

10-27-2005

Victimization and Academic Achievement at School: The Role of Psychosocial Mediators and Moderators

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Victimization and Academic Achievement at School: The Role of Psychosocial
Mediators and Moderators

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
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Date of Approval
October 27, 2005

Keywords: aggression, peer relationships, adolescent adjustment, school functioning,
gender differences

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Dedication

This dissertation is dedicated to my husband, whose love and support helped me fulfill a dream.

Acknowledgements

I would like to thank the members of my dissertation committee, Drs. George Batsche, Michael Brannick, Vicky Phares, and Kevin Thompson, for their time, support, and insight in the development of this study. I am thankful to Dr. Carol MacKinnon-Lewis for helping chair my dissertation defense meeting and offering guidance as this project was conducted. I particularly appreciate the statistical assistance of Qutayba Abdullatif and Dr. Michael Brannick. I also appreciate Dr. Ellis Gesten's contributions during the initial stage of this project. This study would not have been possible without the backing and coordination of Ray Gadd, Amelia Van Name Larson, Sheri Dunham, Kathy Divine, and Melinda Hess in the Pasco County School District, and the administrators, teachers, and students in the Pasco County Middle Schools. Their participation during the 2003 data collection was invaluable for the present study. I would like to recognize and thank those who helped in the tasks of data collection and data entry and/or verification during the spring and summer of 2003: Vounette Deus, Gina DiPasqua, Kelly Genske, Laurel Jorgensen, Danielle Short, and Lisa Strother. I am exceptionally grateful to my husband, Nathan Totura, and my parents, Dr. H. Richard and Marianne Wienke, for their immeasurable patience, sensitivity, and encouragement. Additionally, I want to acknowledge Jessica Handelsman and Dr. Dimitra Kamboukos for their loyal friendship throughout the development of this dissertation. Finally, I would like to express interminable appreciation and admiration for my faculty advisor and mentor, Dr. Marc Karver, whose confidence in my abilities made this project possible.

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Victimization and Academic Achievement at School: The Role of Psychosocial Mediators and Moderators

Christine Marie Wienke Totura

ABSTRACT

The present study sought to examine the relationship between victimization by peers in middle school and academic outcomes. It was expected that an association between the experience of victimization and diminished academic performance would be mediated by poor psychological outcomes, as measured by moodiness, depression, anxiety, and anger. Additionally, it was hypothesized that academic outcomes could be divided into two distinct constructs, Motivation and Achievement, with motivation and academic goal-orientation variables preceding the adequate attainment of school grades and standardized test scores. Therefore, the present mediated model was tested using a Structural Equation Modeling technique: Victimization → Psychological Functioning → Academic Motivation → Academic Achievement. Additionally, it was hypothesized that certain factors (Friendship, Prosocial Activities and Influences, School Climate, Aggression, and Teacher-Reported Difficulties) would moderate the Victimization → Psychological Functioning pathway. Victimized middle school boys and girls were expected to have varying psychological and emotional outcomes depending on proposed risk and protective factors. Approximately equal numbers of males and females (N = 145 and 181, respectively) were randomly selected from classrooms in 11 middle schools across 6th, 7th, and 8th grades. Students completed questionnaires that assessed

hypothesized mediator and moderator variables. In addition, teachers of the selected classrooms completed a brief rating scale on each of the students, which assessed student moodiness, behavioral difficulties, and learning problems. Achievement and discipline records data were obtained. Results revealed that Psychological Functioning mediated the relationship between Victimization and Academic Motivation, which was then related directly to Academic Achievement. Only the Aggression and Climate constructs moderated the Victimization → Psychological Functioning pathway, with Climate factors additionally significant for boys. These results suggest that victimization is associated with poor motivation to achieve if victimized students also experience psychological difficulties. Limited motivation is then associated with poorer academic performance. Contrary to hypothesized associations, endorsing aggressive beliefs and behaviors and experiencing low levels of intervention and support at school against bullying, particularly for boys, were related to better emotional outcomes for students who are highly victimized. While statistically significant, these findings have limited effect sizes. Implications for future research and the development of school-based programming are discussed.

Chapter One

Introduction

Specific Aims

Aim 1. The present study will provide an overview of bullying and victimization in schools and their impact on student functioning.

Aim 2. The present study will specifically explore the relationship between victimization and academic outcomes and evaluate a number of social and psychological factors that are hypothesized to influence the association between victimization and achievement.

Aim 3. The present study will present a model of proposed pathways among victimization, psychological, motivational, and achievement variables, test this model for adequacy of fit with the identified sample, and examine moderators of specific pathways.

Aim 4. The present study will describe significant associations among model variables and propose alternatives for nonsignificant associations.

Background and Significance

Bullying behaviors and their contexts have been assessed in several countries demonstrating that exposure to and involvement in bullying behaviors are significant risk factors to healthy psychological and physical development (Haynie et al., 2001; Olweus, 1997a, 1997b; Roland, 2000). More specifically, involvement in bullying has resulted in negative effects on the development of friendships and entrance into peer groups, increased internalizing and externalizing difficulties, and potentially poor academic outcomes (Hodges et al., 1997, 1999; Juvonen, Nishina, & Graham, 2000; Wentzel,

1994; Wentzel, Weinberger, Ford, & Feldman, 1990). Of particular importance for school districts, victimization has been associated with declines in achievement factors, whether as orientation toward academics or grades and test scores, with the mechanism through which this relationship occurs open for debate (Juvonen et al., 2000; Schwartz, Chang, & Farver, 2001; Schwartz & Gorman, 2003). Multiple variables influence the frequency of bullying behaviors, and the likelihood of a student becoming a bully and/or victim of bullying (Haynie et al., 2001; Nansel et al., 2001; Pellegrini, 1998; Pellegrini, Bartini, & Brooks, 1999). It is important to examine these variables and the relationships among them in order to provide schools with feasible routes that they can address to improve their environments.

Estimates of bullying problems, either experienced as the perpetrator or the victim, vary across nations and studies. Percentages range from 15% in Norway (Olweus, 1997a, 1997b) to 18%-20% in England (Boulton & Underwood, 1992) to 25% in Australia (Slee, 1994). Within the United States, studies report differing frequencies of victimization, with 15% to 20% of students in the U.S. reporting being bullied (Batsche & Knoff, 1994). More current estimates of bullying frequency report higher levels than those in past studies, suggesting that bullying and victimization are on the rise in certain populations. A recent study, using somewhat different criteria, found much different proportions of middle school population involvement in bullying situations. Seven percent of students were categorized as bullies, they had bullied others three or more times in the past year, while 31% of 6th through 8th grade students were considered victims, they had been bullied three or more times in the past year (Haynie et al., 2001). Nansel and associates (2001) found that 30% of 6th through 10th grade students were

involved in moderate to frequent bullying. Of those students, 13% were classified as bullies, 11% were classified as victims, and 6% were classified as both bullies and victims. More recently, researchers have found that anywhere from 20-50% of urban school-aged children have been victimized or threatened with physical violence, which has attributed considerably to declines in academic performance (Schwartz & Gorman, 2003). The variability in bullying and victimization estimates is likely due to two significant issues in the field: defining what constitutes bullying and victimization and methodology employed to measure these behaviors.

Defining Bullying and Victimization

Several studies have focused primarily on defining behaviors that constitute bullying. Early definitions concentrated on individual or group violence toward an unpopular individual that begins and ends suddenly. One of the field's prominent researchers initially suggested that bullies are males who physically and emotionally harass their victims, whether the victims are males or females (Olweus, 1978). Olweus was the first to introduce the notion of emotional, or "mental" bullying, making it considerably more difficult to observe and agree upon all forms of definable bullying behaviors. Since his early definition, several other definitions of bullying also have included the notion of mental or psychological attacks in addition to physical behaviors.

Besag (1989) stressed the importance of long-term and systematic violence as integral in considering bullying behaviors. However, other researchers have not always found this element to be necessary. Arora (1996) argues that a single event of a physical or psychological attack or threat delivered to a less powerful individual for the purpose of frightening and upsetting that individual is no less bullying than long-term and sustained

attacks or threats. This definition also builds upon others by introducing a power differential between perpetrator and victim.

Scandinavian researchers Bjorkvist, Ekman, and Lagerspetz (1982) emphasize that the long-term nature of bullying behaviors is indicative of the social system occurring amongst students, which tends to be resistant to change. They suggest that bullying is a social form of aggression that occurs among individuals who encounter each other regularly. The emphasis in this definition is the ongoing interaction between members in the group of students within which the bullying takes place. Other researchers, however, continue to consider the long-term aspect to be an important characteristic of bullying behaviors while also emphasizing the social and psychological aspects. For instance, Hazler (1996) defined bullying as repeated behaviors that affect individuals physically, emotionally, and psychologically through words, attacks, or social isolation. Some of the literature discusses the effect of the long-term element of bullying on the victims, in addition to the severity and duration of the single bullying act. Perhaps the accumulation of bullying behaviors over time may be as relevant as or more relevant to the experience of victimization than the impact of each individual bullying behavior.

Besag (1989) introduced the concept of intentionality to bullying, which suggests a moral dimension to the behavior. Bullying by this definition is intended to cause distress to others for the purpose of gratifying the aggressor. This definition suggests that it is not just the nature of the behavior that is important in determining what is bullying; the intended physical, psychological, and emotional impact of the behavior on others is of particular concern as well.

Olweus (1996) recently developed a more comprehensive definition of bullying and victimization that has been widely used in international studies. This definition identifies several concepts established in earlier definitions and reads as follows:

“We define or explain the word bullying. We say a student is being bullied when another student, or several other students:

- Say mean and hurtful things or make fun of him or her or call him or her mean and hurtful names
- Completely ignore or exclude him or her from their group of friends or leave him or her out of things on purpose
- Hit, kick, push, shove around, or lock him or her inside a room
- Tell lies or spread false rumors about him or her or send mean notes and try to make other students dislike him or her
- And other hurtful things like that.

When we talk about bullying, these things happen repeatedly, and it is difficult for the student being bullied to defend himself or herself. We also call it bullying, when a student is teased repeatedly in a mean and hurtful way.

But we don't call it bullying when the teasing is done in a friendly and playful way. Also, it is not bullying when two students of about equal strength or power argue or fight (Olweus, 1996, pg. 3).”

Olweus (1996) emphasizes that behavior is considered bullying if it (1) occurs frequently either one-on-one or in a group, (2) involves a range of behaviors from physical aggressiveness to spreading rumors, and (3) involves a power differential between aggressor and victim. The gender of perpetrators is no longer specified by

Olweus, as it had been in his and others' previous definitions, suggesting that both girls and boys can be bullies. Additionally, this definition supposes that behavior is bullying if it occurs more than once, which addresses an important distinction between individual events and chronic victimization. Chronic victimization, in this case, is associated with increased negative outcomes compared with the outcomes of students who experience infrequent bullying (Pynoos & Nader, 1988; Singer et al., 1995). Olweus's current definition has been used to guide self-reports of behaviors for the U.S. National Blueprints Model Bullying Prevention Program, which aims at decreasing bully and victim problems among primary and secondary school children through techniques to increase awareness of students, school administrators, and parents of difficulties within the school environment (Olweus, Limber, & Mihalic, 1999).

Of note, Olweus's definition considers teasing a form of bullying behavior as well. He indicates that repeated teasing, name-calling, or generally saying unpleasant things to others constitutes a form of bullying. Pearce (1991) also developed a definition for bullying that incorporates teasing behavior. Teasing could be considered bullying if it includes methods of intimidation that lead to distress in victims. Therefore, it is appropriate to suggest that racist and sexist attacks would be considered bullying behaviors, as long as they have deliberate intent to harm others, are unprovoked, and are frequent (Swain, 1998). In other words, victims are not always believed to potentially induce bullying behavior against them.

No single definition has been clearly established as the gold standard for determining bullying behavior. However, several common elements emerge: physical, verbal, or psychological aggression intended to hurt others and cause distress in a victim,

the existence of a power differential between bully and victim, and that the bullying typically is not provoked by aggressive acts (Swain, 1998). Each definition is ultimately based on individual researchers' opinions of what constitutes bullying behavior, thus confounding the interpretation of results between studies. In searching for a more complete definition, types of behaviors have been further categorized as direct and indirect forms of bullying (Olweus, 1996). Direct bullying behaviors are considered those overtly focused at a victim, and which tend to be easily observed. These behaviors include hitting, pushing, verbal abuse, stealing, and threats. Indirect bullying behaviors are those that are covert in their focus on the victim. These behaviors include spreading rumors, ostracizing students, and purposefully ignoring or excluding students (Olweus, 1996). This distinction between direct and indirect behaviors has implications for how behavior is reported and observed as bullying.

Assessing Bullying and Victimization

Self-Report, Interview, Observation, and Peer Nomination Techniques

In addition to the numerous ways bullying and victimization have been defined, researchers have developed various methods to assess bullying behavior. In general, four methodologies have been employed by past bullying studies: self-report surveys, interview, observation, and peer nomination. Most commonly used, the self-report survey technique has become the method of choice for many studies. Surveys are relatively simple to administer to large numbers of students and the interpretation of responses is straightforward (Solberg & Olweus, 2003). Some studies have assessed bullying behaviors using two or three global items that require students to respond whether they generally bully students or have been bullied by students (Nansel et al.,

2001; Haynie et al., 2001). For these studies, the range of bullying behavior types was not assessed to the same extent that the Olweus survey had measured them. The Revised Olweus Bully/Victim Questionnaire (Olweus, 1996) has been accurate in assessing perceived bullying and victimization by specifying two global items to classify general bullying and victimization with the addition of several items that identify various types of direct (e.g., hitting, pushing, or verbal abuse) and indirect (e.g., social exclusion, gossiping, or spreading rumors) bullying behaviors that are engaged in and/or experienced. Bullying and victimization can be computed using the two global items and further explained using responses on the specific bullying type items. Because it is a brief and accurate scale to measure self-perceived victimization and bullying, many researchers choose to use the Olweus measure, or direct variations of the measure, to estimate bullying prevalence and identify students with difficulties (Solberg & Olweus, 2003).

As an alternate to survey techniques, Wolke, Woods, Bloomfield, & Karstadt (2000) used an interview method for students in order to estimate bullying in classmates. The interview items were structured similarly to the Olweus Bully/Victim Questionnaire and allowed students to elaborate on their experiences rather than simply respond to items on a Likert scale. However, this method is time consuming making it difficult to recruit large numbers of participants. While interviews may be based on an established measure and can provide a wealth of qualitative information, the responses obtained from interview items are typically not scaled and less standardized. Using this method and considering its limitations, prevalence estimates of bullying behaviors may not be

comparable across schools. In addition, the information gained regarding bullying behaviors may not have equivalent meaning across studies.

Boulton (1993) employed a playground observation technique to measure bullying behaviors. This method requires independent observers to record classmate interactions and code behaviors in accordance with Olweus's definition of bullying behaviors. An advantage of this technique is the recording of actual behavior, rather than having to rely on the accuracy, interpretation, or validity of child report. Disadvantages include inadequate observation of indirect bullying and teasing, similar to concerns about the accuracy of teacher-reported student internalizing behaviors (Green, Beck, Forehand, & Vosk, 1980), and the costliness of employing independent observers to assess what may be relatively low base-rate behavior. However, if the emphasis of a study is not on estimating the prevalence of bullying, but on more comprehensive identification and assessment within a school of specific at-risk students, interview and observation methods may be useful (Solberg & Olweus, 2003).

In addition to the survey, interview, and observation methods, The Peer Nomination Inventory, developed by Perry, Kusel, and Perry (1988), requires respondents to nominate which of their classmates are bullies or victims. A benefit of this method is that students will be more likely to validly report bullying if they have to report about others' behavior. A disadvantage is that direct behaviors will be observed more readily than indirect, making those students who are physically aggressive more likely to be identified as bullies. Other students may not observe those who engage in such indirect bullying behaviors as isolation or rumor spreading, unless the reporting student experiences the bullying him or herself. In addition, the procedures one

researcher uses to categorize student ratings resulting from peer nominations are usually complex and difficult to reproduce (Solberg & Olweus, 2003). Further, the prevalence estimates obtained through peer nomination depend on factors within the school (e.g., number of students in the classroom, problem levels in the classroom, standardization method of nominations, etc.), increasing the difficulty for other researchers to duplicate the procedures of others and extract similar meaning from prevalence estimates (Solberg & Olweus, 2003).

Olweus's paradigm for assessing bullying has been used in several international and national intervention strategies, including the National Model Blueprints Bullying Prevention Program in the United States (Olweus, Limber, & Mihalic, 1999). The definition of bullying behaviors accompanying the Revised Olweus Bully/Victim Questionnaire incorporates most components of bullying behavior that have been found important in past research. Assessment techniques have been developed as a result of several author-formulated definitions, as previously discussed. Additionally, these assessment tools have been created to accomplish the goal of gathering information on child behaviors via varying methods and each has pros and cons. Many have found self-report survey techniques to be among the easiest to administer and comprehend, especially when concerned about maximizing the accuracy of assessing perceived involvement in both easily and not-so-easily observed behaviors. The Olweus Bully/Victim Questionnaire is an example of a comprehensive self-report survey that provides distinct criteria for reporting one's behavior. This survey has been used in several studies in which information was obtained from students regarding their own behavior.

Using Teacher Reports to Identify At-Risk Children

Assessment of child behavior can incorporate information from several sources. Ideally, a comprehensive assessment of child adjustment within the schools should utilize multiple informants. Oftentimes, obtaining reliable information from several raters in a single environment proves too costly and time consuming. Many studies, for that reason, rely on a single rater, commonly, teacher report. Such assessment of large student populations is more cost effective and efficient method for obtaining information on school environments and individual students. Conversely, the multi-informant literature suggests that a single means of assessment often lacks information that could be obtained through additional methods and perspectives. Therefore, studies that include multiple raters and techniques are in the best position to provide a well-rounded picture of child outcomes (Holmbeck et al., 2002, 2003).

Past research has shown the stability of teacher report of behavioral difficulties in school-aged children. For example, moderate stability was found for the Achenbach Teacher Report Form (TRF), specifically for scales related to externalizing behaviors (Achenbach, 1991; Verhulst & Van der Ende, 1991). Of specific interest for the current study, the AML-R measure has displayed high reliability and validity for screening and evaluation purposes (Cowen, Dorr, Clarfield, Kreling, McWilliams, Pokracki, Pratt, Terrell, & Wilson, 1973). Multiple studies have confirmed the AML-R's ability to identify children at-risk for subsequent adjustment and academic problems (Carberry & Handal, 1980; Durlak & Jason, 1984). In addition, teacher completed AML-R scores were consistent with independent observations of disruptive behaviors and psychological and attention difficulties (Durlak, Stein, & Mannarino, 1980). The Teacher Checklist

(Dodge & Coie, 1987), which measures student involvement in aggression and bullying, has also been shown to adequately assess student behavior in comparison with observational techniques (Pellegrini & Bartini, 2000).

While studies have shown teacher report to be a stable and effective method of assessment, reliability of teacher reports may differ between externalizing and internalizing difficulties (Green, Beck, Forehand, & Vosk, 1980). In situations with large numbers of students, teachers may have more difficulty identifying internalizing behaviors, such as anxiety, depression, and withdrawal, than externalizing behaviors, such as aggression and inattention (Gillespie & Durlak, 1995). In reporting troublesome behaviors in the classroom, teachers are likely more concerned with students who present with very overt and aggressive behaviors rather than the students who are exceedingly quiet and withdrawn. In relation to the present study, teachers are more likely to identify direct bullying and victimization than indirect. This is typical of the observation and peer nomination methods previously discussed. Additionally, teacher report methods may not reflect the most accurate frequency of bullying incidents since victimization generally occurs in places on the school campus that are not readily supervised by school personnel (Pellegrini & Bartini, 2000). Therefore, it is important to consider teacher report surveys as a part of a larger constellation of measurement tools in order to explain child behaviors.

Purpose of the Present Study

It has been demonstrated that bullying and victimization are significant problems in schools and that there is considerable debate over how to define and measure bullying behaviors. Despite the lack of an identified assessment gold standard, the present study

attempts to maximize the identification of both direct and indirect victimization through the use of teacher and self-report methods. Regardless of the assessment methods employed, it can be speculated that victims generally represent a greater proportion of those students involved in bullying situations, perhaps because bullies target several students at a time and/or victims are more likely to report behavior to which they do not attribute personal responsibility. The present study seeks to examine psychological and school-related outcomes of victimization and factors that may increase or decrease the likelihood of poor academic and psychological functioning as a result of victimization.

Effects of Exposure to and Experience of Peer Victimization

Psychological Consequences

In examining the relationship between victimization and functioning, it has been documented that students' experiences with peer victimization or exposure to violence have consistently been associated with emotional maladjustment (Boivin & Hymel, 1997; Crick & Grotpeter, 1996; Egan & Perry, 1998; Kochenderfer & Ladd, 1996a; Olweus, 1978, 1994a, 1994b). Psychologically, they are more anxious, depressed, withdrawn, and have lower self-esteem (Craig, 1998; Haynie et al., 2001; Olweus, 1995; Rigby & Slee, 1991). Victimized students may cry easily, exhibit anxiety, appear withdrawn, and lack self-esteem and confidence (Boivin & Hymel, 1997; Olweus, 1978; Perry et al., 1988; Perry, Williard, & Perry, 1990; Schwartz, Dodge, & Coie, 1993). Additionally, strong predictors of reported anger include exposure to and experience of violent victimization, such as threats, hitting, or beatings (Singer, Anglin, Song, & Lunghofer, 1995). Some victims may blame themselves for their social status, which contributes to feelings of loneliness and depression (Graham & Juvonen, 1998; Nolen-Hoeksema et al., 1992;

Toner & Munro, 1996; Renshaw & Brown, 1993; Nolen-Hoeksema, Girgus, & Seligman, 1986). It is prudent to be concerned about the psychological consequences of victimization at school as they are often associated with decreased daily functioning, including school avoidance and difficulty concentrating on schoolwork (Juvonen, Nishina, & Graham, 2000).

Behavioral Consequences

With regards to school behavior, some victimized students exhibit externalizing difficulties and find themselves in situations where they become involved in disrupting classroom discipline and displaying aggression (Boivin & Hymel, 1997; Olweus, 1978; Perry et al., 1988; Perry, Perry, & Kennedy, 1992). Victims also report more behavioral difficulties and acceptance of misconduct than students uninvolved in bullying, although not to the degree as those who perpetrate bullying (Haynie et al., 2001). This acceptance of aggression is notable considering that victimized students are the targets of other students' misconduct. Furthermore, childhood aggression is related to development of internalizing and externalizing difficulties (Coie, Lochman, Terry, & Hyman, 1992). For instance, students who are victimized and also take part in bullying other students have poorer emotional adjustment than those who do not engage in aggressive practices (Haynie et al., 2001). Some victimized students can have lower self-concepts and poorer perceptions of their competency to appropriately interact with others (Callaghan & Stephen, 1995; Hawker & Boulton, 2000; Neary & Joseph, 1994; Rigby & Cox, 1996). More specifically, aggression and behavioral misconduct are associated with psychological symptomatology, which in turn, is associated with student's perceptions of

poor self-concept (Coie, Lochman, Terry, & Hyman, 1992; Edens, Cavell, & Hughes, 1999; Hay, 2000; Marsh, Parada, Yeung, & Healey, 2001).

Aggressive and noncompliant behavior at school can also interfere with school performance (Coie & Krehbiel, 1984; Schwartz & Gorman, 2003). Researchers have found that students who are aggressive at school are typically rejected by their peers, are more poorly adjusted to school and educational goals, and tend to perform more poorly academically (Coie, Dodge, & Kupersmidt, 1990; Hay, 2000). Involvement in aggressive and disruptive behavior at school can increase the likelihood of academic failure (Wells & Rankin, 1983), which may impact the educational exchange with teachers (Wentzel, 1993a) and distract students from learning (Doyle, 1986). Students who engage in high levels of disruptive and noncompliant behavior in school require teachers to focus on classroom management rather than instruction (Wentzel, 1993a). Thus, it is suggested that the relationship between behavioral difficulties at school and poor academic outcomes may be more powerful for those who are victimized and exhibit poorer psychological functioning than those who are victimized alone.

School-Related Consequences

While past literature has well established the relationship between victimization and resulting internalizing and externalizing difficulties, peer victimization has also been associated with school-related factors (Boulton & Underwood, 1992; Graham & Juvonen, 1998; Hawker & Boulton, 2000; Kochenderfer & Ladd, 1996a, 1996b; Reid, 1989; Slee, 1994). Victims are less popular in school than other students, including bullies (Pellegrini, Bartini, & Brooks, 1999). Compared to students uninvolved in bullying, victims bond and adjust more poorly to school and classmates (Haynie et al., 2001).

Generally, dislike by and rejection from peers can be viewed as a stressful situation (Albee, 1984) in which students who are less readily accepted by their peer group are less involved in peer activities at school (Dodge, 1983; Dodge, Coie, & Brakke, 1982). Victimization is associated, as well, with school avoidance (Kochenderfer & Ladd, 1996a). Students who are victimized by peers have a greater incidence of truancy or avoiding school activities in order to avoid bullying situations. School avoidance generally has a negative impact on students' motivation and interest in school (Wentzel, 1998) and their academic performance (Juvonen et al., 2000).

The literature discussing the association between victimization and academic achievement is less confirmatory. Many previous studies operationalized achievement using grades or single subject exam scores, teacher-reported learning difficulty ratings, or student reports of perceived scholastic performance and commitment to educational goals (Austin & Joseph, 1996; Juvonen et al. 2000; Nansel et al., 2001; Schwartz & Gorman, 2003). Additionally, some researchers only confirmed associations between victimization and achievement in specific ethnic groups (McCall, Beach, & Lau, 2000; Schwartz, Chang, & Farver, 2001). It is believed that poor academic and school outcomes are due to psychological maladjustment and emotional distress that follows experiences with victimization. Specifically, researchers have investigated victimization by peers at school and psychological difficulties, such as depression, anxiety, and anger, and have found mixed results in their association with academic outcomes, both academic processes and achievement (Juvonen et al., 2000; Nansel et al., 2001; Schwartz, Chang, & Farver, 2001; Schwartz & Gorman, 2003; Wentzel, 1994; 1998; Wentzel & Caldwell, 1997; Wentzel, Weinberger, Ford, & Feldman, 1990). In fact, researchers

reported that the possible mechanism in which achievement outcomes may be related to bullying is through the moderating and mediating effects of psychosocial and emotional factors such that, when these factors are not analyzed, the direct relationship between academic achievement and involvement in bullying is reduced to nonsignificance (Juvonen et al., 2000; Kochenderfer & Ladd, 1996a; Wentzel & Caldwell, 1997). Other studies found that valuing educational goals and decision-making competency are among the best predictors of academic behavior, such as engagement in learning and time spent on academic tasks, which are arguably related to overall achievement (Ames, 1992; Miller & Byrnes, 2001). Barriers to valuing educational goals and optimal academic performance can take the form of emotional and peer difficulties, such as victimization and related psychological dysfunction, which can have a detrimental impact on grades and test scores. Further research examining the relationships of various types of academic outcomes with bullying and victimization may clarify some of the current inconsistencies in the literature.

Protective and Risk Factors

Peer Relationships and Prosocial Activities

While the association between victimization and psychological dysfunction has been established in the literature, studies suggest that some experiences and aspects of children's lives may interact with the relationship and alter outcomes. Previous research has recognized that quality friendship moderates the experience of victimization and harsh home environments and suggested that friendship effects be assessed in the context of other related factors with victimization (i.e., emotional regulation; Schwartz, Dodge, Pettit, & Bates, 2000). While student victims tend to have more interpersonal difficulties

and poorer social skills than other students (Besag, 1989; Haynie et al., 2001) and tend to be disliked by peers (Graham & Juvonen, 1998), poorer psychological adjustment, as related to peer victimization, may be attenuated by greater student and teacher support at school (Wentzel, 1998). It is believed that social relationships are related to adjustment because they can temper the negative effects of stressful situations, such as peer harassment and victimization (Cohen & Wills, 1985). In fact, research has found that peer social support is a negative predictor of psychological distress, with girls reporting greater levels of distress and friendship salience than boys (Wentzel, 1998). Friendship has previously been found to act as a moderator between victimization and emotional and behavioral difficulties—those with fewer friends have greater difficulties (Hodges et al., 1997). Victimized students fair better psychologically when they have supportive peer relationships that protect them from negative interactions with others (Hodges et al., 1997; Hodges et al., 1999). There is variability in the degree to which friendships protect against victimization and the negative effects thereof; if friends exhibited characteristics (e.g., internalizing or weakness) that make it difficult for them to provide protection, internalizing and externalizing outcomes of victimized students increased (Hodges et al., 1997, 1999). Similarly, victimized students who report spending an above average amount of time with their friends had increases in internalizing difficulties. This may be a result of overly involved and enmeshed relationships, which serve to enhance moodiness and other internalizing problems rather than de-escalate them (Hodges et al., 1999).

Positive peer relationships, in particular, are believed to influence students' emotional well-being, which has implications for general adjustment and involvement in

prosocial activities (Wentzel, 1998). Peer relationships and involvement in prosocial activities can influence student social responsibility and involvement in positive behaviors at school, which have a positive association with desire to do well in school, both behaviorally and academically (DeRosier, Kupersmidt, & Patterson, 1994; Muma, 1965; Wentzel, 1991, 1993a, 1993b). This relationship, however, is influenced by a variety of factors. For example, social support was found to improve student bonding with school by alleviating the negative impact of psychological distress from victimization (Cohen & Wills, 1985; Wentzel, 1998). Prosocial interactions with peers (Green, Forehand, Beck, & Vosk, 1980) and compliant classroom behavior (Wentzel, Weinberger, Ford, & Feldman, 1990) have been related to positive educational outcomes. Additionally, the desire to behave in prosocial ways is related to academic motivation (Wentzel, 1991; 1993b). Social relatedness contributes to the adaptation of socially and institutionally sanctioned goals, whereas lack of bonding with others could lead to rejection of such goals (Connell & Wellborn, 1991).

Coping Mechanisms

Research has found that a large proportion of students report experiencing victimization, roughly 75%, while a smaller number (15%) of students experience significant distress and maladjustment related to victimization (Hoover, Oliver, & Hazler, 1992). Some studies have suggested that this difference in student experiences following victimization may be due to the way that students cope with negative peer interactions and distressful situations (Fields & Prinz, 1997; Kochenderfer & Ladd, 1997; Smith et al., 2001). Coping strategies in response to victimization that are characterized by problem solving and seeking the support of others attenuated symptoms of anxiety and

depression and buffered peer relationships (Kochenderfer-Ladd & Skinner, 2002).

However, those coping strategies that employ the use of aggressive responses or self-blaming strategies have a tendency to exacerbate internalizing difficulties, particularly with girls (Dempsey, 2002; Kochenderfer-Ladd & Skinner, 2002).

Coping strategies are believed to temper the relationship between psychological functioning and academics in that those who use positive methods for dealing with distress will function better at school. This is important considering that past research has found that the lack of peer and teacher relationships at school puts students at risk for academic difficulties (Austin & Draper, 1984; Coie, Dodge, & Kupersmidt, 1990; DeRosier, Kupersmidt, & Patterson, 1994; Goodenow, 1993; Kochenderfer-Ladd & Skinner, 2002; Li, 1985; Midgley, Feldlaufer, & Eccles, 1989; Phelan, Davidson, & Cao, 1991; Parker & Asher, 1987; Wentzel, 1991).

School Climate Factors

Development of a supportive school climate on the part of teachers and staff is uniquely predictive of student classroom performance, interest in education, and goal-orientation (Wentzel, 1998). Studies have shown that classroom and school climate characteristics are important in understanding individual student characteristics (Barth, Dunlap, Dane, Lochman, & Wells, 2004; Wang, Haertal, & Walberg, 1990). Students in better school environments rate their teachers as organized and supportive (Barth et al., 2004). Furthermore, students will be motivated to engage in school activities if there is a sense that teachers care for and support students, particularly those students who generally view their classmates as threatening (Barth et al., 2004; Cohen & Wills, 1985; Wentzel, 1997). Overall, researchers have documented that children who do not have

supportive relationships with peers and adults at school, or are less accepted by peers, are at greater risk for academic failure (Austin & Draper, 1984; Coie, Dodge, & Kupersmidt, 1990; Goodenow, 1993; Kochenderfer & Ladd, 1996a, 1996b; Li, 1985; Midgley, Feldlaufer, & Eccles, 1989; Parker & Asher, 1987; Phelan, Davidson, & Cao, 1991). It has been found that students who were better bonded with school exhibited higher academic achievement (Wentzel, 1994; 1998). More specifically, supportive peer and teacher relationships at school were found to predict increases in interest in school, and therefore academic performance, often by way of psychological adjustment (Felner, Aber, Primavera, & Cauce, 1985; Goodenow, 1993; Wentzel, 1998; Wentzel & Asher, 1995; Wentzel & Caldwell, 1997).

Notably, there is little evidence that intervention variables have been specifically examined in the type of pathway proposed in this study. However, researchers have documented that interventions designed to target attributions about aggression are less effective in environments in which aggression is viewed as an appropriate behavior and/or response to provocation (Aber, Jones, Brown, Chaundry, & Samples, 1998). Based on this research and the findings that suggest social support and structured classroom environments at school improve students' experiences with victimization (Springer & Padgett, 2000), it is probable that certain school climate variables, such as intervention on the part of teachers and classmates, may mitigate the relationship between victimization and development of psychological symptomatology.

Gender Differences

Haynie and colleagues (2001) suggest that boys and girls may engage in and experience different types of bullying behavior. Girls tend to organize their bullying in a

more social manner, around rumor spreading and manipulation of friendships, while boys exhibit more physically aggressive activities (verbal abuse, physical attacks, and threats). The only form of bullying that is more prevalent among girls is that of social intimidation, or relational aggression (Crick & Grotpeter, 1996; Batsche & Knoff, 1994; Carney & Merrell, 2001). Additionally, female victims are more concerned with being ignored at school and negatively evaluated by peers than male victims (Slee, 1995).

Girls exposed to victimization reported greater levels of psychological distress, such as anxiety, depression, and anger (Singer et al., 1995, Springer & Padgett, 2000). Girls' coping styles tend to be more "prosocial" than that of boys (Hausman, Spivak, & Prothrow-Stith, 1994; Schwab-Stone, Ayers, Kaspro, Voyce, Barone, Shriver, & Weissberg, 1995). The use of problem-solving and seeking adult intervention may be more beneficial in terms of follow up psychological functioning for girls and those who are infrequently victimized (Carver, Scheier, & Weintraub, 1989; Chung & Asher, 1996; Endler & Parker, 1990; Maccoby & Jacklin, 1974). This pattern of response toward aggression decreases the likelihood that girls would become a perpetrator of aggressive behavior as a result of victimization (Slaby, 1998). Given girls' concerns about maintaining peer relationships and status in social networks, victimization may place girls at greater risk for developing symptoms such as depression and anxiety (Horowitz, Weine, & Jekel, 1995).

Interestingly, studies have found that higher levels of perceived social support were associated with greater reported psychological distress for girls (Springer & Padgett, 2000). This finding could be explained as a "contagion effect" (Springer & Padgett, 2000, pp. 377), in that during times of stress, girls may have a tendency to seek increased

connectedness with others in similar situations, potentially heightening their distress (Belle, 1987). Therefore, it is unclear for the present study whether social support and friendships will intensify psychological dysfunction resulting from victimization for girls or protect against the development of psychological symptoms.

Summary and Proposed Model

Hypothesized Pathways and Relationships

Based on a review of the relevant literature, several hypothesized associations were examined. Victimization was expected to relate to poorer academic outcomes, by way of psychological functioning. More specifically, the expected victimization-psychological functioning relationship was expected to relate with achievement through the direct association with academic motivation processes (i.e., Victimization → Psychological Functioning → Academic Motivation → Academic Achievement). There is considerable evidence to suggest that academic processes are precursors to objective academic achievement outcomes. Researchers have found that academic outcomes are more directly related to academically oriented attitudes, interest in school, and motivation to earn high grades (Ames, 1992; Corno & Mandinach, 1983; Pressley, Borkowski, & Schneider, 1987; Sivan, 1986; Wentzel, 1993b, 1994, 1997; Wentzel, Weinberger, Ford, & Feldman, 1990; Zimmerman & Schunk, 1989). Therefore, it was hypothesized that victimization would be associated with psychological functioning, which in turn, would be associated with motivation to achieve and then ultimately academic achievement measures. Additionally, specific related constructs (Friendship, School Climate, Prosocial Activities and Influences, Aggression, and Teacher-Reported Difficulties) are each expected to moderate the hypothesized Victimization → Psychological Functioning

path, either positively or negatively. Disruptions in psychological functioning related to victimization are believed to vary depending on students' friendships and levels of involvement in positive activities with family and peers, experiences with support and intervention on the part of adults or peers at school, and engagement in aggressive behaviors.

Past research has supported the present hypothesized victimization → psychological factors → academic outcomes temporal pathway (Juvonen, Nishina, & Graham, 2000; Kochenderfer & Ladd, 1996a; Schwartz & Gorman, 2003; Wentzel, 1991). The present study hypothesized that the pathway between experience of victimization and psychological difficulties will be moderated by involvement in prosocial activities and positive influences, such as spending time in family activities and with friends who do not engage in deviant behaviors. Illustratively, it was expected that victimized students would exhibit fewer psychological difficulties the greater their involvement in positive and socially sanctioned peer and family-based activities. The degree to which prosocial influences and activities moderate this relationship was expected to vary by gender given the positive correlation between peer relationships and engagement in prosocial activities, such that the relationship between victimization and psychological functioning may be attenuated more strongly for girls than for boys.

It was also expected for the present study that aggressive coping beliefs and engagement in aggressive behaviors would moderate the relationship between victimization and psychological outcomes, with aggression associated with poorer functioning. It was hypothesized for the present study that relationships involving the belief in and use of aggressive behaviors would vary by gender, in that aggression would

influence the relationship between victimization and psychological functioning more strongly for boys than for girls.

For the present study, it was expected that Friendship, as defined by the number of friends students have, as well as School Climate, defined by level of intervention and supervision at school, would moderate the relationship between student experiences with victimization and psychological functioning. For instance, those victimized students who have strong peer relationships and have school environments in which there was an emphasis on intervention against poor peer relationships and student misconduct would have better psychological functioning in terms of depression, moodiness, anxiety, and anger.

It is unclear, however, whether victimization and peer harassment have an independent direct relationship with academic outcomes (Juvonen, Nishina, & Graham, 2000). It was hypothesized in the present study that psychological functioning would mediate the relationship between victimization and academic motivation and achievement. Past research has suggested that the indirect pathway is the most parsimonious in predicting outcomes from peer harassment (Juvonen, Nishina, & Graham, 2000). The following section outlines the specific hypotheses for the present study and proposed model (see Figure 1). See also Appendix A for a list of the independent and dependent constructs and Appendix B for a description of the variables and items that defined each construct.

Hypotheses

Hypothesis 1

It was expected that Victimization would be related negatively to Academic Motivation, as defined by orientation toward educational goals, school efficacy, and teacher-reported learning ratings, by way of Psychological Functioning, as defined by self-reported depression, anger, and anxiety ratings and teacher-reported moodiness ratings. Specifically, Psychological Functioning was believed to mediate the relationship between Victimization and Academic Motivation, such that Motivation would be negatively influenced by Victimization if students have poor Psychological outcomes.

Hypothesis 2

It was expected that Victimization would be related to Academic Achievement, as defined by standardized test scores and grades, by way of Psychological Functioning and Academic Motivation (Victimization → Psychological Functioning → Academic Motivation → Academic Achievement).

Hypothesis 3

The relationship between Victimization and Psychological Functioning was expected to be moderated by Friendship, in that victimized students who have more close friends that they spend time with at school would have better Psychological Functioning than students who have a limited number of friends.

Hypothesis 4

Prosocial Activities and Influences were hypothesized to moderate the relationship between Victimization and Psychological Functioning. Victimized students who reported greater involvement in community activities (e.g., youth groups or clubs),

activities at school (e.g., special interest clubs), sports, family activities (e.g., spending regular time with family members), and have friends who devalue aggressive and deviant behaviors were more likely to report better Psychological Functioning than students who were not involved with such individuals and in prosocial activities.

Hypothesis 5

It was expected that reported engagement in Aggression and holding aggressive beliefs, as assessed by self-reported bullying and attitudes toward negative coping strategies, would influence the relationship between Victimization and Psychological Functioning. Victimized students were hypothesized to report greater psychological symptoms if involved in aggressive behaviors than if they are not. This may seem counterintuitive, in that it could be expected that victimized students fare better psychosocially when engaged in rule-breaking and aggressive behavior because they are somehow showing an ability to fit in with those who victimize others. However, studies have found that students who are victimized and victimize others are at risk for the poorest outcomes (Haynie et al., 2001; Nansel et al., 2001). Speculatively, this finding may be due to aggressive victims' inability to adequately and consistently fit in with any peer group (Pellegrini, 1998).

Hypothesis 6

It was expected that Teacher-Reported Difficulties at school would moderate the relationship between Victimization and Psychological Functioning, in that victimized students who are identified by teachers as engaging in poor peer interactions and behavioral misconduct at school, would have poorer psychological outcomes compared

with those students who do not engage in problem behaviors or are not bullied by classmates.

Hypothesis 7

It was hypothesized that School Climate, defined by intervention and supervision at school, would moderate the relationship between Victimization and Psychological Functioning. Victimized students who have supportive school environments, in that teachers and students intervene to stop bullying and disruptive behavior, were expected to have better psychological outcomes as a result of their victimization than students who are not supported by teachers and classmates.

Hypothesis 8

The hypothesized moderator influences on the mediated pathways were expected to differ by gender. For instance, Friendships and Prosocial Activities and Influences were expected to play a stronger role in explaining the relationship between Victimization and Psychological Functioning for girls than for boys. Because boys engage in problem behaviors at school more frequently than girls, it is expected that Teacher Reported Difficulties and Aggression would play a stronger role in victimized boys' psychological outcomes.

Chapter 2

Method

Participants

Four thousand two hundred and seventy-two (4272) students were recruited from all eleven middle schools (student age range 11 – 14 years) in a large school district (approximately 55,000 students), which included urban, suburban, and rural areas, during the 2002-2003 academic year. Two sets of surveys were administered: Form A assessed psychosocial, family, and academic functioning, and Form B assessed school climate factors. Three classes out of the seven recruited per grade completed Form A, three classes completed Form B, and one class per grade completed both Form A and Form B. Teachers completed behavior rating scales on a subgroup of 2053 students. Only those participants (N = 327) who reported some degree of victimization by peers on both Forms A and B were included in the present study. The majority of the sample was Caucasian (N = 241, 73.7%), while 12.2% were Latino/Latina/Hispanic (N = 40), 3.4% African-American (N = 11), 2.4% Asian/Indian (N = 8), and 8.3% as other (N = 27). Fewer boys (N = 145, 44.3%) than girls (N = 181, 55.4%) participated, $\chi^2 (1, N = 327) = 3.98, p < .05$.

Measures

Student Self-Report Surveys

The Demographic portion of the student survey packet was administered in order to obtain information on age, gender, race/ethnicity, family consistency, and friends. Students were asked how many close friends they have at school, which was used as an indicator of the Friendship construct.

The *Revised Olweus Bully/Victim Questionnaire* (Olweus, 1996) is a 39-item scale covering aspects of bullying problems (see Appendix C). Participants responded to 9 items about direct and indirect victimization (i.e., “I was called mean names”) and 9 items about direct and indirect involvement in bullying others (i.e., “I spread false rumors about another student and tried to make others dislike him/her”) on a 5-point scale: 1 = “I haven’t been bullied at school in the past couple of months,” 2 = “it has only happened once or twice,” 3 = “2 or 3 times a month,” 4 = “about once a week,” and 5 = “several times a week.” Participants also completed 4 items related to involvement on the part of students and adults at school to stop bullying as indicators of the School Climate construct (i.e., “How often do teachers or other adults at school try to put a stop to it when a student is being bullied?”). Cronbach’s alpha for the bullying items scale from this sample is .67, while alpha for the victimization items scale is .72. Victimization items will be used as an indicator of the Victimization latent construct. Bullying items will be used as one of the Aggression construct indicators. The Olweus Bully/Victim Questionnaire self-report responses has been found to correlate significantly ($r = .60-.70$ range) with student nominations of victimized classmates (Olweus, 1991a, 1991b).

The *Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977)* is a 20-item scale (“I felt depressed,” Cronbach’s alpha = .87) used to measure self-reported depressive symptomatology on a 4-point scale, 0 = “never” to 3 = “most of the time,” and will be aggregated as an indicator of Psychological Functioning (see Appendix D). The CES-D scale showed concordant validity in identifying depressive symptomatology compared with the Beck Depression Inventory, with an 88% agreement between the two scales (Robert, Lewinsohn, & Seeley, 1991). A corresponding version of the scale items was developed for use with children and has shown adequate ability to assess depressive symptomatology (Faulstich et al., 1986; Weissman, Orvaschel, & Padian, 1980).

The *State/Trait Anxiety Inventory for Children (STAIC; Spielberger, 1973)* is a 40-item questionnaire (see Appendix E) that assesses self-reported anxiety as an indicator of Psychological Functioning, on a 3-point scale, 1 = “hardly ever” to 3 = “often.” Two 20-item scales comprise the questionnaire: State, related to current estimated levels of anxiety, and Trait, related to consistent and cross-situational levels of anxiety. Only the Trait Anxiety subscale (e.g., “I worry too much” and “I notice my heart beats fast”) was collected during survey administration in order to remain consistent with past literature’s assessment of typical child mood in relation to behavior (Cronbach’s alpha = .91). The STAIC was found to correlate .75 with the Children’s Manifest Anxiety Scale (CMAS; Castaneda, McCandless, & Palermo, 1956) and .63 with the General Anxiety Scale for Children (GASC; Sarason, Davidson, Lighthall, Waite, & Ruebush, 1960).

The *State/Trait Anger Expression Inventory for Children and Adolescents (STAXI-C/A; Spielberger, Jacobs, Brunner, & Lunsford, 2002)* is a 53-item survey that

assesses self-reported anger (see Appendix F). The STAXI-C/A was developed based on the adult version of the Revised State/Trait Anger Expression Inventory (STAXI-2), which contains six major scales: State Anger, Trait Anger, and Anger Expression, comprised of the Anger Out, Anger In, Anger-Control/Out, and Anger-Control/In subscales (Spielberger, 1998). For the survey administration this study is based on, the Trait Anger (Cronbach's alpha = .83) and Anger Expression (Cronbach's alpha = .72) scales will be used as indicators of Psychological Functioning and Aggression, respectively. The STAXI has shown to relate significantly to self-report of intensity and frequency of daily anger (Deffenbacher, 1992). Pilot data is currently being collected on this scale and further information regarding reliability and validity must be obtained. A sample item on the Trait Anger scale includes "I feel angry;" while a sample item for the Anger Expression scale is "I get into arguments." Items are rated on a 3-point scale (1 = Hardly Ever, 2 = Sometimes, and 3 = Often).

The *School Adjustment Survey (SAS)* (Santa Lucia & Gesten, 2000) is a 34-item scale assessing self-reported student bonding and adjustment to school, classmates, and teachers (see Appendix G). The survey consists of five scales: School Spirit ("I like school," Cronbach's alpha = .85), Goal-Orientation ("Education is important for success in life," Cronbach's alpha = .74), Child-Peer Relations ("Most students at school like to include me in their activities," Cronbach's alpha = .63), Child-Teacher Relations ("I think my teachers care about me," Cronbach's alpha = .84), and Alienation ("I don't feel safe at school," Cronbach's alpha = .63). For the present study, only the Goal-Orientation scale will be used as an indicator of the Academic Motivation latent variable. The SAS has

been shown to adequately discriminate among students engaged in school and those at-risk for failure (Santa Lucia & Gesten, 2000).

The *Middle School/High School Student Survey* (Safe Community-Safe School Project, 2002) is a 131-item questionnaire that measures various components of parental influences, peer relationships, exposure to school violence, teacher relations, beliefs about aggression and substance use, risk-taking behaviors, and school bonding (see Appendix H). Eight items measured peer harassment (Cronbach's alpha = .82) on a 4-point scale (0 = "no," to 3 = "more than 6 times"), which will be used as an indicator of the Victimization latent construct (e.g., "Another student pushed, shoved, slapped, or kicked me"), 2 items measured aspects of Friendships (Friendship index, "I spend most of my free time at school with my friends"), 12 items measured Friends' Attitudes toward Aggression ("My friends think it's wrong to hit other people," Cronbach's alpha = .86) and Friends' Attitudes toward Deviant Behavior ("My friends think using drugs is a dumb idea," Cronbach's alpha = .87) and 6 items measured Family Involvement (e.g., "I like to do things with my family," Cronbach's alpha = .75) and Peer Involvement (e.g., "I am involved in clubs at my school," Cronbach's alpha = .62) as indicators of Prosocial Activities and Influences, 6 items measured Bullying Others (e.g., "I harassed another student," Cronbach's alpha = .86) and 8 items measured Aggressive Coping Behaviors (e.g., "I deliberately kept someone out of my group because I was angry at them") and Beliefs about Aggressive Coping (e.g., "It is OK to push or shove other people around if you're mad," Cronbach's alpha = .67) as indicators of Aggression, 4 items measured school Climate by way of intervention efforts at school (e.g., "Adults at my school teach us not to pick on other students," Cronbach's alpha = .74), and 4 items measured School

Efficacy, an indicator of Academic Motivation (e.g., “If I study hard, I will get good grades,” Cronbach’s alpha = .65). Items that comprise the scales showed convergent validity with items from established scales, such as the Individual Protective Factors Index (Springer & Phillips, 1997), The Monitoring the Future Survey (Johnson & Bachman, 1980), and the Youth Risk Behavior Surveillance System (Center for Disease Control and Prevention, 2002).

The *Adult Supervision at School* index consists of six items developed for the 2003 data collection by the author (Totura et al., 2005) to assess adult supervision within schools (see Appendix I), as an indicator of Climate (e.g., “In my school teachers are in the hall when we change classes” and “In my classroom teachers walk around while students are working”). While the index may have limited internal consistency (Cronbach’s alpha = .60), it is likely that the items represent separate factors that have validity in terms of measuring aspects of adult presence on school campuses. In addition, researchers (Bickman, Lambert, Karver, & Andrade, 1998; Clark & Watson, 1995) point out that there is often a trade off between internal consistency, breadth in validly measuring a construct, and test length. This measure was developed optimizing two of these areas.

Teacher-Report Survey

The *AML Behavior Rating Scale – Revised (AML-R)* is a 12-item teacher-report survey (Cowen et al., 1973) used to assess student maladjustment (see Appendix J). Three scales comprise the AML-R: Acting-Out (“Disrupts class discipline,” Cronbach’s alpha = .90), Moodiness (“Is unhappy,” Cronbach’s alpha = .83), and Learning (“Gets off task,” Cronbach’s alpha = .92). The Acting-Out scale will be used as an indicator of

Teacher-Reported Difficulties, the Moodiness scale will be used as an indicator of Psychological Functioning, and the Learning scale will be used as an indicator of the Academic Motivation latent construct. The AML-R has adequate validity and internal consistency ranges over a two week period, alpha = .80 to alpha = .86 (Carberry & Handal, 1980; Cowen et al., 1973; Durlak, Stein, & Mannarino, 1980; Gillespie & Durlak, 1995). Scores on the AML-R have also been correlated with personality and academic achievement measures (Dorr, Stephens, Pozner, & Klodt, 1980), and have distinguished between children who were referred for mental health services and those who were not (Cowen et al., 1973). One item was added to the AML-R survey that assessed global levels of bullying by others (i.e., “This child has been bullied at school in the past couple of months”), as an indicator of the Teacher-Reported Difficulties latent construct.

Records Data

The standardized Florida Comprehensive Achievement Tests (FCAT) is a statewide measure of academic achievement in reading, writing, and mathematics. Internal reliabilities for the total test battery range from .86 to .91 for grades 4 through 10 (Florida Department of Education, 2002). Field-test items for the FCAT were developed by Harcourt Educational Measurement (see *Analysis of the FCAT Test Item Review Conducted by the Florida Department of Education and Harcourt Educational Measurement: 1999* for more information on the development of the FCAT items; Harcourt Educational Measurement, 2000). The Developmental Scale Scores for Reading Comprehension and Math Problem-Solving tests were used as an assessment of academic achievement, and as an indicator of Academic Achievement, that could be

compared across school years. The range of FCAT Developmental Scale Scores is 86-3008. Validity of the FCAT scales is determined by scoring directors and Florida Department of Education representatives who evaluate scores to be sure they fall within a range of accuracy (Florida Department of Education, 2002).

Student Grades were obtained as a measure of Academic Achievement. Grades are defined on a 5-point scale: A = 4, B = 3, C = 2, D = 1 and F = 0. Grades were aggregated and averaged for each student.

The total number of *Discipline Referrals* for the 2002-2003 academic year was obtained for each participant and averaged as an indicator of Teacher-Reported Difficulties. Referrals are disciplinary reports completed by teachers and staff for individual student behaviors, such as disobedience and truancy, and are aggregated by the district.

Procedure

This study was developed in collaboration with the school district as part of a broader assessment of school environment. Within each school, seven classes per grade, approximately 20-30 students each class, were randomly selected to complete student and teacher surveys. Students completed survey packets that addressed individual, family, and school-related factors and were administered by teachers with the help of school psychologists, guidance counselors, and study research assistants in a group format within selected classes during the second half of the school year. Students and teachers were provided with a standard definition of bullying behavior to guide responses (see Appendix K). Student and teacher surveys were coded to maintain child confidentiality. Since this survey was part of a district mandated needs assessment, consent procedures

were determined by the school administration consistent with district policy. A letter was sent to students' parents or guardians informing them that their child would be involved in a survey to improve school climate. Those who chose to decline participation were asked to contact the school and were not assessed.

Analyses

In order to examine the proposed hypotheses, five levels of analyses were utilized. Descriptive statistics were first obtained for each variable and construct proposed. These were obtained following a Principal Component Analysis with Varimax rotation that elucidated which observed variables loaded together on the hypothesized latent constructs. Pearson Product-Moment correlations were run to assess the simple associations between each of the observed variables and latent constructs. Structural Equation Modeling was used to test the validity of the proposed Victimization → Psychological Functioning → Academic Motivation → Academic Achievement mediated model. Hierarchical regression analyses were conducted to examine hypothesized moderator effects, by gender, on the Victimization → Psychological Functioning portion of the model. Finally, simple slope analyses were run for significant moderators to assess at which levels of the moderator constructs the relationship between Victimization and Psychological Functioning differed.

Chapter 3

Results

Descriptive Statistics

Table 1 presents the means and standard deviations for each observed variable and latent construct in the present study for the total sample and by gender. Means for observed variables are unstandardized and means for the constructs are composed of composites of variable standardized z-scores. Overall according to possible scale score ranges, rates of victimization, aggression, and behavioral and psychological difficulties were by and large low. In general, boys had higher scores on measures of victimization, involvement and beliefs in aggression, and behavioral difficulties as reported by teachers. Girls, however, typically reported higher scores on measures of support at school, orientation toward academic goals, and involvement with family and peers.

Principal Component Analysis

Prior to analyses to investigate the hypothesized associations, a Principal Components Analysis (PCA) with a Varimax rotation was conducted in order to assess observed variable loadings on the proposed constructs. An eigenvalue analysis (e.g., eigenvalues > 1) suggested that an eight-factor solution was ideal, with goal-orientation, school efficacy, and classroom learning variables (i.e., Academic Motivation) and adult and peer intervention and supervision variables (school Climate) loading together on one factor. In order to preserve the theoretical foundations of the proposed constructs and maximize the merits of the underlying measurement according to PCA results (Nunnally

& Bernstein, 1994), nine factors were conceptualized and assessed in modeling analyses as follows: Victimization, Psychological Functioning, Academic Motivation, Academic Achievement, Friendship, Prosocial Activities and Influences, Aggression, Teacher-Reported Difficulties, and Climate (see Appendix B for a description of variables and constructs). Academic Motivation and Climate were conceptualized as separate factors – those variables that identified Climate loaded more strongly (average loading .69) on the PCA identified factor than Academic Motivation variables (average loading .40).

Researchers have demonstrated over multiple iterations that the appropriate number of components to retain falls between 1/2 and 1/3 the number of observed variables (29 for the present study; Zwick & Velicer, 1986). Additionally, components that contain complex variables with lower loadings (e.g., .40) and unique variables with high loadings (e.g., .70) affect the decision rules for determining the number of components to retain; therefore, the difference in average loadings between Motivation and Climate variables on the identified component suggests that two underlying constructs may be present (Zwick & Velicer, 1986). Overall, structural equation modeling is a technique that is robust to measurement and rater error in observed variables and will, therefore, correct for deviations in the relationships between indicator variables and latent constructs (DeShon, 1998).

Correlation Analyses

Pearson Product-Moment correlations were conducted between each indicator variable (Table 2) and between latent constructs composed of the mean of standardized (z-scores) variable scores (Table 3). Examination of correlations found that Victimization had limited association with academic variables ($r_s = -.02$ to $-.14$).

However, Psychological Functioning variables were generally significantly correlated with Motivation measures ($r_s = -.01$ to $-.67$), which were, in turn, significantly associated with Achievement variables ($r_s = -.02$ to $.53$). This pattern of correlations was evident for both boys and girls.

Structural Equation Modeling (SEM)

Defining Latent Constructs

The latent constructs for the present study are as follows: Victimization, Psychological Functioning, Academic Motivation, Academic Achievement, Friendship, Prosocial Activities and Influence, Aggression, Teacher-Reported Difficulties, and Climate. Latent constructs are factors that are not able to be directly measured or observed, therefore, they must be defined by variables that can act as indicators for the constructs. Indicator variables are directly observed and measured variables that load onto latent constructs in a similar way that items would load onto specific factors in the confirmatory factors analysis method (see Appendices A and B for a detailed account of the independent and dependent constructs and their indicator variables and underlying items with principal component factor loadings).

Identifying Parameters

Model parameters are aspects of the proposed model that are unknown prior to analysis. The parameters are characteristics of the sample population related to the distribution of the variables in the model. They are estimated, typically from the sample correlation and/or covariance matrices specified by statistical programming methods. Model parameters in SEM are similar to parameters estimated in regression analyses,

such as the standard error of estimate and regression weights. The following are parameters in each of the hypothesized models:

- 1) The variances of each independent variable are model parameters. All residual error terms, whether assigned to observed or latent constructs or unobserved because they cannot be measured, are considered independent variables and, therefore, model parameters. Residual error is variation in the observed variables due to measurement error or variance that remains unexplained by the observed variable loadings on each latent construct. The unexplained variance is the amount of indicator variance unshared with the other indicators defining a latent construct.
- 2) The covariances between independent variables are model parameters, unless otherwise stated by theory that some are equal to zero or another constraint.
- 3) The factor loadings that are attached to the latent constructs and their indicators are model parameters, unless otherwise hypothesized.
- 4) All regression coefficients between observed variables or latent constructs are model parameters. The regression coefficients are represented by pathways that originate from some latent constructs and end at others.
- 5) The variances and covariances between dependent variables and the covariances between dependent and independent variables are never considered model parameters. This is because these variances and covariances are explained by other estimated model parameters.
- 6) The metric, or scaling, for each latent construct needs to be set. Unlike the individual indicator variables, there is no natural metric that underlies the constructs. The purpose of the metric is to standardize indicator variables that may otherwise have

very different distributions and variances in order to compute a construct score. For the present study, the pathway for each indicator that had the strongest association with its respective underlying construct, according to the principal components analysis, was fixed to 1.0 in order to standardize the construct scale. Fixing an indicator pathway to 1.0 is conventional practice in SEM (Raykov & Marcoulides, 2000).

In SEM, there are three types of model parameters that are of interest – free, fixed, and constrained. The parameters determined by the previously discussed rules are considered free parameters. These are estimated by the SEM statistical program. Fixed parameters have their value set to a specific constant and do not change their value when the model is tested against the sample data. In the present study, each construct variance set to one is a fixed parameter.

Comparing Model and Observed Data Matrices

Statistical SEM programs attempt to create linear combinations of every available variable indicated in a proposed model, which would determine every element of a variance-covariance matrix. This symmetric matrix is referred to as the reproduced, or model-implied, covariance matrix and can be denoted by Σ . Each element of Σ is a function of the model parameters, which each has a numeric counterpart originating from the observed sample covariance matrix S . When S and Σ are set equal to each other, the SEM procedure attempts to solve a system of equations, with model parameters acting as unknown variables, to determine the fit of the proposed model with the observed data.

If the difference between S and Σ is small, then it is appropriate to assume that the proposed model fits the actual sample data well. If the difference is large, then the

proposed model does not fit adequately with the observed data. There are two reasons for inconsistencies between the model and the data: 1) the proposed model may not be adequate enough to explain relationships among the observed variables or, 2) the observed data is not good in some sense. In order to assess how “good” the proposed model is, it is important to assess the distance between S and Σ by subtracting the two matrices from each other, thereby creating a separate matrix of difference values. Solving the matrix of difference values takes into account the model parameters and elements of the observed variances and covariances and can be referred to as a fit function, F . If F equals zero, the S and Σ matrices are identical.

Methods of Estimating Parameters

There are four main methods for measuring the fit between the S and Σ matrices. The unweighted least squares (ULS) method uses the simple unweighted sum of squared differences between the corresponding elements of the S and Σ matrices as a fit function. ULS is typically employed when similar scales were used to measure variables analyzed in the model. The maximum likelihood (ML) and generalized least squares (GLS) methods are used when the data is normally distributed, however, the ML method can be used with some deviations from multivariate normality. Maximum likelihood procedures determine estimates for the model parameters that increase the likelihood of observing the analyzed data if it were to be collected from the same population again. This is done by scanning all possible numeric model parameters and selecting those that minimize the fit function, F . Additionally, maximum likelihood is an unbiased estimation for samples with missing data (Wothke, 2000). For serious deviations from normality, the weighted least squares, or asymptotically distribution free (ADF), method can be used if the

observed sample size is large. Another potential solution for nonnormal data is to use a transformation technique with the raw data (e.g., squaring data points, square root transformations, reciprocal transformations, and logarithmic transformations). Each parameter estimation results in consistent estimates. Additionally, the ML, GLS, and ADF methods ensure that the estimates match population parameter values as the sample size increases. For the present study, the ML procedure will be used as it is effective in dealing with missing data with deviations from normality.

Parameter estimates are determined through an iterative procedure, in which the statistical SEM program starts with initial estimates and continues to derive estimates over and over and terminates at the final step when the resulting fit function changes by a very small amount. The parameters in this last step are considered the final solution values and represent the required parameter estimates. The only way these parameters are meaningful is if the iterative process terminates at a final solution. If termination does not occur, it is possible that the proposed model is inadequate for the observed data or may contain unidentified parameters (parameters in which there are not enough empirical data to provide a unique estimate). Generally, models that contain unidentified parameters are not reliable – a model must be fully identified in order to compute an adequate estimation of fit. In addition, a model is considered identified when the number of equations to be solved in the comparison between the S and Σ matrices is greater than the number of unknown elements. This condition can be determined by counting the number of model parameters and subtracting this value from the number of nonredundant elements in the sample matrix S (i.e., $p(p+1)/2$, where p = the number of observed

variables). The difference is labeled the degrees of freedom of the proposed model and if it is positive, then the model is identified.

The final converged solution provides a measure of sampling variability, or standard error, for each parameter estimate. The magnitude of the standard error is an indication of how stable the parameter estimate would be if repeated samplings were conducted. The standard errors are then used to compute t-values and evaluated for significance. For example, if a free parameter's t-value is greater than +2 or less than -2, then the parameter is significant and is considered distinct from the null in the population. The parameter estimates must also have the hypothesized direction and magnitude to consider the model fit for evaluation.

Evaluating Goodness of Model Fit

The model goodness-of-fit can be estimated using the inferential statistic chi-square ($T = (N - 1)F$, where N is the sample size and F is the computed minimal value of the fit function for the parameter estimation procedure utilized, ML, GLS, or ADF). The SEM statistical program will compare the chi-square T value in relation to the model's degrees of freedom and produce a corresponding p value for significance determination. The model is considered appropriate for data estimation if the resulting p value is greater than the preset significance level, typically $p = .05$. While the chi-square index is generally used most frequently, there are tendencies for T and p values to become biased based on sample size. Therefore, it is prudent to examine other goodness-of-fit indices to fully evaluate model fit. Another plausible index that can be examined is the root mean square error of approximation (RMSEA). It has been argued that an RMSEA value less than .05 is indicative of a model that has appropriate fit with the data (Raykov &

Marcoulides, 2000). The RMSEA is also not sample-dependent, a relative strength compared to the chi-square index. Both methods will be utilized to assess goodness-of-fit for the present proposed model. For the present study, both the reduced and full mediated models were identified, with degrees of freedom of 37 and 36, respectfully.

Dealing with Missing Data

Current literature suggests that the best, most unbiased method for working with missing data in structural equation modeling is the maximum likelihood estimation (Wothke, 2000). Traditional methods, such as mean-imputation and listwise and pairwise deletion, typically provide inefficient estimates for missing values. For example, listwise deletion drops all cases with missing data from computations and equations are applied only to those cases with complete data across all variables. This process discards a significant amount of available data. Pairwise deletion, while less restrictive than listwise deletion, also discards a considerable amount of observed data. Pairwise deletion computes estimates for each variable using completed data, but will not provide estimates for cases in which there is missing data on one or more variables of interest. This method uses more of the observed data than listwise deletion, but imposes statistical complications when each variable analysis can depend on different sample sizes based on missing data. Analyses are essentially run on different portions of the observed data. Mean imputation involves replacing missing variable data with the mean value of the same variable. This method attempts to complete the raw dataset, although estimates are typically negatively biased, meaning that estimates can be systematically larger or smaller than those calculated through listwise or pairwise deletion. Alternately, the full-information maximum likelihood (FIML) method uses all of the information that is

available in the raw dataset along with information about missing data points based on the information available from the observed data. The FIML technique is based on theory and maximizes the likelihood of the proposed model fit given what is available with the observed data. This technique will be used for the present study because it provides less biased estimates compared with listwise and pairwise deletion and mean imputation and uses all available data points, rather than discarding information that does not meet analysis criteria (Wothke, 2000).

Identifying Significant Pathways

If the proposed model is adequate to explain the observed data, then the significance of individual hypothesized pathways can be evaluated. The weights of the linear equations computed between latent constructs will be examined for significance of magnitude and direction of association in the same degree as beta weights would be examined in regression analyses.

Tests for Mediation

Hypotheses 1 and 2. The Lisrel 8.7 (Joreskog & Sorbom, 2004) statistical structural equation modeling program was used to evaluate the hypothesized mediated model: Victimization → Psychological Functioning → Academic Motivation → Academic Achievement. In order for a variable to be considered a mediator, four conditions must be present: 1) the independent predictor variable (i.e., Victimization) must be significantly associated with the proposed mediator variable (i.e., Psychological Functioning and Academic Motivation), 2) the predictor must be significantly associated with the dependent variable (i.e., Academic Achievement), 3) the mediator must be significantly associated with the dependent variable, and 4) the effect of the predictor on

the dependent variable is decreased after accounting for the mediator (Baron & Kenny, 1986; Holmbeck, 1997). In order to satisfy all four conditions in structural equation modeling, one would first examine the significance of the direct pathway between the predictor and dependent variable. Once that fit has been satisfied, the predictor → mediator → dependent variable model is tested and the predictor → mediator and mediator → dependent variable pathways are examined. Each pathway should be significant in the hypothesized direction. In the final step, one would assess the fit of a full model with the direct predictor to dependent variable pathway, and then examine the fit of a model with the reduced predictor → mediator → dependent variable path. If the full model with the direct pathway does not significantly improve fit over the reduced model without the direct path, then there is a mediational effect. It is important to note that due to the cross-sectional nature of the data, causal inferences cannot be made among the constructs examined in the present model.

Using a Maximum Likelihood fit function, the proposed full model (with the direct Victimization to Academic Achievement path) Victimization → Psychological Functioning → Academic Motivation → Academic Achievement was found to adequately fit the data from the total sample of 327, $\chi^2(36, N = 327) = 48.32, p = .08$, Root Mean Square Error of Approximation (*RMSEA*) = .032, $p = .90$. The reduced model without the direct Victimization → Academic Achievement path was also of adequate fit, $\chi^2(37, N = 327) = 49.11, p = .09, RMSEA = .032, p = .91$. The addition of the direct pathway did not significantly improve model fit ($p > .10$ for χ^2 difference .79), therefore, it appears that Psychological Functioning and Academic Motivation are reasonable mediating factors for the relationship between Victimization and Academic Achievement.

Upon examination of parameter estimates in the full model (see Figure 1 for path coefficients), the level of Victimization is significantly related to poor Psychological Functioning; maximum likelihood estimate (mle) = 14.14, $R^2 = .30$, $t(326) = 5.37$, $p < .05$. The pathway between poor Psychological Functioning and Academic Motivation was also significant; $mle = -.011$, $R^2 = .11$, $t(326) = -2.59$, $p < .05$. Additionally, the path between Academic Motivation and Academic Achievement was significant; $mle = 141.22$, $R^2 = .025$, $t(326) = 2.10$, $p < .05$; although, this effect is small. However, the pathway between Victimization and Academic Achievement was not significant; $mle = -72.37$, $R^2 = .007$, $t(326) = -1.23$, $p > .05$. This was the case as well when this pathway was examined initially in a model that did not include the mediators; $mle = -75.18$, $R^2 = .002$, $t(326) = -1.19$, $p > .05$. That step violated the second condition for mediation (Baron & Kenny, 1986; Holmbeck, 1997) and suggests that Psychological Functioning and Academic Motivation may not actually act as mediators in this design. Rather, Victimization may have an *indirect* effect on Academic Achievement via Psychological Functioning and Academic Motivation. The indirect effect was confirmed by examination of the reduced model that does not account for the direct pathway between Victimization and Academic Achievement. In this model, the association between Victimization and Psychological Functioning was significant; $mle = 14.10$, $R^2 = .31$, $t(326) = 5.37$, $p < .05$. As in the full model, the pathways between Psychological Functioning and Academic Motivation ($mle = -.011$, $R^2 = .11$, $t(326) = -2.60$, $p < .05$) and between Academic Motivation and Academic Achievement ($mle = 146.52$, $R^2 = .022$, $t(326) = 2.23$, $p < .05$) were significant. Again, this effect size was small, suggesting that the relationship between motivation variables and achievement variables

may differ by student experiences of victimization. When examined further, it was found that the correlation between Motivation and Achievement was much lower for those students who were more severely victimized (incidents occur two times a month or more; $r = .019$) than for those who were infrequently victimized (incidents occur less than once a month; $r = .358$). The relationship for the sample as a whole was also much higher ($r = .317$). Examination of the correlations among standardized constructs (Table 3) also provides further evidence of an indirect rather than mediated effect. Violations of the Baron & Kenny (1986) mediator conditions 2 and 3 were indicated in the simple associations between Victimization and Academic Achievement ($r = -.06$, *ns*) and Psychological Functioning and Academic Achievement ($r = -.093$, *ns*).

Although the proposed model does not appear to represent a mediated effect between Victimization and Academic Achievement, simple correlations suggest that the relationship between Victimization and Academic Motivation may be mediated by Psychological Functioning (see Figure 2). The pathway between Victimization and Academic Motivation was significant when initially examined alone without the other model constructs, $mle = -0.36$, $R^2 = .008$, $t(326) = -2.79$, $p < .05$, satisfying condition 2 in Baron & Kenny's (1986) mediation criteria. The full model (with the direct Victimization to Academic Motivation path) Victimization → Psychological Functioning → Academic Motivation → Academic Achievement was found to adequately fit the data from the total sample of 327, $\chi^2(36, N = 327) = 45.58$, $p = .16$, $RMSEA = .029$, $p = .95$. Although the addition of this pathway only marginally improved the fit of the model compared with the previously examined Victimization → Psychological Functioning → Academic Motivation → Academic Achievement reduced pathway ($p =$

.05 for χ^2 difference 3.53), the pathway between Victimization and Academic Motivation was reduced to nonsignificance; $mle = -0.046$, $R^2 = .004$, $t(326) = -0.94$, $p > .05$. These results suggest that Psychological Functioning is an adequate mediator between Victimization and Academic Motivation, which has a subsequent direct relationship with Achievement.

In order for the proposed models to fit the data and to take into account shared variance among construct variables, the following covariances were specified and estimated as free parameters: Anxiety and Goal-Orientation, Grade Point Average (GPA) and FCAT Reading score, Moodiness and Depression, Moodiness and GPA, Learning Difficulties and GPA, Learning and Moodiness, School Efficacy and Depression, GPA and Depression, Learning and FCAT Reading, Learning and FCAT Math scores, GPA and Efficacy, and Moodiness and Goal-Orientation.

Multiple Regression Analyses

Tests for Moderation

Multiple regression analyses, with a Bonferroni correction to control for family-wise error, were conducted to examine hypothesized moderator effects. In order to assess the same constructs used in the structural equation modeling and to avoid problems of multicollinearity between main effects and interaction terms, each observed variable was centrally standardized (z-scores) and aggregated (mean scores) in their respective constructs (see Aiken & West, 1991, and Holmbeck, 1997, for more information). A moderator effect is defined as an interaction between the predictor (e.g., Victimization) and moderator (e.g., Friendship) that is significantly associated with the dependent variable (e.g., Psychological Functioning) once the variance of the predictor

and moderator main effects have been accounted for (Baron & Kenny, 1986; Holmbeck, 1997; 2002).

Hypothesis 3. It was expected that the relationship between Victimization and Psychological Functioning would be moderated by Friendship, as measured by the number and availability of good friends at school. According to hierarchical multiple regression analyses (in a procedure specified in Holmbeck, 1997), the addition of the Friendship construct did not contribute a main effect in predicting Psychological Functioning (see Table 4 for ΔR^2 after each step and variable beta weights). The interaction of Victimization and Friendship also did not account for a significant portion of variance in Psychological Functioning ($\beta = .093$, $t(323) = 1.75$, $p = .08$), indicating that having close friends and quality time to spend with them at school does not moderate the relationship between level of victimization and psychological difficulties.

Hypothesis 4. It was expected that Prosocial Activities and Influences, as measured by engagement in positive activities with family and friends who do not condone problem behaviors, would moderate the relationship between Victimization and Psychological Functioning. Both Victimization and Prosocial Activities and Influences (see Table 4) were significantly associated with Psychological Functioning; $\beta = .348$, $t(323) = 6.91$, $p < .05$ and $\beta = -.228$, $t(323) = -4.48$, $p < .05$, respectively. However, the interaction of Victimization and Prosocial Activities and Influences was only marginally related to Psychological Functioning, $\beta = .097$, $t(323) = 1.92$, $p = .056$, suggesting that engagement in positive activities does not adequately moderate the association between level of victimization and psychological problems.

Hypothesis 5. It was hypothesized in the present study that engagement and belief in aggressive behaviors would moderate the association between Victimization and Psychological Functioning. Both Victimization ($\beta = .336$; $t(323) = 6.52$, $p < .05$) and Aggression ($\beta = .273$; $t(323) = 5.19$, $p < .05$) were significantly associated with Psychological Functioning (Table 4). Additionally, the interaction of Victimization and Aggression was significant ($\beta = -.118$; $t(323) = -2.26$, $p = .024$). However, with a Bonferroni correction for multiple tests of significance (5 moderator analyses; $p = .05/5 = .01$), the interaction is reduced to nonsignificance. These findings partly supported Aggression as a moderator; although, caution should be exercised in interpretation because the moderator effects disappeared once the significance level was corrected and the magnitude of the effect size is relatively small. In general, results suggested that victimized students who also engage in and advocate aggressive behaviors have better psychological functioning. As levels of concurrent victimization and aggression increase, psychological difficulties decrease.

Hypothesis 6. It was expected that Teacher-Reported Difficulties, such as disruptive behavior and poor peer relationships at school, would moderate the relationship between Victimization and Psychological Functioning. While both Victimization ($\beta = .384$; $t(323) = 6.84$, $p < .05$) and Teacher-Reported Difficulties ($\beta = .130$; $t(323) = 2.50$, $p < .05$) were significant in explaining variance in Psychological Functioning in this final step, the interaction between the two constructs was not ($\beta = -.074$; $t(323) = -1.35$, $p = .18$; Table 4). Exhibiting disobedient behavior and experiencing bullying at school, as reported by their teachers, does not appear to have the proposed moderator effects on victimization and psychological difficulties.

Hypothesis 7. It was proposed that positive school Climate factors, such as intervention against rule-breaking behavior and supervision by adults, would moderate the relationship between Victimization and Psychological Functioning. Both Victimization ($\beta = .399$; $t(323) = 7.51$, $p < .05$) and Climate ($\beta = -.104$; $t(323) = -2.01$, $p < .05$; *ns* after the Bonferroni correction) were significant in explaining the variance in Psychological Functioning (Table 4). As expected, even with the Bonferroni correction ($p = .01$) for multiple tests, the interaction of Victimization and Climate was also significant ($\beta = .141$; $t(323) = 2.67$, $p = .008$), indicating that having a school climate characterized by structure, intervention, and supervision moderates the magnitude of the association between Victimization and Psychological Functioning. Again, caution should be exercised in interpreting these results. While significant, the effect size of the moderator relationship is small indicating that the clinical relevance of such a relationship is limited.

Gender Analyses

Hypothesis 8. It was hypothesized that certain moderator effects would differ by gender. Specifically, it was expected that social support factors, such as Friendship, Prosocial Activities and Influences, and school Climate, would be more important in explaining the relationship between Victimization and Psychological Functioning for girls than for boys. Alternatively, Aggression and Teacher-Reported Difficulties were expected to relate more strongly for boys.

For boys, the only significant moderated effect was Climate. The third step of the overall model with Victimization, Climate, and the interaction of both was significant, $F(3, 140) = 13.56$, $p < .05$ (see Table 5). The Victimization x Climate

interaction was also significant ($\beta = .275$; $t(141) = 3.28$, $p = .001$) even after the Bonferroni $p = .01$ correction, suggesting that intervention and supervision at school moderates the level of psychological difficulties for victimized boys. There were no significant moderator effects for girls (see Table 6).

Slope Analyses for Significant Moderators

In order to examine the nature of the moderator effects on Psychological Functioning, slope analyses for each significant moderator (Aggression and Climate) were conducted according to the procedure discussed by Aiken and West (1991) and Holmbeck (2002). Previously discussed regression analyses tested for the presence of moderation to explain the conditions under which Victimization is related to Psychological Functioning. However, a slope analysis is needed to further explain at which levels of the predictor and moderator the dependent construct will vary (Holmbeck, 2002). For the present study, it is important to note that z-scores were used to compute construct parameters; therefore, it is statistically possible to have scores below zero when, conceptually, negative values would be impossible.

Aggression. According to a slope analysis for the moderator Aggression, results indicate that at both high (+ 1 SD above Aggression mean) and low (- 1 SD below Aggression mean) levels of Aggression, the relationship between Victimization and Psychological Functioning is significant, $b = .362$; $t(323) = 6.16$, $p = .000$ for high levels and $b = .211$; $t(323) = 4.09$, $p = .000$ for low levels (see Figure 3). Note that scores above zero indicate poorer Psychological Functioning. What this suggests is that students who are highly victimized and engage in higher levels of Aggression experience fewer psychological difficulties than highly victimized students who do not believe and engage

in such behaviors. Students with low levels of both Victimization and Aggression have better Psychological Functioning than other students. Based on previous moderator analyses, caution should be exercised in interpreting these results since the effect size magnitude for Aggression is small.

Climate. The relationship between Victimization and Psychological Functioning varies at different levels of school Climate. At both high and low levels of Climate, Victimization is significantly associated with changes in psychological difficulties, $b = .449$; $t(323) = 6.60$, $p = .000$ for high levels and $b = .232$; $t(323) = 4.40$, $p = .000$ for low levels. Upon examination of the plotted regression lines (see Figure 4; note that scores above zero indicate poorer Psychological Functioning), it appears that at low levels of Victimization, psychological difficulties vary as a function of Climate. Highly victimized students who experience either high or low levels of support and intervention in their schools have greater reported psychological problems than students who are not victimized as frequently or severely. However, those who experience lower levels of Victimization and low intervention in their schools have considerably poorer psychological functioning than those that experience higher levels of support and intervention. Based on previous moderator analyses, caution should be exercised in interpreting these results since the effect size magnitude for Climate is small.

Climate also served as a moderator for boys, specifically. Again, at both high and low levels of Climate, the relationship between Victimization and Psychological Functioning is significant, $b = .566$; $t(323) = 5.60$, $p = .000$ for high levels and $b = .209$; $t(323) = 3.33$, $p = .001$ for low levels (see Figure 5; note that scores above zero indicate poorer Psychological Functioning). These findings suggest that boys who experience

high levels of Victimization and high levels of intervention on the part of teachers and peers at school have greater psychological difficulties than highly victimized boys who have lower levels of support against behavioral misconduct at school. However, boys who are infrequently victimized and experience high levels of intervention in their school climates have better psychological functioning than infrequently victimized students who report low levels of Climate.

Chapter 4

Discussion

The present study sought to examine the relationship among the experience of victimization at school, psychological difficulties, and academic outcomes for students in middle school. Specifically, the present study expanded on previous research by proposing that the relationship between victimization and academic outcomes is mediated by a students' psychological functioning. Even more explicitly, it was suggested that academic outcomes come in two forms, academic motivation processes and academic achievement variables, with academic processes preceding and mediating the association between psychological functioning and achievement. Furthermore, certain behavioral, peer and family related, and school environmental factors were expected to moderate the relationship between student-reported experiences of peer victimization and experienced psychological difficulties, such that positive influences were believed to protect victimized adolescent boys and girls from emotional problems and negative experiences were believed to put them at greater risk. The following sections discuss the findings of the present study.

Mediated Model

Through modeling techniques in the present study, it was found that Psychological Functioning mediated the relationship between Victimization and Academic Motivation, but Academic Achievement was only indirectly associated with Victimization by means of its direct link with Academic Motivation. Thus, experience of

victimization at school was only related to academic outcomes in the present study by way of psychological and motivational properties. Because this pathway is indirect, this suggests that not all students who are victimized will ultimately have troubles academically. In addition, many students with academic motivation problems have poor academic outcomes without having experienced victimization.

Victimized students presented with an interesting profile based on the current findings. As the level of self-reported victimization increased, students experienced more symptoms of depression, anxiety, anger, and general moodiness. In addition, students who were victimized and had poor psychological outcomes were less oriented and motivated toward academic goals. However, the association between experience of victimization and academic performance is tenuous – according to the present findings, peer harassment is related to academic outcomes via the indirect (but not direct) influence of motivation to achieve. The explanation for this result may be that victimization at school is recognized by teachers and school administrators as a risk factor for poor emotional functioning and subsequently poor academic goal-orientations and performance. Therefore, students who experience victimization may also receive substantially more academic support and perform acceptably despite difficulties in motivation related to victimization. In fact, this hypothesized mechanism was supported via a post hoc examination of the difference in Motivation → Achievement correlations for students severely victimized versus those who reported little to no victimization. The relationship between academic motivation processes and academic achievement was nonsignificant for the severely victimized students, arguably those who are receiving more scholastic support, while the relationship between academic motivation and

academic achievement was strongest for those who experience the least victimization, potentially those who are not targeted for academic programming. While it appears that studies have not specifically examined this hypothesis, researchers have found that in grade school classrooms where teachers address bullying and provide a learning environment that is exceptionally achievement-oriented, victimized students are likely to be more satisfied with school and have better academic outcomes (Verkuyten & Thijs, 2002).

Previous literature supports several of the findings that emerged in the mediation analyses. Researchers have found that victimization is not directly related to academic outcomes. Instead, a victimized student's psychological functioning is the mechanism through which negative experiences with aggressive students can have an impact on achievement at school (Juvonen et al., 2000; Kochenderfer & Ladd, 1996a; Wentzel & Caldwell, 1997). However, each of these studies varied in how they assessed academic outcomes, with some reporting processing type variables (e.g., orientation toward academic goals; Nansel et al., 2001; Schwartz et al., 2001; Wentzel, 1998) as achievement and others reporting standardized test scores or grades as measures of achievement (Juvonen et al., 2000; Schwartz & Gorman, 2003). While past research looked at several types of achievement variables, each finding added to the larger picture of child outcomes subsequent to victimization. Although not discussed as an indirect effect, other researchers have described similar findings in their own studies, such that the association between victimization and academic outcomes was not significant unless psychosocial variables were taken into account (Juvonen et al., 2000; Kochenderfer & Ladd, 1996a; Wentzel & Caldwell, 1997). The present study built upon this past research

by examining the fit of a model that incorporated previously studied academic process and achievement variables in a temporal pathway and finding that psychological factors only mediate the association between victimization and motivation to achieve.

Moderators of Psychological Functioning in the Mediated Model

It was expected as well that the relationship between Victimization and Psychological Functioning would be moderated by a number of factors, including friendships at school, prosocial involvement with and influences of peers and family, school difficulties reported by teachers, engagement and beliefs in aggressive behaviors and coping strategies, and the level of support and intervention in the school climate, thereby having either a positive or deleterious influence on academic outcomes. However, only aggressive behaviors and coping beliefs and school climate factors emerged as significant moderators of the Victimization → Psychological Functioning relationship. When examining moderators by gender, only for victimized boys did increases in reported support and intervention at school become associated with high levels of psychological dysfunction. For victimized girls, none of the proposed variables moderated their experiences with depression, anxiety, and anger.

Notably, most of the proposed moderator factors did not significantly modify the relationship between victimization and psychological outcomes. Alone, the factors Friendship, Prosocial Activities and Influences, and Teacher-Reported Difficulties were related to Psychological Functioning for victimized students. However, as levels of victimization increased, these factors did very little to change the relationship between student experience of victimization and psychological distress. Recent studies have also demonstrated that merely having friendships does little to impact victimization, but that

being exposed to aggressive friends may put students at greater risk for being bullied (Hanish, Ryan, Martin, & Fabes, 2005). Thus, friendship, activities, and peer influences may only impact victimization based on more specific qualities that should be explored in future studies. It is also possible that some of these proposed moderator effects may actually act in statistically different ways outside of the scope of this study; for instance, as mediators, or to moderate relationships at alternative pathways, such as between Psychological Functioning and Academic Motivation.

Of those factors that did significantly moderate the Victimization → Psychological Functioning pathway, they moderated the relationship in the direction opposite of what was expected. Contrary to research that suggests victims who bully others have increased emotional difficulties (Haynie et al., 2001; Nansel et al., 2001), the present findings suggested that beliefs and engagement in aggressive behaviors buffer the negative psychological effects of peer victimization. Studies have recently found that all victims are not as shy and withdrawn as previously believed. In fact, some victims are as able to engage in aggressive behaviors as their bullying counterparts, particularly in response to aggression by others (Kochenderfer & Ladd, 1997; Schwartz, McFadyen-Ketchum, Dodge, Petit, & Bates, 1998; Camodeca, Goossens, Meerum Terwogt, & Schuengel, 2002). Specifically, it is suspected that victimized students feel powerless when bullied and their desire to retaliate in aggressive ways is fueled by frustration and anger over a sense of helplessness (Camodeca & Goossens, 2005a). Although victims may be readily aware of assertive and prosocial problem-solving strategies for dealing with negative peer interactions, research has shown that students typically choose retaliatory methods (Camodeca & Goossens, 2005a; Futrell, 1996). Because a considerable proportion of

victims experience frustration as a result of bullying, it is plausible to suspect that using counter-aggression against bullies is the preferred means for alleviating the harassment and frustration and circumvent any additional negative emotions related to the bullying experience. However, this effect may only be temporary as research has documented that bullies may not be deterred by retaliation and victims who use aggressive coping tend to have high levels of anger and emotional distress (Perry, Williard, & Perry, 1990; Camodeca & Goossens, 2005b).

All in all, the effect size for Aggression effects was small, suggesting that aggression may only be a good coping mechanism for some victims and indicating the need for caution in interpreting these results. Further research should try to identify those students who have better outcomes as a result of using aggressive coping to victimization. To our knowledge, no studies have demonstrated the *protective* function of aggressive coping behaviors and beliefs for child and adolescent emotionality; however, research with adults suggests that aggressive and antisocial coping in situations of high stress (as may be the case with peer victimization) actually prevents subsequent angry and anxious feelings (Monnier, Hobfall, Dunahoo, Hulsizer, & Johnson, 1998). Similarly, in situations where “family honor” is at stake, reacting in an aggressive manner is normative and protective of self-esteem in some cultures (Mosquera, Manstead, & Fischer, 2002).

Again divergent from hypothesized associations, supervision and intervention against behavioral misconduct at school did not protect highly victimized students against poor psychological outcomes. It is possible that students may feel more anxious at the prospect of seeking the help of adults and peers because “tattling” may incite further victimization (Pepler, Craig, Ziegler, & Charach, 1994). Yet, students who experienced

minimal victimization and high levels of support and intervention in their school environments fell well below the mean on measures of depression, anxiety, moodiness, and anger. These findings were especially salient for middle school boys. Psychologically, highly victimized boys fared worse when adults and peers actively intervened in their schools through discussions and dissemination of school anti-bullying policies, while those who were minimally victimized responded better to high levels of support and intervention. This finding is remarkable to consider. Upon examination of the items that speak to school climate issues, many address students' understanding of school rules against aggression and perceptions of positive adult and peer influences. None of the items address specific structured intervention programs, those of which may be effective in improving the psychological functioning of students, particularly boys, who are highly victimized. Studies on effective school-based interventions suggest that school-wide support of intervention efforts, rather than individual and inconsistent actions taken by teachers or peers, is crucial to the success of programming (Olweus et al., 1999; Vernberg & Gamm, 2003). The fact is that the belief victims are somehow deserving of bullying or that peer harassment is a normal part of growing up is still prevalent in many school environments (Montada & Lerner, 1998; Vernberg & Gamm, 2003). Some school personnel also see their role as purely educational, even though schools are currently being called on to address a number of student psychosocial problems (Astor, Pitner, & Duncan, 1996). The only way that intervention programming can be effective is for school administrators and teachers to truly believe that schools must do what is necessary to provide safe learning environments and act accordingly together (Farrington, 1993; Morrison, Furlong, & Morrison, 1997).

Few intervention techniques take the critical step of incorporating student perspectives and suggestions (Camodeca & Goossens, 2005a). This could be considered a significant failure on the part of interventions against bullying given that researchers have discovered some students are less likely to seek the help of others and are more comfortable retaliating or trying to problem-solve themselves (Lightner, Bollmer, Harris, Milich, & Scambler, 2000; Mooney, Creeser, & Blatchford, 1991; Salmivalli, Kurhunen, & Lagerspetz, 1996; Shapiro, Baumeister, & Kessler, 1991; Smith, Shu, & Madsen, 2001; Warm, 1997). For example, one researcher demonstrated that students believed boys experience increased teasing by classmates when provided a peer-support intervention to protect against victimization, potentially decreasing the likelihood that male victims would be satisfied with this type of intervention (Cowie, 2000). For those who did not experience a considerable amount of peer victimization in the present study, the mere propagation of rules against misconduct, efforts on the part of school personnel and students to put a stop to bullying, and supervision by adults at school contributed to positive school environments and healthier student psychological functioning. The disparities in these findings related to school climate factors highlight the need to examine differing groups of victimized students, those who are victimized infrequently versus frequently and boys versus girls. Additionally, these findings suggest that efforts on the part of teachers and peers to put a stop to bullying that are not part of an empirically tested intervention program may actually backfire and contribute to the stigmatization of victimized students and subsequent psychosocial dysfunction.

Markedly, victimized girls did not have moderating factors that improved their psychological functioning. Because the type of bullying girls experience tends to be

indirect and based on manipulation of friendships (i.e., relational aggression), it may be harder for friendships and peer activities to consistently serve as a source of positive support for victimized girls (e.g., Horowitz et al., 1995). Therefore, it is comprehensible that factors such as Friendship and Prosocial Activities and Influences would not significantly improve the psychosocial circumstances of victimized girls in middle school. A growing body of literature has begun to identify aggressive students, or bullies, as some of the most popular peers at school (Hawley & Vaughan, 2003; Rose, Swenson, & Waller, 2004). This is especially true for female adolescent aggressors (Rose et al., 2004). With this dynamic occurring in schools, it is quite possible that many peers and school staff would not categorize relational forms of aggression as bullying and therefore not intervene on behalf of victims. In fact, the case may be that aggressive students, whether boys or girls, are somewhat recognized as “leaders” in their peer groups and that any intervention by adults and students could be to the detriment of a victim who must continue to co-exist with their peer group at school.

Implications of the Present Study

The present study has important implications for understanding peer victimization at school and its association with psychosocial and environmental factors. Simply stated, not all victimized students will have problems academically on exams and with class grades. Rather, adolescent boys and girls who are harassed, teased, threatened, and/or attacked at school by classmates *and* have increased depressive, anxious, or angry symptomatology will more likely have difficulties learning and being oriented toward educational goals, which has a negative influence on academic achievement. The relationship between motivation toward academic goals and achievement at school

appears to be significant for students who are less severely or infrequently victimized. Speculatively, those who are highly victimized may more readily come to the attention of teachers and school staff and, therefore, receive extra assistance to ensure their academic performance does not suffer, despite the possibility of co-occurring psychological and motivational difficulties. Given the current emphasis on achievement and academic performance in American public schools (i.e., No Child Left Behind Act, 2001), this is a highly probable hypothesis that needs to be examined in future research.

Moreover, involvement in positive activities with friends and family, limited engagement in aggressive behaviors in general and to cope with this victimization, and supervision and intervention of adults and students at school against bullying, particularly for boys, do not help alleviate some of the emotional and psychological difficulties experienced by victimized students. It is suggested from the present study that many students feel that aggressive techniques are appropriate in response to bullying and anger, probably in lieu of seeking the support of students, teachers, or school policies. This is especially true for victimized boys, who may be more sensitive to the implications of having teachers or school staff drawing attention to their difficulties with peers. Although these effects are small, future research should further investigate these associations between student experiences of victimization and their school environments. School-based prevention and intervention efforts should be modified to address these relationships. Specifically, more anti-bullying programming should incorporate continuous feedback from students to be certain that the strategies taught to prevent victimization and ramifications thereof are effective and feasible to implement for students. Training for teachers, counselors, and school administrators should focus on

preventing adjustment and academic difficulties at school while making certain not to undermine student self-esteem and confidence to appropriately problem-solve peer relationships on their own. Recent findings suggest the need for an ecological approach to addressing the deleterious effects of victimization such that child experiences at home should inform experiences at school and vice versa (Henrich, Schwab-Stone, Fanti, Jones, Ruchkin, 2004). Adolescents likely first learn skills to cope with stressful situations from family members. It is important to have a strong parent-school personnel communication to ensure that the practices modeled for children at home are appropriate for problem-solving at school.

Additionally, researchers should be cautious about the conclusions drawn in the present study. Some of the findings may be tied to the level of victimization that students experienced in the study. Associations among constructs could be very different depending on the level of victimization, and perhaps types of victimization. Future research should examine various levels and types of victimization to guarantee that the relationships in the present study are generalizable.

Limitations of the Present Study

Implications of the present study must be considered in light of several limitations. Overall, the study dealt with cross-sectional data, which limits the ability to make causal conclusions about construct relationships. In particular, the lack of significant mediator and moderator findings may be due to a number of assessment and statistical issues. Overall, the majority of the sample was victimized infrequently, indicating that experiences of overt and indirect aggression typically occurred only once or twice in the last month. According to researchers such as Olweus (1996), the level of

reported incidents identified as victimization in the present study would not necessarily constitute “true” victimization status. As was found in the present study, frequency of victimization had an impact on the relationship between academic motivation and achievement. Previous studies reported that children who are chronically and severely victimized are at the greatest risk for increased psychological difficulties compared with children who do not experience victimization at such levels (Olweus, 1993; Pynoos & Nader, 1988; Singer et al., 1995). Additionally, the Victimization construct was assessed via student-report, which has implications for how victimization by peers is conceptualized in the present study. While the findings are likely generalizable to other samples, what was actually examined was student *perceptions* that they were attacked, threatened, or harassed by their classmates. Much research has been devoted to the inspection of students involved in problem peer situations who viewed themselves as victimized and acted aggressively, but were actually subject to a hostile attribution bias that altered their interpretation of interpersonal relationships (Crick & Dodge, 1994; Dodge & Crick, 1990). Peer, teacher, and even parent report may indicate very different levels of victimization among students. Therefore, it is important for assessments of such behaviors to use a combination of methods and informants, such as self-report and peer nomination, to obtain a more accurate picture of student difficulties (Ladd & Kochenderfer-Ladd, 2002). Furthermore, the Olweus self-report measure requires students to recall the frequency with which they have been bullied over several months during the academic year. Students may have trouble accurately remembering bullying incidents, as well as little desire to label their difficulties with peers as “victimization,”

despite being provided with a detailed definition that indicates which behaviors constitute bullying.

Although the sample of students used in the analyses ($N = 327$) was selected randomly from the middle school population, it is considerably smaller than the total sample from the entire 2002-2003 district-wide assessment ($N = 4272$). Because the assessment typically spanned two class periods, some classrooms and teachers did not have the resources to participate. Moreover, the sample consisted primarily of Caucasian students in rural and suburban communities, raising questions about the generalizability of the present findings. In order to examine hypothesized relationships in structural equation modeling, it was necessary to have multiple measures and indicators of each factor, which significantly limited which participants and data were included. While the remaining sample that had completed data on each measure was adequate enough to assess the mediator hypotheses in structural equation modeling, it was limited in its power to assess moderator and gender differences in which more variables would be included and the models would be examined across samples split by gender. Therefore, a second step of hierarchical regression analyses was conducted. While this two-step method is sufficient to test moderator effects, it is less preferable in comparison with structural equation modeling, which has the ability to account for multiple variances simultaneously rather than serially in a number of step-wise regression models.

Despite compelling theoretical findings, some researchers have been concerned about the minimized power multiple regression may have to detect moderator effects (McClelland & Judd, 1993). This is particularly true of non-experimental field research designs in which distributions of some moderator and predictor variables and their

combined interaction residual variance in the model are limited. In field studies, researchers have little control over the distributions of observed variables, which can be skewed or restricted in some way. As a consequence, the impact of the moderator variance is likely to be small since the interaction residual variance, which tends to be lower in these cases, plays a critical role in calculating effect size. Likewise, undetected and unevaluated covariances may also be responsible for lowering the interaction residual. Because these moderator effects are typically difficult to detect, even minimal effect sizes are worthy of further exploration.

As indicators of the proposed constructs, some of the measures included were not psychometrically strong. Many measures were simply indices aggregated from a series of items on global surveys that assessed certain behaviors of interest in the present study. It is possible that several of these indices, while assessing specific variables, were not sufficiently reliable or valid in measuring the constructs and their associations as proposed. For example, the Academic Motivation construct was significantly, but not strongly, related to Academic Achievement. According to prior research, it is likely that the indicators included in the Motivation construct were not equally predictive of achievement outcomes (Ames, 1992). Mastery goals (i.e., School Efficacy) are typically better indicators of achievement than Performance goals (i.e., Learning Difficulties; Ames, 1992; Miller & Byrnes, 2001). Future research could expand upon the present model by examining the predictive differences between types of goal-orientation and motivation variables. Additionally, some variables, such as frequency of discipline referrals or behavioral misconduct, may be appropriately skewed because they do not readily occur often with the average student. In an effort to preserve the natural

experiences of victimized students at school, the ability to detect moderator effects may have been sacrificed for some constructs.

Strengths of the Present Study

Notwithstanding some of the concerns about the present study, there are several strengths. Although there were sample size issues with regard to the moderator analyses, it is notable that for some portion of the investigation enough power existed to examine multiple associations among student and school related constructs using the sophistication of structural equation modeling. Again, structural equation modeling has the ability to account for *and* measure error variances simultaneously that are associated with the measurement of constructs and the validity of pathway associations that other statistical procedures cannot. While roughly 10% of the data was missing from participants in the model, the analyses were likely not significantly impacted given the use of maximum likelihood procedures in structural equation modeling. The ability to measure error and deal well with missing data are considerable strengths for structural equation modeling compared with other techniques used to predict mediational relationships. Additionally, information was collected using multiple informants (student, teacher, and records data) within multiple child domains (individual beliefs and practices, peer relationships, family involvement, school adjustment, and achievement). Using this rich dataset in which multi-informant and multi-domain information was compiled as indicators of constructs in a powerful statistical design, several associations between student victimization and school outcomes that were inconsistent in the previous literature were clarified. The prior finding that victimization is indirectly related to achievement through psychological variables was confirmed, while the relationship

between psychological functioning in victimized students and specific academic constructs (i.e., motivational process and achievement) was revealed. In light of the present findings, it is no longer enough to assume that peer victimization results in poor academic functioning; the mechanism through which grades and standardized test scores are affected for victimized students is by way of negative emotional experiences and limited motivation and focus on academic goals.

Future Directions

Given the scope of the present study and the previous literature, several recommendations for future research can be made. Primarily, because this study used cross-sectional data, the conclusions drawn from the findings are limited. Further research should examine the probability of the relationships among peer victimization and academic, psychological, and behavioral mediators and moderators demonstrated here over time and with other developmental groups. Studies have found that the importance of some moderators in explaining associations between victimization and emotional variables is differential by age (Camodeca & Goossens, 2005a; Hanish et al., 2004). Similarly, gender and culture need to be explored further to understand how victimization and related difficulties may differ between boys and girls and by such factors as ethnicity, community make-up, or economic status. In addition, students experience varying levels, types, and severity of victimization. The present study generally represented a sample of students who are modestly victimized, according to specific criteria in the literature (Olweus, 1996). Post hoc analyses suggest that the academic outcomes of students differ by the frequency of the victimization they experience. More research needs to be conducted in this area to fully disclose these

effects. The low levels of reported victimization may be a function of the method of assessment, primarily student report. Adolescents may have more difficulty accurately defining their relationships with peers, whether as a result of misperception or unwillingness to label themselves a “victim.” Researchers suggest that information should be gathered from multiple individuals, such as students, school personnel, peers, and parents, and through various methods (e.g., self-report, observation, and peer nomination) in order to get the more complete picture of child and adolescent adjustment (Holmbeck et al., 2002; 2003; Ladd & Kochenderfer-Ladd, 2002).

The moderator variables that speak to involvement with family members and friends/peers were not significant in explaining the relationship between victimization and psychological outcomes in the present study. It is possible that these variables may serve a different function than as moderators. Further work should re-examine the conceptual and statistical mechanism by which these constructs may be related to victimization, psychological difficulties, and academic outcomes. Because families serve as an important context for adolescent socialization (Parke, 2004), future studies should systematically examine the association of parenting practices, family functioning, and sibling relationships with victimization at school and academic outcomes. Addressing family contexts also provides vital information for the development of intervention programming that incorporates both home and school environmental factors and optimizes the functioning of children and adolescents (Vernberg & Gamm, 2003).

Interestingly, school climate variables, as defined by adult supervision and intervention and peer support against bullying, had a negative association with the emotional experiences of frequently victimized students. It is impossible to tell from

these climate variables whether structured school-wide intervention programming or an accumulation of individual unstructured responses to peer aggression and misconduct are assessed. It is probable that the school climate construct in the present study is tapping into generally well-intentioned, yet ineffective, strategies that thusly have a detrimental impact of the psychological functioning of highly victimized students. The results related to beliefs about and engagement in aggression behaviors and coping provide insight into which intervention techniques students find effective, predominantly retaliation versus support-seeking. Since there is considerable literature demonstrating that child and adolescent victims of peer harassment who are aggressive and “fight back” have poorer emotional outcomes (e.g., Dill, Vernberg, Fonagy, Twemlow, & Gamm, 2004), the unconventional results in the present study must be confirmed with other samples.

Taken as a whole, it is evident that victimization is related to difficulties at school, but not every victimized student will have poor academic performance. Factors such as psychological symptoms, orientation to achieve, and school and individual responses to bullying have significant interactions with adolescents’ peer relationships and functioning at school. The current findings advance the literature forward by presenting the differential experiences that students have at school with their peers and highlighting aspects that need continuing exploration in order for the understanding of peer aggression and school adjustment to evolve.

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Table 1

Means and Standard Deviations for Constructs (z-scores) and Observed Variables

Construct/Variable	Total		Boys		Girls	
	M	SD	M	SD	M	SD
<i>Victimization</i>	.0003	.849	.111	.967	-.084	.731
Olweus scale	1.47	.474	1.52	.580	1.44	.368
MSHS scale	.458	.524	.527	.579	.406	.472
<i>Psychological Functioning</i>	.005	.724	-.001	-.031	.014	.721
Depression	14.93	10.52	14.85	10.57	15.02	10.52
Anxiety	33.40	8.82	32.16	8.90	34.35	8.66
Anger	21.84	5.01	22.07	5.89	21.66	5.22
Moodiness	7.50	3.10	7.80	3.38	7.26	2.85
<i>Academic Motivation</i>	-.014	.796	-.217	.771	.148	.783
School Efficacy	2.90	.525	2.81	.522	2.97	.519
Goal Orientation	4.07	.724	3.89	.747	4.20	.681
Learning Difficulties (reversed)	3.91	.919	3.79	.982	4.00	.858
<i>Academic Achievement</i>	-.008	.811	-.169	.872	.122	.737
GPA	2.77	.961	2.45	1.04	3.03	.812
FCAT Reading	1766.1	271.95	1735.2	275.36	1791.2	268.08
FCAT Math	1802.6	189.04	1803.6	192.63	1803.5	185.92
<i>Friendship</i>	.0003	.781	-.204	.809	.166	.721
# of Friends	3.10	1.08	3.03	1.15	3.17	1.03
Quality	3.35	.660	3.13	.661	3.54	.603
<i>Prosocial Activities and Influences</i>	-.002	.678	-.103	.649	.080	.693
Family Involvement	3.29	.718	3.31	.706	3.28	.731
Peer Involvement	1.33	.381	1.30	.377	1.35	.383
Friends' Attitudes against Aggression	2.81	.621	2.64	.591	2.95	.612
Friends' Attitudes against Deviant Behavior	3.35	.708	3.29	.717	3.40	.699
<i>Aggression</i>	.006	.746	.163	.826	-.118	.653
Olweus Bullying	1.16	.236	1.20	.297	1.13	.169
MSHS Bullying	.254	.458	.342	.527	.186	.384
Anger Expression	43.71	8.90	44.78	9.33	42.89	8.48
Aggression Coping Beliefs	2.10	.652	2.32	.649	1.93	.606
Aggressive Coping Behaviors	.846	.429	.836	.428	.854	.432
<i>Teacher-Reported Difficulties</i>	-.009	.855	.238	.921	-.203	.747
Acting-Out	7.25	3.46	8.32	4.00	6.39	2.69
Referrals	1.92	3.41	2.81	3.74	1.23	2.95
Bullied by Others	1.30	.685	1.48	.850	1.17	.481
<i>Climate</i>	-.003	.781	-.171	.803	.134	.739
Olweus Intervention	2.31	.781	2.22	.806	2.38	.754
MSHS Intervention	2.81	.611	2.72	.631	2.88	.588
Supervision	3.15	.667	2.99	.683	3.28	.628

Note. N = 327 for Total sample, 145 for Boys, and 181 for Girls.

Table 2

Correlations between Variables in the Mediated and Moderated Pathways

Scale	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Olweus Victim		<u>.45</u>	.01	<u>.21</u>	<u>.35</u>	<u>.23</u>	-.02	.03	.01	-.05	-.03	.03	<u>-.15</u>	-.05	.04
2. MSHS Victim			.07	<u>.29</u>	<u>.34</u>	<u>.27</u>	-.13	-.08	-.14	-.13	-.05	-.03	-.01	-.10	<u>.20</u>
3. Moodiness				.05	.10	.12	<u>-.24</u>	<u>-.67</u>	<u>-.20</u>	<u>-.45</u>	-.07	-.02	-.004	-.08	<u>.20</u>
4. Depression					<u>.53</u>	<u>.40</u>	<u>-.30</u>	-.09	<u>-.30</u>	<u>-.22</u>	-.07	-.07	.03	-.03	.09
5. Anxiety						<u>.42</u>	-.03	-.01	-.14	-.03	.08	.03	-.06	.10	.02
6. Anger							<u>-.21</u>	-.06	-.13	-.12	.01	.03	.10	.02	.19
7. Goal Orientation								<u>.21</u>	<u>.46</u>	<u>.40</u>	<u>.16</u>	<u>.12</u>	-.05	<u>.25</u>	<u>-.19</u>
8. Learning (reversed)									<u>.22</u>	<u>.53</u>	<u>.36</u>	<u>.25</u>	-.04	.14	<u>-.21</u>
9. School Efficacy										<u>.23</u>	-.02	-.04	.04	<u>.25</u>	<u>-.15</u>
10. GPA											<u>.37</u>	<u>.36</u>	-.01	.15	-.19
11. FCAT Reading												<u>.65</u>	.03	.09	-.04
12. FCAT Math													-.002	-.01	-.01
13. # of Friends														<u>.22</u>	.03
14. Friendship Quality															-.10
15. Olweus Bullying															
16. MSHS Bullying	.09	<u>.47</u>	<u>.20</u>	.13	.11	<u>.22</u>	<u>-.23</u>	<u>-.19</u>	<u>-.23</u>	<u>-.20</u>	-.08	-.01	.02	-.18	<u>.48</u>
17. Anger Expression	-.04	.13	<u>.29</u>	<u>.18</u>	.05	<u>.40</u>	<u>.35</u>	<u>-.33</u>	<u>-.24</u>	<u>-.29</u>	<u>-.18</u>	-.12	.06	-.14	<u>.41</u>
18. Aggressive Coping Beliefs	-.02	<u>.24</u>	<u>.26</u>	.11	.03	<u>.23</u>	<u>-.33</u>	<u>-.27</u>	<u>-.43</u>	<u>-.30</u>	-.02	.08	.07	<u>-.29</u>	<u>.36</u>
19. Aggressive Coping Behaviors	.06	<u>.38</u>	.11	<u>.16</u>	<u>.20</u>	<u>.30</u>	<u>-.20</u>	-.14	<u>-.27</u>	-.10	.05	.05	.09	-.05	<u>.41</u>
20. Olweus Intervention	-.05	-.07	-.07	-.11	.03	.02	<u>.29</u>	.01	<u>.27</u>	.07	-.01	-.04	.08	.15	-.06
21. MSHS Intervention	-.08	<u>-.27</u>	<u>-.21</u>	<u>-.28</u>	-.10	-.09	<u>.46</u>	.12	<u>.55</u>	<u>.19</u>	-.04	-.14	.06	<u>-.18</u>	<u>-.15</u>
22. Adult Supervision	-.08	-.12	.01	<u>-.22</u>	.05	-.06	<u>.32</u>	.00	<u>.31</u>	.04	.02	-.10	.03	<u>.21</u>	-.11
23. AML-R Bullied	<u>.19</u>	.11	<u>.19</u>	.07	.04	.07	-.10	-.13	-.02	<u>-.22</u>	.06	.05	-.08	-.15	.05
24. Referrals	.07	<u>.20</u>	<u>.23</u>	.06	-.03	.09	-.08	<u>-.35</u>	-.10	<u>-.33</u>	-.10	-.08	.04	-.06	.08
25. Acting-Out	.05	.17	<u>.70</u>	-.04	-.05	.15	<u>-.19</u>	<u>-.63</u>	-.15	<u>-.42</u>	-.16	.09	.06	-.10	<u>.31</u>
26. Friends' Aggressive Attitudes (rev.)	-.07	<u>-.25</u>	<u>-.18</u>	<u>-.22</u>	-.11	<u>-.16</u>	<u>.37</u>	<u>.21</u>	<u>.50</u>	<u>.24</u>	.02	-.04	.09	<u>.36</u>	<u>-.31</u>
27. Friends' Deviant Behavior Attitudes (rev.)	-.06	<u>-.17</u>	<u>-.18</u>	<u>-.19</u>	-.04	<u>-.14</u>	<u>.30</u>	<u>.24</u>	<u>.40</u>	<u>.19</u>	-.01	-.08	.02	<u>.25</u>	<u>-.18</u>
28. Family Involvement	-.01	<u>-.18</u>	-.15	<u>-.31</u>	<u>-.16</u>	<u>-.24</u>	<u>.35</u>	.16	<u>.49</u>	<u>.20</u>	-.05	-.04	-.06	<u>.18</u>	-.12
29. Peer Involvement	.10	.03	-.04	.01	.04	.03	<u>.17</u>	.06	<u>.27</u>	<u>.15</u>	.07	.12	.04	.14	-.03

Note. Ns range from 268 to 327. MSHS = Middle School/High School Student Survey. AML-R = Acting-Out, Moodiness, and Learning Scale Revised. GPA = Grade Point Average. FCAT = Florida Comprehensive Achievement Tests. Bold correlations are significant at $p < .05$. Underlined correlations are significant at $p < .01$.

Table 2 (continued)

Correlations between Variables in the Mediated and Moderated Pathways

Scale	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.
1. Olweus Victim	.09	-.04	-.02	.06	-.05	-.08	-.08	<u>.19</u>	.07	.05	-.07	-.06	-.01	.10
2. MSHS Victim	<u>.47</u>	.13	<u>.24</u>	<u>.38</u>	-.07	<u>-.27</u>	-.12	.11	<u>.20</u>	.17	<u>-.25</u>	<u>-.17</u>	<u>-.18</u>	.03
3. Moodiness	<u>.20</u>	<u>.29</u>	<u>.26</u>	.11	-.07	<u>-.21</u>	.01	<u>.19</u>	<u>.28</u>	<u>.70</u>	<u>-.18</u>	<u>-.18</u>	-.15	-.04
4. Depression	.13	<u>.18</u>	.11	<u>.16</u>	<u>-.11</u>	<u>-.28</u>	<u>-.22</u>	.07	.06	-.04	<u>-.22</u>	<u>-.19</u>	<u>-.31</u>	.01
5. Anxiety	.11	.05	.03	<u>.20</u>	.03	-.10	.05	.04	-.03	-.05	-.11	-.04	<u>-.16</u>	.04
6. Anger	<u>.22</u>	<u>.40</u>	<u>.23</u>	<u>.30</u>	.02	-.09	-.06	.07	.09	.15	<u>-.16</u>	<u>-.14</u>	<u>-.24</u>	.03
7. Goal Orientation	<u>-.23</u>	<u>.35</u>	<u>-.33</u>	<u>-.20</u>	<u>.29</u>	<u>.46</u>	<u>-.32</u>	-.10	-.08	<u>-.19</u>	<u>.39</u>	<u>.30</u>	<u>.35</u>	<u>.17</u>
8. Learning (reversed)	<u>-.19</u>	<u>-.33</u>	<u>-.27</u>	-.14	.01	.12	.00	-.13	<u>-.35</u>	<u>-.63</u>	<u>.21</u>	<u>.24</u>	.16	.06
9. School Efficacy	<u>-.23</u>	<u>-.24</u>	<u>-.43</u>	<u>-.27</u>	<u>.27</u>	<u>.55</u>	<u>.31</u>	-.02	-.10	-.15	<u>.50</u>	<u>.40</u>	<u>.49</u>	<u>.27</u>
10. GPA	<u>-.20</u>	<u>-.29</u>	<u>-.30</u>	-.10	.07	.19	.04	<u>-.22</u>	<u>-.33</u>	<u>-.42</u>	<u>.24</u>	<u>.19</u>	<u>.20</u>	<u>.15</u>
11. FCAT Reading	.08	<u>-.18</u>	-.02	.05	-.01	-.04	.02	.06	-.10	-.16	.02	-.01	-.05	.07
12. FCAT Math	-.01	-.12	.08	-.05	-.04	-.14	-.10	.05	-.08	-.09	-.04	-.08	-.04	.12
13. # of Friends	.02	.06	.07	.09	.08	.06	.03	-.08	.04	.06	.09	.02	-.06	.04
14. Friendship Quality	<u>-.18</u>	-.14	<u>-.29</u>	-.05	.15	<u>.29</u>	<u>.21</u>	-.15	-.06	-.10	<u>.36</u>	<u>.25</u>	<u>.18</u>	.14
15. Olweus Bullying	<u>.48</u>	<u>.41</u>	<u>.36</u>	<u>.41</u>	-.06	<u>-.15</u>	-.11	.05	.08	<u>.31</u>	<u>-.31</u>	<u>-.18</u>	-.12	-.03
16. MSHS Bullying		<u>.35</u>	<u>.51</u>	<u>.67</u>	-.07	<u>-.15</u>	-.11	<u>.19</u>	<u>.16</u>	<u>.31</u>	<u>-.44</u>	<u>-.40</u>	<u>-.22</u>	-.11
17. Anger Expression			<u>.41</u>	<u>.32</u>	-.10	<u>-.22</u>	-.11	<u>.20</u>	.13	<u>.33</u>	<u>-.29</u>	<u>-.23</u>	<u>-.26</u>	-.08
18. Aggressive Coping Beliefs				<u>.47</u>	<u>-.17</u>	<u>-.46</u>	<u>-.23</u>	<u>.23</u>	<u>.27</u>	<u>.37</u>	<u>-.65</u>	<u>-.48</u>	<u>-.35</u>	-.13
19. Aggressive Coping Behaviors					-.05	<u>-.25</u>	-.07	.08	.07	<u>.19</u>	<u>-.39</u>	<u>-.28</u>	<u>-.29</u>	.03
20. Olweus Intervention						<u>.48</u>	<u>.33</u>	-.06	.05	-.10	<u>.28</u>	<u>.17</u>	.11	.11
21. MSHS Intervention							<u>.45</u>	-.05	-.13	-.16	<u>.53</u>	<u>.41</u>	<u>.43</u>	<u>.16</u>
22. Adult Supervision								.09	.01	.01	<u>.23</u>	<u>.18</u>	<u>.16</u>	.11
23. AML-R Bullied									<u>.21</u>	<u>.29</u>	-.10	-.18	-.06	-.00
24. Referrals										<u>.45</u>	-.05	<u>-.21</u>	-.10	-.03
25. Acting-Out											<u>-.21</u>	<u>.23</u>	-.08	.02
26. Friends' Aggressive Attitudes (rev.)												<u>.53</u>	<u>.37</u>	.11
27. Friends' Deviant Behavior Attitudes (rev.)													<u>.39</u>	.10
28. Family Involvement														<u>.16</u>
29. Peer Involvement														1.0

Note. Ns range from 268 to 327. MSHS = Middle School/High School Student Survey. AML-R = Acting-Out, Moodiness, and Learning Scale Revised. GPA = Grade Point Average. FCAT = Florida Comprehensive Achievement Tests. Bold correlations are significant at $p < .05$. Underlined correlations are significant at $p < .01$.

Table 3

Correlations between Mediator and Moderator Constructs

Construct	Victimization	Psychological Functioning	Academic Motivation	Academic Achievement	Aggression	Climate (Intervention/Supervision)	Friendship	Teacher Reported Difficulties	Prosocial Activities & Influences
Victimization	Boys	.379**	-.092	-.060	.248**	-.165**	-.114*	.193**	-.123*
	Girls	.402**	-.347**	-.093	.322**	-.156*	.029	.195**	-.256**
Psychological Functioning		.366**							
		-.110	-.369**	.317**	-.424**	.482**	.195**	-.268**	.606**
Academic Motivation		-.027	-.352**						
		-.072	-.130	.280**	-.170**	.036	.070	-.240**	.146**
Academic Achievement		-.006	-.068	.298**					
		.260**	.346**	-.321**	-.179*	-.279**	-.094	.280**	-.511**
Aggression		.190*	.314**	-.482**	-.099				
		-.199*	-.143	.474**	.051	-.196*	.225**	-.084	.453**
Climate (Intervention/Supervision)		-.091	-.180*	.445**	-.051	-.317**			
		-.191*	.121	.103	.004	-.095	.225**	-.055	.244**
Friendship		.025	-.060	.191	.056	-.006	.152*		
		.169*	.287**	-.229**	-.288**	.329**	.042	.037	-.188**
Teacher Reported Difficulties		.171*	.121	-.220**	-.108	.137	-.123	-.031	
		-.105	-.204*	.507**	.130	-.500**	.470**	.157	-.106
Prosocial Activities & Influences		-.117	-.303**	.662**	.122	-.511**	.417**	.276**	-.215**

Note. Ns range from 268 to 327. * significant at $p < .05$; ** significant at $p < .01$. Correlations for the total sample are on the upper diagonal and correlations split by gender (Girls/Boys) are on the lower diagonal.

Table 4

*Hierarchical Regression Analyses Predicting Psychological Functioning from Moderator**Constructs for the Total Sample*

Construct	ΔR^2	B	SE B	β
<u>Model: Friendship</u>				
Step 1: Victimization	.144**	.346	.045	.406**
Step 2: Friendship	.005	.006	.048	.061
Step 3: Victimization x Friendship	.008	.008	.045	.093
<u>Model: Prosocial Activities and Influences</u>				
Step 1: Victimization	.144**	.297	.043	.348**
Step 2: Involvement with Family and Peers	.045**	-.243	.054	-.228**
Step 3: Victimization x Involvement with Family & Peers	.009	.107	.056	.097†
<u>Model: Aggression</u>				
Step 1: Victimization	.144**	.286	.044	.336**
Step 2: Aggression	.056**	.266	.051	.273**
Step 3: Victimization x Aggression	.013*	-.102	.045	-.118*
<u>Model: Teacher-Reported Difficulties</u>				
Step 1: Victimization	.144**	.328	.048	.130**
Step 2: Teacher-Reported Difficulties	.015*	.110	.044	.130*
Step 3: Victimization x Teacher-Reported Difficulties	.005	-.006	.048	-.075
<u>Model: Climate</u>				
Step 1: Victimization	.144**	.341	.045	.399**
Step 2: Climate	.009	-.010	.048	-.103*
Step 3: Victimization x Climate	.018**	.139	.052	.141**

Note. N = 327. * = significant at $p = .05$. ** = significant at $p = .01$. † indicates marginal significance, p

< .06. Beta weights are reported from Step 3 in the regression models.

Table 5

*Hierarchical Regression Analyses Predicting Psychological Functioning from Moderator**Constructs for Boys*

Construct	ΔR^2	B	SE B	β
<u>Model: Friendship</u>				
Step 1: Victimization	.161**	.381	.065	.506**
Step 2: Friendship	.040**	.161	.070	.178*
Step 3: Victimization x Friendship	.015	.009	.057	.143
<u>Model: Prosocial Activities and Influences</u>				
Step 1: Victimization	.161**	.307	.058	.407**
Step 2: Involvement with Family and Peers	.027*	-.218	.087	-.194*
Step 3: Victimization x Involvement with Family & Peers	.019	.149	.081	.143
<u>Model: Aggression</u>				
Step 1: Victimization	.161**	.280	.060	.371**
Step 2: Aggression	.063**	.256	.070	.288**
Step 3: Victimization x Aggression	.012	-.008	.052	-.122
<u>Model: Teacher-Reported Difficulties</u>				
Step 1: Victimization	.161**	.307	.065	.407**
Step 2: Teacher-Reported Difficulties	.049**	.187	.061	.235**
Step 3: Victimization x Teacher-Reported Difficulties	.007	-.006	.060	-.091
<u>Model: Climate</u>				
Step 1: Victimization	.161**	.389	.064	.514**
Step 2: Climate	.004	-.007	.069	-.076
Step 3: Victimization x Climate	-.059**	.223	.068	.275**

Note. N = 145. * = significant at $p = .05$. ** = significant at $p = .01$. Beta weights are reported from Step

3 in the regression models.

Table 6

*Hierarchical Regression Analyses Predicting Psychological Functioning from Moderator**Constructs for Girls*

Construct	ΔR^2	B	SE B	β
<u>Model: Friendship</u>				
Step 1: Victimization	.134**	.374	.076	.380**
Step 2: Friendship	.005	-.007	.071	-.073
Step 3: Victimization x Friendship	.001	-.004	.105	-.027
<u>Model: Prosocial Activities and Influences</u>				
Step 1: Victimization	.134**	.316	.070	.320**
Step 2: Involvement with Family and Peers	.069**	-.281	.071	-.270**
Step 3: Victimization x Involvement with Family & Peers	.002	.006	.082	.050
<u>Model: Aggression</u>				
Step 1: Victimization	.134**	.284	.070	.288**
Step 2: Aggression	.062**	.316	.079	.286**
Step 3: Victimization x Aggression	.012	-.175	.108	-.116
<u>Model: Teacher-Reported Difficulties</u>				
Step 1: Victimization	.134**	.367	.072	.372**
Step 2: Teacher-Reported Difficulties	.003	.006	.068	.059
Step 3: Victimization x Teacher-Reported Difficulties	.003	-.007	.084	-.061
<u>Model: Climate</u>				
Step 1: Victimization	.134**	.348	.069	.353**
Step 2: Climate	.022*	-.144	.068	-.148*
Step 3: Victimization x Climate	.000	-.0002	.089	-.002

Note. N = 181. * = significant at $p = .05$. ** = significant at $p = .01$. Beta weights are reported from Step

3 in the regression models.

Figure Caption

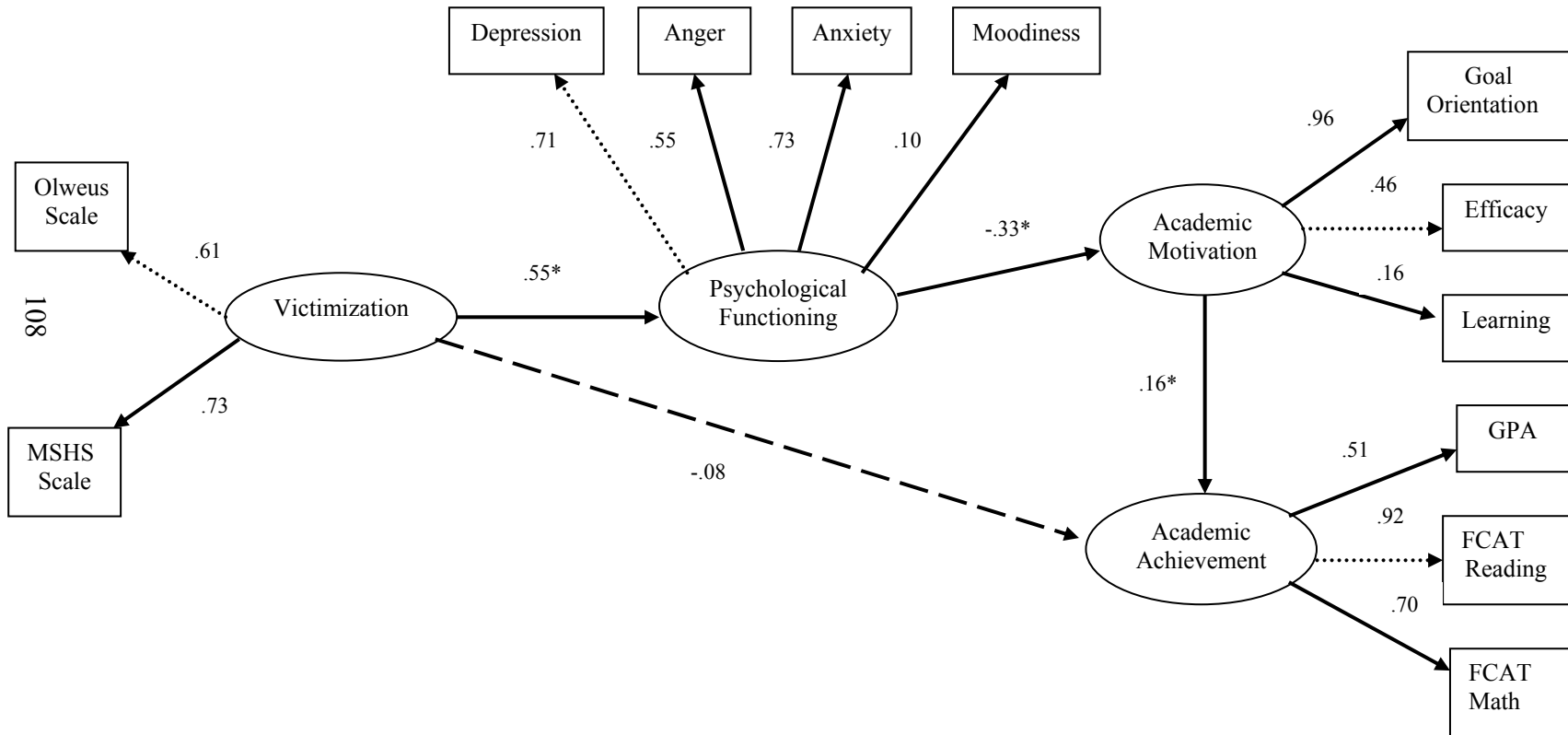
Figure 1. Model with mediated pathway between victimization and academic achievement.

Figure 2. Model with mediated pathway between victimization and academic motivation.

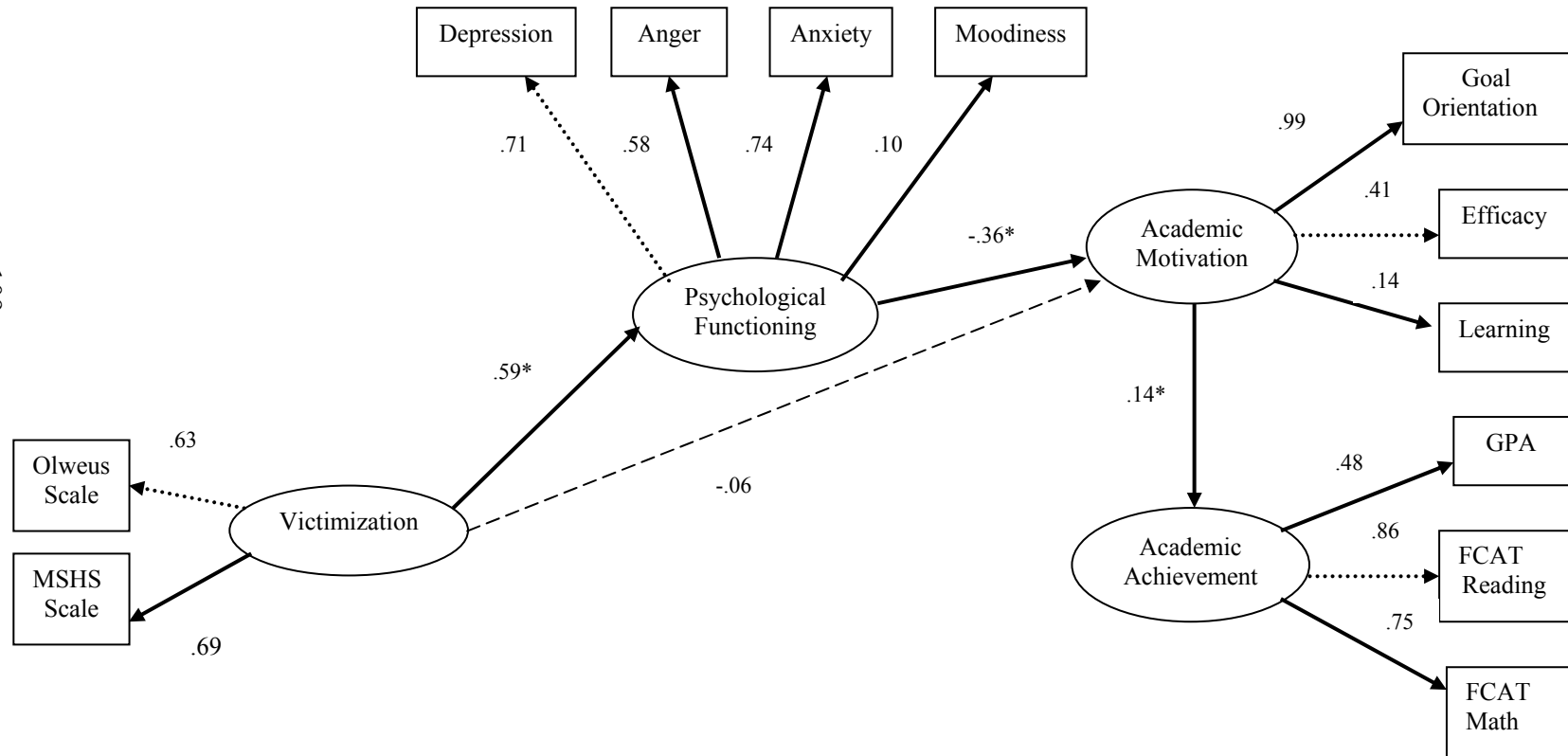
Figure 3. Psychological functioning means at high and low levels of aggression for the total sample.

Figure 4. Psychological functioning means at high and low levels of climate for the total sample.

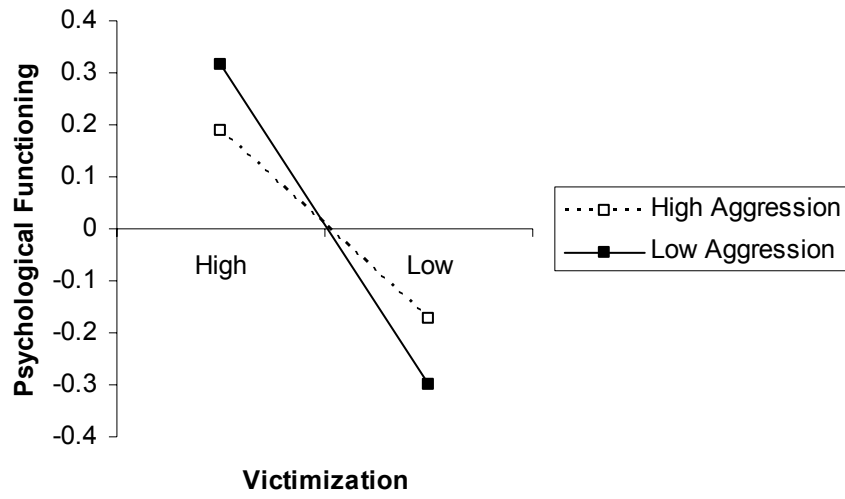
Figure 5. Psychological functioning means at high and low levels of climate for boys.

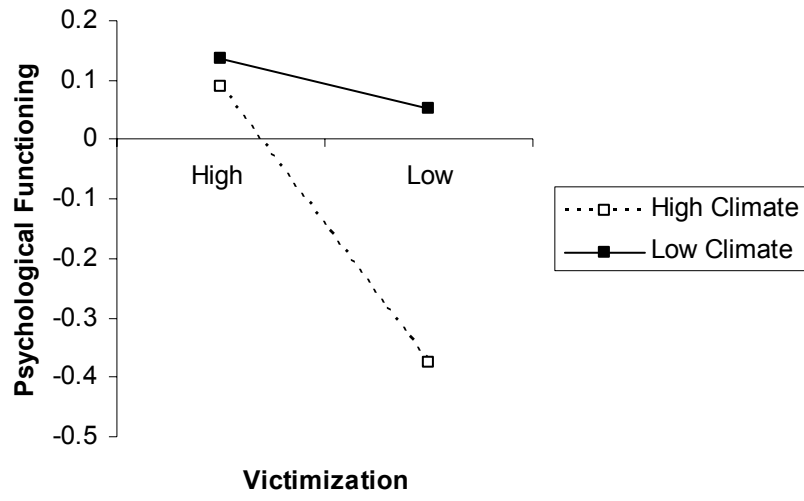


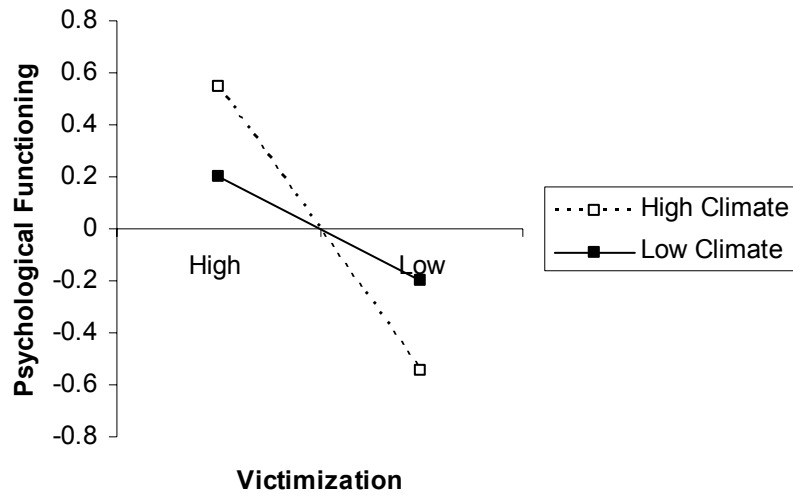
Note. Dotted pathways indicate observed variable estimates (*mle*) fixed at 1.0. The full model includes the dashed pathway, $\chi^2 = 48.37$, $p > .05$. The model absent the dashed pathway is the proposed mediated model, $\chi^2 = 49.11$, $p > .05$. Standardized regression coefficients ($\sqrt{R^2}$) were indicated for variable loadings and pathway estimates.



Note. Dotted pathways indicate observed variable estimates (*mle*) fixed at 1.0. The full model includes the dashed pathway, $\chi^2 = 45.58$, $p > .05$. The model absent the dashed pathway is the proposed mediated model, $\chi^2 = 49.11$, $p > .05$. Standardized regression coefficients ($\sqrt{R^2}$) were indicated for variable loadings and pathway estimates.







Appendices

Appendix A: Independent and Dependent Constructs

Independent Constructs

In the present study, independent variables are defined as those constructs that only initiate a pathway. The following constructs are considered independent variables:

Independent Constructs in the Mediated Pathways

Victimization

Independent Constructs as Hypothesized Moderators

Aggression

Friendship

Climate (Intervention/Supervision)

Involvement with Family and Peers

Teacher Reported Difficulties

Dependent Constructs

Dependent variables are defined as those constructs that are a result of a directional pathway. These variables may also initiate pathways, as is the case with mediator variables.

Dependent Constructs in the Mediated Pathways

Academic Achievement

Dependent Constructs as Hypothesized Mediators

Psychological Functioning

Academic Motivation

Appendix B: Constructs for Hypothesized Model

VICTIMIZATION

Indicators:

Olweus Bully/Victim Questionnaire Victim Items (factor loading = .764)

- I was called mean names, was made fun of, or teased in a hurtful way
- Other student left me out of things on purpose, excluded me from their group of friends, or completely ignored me
- I was hit, kicked, pushed, shoved around, or locked indoors
- Other students lied or spread false rumors about me and tried to make others dislike me
- I had money or other things taken from me or damaged
- I was threatened or forced to do things I didn't want to do
- I was bullied with mean names or comments about my race or color
- I was bullied with mean names, comments, or gestures with a sexual meaning
- I was bullied in another way

Middle School/High School Student Survey Victim Items (factor loading = .648)

- Another student encouraged me to fight
- Another student pushed, shoved, slapped, or kicked me
- I was harassed by another student
- Another student threatened to hit or hurt me
- A classmate acted "cold" towards me or gave me the silent treatment
- A classmate deliberately kept me out of their group because they were angry with me
- A classmate said bad things about me to hurt my reputation or my friendships with others
- Other students "ganged up" against me and were mean to me as a group

PSYCHOLOGICAL FUNCTIONING

Indicators:

AML-R Teacher Form Moodiness Scale (factor loading = .122)

- Has to be coaxed to play with others
- Is unhappy
- Feels hurt when criticized
- Is moody

CES-Depression Scale (factor loading = .827)

- I was bothered by things that usually don't bother me
- I did not feel like eating; my appetite was poor
- I felt that I was just as good as other people
- I had trouble keeping my mind on what I was doing
- I felt depressed

Appendix B (Continued)

- I felt that everything I did was an effort
- I felt hopeful about the future
- I thought my life had been a failure
- I felt fearful
- My sleep was restless
- I was happy
- I talked less than usual
- I felt lonely
- People were unfriendly
- I enjoyed life
- I had crying spells
- I felt sad
- I felt that people disliked me
- I could not get “going”
- I felt that I could not shake off the blues even with help from my family or friends

Trait Anxiety Scale (factor loading = .763)

- I worry about making mistakes
- I feel like crying
- I feel unhappy
- I have trouble making up my mind
- It is difficult for me to face my problems
- I worry too much
- I get upset at home
- I am shy
- I feel troubled
- Unimportant thoughts run through my mind and bother me
- I worry about school
- I have trouble deciding what to do
- I notice my heart beats fast
- I am secretly afraid
- I worry about my parents
- My hands get sweaty
- I worry about things that may happen
- It is hard for me to fall asleep at night
- I get a funny feeling in my stomach
- I worry about what others think of me

Trait Anger Scale (factor loading = .665)

- I am annoyed
- I feel annoyed when I do a good job and no one notices me

Appendix B (Continued)

- I get mad when I am punished unfairly
- I feel grouchy
- I get mad
- I get angry when I do well and am told I did something wrong
- I feel angry when I'm blamed for something I did not do
- I am hotheaded
- I get angry quickly
- I feel like yelling when I do something good and someone says I did bad
- I get furious when scolded in front of others
- I feel angry

ACADEMIC MOTIVATION

Indicators:

School Adjustment Scale Goal-Orientation (factor loading = .508)

- I try as hard as I can to do my best at school
- It bothers me when I don't do something well
- Education is important for success in life
- I feel prepared for middle school
- I think I will go to college

AML-R Teacher Form Learning Scale (reverse scored; factor loading < .10)

- is confused with schoolwork
- gets off-task
- needs help with schoolwork
- has difficulty learning

School Efficacy (factor loading = .597)

- Middle School/High School Survey
 - I do things that make a difference at my school
 - At school, I help decide things like class activities and rules
 - If I study hard, I will get good grade
 - If I really want to achieve something at school, I know I can do it

ACADEMIC ACHIEVEMENT

Indicators:

Grade Point Average (factor loading = .413)

- Middle School Course Grades

Standardized Test Scores

- FCAT Reading Scores (factor loading = .864)
- FCAT Math Scores (factor loading = .838)

Appendix B (Continued)

FRIENDSHIP

Indicators:

Number of Friends (factor loading = .820)

- Demographic Inventory
 - How many good friends do you have at school?

Friendship Quality (factor loading = .591)

- Middle School/High School Student Survey
 - I have a friend my age who cares about me
 - I spend most of my free time at school with my friends

AGGRESSION

Indicators:

Olweus Bully/Victim Questionnaire Bullying Items (factor loading = .759)

- I called another student mean names, made fun of or teased him/her in a hurtful way
- I kept him or her out of things on purpose, excluded him or her from my group of friends, or completely ignored him or her
- I hit, kicked, pushed, shoved around, or locked him/her indoors
- I spread false rumors about him/her and tried to make others dislike him/her
- I took money or other things from him/her or damaged his/her belongings
- I threatened or forced him/her to do things he/she didn't want to do
- I bullied him/her with mean names or comments about his/her race or color
- I bullied him/her with mean names, comments, or gestures with a sexual meaning
- I bullied him/her in another way

Middle School/High School Survey Bullying Items (factor loading = .731)

- I encouraged other students to fight
- I pushed, shoved, or kicked other students
- I harassed another student
- I threatened to hit or hurt another student
- I said bad things about someone to hurt their reputation or their friendships with others
- I "ganged up" with other students and we did mean things to another kid

Anger Expression Scale (factor loading = .577)

- I am patient with others
- If I don't like someone, I keep it a secret
- I try to calm my angry feelings
- I keep my cool
- I hide my anger

Appendix B (Continued)

- I try to relax
- I don't tell anyone I'm angry
- I keep my anger in
- I try to calm down
- I control my temper
- I have more anger than I show
- I take a deep breath
- I control my angry feelings
- I am afraid to show my anger
- I try to reduce my anger
- I stop myself from losing my temper
- I get mad inside, but I don't show it
- I do something to relax and calm down
- I show my anger
- I say mean things
- I lose my temper
- I get into arguments
- I get into fights
- I do things like slam doors

Beliefs about Aggressive Coping (factor loading = .443)

- Middle School/High School Survey
 - It is OK to push or shove other people around if you're mad
 - It is OK to take your anger out on others by using physical force
 - I think it is OK to hit someone back if they hit you first

Aggressive Coping Behaviors (factor loading = .722)

- Middle School/High School Survey
 - I walked away from a fight
 - I got into a physical fight to get something I wanted from another student
 - I was mean to someone when I was angry
 - I acted "cold" toward someone or gave them the silent treatment when I was angry at them
 - I deliberately kept someone out of my group because I was angry at them

PROSOCIAL ACTIVITIES AND INFLUENCES

Indicators:

Family Involvement (factor loading = .588)

- Middle School/High School Survey
 - I like to do things with my family
 - I have dinner with my family

Appendix B (Continued)

Peer Involvement (factor loading < .10)

- Middle School/High School Survey
 - I am involved in clubs at my school
 - I am involved in sports teams at my school
 - I am involved in other activities at school
 - I am involved in clubs (like Boy Scouts/Girl Scouts), sports teams, church groups or other activities outside of school

Friends Attitudes toward Aggression (reverse scored; factor loading = .579)

- Middle School/High School Student Survey
 - My friends think it is wrong to hit other people
 - My friends think it is OK to yell at others and say mean things
 - My friends think it is OK to push or shove other people if you are mad
 - My friends think it is OK to physically fight to get what you want
 - My friends think it is wrong to call other people mean names
 - My friends think it is wrong to get into physical fights (like hitting or pushing) with others
 - My friends think it is OK to hit someone back when they hit you first
 - My friends think it is OK to take your anger out on others by using physical force (like hitting or pushing)

Friends Attitudes toward Deviant Behaviors (reverse scored; factor loading = .721)

- Middle School/High School Student Survey
 - My friends think it is OK to drink alcohol
 - My friends drink to get drunk
 - My friends think using drugs is a dumb idea
 - My friends think it is OK to smoke cigarettes

CLIMATE (INTERVENTION/SUPERVISION)

Indicators:

Olweus Bully/Victim Questionnaire (factor loading = .758)

- How often do the teachers or other adults at school try to put a stop to it when a student is being bullied at school
- How often do other students try to put a stop to it when a student is being bullied at school
- Has your classroom teacher or any teacher talked with you about your bullying other students at school in the past couple of months
- Overall, how much do you think your class teacher has done to counteract bullying in the past couple of months

Middle School/High School Survey (factor loading = .747)

- Adults at my school teach us not to pick on other students

Appendix B (Continued)

- Adults at my school try hard to keep students from bullying or picking on each other
- All students at my school who break the rules are treated the same, no matter who they are
- When someone breaks the rules here, administrators take appropriate action
- Students in my school obey the rules

Adult Supervision at School (factor loading = .558)

- In my school, teachers and administrators are in the hall when we change classes
- In my school, teachers and administrators are in the halls when we are in classes
- In my classroom, teachers walk around while students are working
- In my school, teachers and administrators supervise open areas where students gather
- In my school, teachers and administrators supervise the places where students can hide

TEACHER-REPORTED DIFFICULTIES

Indicators:

Teacher Form Global Bullied Item (factor loading = .582)

- This child has been bullied at school in the past couple of months

Records Data Referrals (factor loading = .548)

- Discipline infractions averaged across the school year for each student

AML-R Teacher Form Acting-Out Scale (factor loading = .810)

- Gets into fights or quarrels with classmates
- Is restless
- Disrupts class discipline
- Is impulsive

Appendix C: Olweus Bully/Victim Questionnaire

You will find questions about your life in school. There are several answers next to each question. Each answer has a number by it. Darken in the circle on the scantron form that matches the answer that best describes you for each statement.

Here are some questions about being bullied by other students. First, we define or explain the word bullying. We say a student is being bullied when another student, or several other students:

- Say mean and hurtful things or make fun of him or her or call him or her hurtful names
- Completely ignore or exclude him or her from their group of friends or leave him or her out of things on purpose
- Hit, kick, push, shove around, or lock him or her inside a room
- Tell lies or spread false rumors about him or her or send mean notes and try to make other students dislike him or her
- And other hurtful things like that, including being teased in a mean and hurtful way.

When we talk about bullying, these things happen repeatedly, and it is difficult for the student being bullied to defend himself or herself. Note that we also call it bullying when a student is teased repeatedly in a mean and hurtful way.

But, we don't call it bullying when the teasing is done in a friendly and playful way. Also, it is not bullying when students of about equal strength or power argue or fight.

ABOUT BEING BULLIED BY OTHER STUDENTS

Have you been bullied at school in the past couple of months in one or more of the following ways? Please answer all of the questions.

	I haven't been bullied in the past couple of months	It has only happened once or twice	2 or 3 times a month	About once a week	Several times a week
4. How often have you been bullied at school in the past couple of months?	1	2	3	4	5

Appendix C (Continued)

5. I was called mean names, was made fun of, or teased in a hurtful way.	1	2	3	4	5
7. I was hit, kicked, pushed, shoved around, or locked indoors.	1	2	3	4	5
8. Other students told lies or spread false rumors about me and tried to make others dislike me.	1	2	3	4	5
9. I had money or other things taken away from me or damaged.	1	2	3	4	5
10. I was threatened or forced to do things I didn't want to do.	1	2	3	4	5
11. I was bullied with mean names or comments about my race or color.	1	2	3	4	5
12. I was bullied with mean names, comments, or gestures with a sexual meaning.	1	2	3	4	5
13. I was bullied in another way.					
In this case, please write where: _____	1	2	3	4	5

14. In which classes is the student or students who bully you?

I haven't been bullied in the last couple of months	In my class	In a different class but same grade	In a higher grade	In a lower grade	In different grades
1	2	3	4	5	6

Appendix C (continued)

15. Have you been bullied by boys or girls?

I haven't been bullied in the last couple of months	Mainly by one girl	By several girls	Mainly by one boy	By several boys	By both boys and girls
1	2	3	4	5	6

16. By how many students have you usually been bullied?

I haven't been bullied in the last couple of months	Mainly by one student	By a group of 2-3 students	By a group of 4-9 students	By a group of more than 9 students	By several different students of groups
1	2	3	4	5	6

17. How long has the bullying lasted?

I haven't been bullied in the last couple of months	It lasted one or two weeks	It lasted about a month	It has lasted about 6 months	It has lasted about a year	It has gone on for several years
1	2	3	4	5	6

I haven't been bullied in the last couple of months

I have been bullied in one or more of the following places in the past couple of months

18. Where have you been bullied?

1

2

Continue here if you have been bullied in the past couple of months:

Have you been bullied:

	<u>No</u>	<u>Yes</u>
18a. on the playground/athletic field (during recess or break times)?	1	2
18b. in the hallways/stairwells?	1	2

Appendix C (Continued)

18c. in class (with the teacher present)?	1	2
18d. in the classroom (without the teacher present)?	1	2
18e. in the bathroom?	1	2
18f. in gym class or the gym locker room/shower?	1	2
18g. in the lunch room?	1	2
18h. on the way to and from school?	1	2
18i. at the school bus stop?	1	2
18j. on the school bus?	1	2
18k. somewhere else in school?		
In this case, please write where: _____	1	2

	I haven't been bullied in the last couple of months (skip the next 6 questions)	I have been bullied but I have not told anyone (skip the next 6 questions)	I have been bullied and I have told somebody
19. Have you told anyone that you have been bullied at school in the past couple of months?	1	2	3

Have you told (that you have been bullied):

	<u>No</u>	<u>Yes</u>
19a. your class (homeroom) teacher?	1	2
19b. another adult at school (a different teacher, the principal, the school nurse, the custodian, the school psychologist, etc.)?	1	2
19c. your parents/guardians?	1	2
19d. your brothers or sisters?	1	2
19e. your friends?	1	2
19f. somebody else?		
In this case, please write who: _____	1	2

	<u>Almost Never</u>	<u>Once in a while</u>	<u>Some-times</u>	<u>Often</u>	<u>Almost Always</u>
20. How often do the teachers or other adults try to put a stop to it when a student is being bullied at school?	1	2	3	4	5
21. How often do other students try to put a stop to it when a student is being bullied at school?	1	2	3	4	5

Appendix C (Continued)

	I haven't been bullied in the last couple of months	No, they haven't contacted the school	Yes, they have contacted the school once	Yes they have contacted the school several times
22. Has any adult at home contacted the school to try to stop your being bullied at school in the past couple of months?	1	2	3	4
	That is probably what he or she deserves	I don't feel much	I feel a bit sorry for him or her	I feel sorry for him or her and want to help him or her
23. When you see a student your age being bullied at school, what do you feel or think?	1	2	3	4

ABOUT BULLYING OTHER STUDENTS

	I haven't bullied another student(s) in the past couple of months	It has only happened once or twice	2 or 3 times a month	About once a week	Several times a week
24. How often have you taken part in bullying another student(s) at school in the past couple of months?	1	2	3	4	5

Appendix C (Continued)

Have you bullied another student(s) at school in the past couple of months in one or more of the following ways? Please answer all of the questions.

	I haven't bullied another student(s) in the past couple of months	It has only happened once or twice	2 or 3 times a month	About once a week	Several times a week
25. I called another student mean names, made fun of or teased him or her in a hurtful way.	1	2	3	4	5
26. I kept him or her out of things on purpose, excluded him or her from their group of friends, or completely ignored him or her.	1	2	3	4	5
27. I hit, kicked, pushed, shoved him or her around or locked him or her indoors.	1	2	3	4	5
28. I spread false rumors about him or her and tried to make others dislike him or her.	1	2	3	4	5
29. I took money or other things from him or her or damaged his or her belongings.	1	2	3	4	5
30. I threatened or forced him or her to do things he or she didn't want to do.	1	2	3	4	5
31. I bullied him or her with mean names or comments about his or her race or color.	1	2	3	4	5
32. I bullied him or her with mean names, comments, or gestures with a sexual meaning.	1	2	3	4	5

Appendix C (Continued)

33. I bullied him or her in another way.

In this case, please write in what way: _____

1 2 3 4 5

I haven't bullied other student(s) at school in the past couple of months **No, they haven't walked with me about it** **Yes, they have talked with me about it once** **Yes, they have talked with me about it several times**

34. Has your class (homeroom) teacher talked with you about your bullying other students at school in the past couple of months?

1 2 3 4

35. Has any adult at home talked with you about your bullying other students at school in the past couple of months?

1 2 3 4

Yes **Yes, maybe** **I don't know** **No, I don't think so** **No** **Definitely No**

36. Do you think you could join in bullying a student whom you didn't like?

1 2 3 4 5 6

I have never noticed that students my age are bullied **I take part in the bullying** **I don't do anything but I think the bullying is OK** **I just watch what goes on** **I don't do anything but I think I ought to help the bullied student** **I try to help the bullied student in one way or another**

37. How do you usually react if you see or understand that a student your age is being bullied by other students?

1 2 3 4 5 6

Appendix C (Continued)

	Never	Seldom	Some- times	Fairly Often	Often	Very Often
38. How often are you afraid of being bullied by other students in your school?	1	2	3	4	5	6
		Little or Nothing	Fairly Little	Some- what	A good deal	Much
39. Overall, how much do you think your class teacher has done to counteract bullying in the past couple of months?		1	2	3	4	5

Appendix D: Center for Epidemiological Studies-Depression Scale (CES-D)

DIRECTIONS: For each statement below, darken in the circle on the scantron form for the number that best describes how often you felt or behaved this way for each following statement-**DURING THE PAST WEEK.**

	Rarely or none of the time (Less than 1 day)	Some or a little of the time (1-2 Days)	Occasionally or a moderate amount of time (3-4 Days)	Most or all of the time (5-7 Days)
DURING THE PAST WEEK:				
1. I was bothered by things that usually don't bother me	0	1	2	3
2. I did not feel like eating; my appetite was poor	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family or friends	0	1	2	3
4. I felt that I was just as good as other people	0	1	2	3
5. I had trouble keeping my mind on what I was doing	0	1	2	3
6. I felt depressed	0	1	2	3
7. I felt that everything I did was an effort	0	1	2	3
8. I felt hopeful about the future	0	1	2	3
9. I thought my life had been a failure	0	1	2	3
10. I felt fearful	0	1	2	3
11. My sleep was restless	0	1	2	3
12. I was happy	0	1	2	3
13. I talked less than usual	0	1	2	3
14. I felt lonely	0	1	2	3
15. People were unfriendly	0	1	2	3
16. I enjoyed life	0	1	2	3
17. I had crying spells	0	1	2	3
18. I felt sad	0	1	2	3
19. I felt that people disliked me	0	1	2	3
20. I could not get "going"	0	1	2	3

Appendix E: State-Trait Anxiety Inventory for Children (STAIC)

Trait Anxiety Scale items:

DIRECTIONS: A number of statements that boys and girls use to describe themselves are given below. Read each statement carefully and decide if it is hardly ever, sometimes, or often true for you. Then darken the scantron circle with the same number as the statement that describes you best. There are no right or wrong answers. Do not spend too much time on any one statement. Remember to darken the circle for each statement that best describes how you *usually feel*.

	<u>Hardly Ever</u>	<u>Sometimes</u>	<u>Often</u>
1. I worry about making mistakes.	1	2	3
2. I feel like crying.	1	2	3
3. I feel unhappy.	1	2	3
4. I have trouble making up my mind.	1	2	3
5. It is difficult for me to face my problems.	1	2	3
6. I worry too much.	1	2	3
7. I get upset at home.	1	2	3
8. I am shy.	1	2	3
9. I feel troubled.	1	2	3
10. Unimportant thoughts run through my mind and bother me.	1	2	3
11. I worry about school.	1	2	3
12. I have trouble deciding what to do.	1	2	3
13. I notice my heart beats fast.	1	2	3
14. I am secretly afraid.	1	2	3
15. I worry about my parents.	1	2	3
16. My hands get sweaty.	1	2	3
17. I worry about things that may happen.	1	2	3
18. It is hard for me to fall asleep at night.	1	2	3
19. I get a funny feeling in my stomach.	1	2	3
20. I worry about what others think of me.	1	2	3

Appendix F: State-Trait Anger Expression Inventory for Children and Adolescents
(STAXI-C/A)

DIRECTIONS: A number of statements that boys and girls use to describe themselves are given below. Read each statement carefully and decide if it is hardly ever, sometimes, or often true for you. Then darken the scantron circle with the same number as the statement that describes you best. There are no right or wrong answers. Do not spend too much time on any one statement. Remember to darken the circle for each statement that best describes how you *usually feel*.

	<u>Hardly Ever</u>	<u>Sometimes</u>	<u>Often</u>
1. I am annoyed.	1	2	3
2. I feel annoyed when I do a good job and no one notices me.	1	2	3
3. I get mad when I am punished unfairly.	1	2	3
4. I feel grouchy.	1	2	3
5. I get mad.	1	2	3
6. I get angry when I do well and am told I did something wrong.	1	2	3
7. I feel angry when I'm blamed for something I did not do.	1	2	3
8. I am hotheaded.	1	2	3
9. I get angry quickly.	1	2	3
10. I feel like yelling when I do something good and someone says I did bad.	1	2	3
11. I get furious when scolded in front of others.	1	2	3
12. I feel angry.	1	2	3

DIRECTIONS: A number of statements that boys and girls use to describe themselves are given below. Read each statement carefully and decide if it is hardly ever, sometimes, or often true for you. Then darken the scantron circle with the same number as the statement which describes how you respond or behave when you are angry or very angry. There are no right or wrong answers. Do not spend too much time on any one statement. Remember to darken the circle on the scantron form for the answer that best describes how you *usually respond or behave* when angry or very angry.

	<u>Hardly Ever</u>	<u>Sometimes</u>	<u>Often</u>
13. I am patient with others.	1	2	3
14. I show my anger.	1	2	3
15. If I don't like someone, I keep it a secret.	1	2	3
16. I try to calm my angry feelings.	1	2	3
17. I keep cool.	1	2	3
18. I say mean things.	1	2	3
19. I hide my anger.	1	2	3

Appendix F (Continued)

20. I try to relax.	1	2	3
21. I don't tell anyone I am angry.	1	2	3
22. I lose my temper.	1	2	3
23. I keep my anger in.	1	2	3
24. I try to calm down.	1	2	3
25. I control my temper.	1	2	3
26. I get into arguments.	1	2	3
27. I have more anger than I show.	1	2	3
28. I take a deep breath.	1	2	3
29. I control my angry feelings.	1	2	3
30. I get into fights.	1	2	3
31. I am afraid to show my anger.	1	2	3
32. I try to reduce my anger.	1	2	3
33. I stop myself from losing my temper.	1	2	3
34. I do things like slam doors.	1	2	3
35. I get mad inside, but don't show it.	1	2	3
36. I do something to relax and calm down.	1	2	3

Appendix G: School Adjustment Survey (SAS)

DIRECTIONS: Read each sentence carefully and darken the circle on the scantron form for the number that sounds most like you for each statement.

	Strongly Disagree	Disagree	I don't know	Agree	Strongly Agree
1. Students usually get along well with each other in this school.	1	2	3	4	5
2. Making friends is very difficult in this school.	1	2	3	4	5
3. I am in the wrong group to feel a part of this school.	1	2	3	4	5
4. A student can be himself/herself and still be accepted by other students in this school.	1	2	3	4	5
5. Most students at school like to include me in their activities.	1	2	3	4	5
6. I always seem to be left out of important school activities.	1	2	3	4	5
7. I think my teachers care about me.	1	2	3	4	5
8. Teachers are not usually available before class to talk with students.	1	2	3	4	5
9. My teachers often get to know me well.	1	2	3	4	5
10. Most teachers like my friends and me.	1	2	3	4	5
11. I care what most of my teachers think about me.	1	2	3	4	5
12. Some teachers would choose me as one of their favorite students.	1	2	3	4	5
13. I like school.	1	2	3	4	5
14. My teachers don't pay much attention to me.	1	2	3	4	5
15. I get a lot of encouragement at my school.	1	2	3	4	5
16. Other kids in my class have more friends than I do.	1	2	3	4	5
17. I feel a sense of school spirit.	1	2	3	4	5
18. I don't feel safe at this school.	1	2	3	4	5

Appendix G (Continued)

	Strongly Disagree	Disagree	I don't know	Agree	Strongly Agree
19. I have friends who are of different racial and ethnic backgrounds at this school.	1	2	3	4	5
20. Discipline is fair at this school.	1	2	3	4	5
21. I feel like I'm learning a lot in school.	1	2	3	4	5
22. School is important to me.	1	2	3	4	5
23. I believe that I'm learning important things in school.	1	2	3	4	5
24. I liked school more last year than I do this year.	1	2	3	4	5
25. I feel that I can go to my teacher for advice or help with schoolwork.	1	2	3	4	5
26. I feel that I can go to my teacher for advice or help with non-school related problems.	1	2	3	4	5
27. Most of my teachers don't really expect very good work from me.	1	2	3	4	5
28. I don't care how well I do in school.	1	2	3	4	5
29. I try as hard as I can to do my best at school.	1	2	3	4	5
30. I am an important member of this school.	1	2	3	4	5
31. It bothers me when I don't do something well.	1	2	3	4	5
32. Education is important for success in life.	1	2	3	4	5
33. I feel prepared for middle school.	1	2	3	4	5
34. I think I will go to college.	1	2	3	4	5

Appendix H: Middle School/High School Student Survey

Questions regarding how students feel about their school and people in school

Each item is rated on a 4-point scale (YES! = always or almost always true for you, yes = usually true for you, no = not usually true for you, and NO! = never or almost never true for you)

1. I like school
2. I look forward to going to school
3. I try hard at school
4. I can't wait to drop out of school
5. I do things that make a difference at my school
6. My school tells my parents when I do a good job
7. My parents come to activities at my school
8. My parents make sure I do my homework
9. My teachers tell me when I do a good job
10. There is gang activity at my school
11. My teachers listen when I have something to say
12. I have a teacher who really cares about me
13. Adults at my school teach us not to pick on other students
14. Adults at my school try hard to keep students from bullying or picking on each other
15. I like my teachers
16. People in my school respect students of all races
17. People of my race can succeed in my school
18. I feel lonely at school
19. There is graffiti at my school
20. There is pressure to join gangs at my school
21. My school building is clean
22. I like the way my school looks
23. Students in my school obey the rules
24. There are gang fights at my school
25. All students at my school who break the rules are treated the same, no matter who they are
26. When someone breaks the rules here, administrators take appropriate action
27. At school, I help decide things like class activities and rules
28. Finishing high school is important to me
29. School is a waste of time
30. If I study hard, I will get better grades
31. If I really want to achieve something at school, I know I can do it
32. I care what my teachers think of me
33. I respect the teachers in my school

Appendix H (Continued)

34. I respect the principal in my school

Questions regarding how safe students feel at school

Each item is rated on a 4-point scale (YES! = always or almost always true for you, yes = usually true for you, no = not usually true for you, and NO! = never or almost never true for you)

35. I feel safe at my school

36. I feel safe on my school bus

37. I feel safe walking to school

38. During the past school year, did you ever stay away from school because you were afraid you would not be safe at school → this item is rated as “yes” or “no” and then asks “how many times” students stayed away from school

39. During the past school year, did you ever stay away from school because you were afraid you would not be safe traveling to school → this item is rated as “yes” or “no” and then asks “how many times” students stayed away from school

Questions regarding students' friends

Each item is rated on a 4-point scale (YES! = always or almost always true for you, yes = usually true for you, no = not usually true for you, and NO! = never or almost never true for you)

40. I have a friend my age who cares about me

41. I spend most of my free time at school with my friends

42. My friends think it is wrong to hit other people

43. My friends think it is OK to yell at others and say mean things

44. My friends think it is OK to push or shove others when (?) you are mad

45. My friends think it is OK to physically fight to get what you want

46. My friends think it is wrong to call other people mean names

47. My friends think it is wrong to get into physical fights (like hitting or pushing) with others

48. My friends think it is OK to hit someone back when they hit you first

49. My friends think it is OK to take your anger out on others by using physical force (like hitting or pushing)

50. My friends think it is OK to drink alcohol

51. My friends drink to get drunk

52. My friends think that using drugs is a dumb idea

53. My friends think that it is OK to smoke cigarettes

Appendix H (Continued)

Questions regarding things that go on an students' schools

The following items are rated as "yes" or "no" and then ask "how many times" students witnessed the activity in the past month.

- 54. I saw other students in a fight
- 55. I saw another student get pushed, shoved, slapped, or kicked
- 56. I saw another student get harassed
- 57. I saw a student threaten to hit or hurt another student at school
- 58. I saw a student with a gun at school
- 59. I saw a student with another weapon (besides a gun)

The following items are rated as "yes" or "no" and then ask "how many times" students participated in the activity in the past month.

- 60. I encourage other students to fight
- 61. I pushed, shoved, slapped, or kicked other students
- 62. I got into a physical fight to get something I want from another student
- 63. I walked away from a fight
- 64. I acted "cold" toward someone or gave them the silent treatment when I was angry at them
- 65. I harassed another student
- 66. I deliberately kept someone out of my group because I was angry at them
- 67. I threatened to hit or hurt another student
- 68. I was mean to someone when I was angry
- 69. I said bad things about someone to hurt their reputation or their friendships with others
- 70. I carried a gun to school
- 71. I "ganged up" with other students and we did mean things to another kid

The following items are rated as "yes" or "no" and then ask "how many times" students experienced the activity in the past month.

- 72. Another student encouraged me to fight
- 73. Another student pushed, shoved, slapped, or kicked me
- 74. I was harassed by another student
- 75. Another student threatened to hit or hurt me
- 76. A classmate acted "cold" towards me or gave me the silent treatment
- 77. A classmate deliberately kept me out of their group because they were angry with me
- 78. A classmate said bad things about me to hurt my reputation or my friendships with others
- 79. Other students "ganged up" against me and were mean to me as a group

Appendix H (Continued)

Questions regarding things that happened at students' schools during the school year

The following items are rated as "yes" or "no" and then ask "how many times" students experienced or participated in the activity during the school year.

- 80. I was in a physical fight on school property
- 81. I was threatened or injured with a weapon such as a gun, knife, or club on school property
- 82. I was in a physical fight on school property in which I was injured and had to be treated by a doctor or nurse

Questions regarding bullying and intimidation at students' schools

The following items are rated on a 4-point scale (None, Few, Some, or Many) during the school year

- 83. How many students in your school often get picked on in a mean way by other students?
- 84. How many students in your school often pick on other students in a mean way?
- 85. How many students at your school are afraid of you because they think you are mean?
- 86. How many students at your school do you pick on often?
- 87. How many students at your school often pick on you in a mean way?
- 88. How many students at your school are you afraid of because they are mean?

Questions regarding drug/alcohol use at students' schools

The following items are rated as "yes" or "no" and then ask "how many times" students witnessed/ participated in the activity during the past month.

- 89. I saw a student smoking on school grounds
- 90. I saw a student using alcohol at school
- 91. I saw a student using illegal drugs at school
- 92. I saw another student selling drugs at school
- 93. I smoked cigarettes
- 94. I drank wine, beer, or other alcohol
- 95. I used marijuana
- 96. I used another illegal drug
- 97. I smoked on school grounds
- 98. I went to class drunk
- 99. I went to class high

Appendix H (Continued)

Questions regarding students' feelings toward hurting others

Each item is rated on a 4-point scale (YES! = always or almost always true for you, yes = usually true for you, no = not usually true for you, and NO! = never or almost never true for you)

- 100. I think it is wrong to hit other people
- 101. It is OK to yell at others and say mean things to them
- 102. It is OK to push or shove other people around if you're mad
- 103. It is wrong to call other people mean names
- 104. It is OK to take your anger out on others by using physical force (like hitting or pushing)
- 105. You have to physically fight to get what you want
- 106. I think it is OK to hit someone back if they hit you first

Questions regarding students' families

Each item is rated on a 4-point scale (YES! = always or almost always true for you, yes = usually true for you, no = not usually true for you, and NO! = never or almost never true for you)

- 107. My parents want me to get good grades
- 108. I can tell my parents the way I feel about things
- 109. I like to do things with my family
- 110. I have dinner with my family
- 111. My family has rules about where I can go and what I can do
- 112. When I'm not home, one of parents knows where I am and who I am with
- 113. My parents limit the amount of TV I watch
- 114. My parents know who my friends are
- 115. My parents notice when I do a good job and let me know
- 116. There will always be people in my life I can count on
- 117. Besides my family, there is an adult who I can trust
- 118. I believe there is some good in everybody

Questions regarding guns

The following items are rated on a 3-point scale (Yes, No, or I Don't Know)

- 119. Do you know where you could get a gun?
- 120. Would it be hard for you to get a gun if you wanted to?

Appendix H (Continued)

Questions regarding students' activities

The following items are rated on a 3-point scale (Yes, No, or I Don't Know)

- 121. There are clubs at my school
- 122. I am involved in clubs at my school
- 123. There are sports teams at my school
- 124. I am involved in sports teams at my school
- 125. There are other activities at my school
- 126. I am involved in other activities at my school
- 127. I am involved in clubs (like Boy Scouts/Girl Scouts), sports teams, church groups, or other activities outside of school
- 128. I go to church or other religious or faith-based activities regularly

Questions regarding students' school attendance

The following items are rated as "yes" or "no" and then ask "how many times" students participated in the activity during the past month.

- 129. I missed school because I was sick
- 130. I missed school because I "cut" or skipped
- 131. I missed school for other reasons

Appendix I: Adult Supervision at School (ASAS)

DIRECTIONS: Read each sentence carefully and darken the circle on the scantron form for the number that sounds most like you for each statement.

	Strongly Disagree	Disagree	I don't know	Agree	Strongly Agree
1. In my school, teachers and administrators are in the hall when we change classes.	1	2	3	4	5
2. In my school, teachers and administrators are in the halls when we are in class.	1	2	3	4	5
3. In my school, there are lots of places where teachers and administrators cannot see what is going on.	1	2	3	4	5
4. In my classroom, teachers walk around while students are working.	1	2	3	4	5
5. In my school, teachers and administrators supervise the open areas where students gather.	1	2	3	4	5
6. In my school, teachers and administrators supervise the places where students can hide.	1	2	3	4	5

Appendix J: Acting-Out, Moodiness, and Learning Scale-Revised (AML-R)

Child's Name: _____ **D.O.B.:** _____

Child's Gender: ___ Male ___ Female

Is this child in Exceptional Education? : ___ Yes ___ No
If yes, please specify

This child is in a: ___ Self-Contained ___ Continuous Progress **-classroom.**

Instructions: Please rate the child's behavior, as you have observed and experienced it since the beginning of school according to the following scale, by circling the appropriate number:

(1) Never - You have literally never observed this behavior in this child.

(2) Seldom - You have observed this behavior once or twice.

(3) Moderately often - You have seen this behavior more often than once a month but less often than once a week.

(4) Often - You have seen this behavior more often than once a week but less often than daily.

(5) Most or all of the time - You have seen this behavior with great frequency, averaging once a day or more often.

This child:

1. gets into fights or quarrels with classmates	1	2	3	4	5
2. has to be coaxed to play or work with peers	1	2	3	4	5
3. is confused with school work	1	2	3	4	5
4. is restless	1	2	3	4	5
5. is unhappy	1	2	3	4	5
6. gets off-task	1	2	3	4	5
7. disrupts class discipline	1	2	3	4	5
8. feels hurt when criticized	1	2	3	4	5
9. needs help with school work	1	2	3	4	5
10. is impulsive	1	2	3	4	5
11. is moody	1	2	3	4	5
12. has difficulty learning	1	2	3	4	5

Appendix J (Continued)

This Child:

	Not in the past couple of months	It has only happened once or twice	2 or 3 times a month	About once a week	Several times a week
13. has been bullied at school in the past couple of months?	1	2	3	4	5
14. has taken part in bullying another student(s) at school in the past couple of months?	1	2	3	4	5

Appendix K: Bullying Definition

Per protocol for the Olweus Bully/Victim Questionnaire, the following definition of bullying was read at each group administration to guide responses and provided in student questionnaire packets:

“We define or explain the word bullying. We say a student is being bullied when another student, or several other students

- Say mean and hurtful things or make fun of him or her or call him or her mean and hurtful names
- Completely ignore or exclude him or her from their group of friends or leave him or her out of things on purpose
- Hit, kick, push, shove around, or lock him or her inside a room
- Tell lies or spread false rumors about him or her or send mean notes and try to make other students dislike him or her
- And other hurtful things like that.

When we talk about bullying, these things happen repeatedly, and it is difficult for the student being bullied to defend himself or herself. We also call it bullying when a student is teased repeatedly in a mean and hurtful way. But we don't call it bullying when the teasing is done in a friendly and playful way. Also, it is not bullying when two students of about equal strength or power argue or fight (Olweus, 1996, p. 3).”

About the Author

Christine M. Wienke Totura graduated from Loyola University Chicago in 2000 with Departmental Honors and a Bachelor of Science degree in Psychology and Criminal Justice. During her undergraduate career, Dr. Totura conducted research on the developmental trajectories of families with children who have pediatric illnesses. Dr. Totura received her Master of Arts degree in Clinical Psychology from the University of South Florida in 2003.

While earning her Ph.D. in Clinical Psychology at the University of South Florida, Dr. Totura was actively involved in research examining peer aggression and victimization in school settings. She presented at several national conferences, co-authored publications, and assisted in the preparation of federally-funded grants. In addition, Dr. Totura provided assessment, therapeutic, and consultative services for children and families in school and community settings. Dr. Totura completed a one-year APA-approved clinical internship in 2006 in which she developed and evaluated behavioral interventions and educational programming in schools.