics.

Complimentary online access to the first volume will be available until March 2015.

TABLE OF CONTENTS:

- An Ounce of Prevention Is Worth a Pound of Cure: Improving Research Quality Before Data Collection, Herman Aguinis, Robert J. Vandenberg
- Burnout and Work Engagement: The JD-R Approach, Arnold B. Bakker, Evangelia Demerouti, Ana Isabel Sanz-Vergel
- · Compassion at Work, Jane E. Dutton, Kristina M. Workman, Ashley E. Hardin
- · Constructively Managing Conflict in Organizations, Dean Tjosvold, Alfred S.H. Wong, Nancy Yi Feng Chen
- Coworkers Behaving Badly: The Impact of Coworker Deviant Behavior upon Individual Employees, Sandra L. Robinson, Wei Wang, Christian Kiewitz
- · Delineating and Reviewing the Role of Newcomer Capital in Organizational Socialization, Talya N. Bauer, Berrin Erdogan
- Emotional Intelligence in Organizations, Stéphane Côté
- Employee Voice and Silence, Elizabeth W. Morrison
- Intercultural Competence, Kwok Leung, Soon Ang, Mei Ling Tan
- Learning in the Twenty-First-Century Workplace. Raymond A. Noe, Alena D.M. Clarke, Howard J. Klein
- · Pay Dispersion, Jason D. Shaw
- · Personality and Cognitive Ability as Predictors of Effective Performance at Work. Neal Schmitt

- Perspectives on Power in Organizations, Cameron Anderson, Sebastien Brion
- · Psychological Safety: The History, Renaissance, and Future of an Interpersonal Construct, Amy C. Edmondson, Zhike Lei
- Research on Workplace Creativity: A Review and Redirection, Jing Zhou, Inga J. Hoever
- Talent Management: Conceptual Approaches and Practical Challenges, Peter Cappelli, JR Keller
- The Contemporary Career: A Work-Home Perspective, Jeffrev H. Greenhaus. Ellen Ernst Kossek
- The Fascinating Psychological Microfoundations of Strategy and Competitive Advantage, Robert E. Ployhart. Donald Hale, Jr.
- The Psychology of Entrepreneurship, Michael Frese, Michael M. Gielnik
- The Story of Why We Stay: A Review of Job Embeddedness, Thomas William Lee, Tyler C. Burch, Terence R. Mitchell
- What Was, What Is, and What May Be in OP/OB. Lyman W. Porter, Benjamin Schneider
- Where Global and Virtual Meet: The Value of Examining the Intersection of These Elements in Twenty-First-Century Teams, Cristina B. Gibson, Laura Huang, Bradley L. Kirkman, Debra L. Shapiro
- · Work-Family Boundary Dynamics, Tammy D. Allen, Eunae Cho, Laurenz L. Meier

Access this and all other Annual Reviews journals via your institution at www.annualreviews.org.





f B 🛭

It's about time. Your time. It's time well spent.

New From Annual Reviews:

Annual Review of Statistics and Its Application

Volume 1 • Online January 2014 • http://statistics.annualreviews.org

Editor: **Stephen E. Fienberg**, *Carnegie Mellon University*Associate Editors: **Nancy Reid**. *University of Toronto*

Stephen M. Stigler, University of Chicago

The Annual Review of Statistics and Its Application aims to inform statisticians and quantitative methodologists, as well as all scientists and users of statistics about major methodological advances and the computational tools that allow for their implementation. It will include developments in the field of statistics, including theoretical statistical underpinnings of new methodology, as well as developments in specific application domains such as biostatistics and bioinformatics, economics, machine learning, psychology, sociology, and aspects of the physical sciences.

Complimentary online access to the first volume will be available until January 2015.

TABLE OF CONTENTS:

- What Is Statistics? Stephen E. Fienberg
- A Systematic Statistical Approach to Evaluating Evidence from Observational Studies, David Madigan, Paul E. Stang, Jesse A. Berlin, Martijn Schuemie, J. Marc Overhage, Marc A. Suchard, Bill Dumouchel, Abraham G. Hartzema, Patrick B. Ryan
- The Role of Statistics in the Discovery of a Higgs Boson, David A. van Dyk
- Brain Imaging Analysis, F. DuBois Bowman
- · Statistics and Climate, Peter Guttorp
- Climate Simulators and Climate Projections, Jonathan Rougier, Michael Goldstein
- Probabilistic Forecasting, Tilmann Gneiting, Matthias Katzfuss
- Bayesian Computational Tools, Christian P. Robert
- Bayesian Computation Via Markov Chain Monte Carlo, Radu V. Craiu, Jeffrey S. Rosenthal
- Build, Compute, Critique, Repeat: Data Analysis with Latent Variable Models. David M. Blei
- Structured Regularizers for High-Dimensional Problems: Statistical and Computational Issues, Martin J. Wainwright

- High-Dimensional Statistics with a View Toward Applications in Biology, Peter Bühlmann, Markus Kalisch, Lukas Meier
- Next-Generation Statistical Genetics: Modeling, Penalization, and Optimization in High-Dimensional Data, Kenneth Lange, Jeanette C. Papp, Janet S. Sinsheimer, Eric M. Sobel
- Breaking Bad: Two Decades of Life-Course Data Analysis in Criminology, Developmental Psychology, and Beyond, Elena A. Erosheva. Ross L. Matsueda. Donatello Telesca
- · Event History Analysis, Niels Keiding
- Statistical Evaluation of Forensic DNA Profile Evidence, Christopher D. Steele, David J. Balding
- Using League Table Rankings in Public Policy Formation: Statistical Issues, Harvey Goldstein
- · Statistical Ecology, Ruth King
- Estimating the Number of Species in Microbial Diversity Studies, John Bunge, Amy Willis, Fiona Walsh
- Dynamic Treatment Regimes, Bibhas Chakraborty, Susan A. Murphy
- Statistics and Related Topics in Single-Molecule Biophysics, Hong Qian, S.C. Kou
- Statistics and Quantitative Risk Management for Banking and Insurance. Paul Embrechts. Marius Hofert

Access this and all other Annual Reviews journals via your institution at www.annualreviews.org.

