Exploring the Relationship Between Classroom Characteristics, Student Characteristics and Bullying and Victimization in Junior High School

Maria Di Stasio

Department of Educational and Counselling Psychology

McGill University, Montreal

August, 2014

A thesis submitted to McGill University in partial fulfillment of the requirements of the degree of Doctor of Philosophy in Human Development

Abstract

Bullying in schools is a growing phenomenon and a major problem in many countries (Murray-Harvey, Slee, & Taki, 2010). It is an inter-relational problem influenced by the various contextual factors, arising from interactions between individuals, peer groups, school, family, and community (Espelage & Swearer, 2010). Bullying is widely studied from a socio-ecological perspective yet the complexity of bullying necessitates more than a single theory to understand the influence of the individual, interpersonal, systemic, and structural factors (Mishna, 2012). The conceptual perspective of an ecological systems framework can incorporate a number of theoretical models to explain the underlying mechanisms of factors associated with bullying within each context. The present research examined individual and classroom characteristics based on empirical assumptions in the literature. It tested an explicit classroom peer ecology model proposed by Rodkin and Gest (2011) which highlights teaching practices, peer ecology, and network-related teaching as proximal processes that influence bullying outcomes. The present study used a nested design (n= 38 classrooms; 687 Grade 7 and 8 students) and hierarchical linear modeling to assess different aspects of classroom teaching practices as predictors of bullying perpetration, victimization and social status outcomes. Student characteristics that included language and literacy skills, school connection, social status and social support were examined as individual level predictors. Observer, teacher, and student perceptions were used to assess the instructional and emotional aspects of the classroom environment. Significant variation existed between classrooms for bullying perpetration and victimization (accounting for approximately 7% and 4% of the variation, respectively). Only student perceptions of the classroom measured with subscales of the Student Classroom Environment Measure (SCEM; Midgley, Eccles, & Feldlaufer, 1991) predicted bullying

perpetration and victimization. Social comparison in the classroom was associated with increased bullying perpetration outcomes. There was a positive relationship between competition and victimization outcomes suggesting that increased competition in the classroom influences victimization in the classroom. Teacher-student relationship was also a significant predictor of victimization indicating that better teacher-student relations were associated with decreased victimization. Gender and school connectedness were individual characteristics predicting bullying perpetration and victimization outcomes. Adolescent boys reported more bullying perpetration and victimization than girls. School connectedness was inversely related to bullying perpetration and victimization. Social status was only significantly for bullying perpetration, revealing that a popular status among peers was related with increased bullying perpetration outcomes. This research also examined the impact of classroom environment on social status outcomes exploring how different classroom indices predicted the likelihood of rejected and popular status. The findings of this study support several links of Rodkin and Gest's (2011) conceptual model of the classroom peer ecology. Specifically this research provides evidence for teaching practices associated with bullying perpetration and victimization. Teaching practices also had an influence on the classroom peer ecology (i.e. social status). Social status as a dimension of the peer ecology was related to bullying perpetration outcomes. Implications of this research can guide future intervention and prevention programs tailored for Grades 7 and 8 junior high schools that focus on enhancing classroom environment and promoting social competence and positive social adjustment to help alleviate bullying.

Résumé

La présence d'intimidation à l'école est un phénomène en expansion qui constitue un problème majeur dans plusieurs pays (Murray-Harvey, Slee et Taki, 2010). C'est un problème interrelationnel influencé par divers facteurs contextuels, émanant des interactions entre les individus, les groupes de pairs, l'école, la famille et la communauté (Espelage et Swearer, 2010). L'intimidation a été principalement étudiée d'une perspective socioécologique. Cependant, étant donné la complexité du problème, plus d'une théorie est nécessaire pour expliquer l'influence des facteurs individuels, interpersonnels, systémiques et structuraux sur ce phénomène (Mishna, 2012). La perspective conceptuelle d'une structure de systèmes écologiques peut inclure certains modèles théoriques afin d'expliquer les mécanismes sous-jacents aux facteurs associés à l'intimidation dans chaque contexte. La présente recherche examine les caractéristiques des individus et des classes, compte tenu des hypothèses empiriques relevées dans la littérature. Plus précisément, l'investigation vise à tester le modèle écologique des relations entre pairs en classe de Rodkin et Gest (2011), qui souligne l'importance des pratiques enseignantes, des relations entre pairs et des stratégies liés au réseau en tant que facteurs proximaux influençant les manifestations d'intimidation. Un modèle imbriqué (n = 38 classes; 687 élèves de secondaire 1 et 2) et une modélisation linéaire hiérarchique ont été utilisés afin d'évaluer différents aspects de la pratique enseignante en classe en tant que prédicteurs des cas d'intimidation et de victimisation ainsi que du statut social des élèves en début de secondaire. Les caractéristiques des élèves, incluant les compétences langagières et la littératie, le sentiment d'appartenance à l'école, le statut social et le soutien social, ont été examinées comme prédicteurs au niveau individuel. Les perceptions des observateurs, des enseignants et des élèves ont été utilisées pour évaluer les aspects pédagogiques et émotionnels de l'environnement de classe. Il existe une

variance significative entre les classes relativement à l'intimidation et à la victimisation (expliquant respectivement 7% et 4 % de la variance). Seules les perceptions des élèves à propos de la classe mesurées à l'aide de l'échelle « Student Classroom Environment Measure » (SCEM; Midgley, Eccles et Feldlaufer, 1991) ont permis de prédire les cas d'intimidation et de victimisation. Les comparaisons sociales en classe ont également été associées à un nombre accru de cas d'intimidation. Aussi, une relation positive entre la compétition et les cas de victimisation a été observée, ce qui suggère qu'un niveau de compétition élevé influence la victimisation en classe. Par ailleurs, la relation enseignant-élèves est également un prédicteur significatif de la victimisation: de bonnes relations enseignant-élèves sont associées à une diminution de la victimisation. En outre, le genre et le sentiment d'appartenance sont aussi des caractéristiques permettant de prédire les cas d'intimidation et de victimisation. Ainsi, les garçons ont rapporté plus de cas d'intimidation et de victimisation que les filles. Le sentiment d'appartenance à l'école est donc inversement lié à l'intimidation et à la victimisation. Le statut social est seulement significatif relativement à l'intimidation, démontrant que le fait d'être populaire auprès de ses pairs est lié à l'accroissement des cas d'intimidation. L'étude examine également l'impact de la classe sur le statut social. Différents indices relevés en classe permettent de prédire la probabilité d'avoir un statut de personne populaire ou de personne rejetée. Les résultats de la présente étude appuient plusieurs aspects du modèle conceptuel de Rodkin et Gest (2011). Plus spécifiquement, ils fournissent une preuve de l'existence d'un lien entre les pratiques enseignantes et les manifestations d'intimidation et de victimisation. Les pratiques enseignantes ont également eu une influence sur les relations entre pairs en classe (i.e. le statut social). Le statut social en tant que dimension des relations entre pairs en classe a également pu être relié aux manifestations d'intimidations. Les résultats de cette étude pourront

contribuer à l'élaboration de programmes d'intervention/prévention destinés aux classes de secondaire 1 et 2, visant l'amélioration de l'environnement dans la classe et favorisant l'acquisition de compétences sociales et un ajustement social positif, afin de diminuer l'intimidation et la victimisation.

Acknowledgements

I am most fortunate to have had this valuable opportunity and experience of completing a doctoral degree. I begin by expressing my deepest gratitude to my supervisor Dr. Robert Savage who has been an ideal role model and mentor. I am most appreciative of his constant optimism, insight and knowledge throughout this doctoral degree. I thank you Rob for the confidence and trust you placed in me as a student, researcher, and colleague; and for the time you invested, your availability and the advice you provided in times of need. I value our relationship and look forward to many years of collaboration.

I would also like to acknowledge the members of my advisory committee, Dr. Victoria Talwar and Dr. Giovani Burgos for their constructive feedback and recommendations. Special thanks goes out to all students, teachers, parents, and school staff that kindly gave of their time by participating in this research project. I had the opportunity to collaborate with an amazing population of teachers, secretaries, and principals, all of whom were flexible and committed with their efforts and interest in this research. I learned a lot from the range of excellent teaching practices observed in the classrooms, which I will carry forward into my professional work.

My sincere appreciation goes out to all the research assistants who volunteered in the data collection phase of this project – Cynthia Ayvazian, Arianna Carosella, Sophia Jaworski, and Heilie Tam- thank you for your dedication and the professionalism you demonstrated throughout this process. I would also like to express my gratitude to Dr. Robert Savage's research team - Adriana Pace, Marie-France Côté, Émilie Cloutier, Kristina Maiorino, and Ozlem Erten, your continuous support and help at various stages of the project and the laughter and joy we shared while working together was priceless in this journey. Thank you Bindy Sanghera-Sidhu, a student colleague and friend, I am glad we journeyed together and I am especially grateful for your reassuring attitude whenever I felt in doubt. I am appreciative of all the McGill friends that I have met while completing this degree.

To my family members and dear friends, thank you for your moral support and for being so proud of me – your faith in me is what made me persevere. A heartfelt thanks to my dear friend Sheila Halpin – you have been my pillar of strength during a tumultuous life journey. I am fortunate to have been guided by your wisdom and I appreciate all your feedback during the

many brainstorming sessions throughout this degree. I could not have done this without your emotional support, understanding and eternal patience.

Finally, I would like to acknowledge the Department of Educational and Counselling Psychology. I am fortunate to have completed my graduate studies within this department and to have had the opportunity to collaborate with the staff and students – all of whom have helped shape my educational journey. This degree was completed with the support of Fonds de Recherche sur la Société et la Culture (FQRSC).

Table of Contents

List of Tables

List of Figures

Overview

Introduction

Much empirical and theoretical research has been dedicated to the widespread phenomenon of bullying yet there remain gaps in the research that could better inform prevention programs and interventions in schools. Bullying is defined as intentional negative actions (i.e. physical contact, verbal abuse, spreading rumors, and exclusion) repeated over time by one or more person(s). The interpersonal relationship is characterized by an imbalance of power that often corresponds with the victim not being able to defend themselves (Olweus, 1993). Victimization is defined as an individual who is exposed repeatedly over time to negative actions of another individual or a group of individuals (Olweus, 1993).

Bullying is a problem that emerges in early childhood and persists into adolescent years and beyond (Hanish, Hill, Gosney, Fabes, & Martin, 2011; Totten & Quigley, 2003). More boys than girls report being bullied (Craig et al., 2009; Espelage, Bosworth, & Simon, 2000; Nansel et al., 2001; Olweus, 2010; Seals & Young, 2003; Varjas, Henrich, & Meyers, 2009), however there is some evidence on prevalence rates as similar when both direct and indirect (psychological humiliation and social manipulation) bullying is considered (Hanish, Kochenderfer-Ladd, Fabes, Martin, & Denning, 2004; Perry, Hodges, & Egan, 2001; Totten & Quigley, 2003). Statistics show that bullying begins in elementary school peaking in Grades 6 to 8 (Olweus, 2010; Nansel et al. 2001; Public Safety Canada, 2008) with higher frequencies reported in Grades 7 compared to higher grade levels (Nansel et al. 2001; Pepler et al. 2006; Skues, Cunningham, & Pokharel, 2005; Totten, Quigley, & Morgan, 2004). In Canada, studies suggest that approximately 6% of students aged 12 to 19 bullied others while 8% reported being victimized at least once a week. Physical bullying increases in grades 6 to 9 and then begins to

gradually decrease (Public Safety Canada, 2008). In the US, a similar pattern of bullying frequency is evident with middle school students in grades 6, 7, and 8 reporting the highest rates of being bullied, 37%, 30.3% and 30.7% respectively (National Center for education Statistics [NCES], 2013). Further investigation of this problem at the junior high school level is thus warranted.

There are serious consequences for children and youth who bully and those who are bullied (i.e. victims) causing both short and long term academic, psychological and social adjustment difficulties (Craig et al. 2009; Hawker & Boulton, 2000; Holt, Finkelhor, & Kantor, 2007). Individuals who are victimized are lonelier, more depressed (Hawker & Boulton, 2000; Kochenderfer-Ladd, & Wardrop, 2001) and some even have suicidal ideation (Espelage & Holt, 2013; Kaltiala-Heino et al. 1999; Meltzer, Vostanis, Ford, Bebbington, & Dennis, 2011). There is continuity between children who bully and later criminal convictions in young adulthood years (Olweus, 1991) even after controlling for major childhood risk factors (Ttofi, Farrington, Lösel, & Loeber, 2011).

Inspection of the literature unearths various individual characteristics that are related to bullying such as gender, cognition, aggressive dispositions, learning difficulties, and academic achievement (Espelage, Bosworth, & Simon, 2000; Espelage, Mebane, & Swearer, 2004; Mishna, 2003; Atlas & Pepler, 1998; Underwood & Rosen, 2011). This research investigates individual characteristics in multi-level models that employ nested structures of analyses. Some factors examined in this study have already been associated with bullying perpetration and victimization and therefore this study seeks to replicate these findings while other factors have yet to be examined as predictors, adding to the literature on bullying. For example, there is no literature that investigates students' linguistic comprehension skills as developmental indices and

indicators of language and literacy abilities that may influence bullying interactions. The present study examines students listening and reading comprehension skills as individual characteristics that may be associated with both bullying perpetration and victimization. Students' social status and social support from friends is examined at the individual level as a characteristic associated with bullying perpetration and victimization. Lastly, students' perception of how connected they feel to school which reflects their psychosocial adjustment in school is also assessed as an individual factor predicting bullying perpetration and victimization. School connection has been widely studied in the bullying literature and is construed as a variable measuring a student's sense of belonging in the school, decision-making power, commitment to school work, and his or her belief in the adults and in the school. In the present study, school connection is measured using four subscales that include commitment, power, belongingness, and belief in the school. These constructs are related to human psychological needs emphasized in motivational and self-determination literature and thus are considered as individual factors.

Bullying is an inter-relational problem that is best understood from a socio-ecological approach because of the complex relationships that exist within different contexts (i.e. peer groups, adult-student interactions, classroom climate and school factors (Swearer & Espelage, 2011). The classroom as a social unit is crucial for understanding bullying perpetration and victimization. There is a vast amount of variability (ranging between 0 and 54.5%) in the occurrence of bullying that lies among school classes (Atria, Strohmeier, & Spiel, 2007). The large variation that exists between classrooms draws attention to classroom processes that explain these differences. These potential differences between classrooms should not be neglected nor should it be assumed that mechanisms of a classroom are constant and occurring in every class.

To date classroom research has focused mainly on student and teacher attitudes, norms for bullying, peer status, social structures of the classroom, and management strategies for handling bullying (Barth, Dunlap, Dane, Lochman, & Wells, 2004; Gest & Rodkin, 2011; Kochenderfer-Ladd & Pelletier, 2008; Sentse, Scholte, & Salmivalli, 2007; Pellegrini & Long, 2002). The relationship between classroom environment defined by the instructional and emotional support and its influence on social and academic development has been widely studied (Hamre & Pianta, 2005, 2001; Mashburn et al. 2008; Pianta, Belsky, Vandergrift, Houts, & Morrison, 2008; van Tartwijk, den-Brok, Veldman, & Wubbles, 2009); however research investigating the impact of classroom environment on outcomes of bullying perpetration and victimization is scant. Studies that have investigated the influence of classroom environment on aggression or bullying (e.g. Roland & Galloway, 2002; Gest & Rodkin, 2011) do not use statistical analyses that consider the nested nature of the data and the homogeneity among subjects.

Presently there is little research that investigates the impact of general teaching practices (i.e. instructional, emotional and organizational aspects of classroom environment) on bullying perpetration and victimization in junior high school classrooms. Classroom processes such as cooperation/interaction, social comparison, competition, task organization and student input that may be developmentally relevant to classroom environment in the junior high school context warrant further investigation. Research shows that social comparison among peers is characteristic of junior high schools relative to primary schools (Eccles, Wigfield, & Schiefele, 1998; Feldlaufer, Midgley, & Eccles, 1988). Perhaps processes pertinent to the environment in junior high school classrooms (e.g. social comparison) are accountable for reported increases of bullying in junior high school grades (Nansel et al., 2001; Pellegrini & Long, 2002). Bullying

outcomes may be linked to classroom processes that encourage social comparison and social hierarchies, rendering bullying as a quest for social dominance (Pellegrini, 2004; Pellegrini & Long, 2002; Pellegrini & Van Ryzin, 2011). Thus, it is predicted that teaching practices encouraging social comparison and competition among peers create classroom climates that may be associated with increased bullying interactions.

This research is the first to investigate the relationship between characteristics of the classroom environment (e.g. social comparison, competition, teacher-student relationships, cooperation/interaction) and outcomes of bullying perpetration, victimization and peer social status in a Canadian context in junior high school (i.e. Grade 7 and 8) classes. This study utilizes several rating scales to measure classroom environment. One classroom observation tool (i.e. AIMS; Roehrig, Pressley, Dolezal, Mohan, & Bohn, 2003) rates effective teaching practices that describe the atmosphere, instruction/content, management, and student engagement. These four dimensions include items that are similar to the emotional, instructional and organizational aspects of the classroom studied in Gest and Rodkin's (2011) research, one of the few studies that examined the impact of classroom ecology on bullying. In addition to the AIMS, a classroom environment measure (CEM) including dimensions of cooperation and interaction, social comparison, competition, student input, and teacher-student relations is used to assess classroom environment as rated by students, teacher and observers. A methodological advantage of this study is the use of multi-informants (i.e. observer, student, and teacher perceptions) to assess classroom environment that potentially triangulate data for increased reliability of classroom effects.

The present research examines how individual and contextual factors (i.e. classrooms) jointly affect bullying perpetration and victimization. The underpinning of this research is

understood from a developmental-contextual perspective that also considers the contribution of the individual. Both individual characteristics and classroom characteristics (i.e. classroom environment) are explored in multi-level models. The nested nature of the present data (i.e. students within classrooms) is analyzed using hierarchical linear modeling (HLM) which is a statistical technique that takes into account clustered data and yields more precise estimates without violating the assumption for independent observations. Furthermore it analyzes the variation that exists within and between classrooms for outcomes of bullying perpetration and victimization, and delineates the variables that are accountable for that variation. Findings of this study highlight the impact of classroom environment after controlling for individual characteristics.

This research explores a conceptual model of teaching practices, classroom peer ecologies, and youth outcomes proposed by Rodkin and Gest (2011). The authors conceptualize bullying from a developmental-contextual perspective, and as a problem that arises from the social management of the classroom which in turn influences peer ecologies and youth outcomes. The present study investigates some of the pathways theorized in the Rodkin and Gest model that influence youth outcomes for bullying perpetration and victimization. First, the relationship between general teaching practices and outcomes of bullying perpetration and victimization is explored. Second, the relationship between structures of the classroom peer ecology (i.e. social status) is examined as a predictor of bullying perpetration and victimization. Lastly, the impact of classroom environment on the classroom peer ecology (i.e. social status outcomes) is explored. This latter pathway highlights an indirect influence to bullying via the peer ecology as shaped by general teaching strategies.

Outline of the Literature Review

Global theories of social development provide insight for the understanding and causes of bullying. Chapter one introduces a brief overview of the prominent theoretical perspectives that help us understand the phenomenon of bullying. I begin with a socio-ecological approach as a broad framework that serves as an umbrella within which individual and contextual factors (i.e. family, peers, school and community) and interactions that influence bullying are explored. The socio-ecological perspective stems from Bronfenbrenner's (1979) ecological model and his more recent work with the bio-ecological model that also acknowledges the contribution of the genotype (Bronfenbrenner & Ceci, 1994).

The complexity of bullying necessitates more than a single theory to understand the influence of the individual, interpersonal, systemic, and structural factors (Mishna, 2012). The conceptual perspective of an ecological systems framework can incorporate a number of theoretical models to explain the underlying mechanisms of factors associated with bullying within each context. Various theories can be applied simultaneously an in conjunction with an ecological systems framework to help understand individual characteristics and classroom processes associated with bullying. In part one of this chapter, I review global theories of aggression and social development that focus on processes that reside mainly within the student (i.e. child factors). These include evolutionary and developmental perspectives including social-biological views, theories of cognitive development and social cognition. In addition, theories of human motivation and self-determination are also discussed to explain psychosocial vulnerabilities that influence behavioral outcomes such as a student's sense of belongingness, which is related to bullying perpetration and victimization. Part two of the chapter includes environmental continuity theories assuming that contextual factors are the primary determinant in the emergence of bullying perpetration and victimization (Kochenderfer-Ladd, Ladd &

Kochel, 2009). Contextual influences of the classroom are understood from a social learning perspective that emphasizes learning as a social process and highlight the importance of antecedents and consequences in daily social exchanges. Finally, a developmental-contextual perspective for understanding the influence of classroom context on bullying is presented. A more specific multi-casual conceptual model proposed by Rodkin and Gest (2011) highlights general teaching practices, classroom peer ecologies, and network-related teaching strategies as environmental determinants of youth outcomes.

In Chapter two, empirical research on individual characteristics associated with bullying perpetration and victimization stemming from single-causal models discussed in part one of the previous chapter is scrutinized. Evidence demonstrating a relationship between student language and literacy attainment and bullying stemming from developmental and social cognition perspectives is highlighted. There is research supporting social dominance views that suggest bullying is an adaptive function further examining the interplay between social statuses and bullying interactions. Furthermore research that highlights the protective nature of a students' sense of connection to school is presented and understood from a motivational perspective that influences an individual's behavior.

Chapter 3 reviews empirical research on the impact of teaching practices and classroom environment on student social outcomes. Evidence demonstrating the influence of instructional and emotional aspects of the classroom and its relationship to student social outcomes are interpreted from a social learning perspective. Literature on social comparison and competition as characteristics of the classroom is reviewed in this chapter. However, there is no research to date that evaluates the effects of social comparison and competition on outcomes of bullying perpetration and victimization in junior high school. Finally evidence of youth outcome

influenced by the quality of teacher-student interactions and the social management of the classroom peer ecologies understood from a developmental-contextual perspective is reviewed.

Chapter 1: Theoretical and Conceptual Frameworks

A Social-Ecological Perspective of Bullying Among Youth

Bullying is a complex phenomenon that has been extensively studied from a social-ecological perspective (Espelage & Swearer, 2010; Khoury-Kassabri, Benbenishty, Astor, & Zeira, 2004; Swearer & Doll, 2001). A social-ecological perspective takes into account how individual characteristics of the student interact within various contexts such as classrooms where bullying occurs. According to Bronfenbrenner and Ceci's (1994) Bioecological Model, interrelated systems influence developmental outcomes through proximal processes in which genetic potential is actualized. The individual's language, cognition, social competence and physical integrity develops while he or she accommodates to the social and physical environment that is in turn influenced by remote forces (distal contextual influences) such as cultural characteristics and community factors (Swearer & Doll, 2001). Proximal processes are the reciprocal interactions that take place between the individual and his or her environment and the primary mechanism for development. The force, content and direction of proximal processes affecting outcomes are a function of the characteristics of the individual and the environment. From an ecological-systems perspective, the individual and environment affect one another and this bidirectional relationship suggests that human genetic potentials for development or psychological functioning are active dispositions expressed in selective patterns reinforced by environment. The interactions that take place between an individual and his or her family, peers, and school are proximal processes highly predictive of developmental outcomes.

A social ecological perspective for bullying does not overlook the characteristics of the individual as causal influences on outcomes but rather views them as co-causal influences interacting with social contexts such as family, peers, school, community and culture to

determine outcomes. The organizational aspects of school or class ecology that include interrelationships among adults and peers, attitudes toward bullying, disciplining, anti-bullying policies, and the physical aspects such as school class size and maintenance of school building are associated with bullying (Bonnet, Goosens, Willemen, & Schuengel, 2009; Reis, Trockel, & Mulhall, 2007; Richard, Schneider, & Mallet, 2011).

The present research is considered from a social-ecological perspective with a focus on the classroom as a microsystem in which the proximal processes including teacher-student interactions and peer interactions guide student behavior and are powerful predictors of youth outcomes. From this view, classroom attributes such as the peer group, teacher-student interactions, teaching practices and emotional tone creates a dynamic that can exacerbate or mitigate bullying behavior. Such a systems approach considers the complexity of the bullying phenomena and the array of factors within each system that interact with characteristics of individual and become dynamic, transactional and accountable forces in youth outcomes.

Although an ecological perspective emphasizes contextual influences, it remains a framework mainly for delineating factors at various levels including individual and interactive processes; however it does not represent a particular view or understanding of why individual and contextual characteristics interact and lead to bullying perpetration and victimization. There are numerous theories accounting for the development of harmful behaviors among youth that are necessary to explain the complexity of bullying at different contextual levels (Mishna, 2012). The interactive influences of theories pitched at genetic, individual, cognitive-affective, contextual and interactive levels are warranted. Alongside these perspectives at a more detailed grain of explanation, there is a need to look at specific processes that are causal in bullying, and test such explicitly articulated models. Hence, part one discusses global theories of aggression

associated with characteristics of the individual while part two reviews theoretical models that assume the role of contextual influences for understanding bullying perpetration and victimization.

Part I: Conceptual Foundations for Understanding Individual Characteristics Associated with Bullying and Victimization

Evolutionary and developmental perspectives. A large amount of research is derived from theories that encapsulate child characteristics as risk factors for bullying perpetration and victimization. Similar to general discussions of aggression, sex differences in bullying are evident with males demonstrating increased rates of involvement as bullies and victims relative to females (Nansel et al., 2001; Pellegrini & Long, 2002; Olweus, 2010). From a developmental perspective, sex differences in aggressive behavior rise from the relative differences in physical strength, the cultural acceptance of aggression, and gender roles (Hanish, Hill, Gosney, Fabes, & Martin, 2011). Sex differences associated with aggression and bullying can be attributed to sexual dimorphism. From an evolutionary perspective, males are physically larger than females and as a result more physically active leading to higher levels of activity which in turn may be the ultimate cause for segregated peer groups in childhood (Pellegrini, 2004; Pellegrini, 2008). Furthermore in childhood, social structures such as playgroups differ for boys and girls. Boys have larger less defined groups in which they may use physical aggression and dominance as related strategies to compete for social status (Parker, Rubin, Price, & DeRoisier, 1995; Pellegrini, 2004). Meanwhile, girls play in smaller, more intimate groups which are a female social pattern that leads to more sharing and passing along of personal information (Parker et al. 1995). Girls tend to segregate in groups that are more sedentary, less competitive and less physically aggressive (Pellegrini, 2004). During developmental years, girls are more likely to

receive negative feedback concerning physical aggression and therefore display indirect aggression instead, as a more socially acceptable form of aggression. Girls acquire social resources using indirect aggression (e.g. spreading rumors and forming alliances) because it is less physically vigorous and does not involve confrontation with peers (Pellegrini, 2004). These patterns of socialization for boys and girls evolve from biological propensities and cultural expectations for gender differences that influence behavioral expressions.

Bullying is a gendered phenomenon involving social processes that differ for boys and girls (Underwood & Rosen, 2011). Girls display more subtle forms of bullying using more verbal, relational aggression and less physical aggression compared to boys (Vaillancourt, Hymel, & McDougall, 2003). Research findings support this gendered view for bullying with boys engaging in direct or physical bullying and girls being involved with more indirect forms of aggression such as verbal or relational aggression (Nansel et al. 2001; Espelage et al. 2000; Varjas et al. 2009; Seals & Young, 2003). Evolutionary perspectives on bullying suggest several explanations. While biologically-driven models may point to distinct physical characteristics such as sex, physical weight (i.e. obesity) that explain differences in bullying (Janssen, Craig, Boyce, & Pickett, 2004; Pepler et al. 2006), socio-biological perspectives assume evolutionarily significant genetic influences and the adaptive function behavior to help explain the bullying phenomenon.

Social dominance theories. The hallmark of evolutionary perspectives focuses on why a behavior is widespread and the adaptive functions it serves. A socio-biological perspective emphasizes the inherent traits of the individual and the natural selection process that guides social behavior. Bullying is a cross-cultural phenomenon (Craig et al. 2009; Molcho et al., 2009) that peaks during adolescence (Nansel et al., 2001; Pellegrini & Long, 2002; Olweus, 1993),

therefore increase in bullying could be understood from a socio-biological perspective asserting that bullying may serve social and evolutionary adaptive functions (Nishina, 2004).

Sidanius and Pratto's (1999) propose a Social Dominance Theory that draws attention to intergroup relations and the maintenance of social hierarchies within groups. Dominance within a group determines an individual's leadership status. Leadership status results from agonistic and cooperative exchanges, and is a means to an end where individuals who are most dominant gets prioritized access to resources that are valued by the group (Pellegrini, 2004). Social dominance occurs in contexts with individuals who have varying abilities to acquire resources. Individuals with dominant status use agonistic strategies that are effective in them gaining resources that allow them to become central to the peer group and attain higher social status (Pellegrini & Van Ryzin, 2011; Hawley, 1999). This is similar to animal behavior researchers endorsing socio-biological perspectives, an approach which assumes that behaviors exhibited by species provide an adaptive function (Benenson, 2009). For example in the primate literature, dominance hierarchies are considered adaptive for fiercely aggressive monkeys living in social groups (Bernstein, 1976). Dominance relationships are generally inferred by analyses of agonistic interactions and the strongest and largest male primates have best chance to reproduce and pass on their genes (Bernstein, 1976). Dominance hierarchies confer with mating success so that 'high' ranking male primates will gain access to oestrous females hence contributing genes to the next generation (Cowlishaw & Dunbar, 1991).

Social dominance is mostly played out among males and serves the function of bringing order to groups and minimizing aggression once individuals realize their status within the group (Sidanius & Pratto, 1999). During early phases of group formation, a relative higher rate of aggression is displayed (Pellegrini & Bartini, 2001). Aggressive, coercive and prosocial

behaviors are strategies used to attain resources most often during initial phases of the formation of social hierarchies. However once dominance is established, aggression decreases and more cooperative and affiliative strategies become characteristic of the group behavior (Pellegrini & Van Ryzin, 2011; Sidanius & Pratto, 1999).

During early adolescence, students are transitioning from elementary to secondary schools. The developmental changes leading to an increased interest in heterosexual relationships and the organizational structures of larger schools following these transitions lead to shifts in peer groups (Pellegrini & Van Ryzin, 2011). Boys especially may use deliberate forms of aggression such as bullying in their quest for status among peers; whereas girls are not as reliant on the same dominant strategies used by boys, rather they are more likely to engage in indirect or relational aggression to gain social resources (Pellegrini & Van Ryzin, 2011). Students strive for a dominant status among peers because it is viewed as more attractive and held in relatively high regard by their peers.

Peer contexts, relationships, and social status are cornerstones for understanding the phenomenon of bullying during early adolescents. The increases in bullying interactions during transitions from elementary to secondary school are well understood from social dominance perspectives suggesting the adaptive functions of bullying. Although this perspective is supported in the research examining bullying among early adolescents (Pellegrini & Bartini, 2001; Pellegrini & Long, 2002), this theoretical perspective generally ignores the role of an individual's social cognitive processes that are implicated in the use of different strategies to attain resources. For example adolescents' language and literacy abilities may be antecedents to the use of aggression or cooperative strategies in order to establish and maintain status. Moreover, the role of social cognition may mediate the relationship between an adolescent's

choice of dominant strategies and peer status. Even in non-human primates there is an emphasis on the social nature and social strategies that implicate social skills and social cognition as evolving mechanisms that allow for alternative reproductive tactics (Bercovitch, 1991; Bernstein, 1976). Furthermore the crucial role that competition plays in creating conditions under which dominance is likely to become a factor influencing male primate behavior draws attention to the role of context even in non-human behavior (Cowlishaw & Dunbar, 1991).

More generally, there is some major criticism in evolutionary psychology beginning with the disputes about the testability of evolutionary hypotheses. It would be likely impossible to assess certain aspects of the natural selection process since this occurs over generations. Behavioral genetic studies provide some evidence for the inheritance of aggression and maladaptive behavior with almost 50% of variation explained by genetic factors (Rhee & Waldman, 2002; Tuvblad & Baker, 2011) however fewer twin and adoption studies have been used to examine genetic endowment for bullying specifically. One study revealed that 60% of the variation in bullies is accounted by genes (Ball et al. 2008) nonetheless to increase the reliability, these findings would need to be replicated. Although genetic behavioral studies provide some evidence for the influence of biology, experimental studies that could examine the ecology of aggressive behaviors to control resources (which are central in defining social dominance) are needed. These experimental studies would require hypothetical competitive situations that could pose ethical concerns and thus be difficult to test. Finally in light of evolutionary-oriented theories, aggression is naturally selected and functional rather than indicative of a deficit. The strategies used to access and maintain resources clearly implicate a social process that emphasizes contextual influences and an individual's social-cognitive processes.

In sum, while evolutionary theories can be influential in understanding bullying as a function to gain status among peers during adolescence, they not are sufficient to explain the phenomenon of bullying. A strong version of the theory (where behavioral genetic influences are viewed as a single comprehensive causal account of bullying) encounters some criticism for ignoring the documented role of adults and school context in understanding bullying. Such evolutionary theories would fail to explain the variation in bullying across cultures, schools, and classrooms.

Cognitive-developmental perspectives. Language abilities have been associated as defining characteristics of bullying perpetrators and victims. Externalizing behaviors in children such as aggression may be a consequence of their poor language skills, in that children who have difficulties with verbal expression can sometimes resort to aggression (Totten & Quigley, 2003). Children with language impairments are also at an increased risk for victimization because of frustration and peer rejection that may result from poor linguistic abilities (Conti-Ramsden & Botting, 2004). Cognitive developmental theorists postulate that maturation and environment affect mental processes and human intelligence. Language is contingent upon cognitive development, guided by social rules and used chiefly to communicate, express emotions, and relate to others.

Language and literacy develop concurrently, both are socially acquired skills for the purpose of wanting to interact and communicate with others. They are connected because they share a symbol-based system where words are symbols used to represent meaning. Language as a complex multidimensional system includes various aspects i.e. syntax or grammar, vocabulary, and listening comprehension that are related to reading comprehension. Similar to children with language processing difficulties, children with reading difficulties are at risk for problem

behavior jeopardizing their social development (Miles & Stipek, 2006; Trzesniewski, Moffit, Caspi, Taylor, & Maughan, 2006). The relationship between children's reading comprehension and linguistic abilities is further discerned in reading development models.

The Simple View of Reading (SVR; Gough & Tunmer, 1986) is an influential theory of the processes of learning to read that helps us better understand the development of language and literacy. SVR proposes that reading comprehension is a product of listening comprehension and decoding. Children with poor reading comprehension have difficulties with decoding however most often it is their language problems that affect comprehension. In light of this theory, a child with poor reading comprehension will have difficulty understanding text due to deficits in linguistic comprehension. Since language is contingent on literacy skills, reading and listening comprehension are critical components of the broader index of language abilities that impact social development.

A cognitive developmental theory assumes the role of cognitive processes in understanding bullying interactions among peers which is overlooked in evolutionary perspectives such as social dominance theories. However there is little research that examines the role of linguistic comprehension in bullying interactions. More specifically, listening and reading comprehension have yet to be studied as components of language and determinants of bullying perpetration and victimization. Further research is warranted to investigate students' comprehension skills in support of cognitive developmental perspectives. Although cognitive developmental theories have been proposed to understand the bullying phenomenon, they fall short in acknowledging the role of emotions and affect that may guide verbal interactions with peers, which are arguably best-addressed by theories of social cognition.

Social information-processing model. Social cognition is the most influential paradigm in social psychology for understanding peer aggression and victimization (Harris, 2009). The present research does not test social information-processing theories per se but its wide application for understanding bullying merits attention in the conceptual groundwork discussion. From a social information-processing view, children are social thinkers and aggressive behavior is shaped by their social cognition. More specifically, Dodge's (1986) social information-processing model posits that children's behavioral responses to social situations are influenced by their cognitive interpretations of social cues and their biological capabilities such as temperament and personality. This theory purports a function of sequential steps for processing social information that include encoding of social cues, interpretation of cues, clarification of goals, response access patterns, response decision and behavioral enactment (Crick & Dodge, 1994). From this view, deficits in any of these social information-processing steps can lead to anti-social behavior and aggression. Children with aggressive behavior concentrate on hostile social cues and respond in aggressive-impulsive manners (Losel, Bliesener, & Bender, 2007).

Children with proactive and reactive aggressiveness process social information in distinctive ways (Crick & Dodge, 1996). Proactive aggression is deliberate behavior that is controlled by an external force while reactive aggression is a defensive response to frustration and provocation. In hypothetical situations, children with proactive aggression are more likely to respond to a situation using instrumental aggressive behavior, employing strategies that will help obtain a social goal. These children view aggression as an effective way to attain goals and desired outcomes. Contrarily, children with reactive aggression are more likely to attribute hostile intent in the processing of social information, and retaliate aggressively to provocation from peers (Crick & Dodge, 1996).

The application of social-information processing theories in understanding bullying perpetration and victimization has been widely used in identifying child level risk factors. This behavioral continuity model assumes that child risk factors such as behavioral dispositions are the primary precipitants of peer aggression while environmental influences maintain the risk. Since bullying remains an inter-relational problem occurring in context, this model (emphasizing biological and social processes) may still be inadequate. The interactions between student characteristics and contextual factors (e.g. classroom climate) are important determinants that shape student behavior, which in turn motivates them to engage in pro-social or maladaptive behavior (Gest & Rodkin, 2011; Raskauskas, Gregory, Harvey, Rifshana, & Evans, 2010). Furthermore the motivational aspect that guide behavior is not addressed in theories of social cognition.

Theories of motivation and self-determination. Maslow's (1943) Hierarchy of Needs Theory affirms safety and belonging as fundamental needs for human motivation and personality development. Maslow proposes that these basic needs (i.e. physiological, safety, and belonging) must be satisfied to progress to higher growth needs of self-esteem and self-actualization. Emerging from Maslow's hierarchy of needs, self-determination theory proposes that social and cultural conditions satiate the innate psychological needs of *competence*, *autonomy* and *relatedness* and foster volition, high motivation and engagement for activities which in turn enhance performance, health and well-being (Ryan & Deci, 2000a). Intrinsic motivation is enhanced by interpersonal events and structures (i.e. rewards, communication, and feedback) that contribute to feelings of competence and fulfill the psychological need for competence. However for an individual to remain motivated, his or her feelings of competence need be accompanied by an internal perceived locus of causality (i.e. a sense of autonomy). This lends to

the notion that in addition to the individual perceiving oneself as competent, he or she must also experience their actions and behaviors to be self-determined. Lastly, it is an individual's sense of belongingness and connectedness to people and groups that satisfies that need for relatedness (Ryan & Deci, 2000b). Therefore, it is the social-contextual conditions that either facilitate or forestall natural processes of self-motivation that contribute to healthy psychological development of the individual.

The fundamental psychological needs of competence, autonomy, and relatedness have been applied to the school enterprise and are considered in a theoretical model of self-system processes by Connell and Wellborn (1991). As part of the structural and organizational aspect of the school, clear expectations and boundaries for behavior can enhance students' feelings of competence. Alongside the clarity and amount of information imparted for behavioral conduct, providing students with choice and helping them achieve their individual goals engenders autonomy. With opportunity for involvement and provision of emotional support, students acquire feelings of relatedness (Connell & Wellborn, 1991).

In light of the self-system processes model, a student's connectedness to school is the extent that he or she feels competent (in their attempts to achieve goals) develops a sense of autonomy (while still being supported), and acquires the ability to relate to peers and adults in the school (Waters, Cross, & Runions, 2009). With regards to bullying, school connectedness is a strong predictor of adolescents health and academic outcomes (Bond et al., 2007; Whitlock, 2006), and serves as a protective factor (Lester, Cross, Shaw, & Dooley, 2012; You, Furlong, Felix, Sharkey, & Tanigawa, 2008). Students who are victimized report feeling less connected to school (Cunningham, 2007; Skues, Cunningham, & Pokharel, 2005) perhaps as a consequence of psychological needs not being met which leads to psychosocial maladjustment that may precede

bullying interactions and make them more vulnerable to bullies. However, it is also possible that students may feel less connected to school as a result of being bullied. In view of self-determinism and self-system processes theories, an individual's sense of belongingness to school influences intrinsic processes (i.e. motivation) that guide his or her actions and may lead to pro- or anti-social behavior. During early adolescence school connectedness is a protective factor especially in transition from primary to middle or junior high school (Hawkins, Guo, Hill, Battin-Pearson, & Abbott, 2001; Waters, Cross, & Shaw, 2010). School ecologies defined by organizational aspects of the school including structural (i.e. school size), functional (i.e. policies and procedures, student involvement in making rules) and built environment (i.e. physical aspects of the school grounds) influence students connectedness to school (Orpinas & Horne, 2010; Water, Cross, & Shaw, 2010).

Theories of motivation such as self-system processes draw attention to emotional processes that lead to the development of self, sought out by the individual in social contexts. The frustration associated with psychological needs (i.e. competence, autonomy, and relatedness) not being met can result in maladaptive patterns of actions. Such theoretical underpinnings for understanding bullying interactions will be further explored in this research by assessing students' psychosocial adjustment to school as measured by their sense of connection to school. These theories of motivation can help elucidate the role of psychosocial factors (i.e. school connection) that implicate contextual factors as either facilitating or hindering students' needs. However these theories may not emphasize enough the role of students cognitive processes required to interact within the social context. It may be so that social contexts provide the necessary structures and climate that satisfies psychological needs, however the student may lack

the ability to recognize the opportunities to initiate and engage in activities that meet human basic needs of competence, autonomy and relatedness.

In summary, part one of this chapter reviews single causal models of development that provide explanations for characteristics of students associated with aggression and bullying that are further explored in the present study. Within the broad socio-ecological framework, student characteristics associated with bullying interactions are understood from various conceptual foundations. Evolutionary perspectives are proposed for understanding *sex* differences in aggression. The role of peer relations and *social status* is understood from socio-biological models that include social dominance theories based on natural selection, social hierarchies and adaptive functions. Cognitive developmental perspectives and social information processing theories are briefly proposed to explain the role of children's *language and literacy* skills in aggression. Finally, students' perception of *school connectedness* is discussed in prospect of theories of motivation that draw upon internal processes and psychological needs affecting psychosocial adjustment. These scrutinized theoretical perspectives provide intra-individual accounts for understanding bullying and empirical research supporting these theories will be presented in chapter two. Although these perspectives are suitable, on their own they are not sufficient to explain all features of the bullying phenomenon. Inter-individual models that examine relationships and environmental processes and mechanisms must also be taken into account. Part two of this chapter reviews theories that attempt to explain behavior as a result of environmental influences and the dynamic interactions between the individual and his or her social context.

Part II: Conceptual Foundation for Understanding the Role of Environment in Bullying and Victimization

Social learning perspective. Bandura's (1986) Social Learning Theory posits that learnt behavior is a cognitive process that takes place in social contexts through observation. Central to this theory are the concepts of imitation, modeling, reinforcement and vicarious learning. According to social learning perspectives, learning takes place through direct experience but also vicariously by observing others' behaviors and the consequences of those behaviors that occur during daily social exchanges. In classrooms, teachers act as social models transmitting values, attitudes, respect, and dispositions that eventually become internalized by students. Imitating behavior of socially competent models is part of the socialization process that spares individuals from costly or fatal consequences (Bandura, 1969). For example, teachers who implement democratic teaching practices may promote communication and increase affiliation among peers, which in turn can reduce the risk of bullying perpetration and victimization. Teachers who display warmth and caring toward students promote accepting behavior among peers, which in turn creates positive peer cultures. These cultural repertoires of behaviors displayed by social models (i.e. teachers) represent the values, morals, attitudes and beliefs that get transmitted during the process of socialization.

Social learning theorists endorse the view that the origins of aggressive behavior stem from observational learning, reinforced performance and structural determinants (Bandura, 1978). Social learning models of aggression are able to explain how aggressive patterns develop, what instigates this behavior (i.e. modeling influences, aversive treatment, incentive inducements), and what maintains the aggression (i.e. external and vicarious reinforcement) (Bandura, 1978). Similar to single causal models focusing on the individual, social learning models of aggression are prominent yet fail to take into account individual differences that influence behavioral outcomes. For example, why do some individuals display certain behaviors

that may be acquired from the environment (i.e. aggressive acts) while others do not display these similar behaviors? Children are exposed to a range of models-some that promote prosocial behaviors and others that display anti-social behaviors. Hence what determines their choice for the behavior they chose to imitate? If they are partly influenced by both (i.e. prosocial and anti-social models) what motivates them to express one behavior over another? To discern this may require an affective and/or cognitive explanation and not just one from a behaviorist perspective. Nonetheless in view of the social learning theories, classroom environment that includes instructional approaches and teacher student interactions are part of the social context that may partly influence behavioral outcomes of bullying perpetration and victimization.

A developmental-contextual perspective. The social climate of the classroom is established through the quality of relationships (i.e. peer friendships, teacher-student relationships) and the provisional support for human agency that helps develop children's' self-control, self-efficacy, and self-determination. These characteristics of the classroom ecology are highly relevant for understanding youth outcomes (Doll, Song, & Siemers, 2004; Gest & Rodkin, 2011). Contextual influences such as peer interactions and peer sentiments (i.e. acceptance and rejection) are developmentally significant determinants of students' school adjustment and peer victimization (Hanish et al., 2004; Kochenderfer-Ladd, Ladd, & Kochel, 2009; Buhs, Ladd, & Herald-Brown, 2010). Some of the most common characteristics of classroom peer ecologies studied by researchers are students' social status including group hierarchies and group norms, the quantity and quality of friendships, social networks and the role of peers in bullying interactions (Espelage, Holt, & Henkel, 2003; Gest & Rodkin, 2011; Pellegrini & Van Ryzin, 2011). The dynamic relationship between an individual and his or her context explaining youth outcomes is articulated in a model proposed by Rodkin and Gest (2011). In their model they

distinguish between four aspects of the educational setting (i.e. classroom) to understand youth outcomes including bullying. A more detailed explanation of this model follows.

Rodkin and Gest's conceptual model of teaching practices, classroom peer ecologies, and youth outcomes. To understand outcomes of bullying at the classroom-level, Rodkin and Gest (2011) discuss the social management of the classroom from a developmental-contextual perspective emphasizing peer ecologies and teaching practices. They propose a conceptual model that highlights *general teacher-student interactions, the classroom peer ecology, network-related teaching, and youth outcomes for academic adjustment, aggression/bullying, and school bonding/social relatedness* (Figure 1).

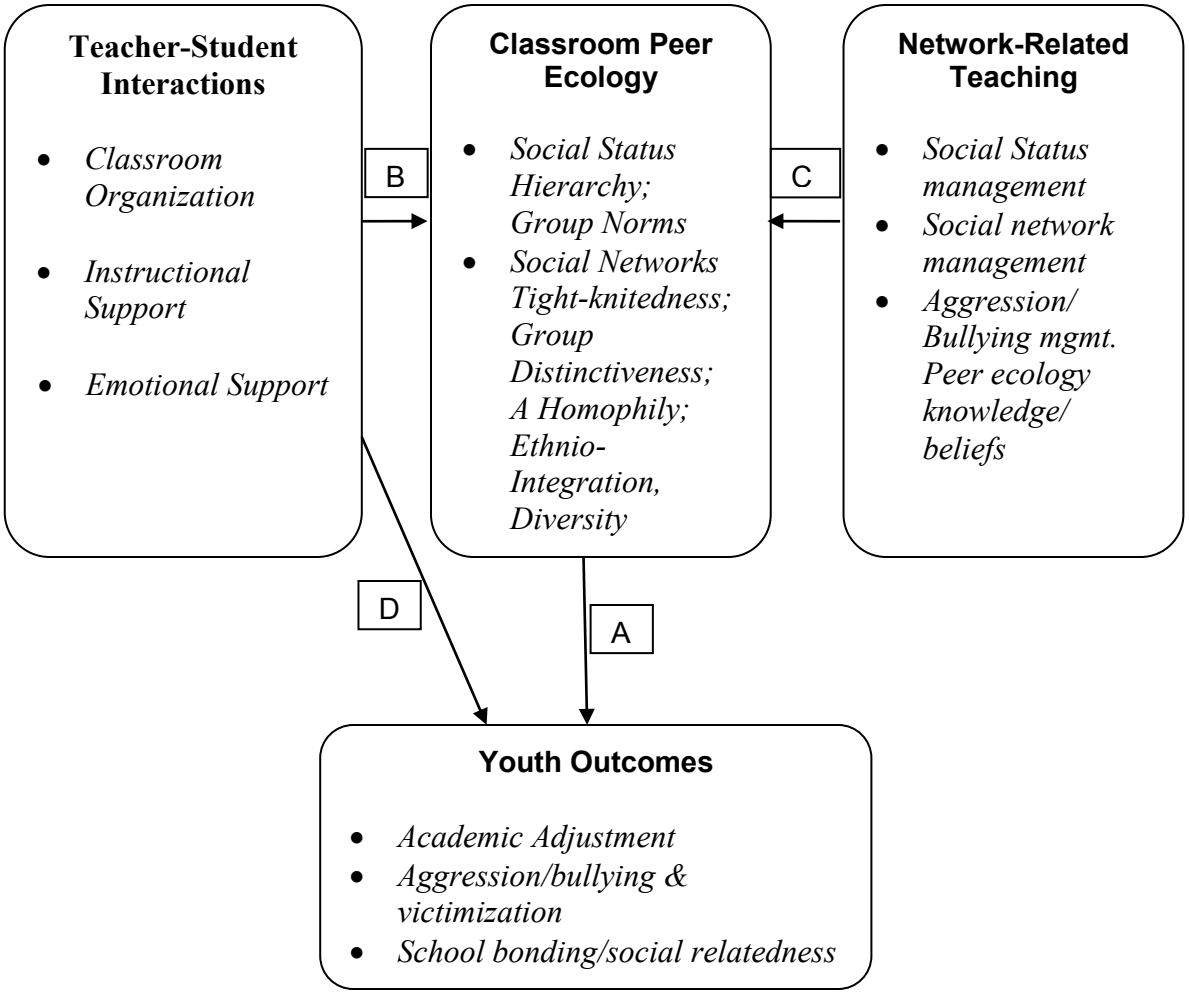

Figure 1. Conceptual model of teaching practices, classroom peer ecologies, and youth outcomes. Adapted from "Teaching Practices, Classroom Peer Ecologies, and Bullying Behaviors among Schoolchildren," by P.C.Rodkin, and S.D.Gest, 2011, *Bullying in North American Schools*, p. 75. Copyright 2011by Taylor and Francis.

distinctiveness, homophily, ethno-integration, and diversity. Social status and social networks of the classroom peer ecology are proximal determinants of youth outcomes (Path A), and partly shaped by general teaching practices consisting of classroom organization, instructional and emotional support (Path B) and network-related teaching (Path C). Network-related teaching

involves strategies for managing social status and social networks that impact outcomes of aggression and bullying in the classroom. A direct relationship between general teaching practices and youth outcomes is also illustrated in the model (Path D).

Classroom peer ecologies are necessary as they provide social regularities that help organize and stabilize students' interpersonal behaviors. Although teachers are not directly part of the social peer ecology, the general patterns of teacher-student interactions and teachers' explicit attempts to influence the peer ecology with network-related teaching practices impact peer ecologies and youth outcomes (Rodkin & Gest, 2011). An example of this would be teacher consideration in creating seating arrangements and in comprising small groups for social and instructional purposes that have been related to classroom-level patterns of liking, disliking and friendships (Farmer, 2000; Gest & Rodkin, 2011).

Rodkin and Gest (2011) claim that teaching practices and peer ecologies are interrelated systems within the micro systemic setting of the classroom that emphasize instructional activities, interpersonal roles, and social structures. Teacher-student interactions are proximal correlates of student outcomes. Teachers are responsible for their role in teaching which includes the provision of instructional practices to support students' academic and social growth, as well as the necessary coping skills and behavioral support. Three broad dimensions i.e. *classroom organization, instructional support,* and *emotional support* are part of the conceptual framework that depict quality of teacher-student interactions (Pianta, La Paro, & Hamre, 2006). Theoretically, these broad dimensions that describe the quality of classroom environments have been linked to children's academic, language and social skill development (Gest & Rodkin, 2011; Mashburn et al., 2008).

This conceptual framework adopted by Rodkin and Gest (2011) is of interest because it is the only model in the literature that is explicit about the processes of the classroom ecology, demonstrating direct links that influence youth outcomes for bullying. It is a flexible model that allows for the investigation of extensive classroom processes and the discerning of certain aspects of the educational setting (i.e. classroom) that matter in youth outcomes, and that can be applied at different grade levels (i.e. elementary versus high school classrooms). The sheer diversity of teaching practices that may impact peer ecologies broadens this conceptual model and enables researchers to consider developmental elements of the classroom environment that may have a direct or indirect impact on outcomes for bullying perpetration and victimization among junior high school students.

As noted earlier, peaks in incidences of bullying during school transitions (i.e. primary to secondary) may be a result of trying to gain social status among peers (Pellegrini & Long, 2002; Pellegrini & Van Ryzin, 2011). Hence it becomes imperative to consider developmental aspects of junior high school classrooms that can provide more opportunities for competition and social comparison among peers. Teaching practices that promote egalitarian status hierarchies and prosocial behavior, with little aggression-based homophily characterizes classroom peer ecologies that promote positive youth outcomes (Gest & Rodkin, 2011). Classrooms that are democratic with high levels of cooperation and interaction may have a positive impact on peer affiliations. The present research retains Rodkin and Gest's (2011) conceptualization of classroom ecology, however within its general teaching practices it further extends the investigation of critical elements related to high school classrooms including social comparison and competition, cooperation and interaction, student input and teacher-student relations as part of general teacher-student interactions. This model provides a multi-causal perspective that

emphasizes the dynamic interactions between teaching practices, peer ecologies and network-related strategies; and provides pathways that can be empirically tested. Rodkin and Gest's model however does not examine child features such as gender, social status, social support, school connectedness (as considered in the present study), supported by single causal models associated with aggression and bullying that may interact with the classroom context.

In concluding this chapter, part one reviewed theories that emphasize intra-individual processes (i.e. child traits). These theories are single causal models understanding bullying from an individual perspective with determinants of behavior residing solely within the individual. The present research supposes that these theories are influential for understanding factors within an ecological model and thus are discussed as part of the theoretical framework; however they are insufficient in explaining the social processes and contextual influences that interact with individual characteristics. Part two discussed theories that stress the importance of the individual and environment including the interactions between them. Social learning theories accentuate the role of observational learning yet they remain inadequate for extrapolating why some students respond differently to similar situations. Developmental-contextual theories are suitable as their ecological nature incorporates fundamental aspects of an educational setting as proximal processes that take place within the various classroom contexts (i.e. peers, teacher-student interactions, social network strategies) that are relevant to youth outcomes of bullying perpetration and victimization.

This chapter explored theories of bullying perpetration and victimization based on certain empirical assumptions. In chapter two the precise nature of the empirical evidence supporting theories of social development associated with individual processes is discussed, and in Chapter 3 evidence supporting social-contextual models is presented.

Chapter 2

Empirical Evidence for Individual Characteristics Associated with Bullying and Victimization

There is a large amount of empirical evidence demonstrating the link between individual characteristics of children and involvement in bullying interactions as either victims or perpetrators (Dake, Price, Telljohann, 2003; Pepler & Craig, 2000; Smith, 2004). Characteristics such as peer social status (Pellegrini et al., 2010; Rodkin & Gest, 2011), ethnicity, (McKenney, Pepler, Craig, & Connolly, 2006; Scherr, & Larson, 2010), remedial enrollment in schools, and learning disability (Nabuzoka, 2003; Mishna, 2003; Rose, 2011; Swearer, Espelage, Vaillancourt, & Hymel, 2010) have been associated with bullying perpetration and victimization. Research shows that bully and bully-victims are less likely to be high achievers, and experience more internalizing problems (Swearer et al., 2010; Reijntjes, Kamphuis, Prinzie, & Telch, 2010). Some evidence exists for predictive associations between students' antisocial behavioral styles and academic achievement especially in reading attainment (Miles & Stipek, 2006; Trzesniewski et al., 2006). More so, as children get older, the association between literacy achievement and aggression becomes stronger (Miles & Stipek, 2006).

The role of language and literacy. Evidence demonstrating that children's language abilities make them vulnerable to bullying either as perpetrators or victims has emerged from research that adopts cognitive-developmental or social cognition perspectives. Children with language disabilities report higher rates of being bullied than normally developing children (Knox & Conti-Ramsden, 2003; Luciano & Savage, 2007; Vallance, Cummings, & Humprhies, 1998). Mishna (2003) presents literature on characteristics that make students vulnerable to bullying highlighting that children with learning disabilities who lack communication skills (i.e.

verbal or non-verbal) are less accepted by other children and more often rejected. As a result of their developmental delays, students with poor language skills have difficulties communicating and as a consequence have fewer opportunities for positive peer interactions.

Conti-Ramsden and Botting (2004) examined externalizing and internalizing behaviors including risk of victimization in a longitudinal study of 7 to 11 year old children with specific language impairments (SLI) who attended language units in the United Kingdom. Language units are classes that offer specialist language environments (i.e. specialist teacher, speech-therapy assistant, and input from qualified speech therapists) attached to mainstream schools. Students who attend these units meet traditional SLI criteria, primarily with speech and language difficulties. Conti-Ramsden and Botting's research found that as children with SLI reach high school they experience more internalizing difficulties including withdrawn social behavior and peer difficulties as opposed to externalizing behaviors displayed at a younger age. Children with SLI experienced victimization almost three times more than their typically developing peers. A small but significant negative association between measures of expressive vocabulary and language, reading comprehension and victimization was revealed. These findings suggest that children with language difficulties may display externalizing behavior at a younger age however as they get older, they become more socially withdrawn and have fewer friends. Perhaps as a consequence of longstanding persistent language difficulties children's self- esteem is affected leading to social avoidance and poorer peer relations.

Conti-Ramsden and Botting's (2004) research found little support for the role of reading difficulties, more specifically for poor comprehenders and behavior difficulties. However in their study only reading comprehension was assessed. In light of the theory *Simple View of Reading*, poor comprehenders have difficulties in understanding written text as result of listening

comprehension deficits (Catts, Adlof, & Weismer, 2006). Therefore understanding the risks of language deficits for children's social and behavioral outcomes requires that reading and listening comprehension skills both be assessed as components of a broader language construct.

Similarly, research demonstrates that language deficits are also characteristic of children who are aggressive or perpetrate. In a report on bullying, school exclusion and literacy, Totten and Quigley (2003) state that proponents of developmental stage theories maintain that children who lack verbal skills often rely primarily on physical aggression (p. 15). It may be that these children lack alternative and appropriate responses to handle stress which often leads to poor coping skills and more frustration (Campbell & Skarakis-Boyle, 2011; Totten & Quigley, 2003). Research stemming from paradigms of social cognition show that children with social information processing deficits often can mistakenly display hostile intent toward others and be more aggressive (Camodeca & Goossens, 2005; Dodge et al. 2003; Kaukiainen et al. 2002).

Vallance, Cummings, and Humphries (1998) investigated mediators of risk for problem behavior in children aged 8 to 12 years with language learning disabilities (LLD). Their research is considered from a developmental organizational perspective examining the underlying processes (i.e. social discourse and social skills competence) that are risks for problem behavior in children with LLD. The developmental domain of social discourse integrates complex language skills (i.e. syntactic and semantic), cognition, and social processes including social perception of nonverbal behavior, perspective taking, emotional understanding, and problem solving. Vallance et al. findings demonstrated that children with LLD have poorer social discourse and are less socially competent which can lead to externalizing behavior including physical aggression.

In Vallance et al.'s (1998) research, social discourse assessed children's understanding of language in social contexts by measuring their ability to comprehend the meaning of metaphors, express meaning of ambiguous sentences and create sentences. Difficulties in understanding meaning and expressing one's own feeling, desires, and intentions manifested itself in problem behavior. A limitation of the research is that the interpretation and meaning of social discourse was not measured in spontaneous conversations but rather through a performance task. Moreover the broader communicative skills assessed (i.e. social discourse) rely on children's linguistic comprehension which is comprised of listening comprehension and decoding skills. A close examination of children's basic language skills could provide insight of linguistic comprehension abilities and gear interventions that focus on enhancing decoding, listening and reading comprehension.

To date there is no empirical evidence that examines adolescents' comprehension skills as an indicator of language abilities. In view of cognitive-developmental approaches for understanding that link between student' cognitive processes and bullying, the present study aims to examine if there is an association between students' reading and listening comprehension skills and bullying interactions. Based on the empirical evidence sustaining the role of language in bullying, it is hypothesized that deficits in a student's cognitive functioning may pose as a risk factor for bullying perpetration and victimization.

Social status and social support. During early adolescence there is greater emphasis on peer relationships, social status and social hierarchies (Pellegrini, 2004; Pellegrini & Long, 2002). A social dominance perspective has been influential in explaining the increases in bullying that occur during junior high school (middle school in the US). During the transition from primary to secondary school, students are experiencing rapid developmental changes due to

onset of puberty; they are also more focused on peer relations at a time where there are greater disruptions in peer affiliations due to differences in the social context of junior high school (Smith, 2010). These changes can lead to increased bullying which may be used as a strategy to establish social hierarchies and membership status within peer groups (Pellegrini & Long, 2002; Pellegrini & Bartini, 2001).

There is reliable research demonstrating the influence of peer context and its association with increases in bullying as children transition to higher grade levels (Espelage & Holt, 2001; Espelage, Bosworth, & Simon, 2001; Pellegrini & Long, 2002). Patterns of bullying, dominance and peer affiliations suggest that as students move to a new social context, their attempts to 'fit in' to the new environment is associated with increased bullying. Pellegrini and Long (2002) in a longitudinal study examined the changes in peer affiliations, dominance, bullying and victimization from primary to middle school. They hypothesized that bullying would initially increase and then decrease during middle school, across time, once dominance is established. In addition it was posited that after this transition, dominance would increase while bullying would decrease. Peer nominations of 'liked most' and reciprocal friendships were collected. Bullying and victimization was assessed using multi-methods (i.e. self-reports, peer nominations, direct observations, and student diaries), which strengthened the construct validity of measures. Dominance was assessed by teachers using a Teacher Check List (Dodge & Coie, 1987).

Pellegrini and Long (2002) findings support the hypothesis of their study in that there was an increase in bullying as children move from primary to secondary school. They found gender effects with boys reporting more bullying and targeting boys more often than girls, which is consistent with social dominance models. Seemingly, victimization was also more commonly reported by boys and increased from Grade 6 to Grade 7. Dominance as rated by teachers also

showed an increase from Grade 6 to Grade 7. The examination of peer affiliations demonstrated that being 'liked most' had buffering effects on victimization. The authors found that as students entered a new school in Grade 6 being 'liked-most' was the strongest significant predictor of victimization over time, even more so than school environment. If we try to elucidate the buffering effects of being 'liked most' for peer victimization in relation to having reciprocal friendships, it is conceivable that those students who have strong peer affiliations and are well liked are less likely to be aggressed. It may be that bullies avoid targeting students with strong peer affiliations for the fear of retribution and of damaging their own social reputations. It is also possible that 'like-most' status represents power and dominance, and serves the social goals set out by the student (i.e. attaining social dominance).

Similarly, Espelage and Holt (2001) investigated bullying in early adolescence and used a multi-informant and multi-method approach for assessing bullying, peer affiliation and psychosocial correlates in middle school (i.e. Grades 6, 7, and 8). They found that boys bullied more than girls. Their research also revealed that bullies and non-bullies shared similar social standings. Interestingly, there was a stronger association between bullying and popularity among Grade 6 males. It can only be speculated that as boys enter a new social environment they may use bullying tactics to obtain status within social groups, which in turn may be associated with greater prestige and popularity.

Both these research studies (i.e. Espelage and Holt, 2001; Pellegrini & Bartini, 2001) can be readily interpreted in view of social dominance suggesting that bullying can be a strategy in that students use proactive aggression to achieve dominance within novel social contexts. Needless to say central to social dominance theories is the notion of adaptive functioning and gaining resources, a construct that was not explicitly tested in both studies. However in a

longitudinal study by Pellegrini and Bartini (2001) the ontogeny of boys' dominance as they transitioned from primary to secondary school was examined. The authors' findings were consistent with social dominance theory in that there was an increase in aggression as boys moved from primary to middle school while dominance decreased, followed by an increase in dominance and decrease in aggression by the end of sixth grade. Pellegrini and Bartini's research examined the relation between dominance and an important resource during adolescence, heterosexual relationships (i.e. dating). They found that dominance which was indicative of agonistic and affiliative dimensions did predict dating. In terms of evolutionary antecedents boys' dominance may be crucial to a female's choice of partner as it is indicative of their ability to protect and provide resources. However, dating during early adolescence is most likely determined by a partner's status within a group context.

Bullying can be understood from evolutionary perspectives where its function is considered 'adaptive' rather than a 'deficit'. Understanding the process of peer victimization and elucidating why certain adolescents become targets of bullying requires that some emphasis be placed on the individual and behavioral continuity perspectives that stress child traits as antecedents of peer rejection and victimization. Children who are victimized tend to be rejected and have low peer affiliations (Juvonen, Graham, & Schuster, 2003; Pellegrini, Bartini, & Brooks, 1999; Schuster, 1999; Sentse, Scholte, Salmivalli, & Voeten, 2007). Certain child features that may put them at risk for rejection and peer victimization include social behaviors, emotional reactivity, social cognitions, and psychosocial vulnerability (Espelage, Bosworth, & Simon, 2001; Gifford-Smith & Brownell, 2003; Kochenderfer-Ladd, Ladd, & Kochel, 2009). Maladaptive behavioral propensities such as aggression and social withdrawal have been linked to rejection and victimization (Gifford-Smith & Brownell 2003; Kochenderfer-Ladd, 2003;

2004). Children with reactive aggressiveness may have a difficult time regulating emotional responses making them easy targets for proactive aggressors (Pellegrini & Van Ryzin, 2011). Emotional reactivity and regulation are interacting components in that most often children who experience intense negative emotionality will have difficulty regulating their emotions thus displaying less socially competent behavior with peers. Consequently, this limits children's opportunities for socializing which leads to fewer friendships, lower social status among peers, and poor social skills (Pellegrini & Van Ryzin, 2011).

Students who perpetrate or bully are perceived differently and more favorably from peers (Pellegrini et al. 2010; Rodkin & Berger, 2008). The literature shows that students who are aggressive and bully also enjoy high status among peers and are perceived as popular (Espelage & Holt, 2001; Juvonen, Graham, & Schuster, 2003; Pellegrini & Long, 2002). In fact, there is heterogeneity in the behavioral profiles of popular children (Rodkin, Farmer, Pearl, & Van Acker; 2000). Rodkin, et al. (2000) examined the heterogeneity of popular students in a sample of 59 fourth, fifth, and sixth grade classrooms revealing two subtypes of popular boys - popular-prosocial (models) and popular-antisocial (tough). 'Model' boys who had prosocial characteristics were perceived as cool, athletic, leaders, and cooperative whereas the 'tough' popular boys were more antisocial (i.e. getting into fights, causing trouble, disruptive) however still perceived as cool and athletic by their peers.

Behavior continuity models that emphasize child factors as primary precipitants lend some insight in characteristic that are associated with bullying interactions; nonetheless contextual influences such as prevailing attitudes and norms regarding aggression may influence these associations between bullying and social status. Perhaps classrooms that are more accepting of aggressive behavior may render students who bully as popular among their peers.

The extent that bullying is considered normative in the classroom especially during adolescence plays a role in how students perceive bullies (Pellegrini & Long, 2002; Sentse et al. 2007). Moreover the emotional and instructional support provided in classrooms may in turn influence peer affiliations.

Social support from friends. Positive peer support, which differs from sociometric ratings of popularity, is also a salient factor that can protect students against peer victimization and bullying (Demeray & Malecki, 2011; Demaray, Malecki, Jenkins, & Westermann, 2012). A study by Demeray and Malecki (2011) found that children classified as victims or bully-victims reported lower levels of support from classmates, which in turn had more negative outcomes. Students who perceive themselves as lacking social support especially if being bullied end up feeling alienated and disconnected from school, (Holt & Espelage, 2007). In fact, Furlong, Chung, Bates, and Morrison's (1995) research showed that students who were repeatedly exposed to school violence sought out less support from peers and teachers, and reported feeling less connected to the school. Although research demonstrates that victimization is related to low supportiveness and companionship, it may be that the characteristics and qualities of friends are an important considerations. Students who are victimized tend to also have friends who are themselves victimized therefore these friendships may provide low protection and do little to prevent abuse (Hodges et al., 1999).

In addition to social status, the present study also measure social support from friends. This aspect assessed whether different dimensions of peer affiliations may also contribute to bullying perpetration and victimization. Peer support evaluated relationship aspects such as closeness, trust, and confidence. Based on the literature, it is predicted that higher levels of social support from friends will be associated with reduced peer victimization. With regards to

social status as understood from social dominance views, it is hypothesized that more favorable statuses are associated with bullying while a less favorable statuses (i.e. rejected) will be a characteristic associated with victims.

School connectedness. According to motivational theorists, human psychological needs (i.e. competence, autonomy, and relatedness) are determinants of an individual's behavior. School connectedness is a psychosocial factor representing a students' adjustment to school and an indication of how well their psychological needs are being met in the school environment. A widely accepted definition is the Wingspread Declaration which states "school connection is the belief by students that adults in the school care about their learning as well as about them as individuals" (Wingspread Conference, 2004, p. 233). Some critical requirements for developing feelings of connectedness to school include students' experiencing support for their learning, positive relationships with adults and both physical and emotional safety (Wingspread Declaration, 2004). This Declaration is based on a review of the research and discussions with interdisciplinary leading researchers in the field convened at the Wingspread Conference in 2004. Although school connectedness overlaps with numerous terms in research literature (i.e., school attachment, school engagement, school involvement and school bonding), they all share central consistent components that include a sense of belonging, liking school, engagement, having a sense of control, disciplining, and support being provided (Libbey, 2004).

School connectedness is fostered through the affect or interpersonal aspects of the school environment enhancing students' feelings of belonging in their school (Shochet & Smith, 2012). The dynamic interactions between individuals in the school, and the organizational structural and functional components of the school ecology are associated with improved connectedness (Waters, Cross, & Runions, 2009). During adolescence, developing a sense of connectedness to

school has been linked to psychological well-being, school success and pro-social behaviors (Bond et al., 2007; McNeeley, & Falci, 2004; Shochet & Smith, 2012; You et al., 2008). Meanwhile low feelings of connectedness can lead to lower life satisfaction (You et al., 2008), poorer academic achievement (Buhs, Ladd, & Herald, 2006) and engagement in risky behaviors (i.e. substance abuse (Bond et al. 2007). In a longitudinal study by Bond et al. (2007), the associations between school connectedness, mental health, substance abuse and academic achievement was examined. The sample included a total of 2678 students surveyed in Year 8 and two years later in Year 10. The data was derived from the Gatehouse Project, a randomized controlled trial of a multilevel school based intervention to enhance students' connectedness to school and promote well-being. There were three components to the intervention i.e. individual, classroom and whole school. The individual level intervention aimed to promote emotional wellbeing and focused on cognitive and interpersonal skills. At the classroom and school level, the changes in the environment to enhance security, safety and communication were part of the intervention. In this study, the school connectedness construct included subscales that measured students' commitment to school, relationships with teachers and peers, opportunities to participate, and sense of belonging. Social connectedness, as a measure of social support assessed students' social interactions with peers.

Bond et al. (2007) findings revealed that students identified as low in school connectedness in Year 8 were more likely to report depressive symptoms and engage in substance use in Year 10. In addition, students with low school connectedness were at greater risk for not completing school. Since school connectedness is a broad construct, dimensions most associated with risk behaviors and negative outcomes were not disentangled in Bond et al.'s study. A study by McNeely and Falci (2004) did investigate the association between two

dimensions of school connectedness (i.e. *teacher support* and *social belonging*) and the initiation of adolescents' health-risk behaviors. Adolescents in grades 7-12 rated teacher support on items that denoted *teacher fairness, amount of conflict between teacher and student, and how much teachers care about students*. Social belonging was rated based on *how much students feel close to people in their school, how much they feel part of the school and how happy they are to be in the school*. The findings of this longitudinal study revealed that teacher support was a protective factor against the initiation of regular use of cigarette smoking, alcohol and marijuana. Increasing teacher support also protected against suicidal attempts and the initiating of sexual intercourse. However, social belonging which assessed the individual's relationship with school was a risk factor suggesting that students who felt they were part of the school and enjoyed going to school were not protected from initiating health-risk behaviors. McNeely and Felci offer several explanations for these findings. Social belonging is represented by connections adolescents have to the school. These connections are with adults and peers, and may be conventional or unconventional. Conventional connectedness involves connections with individuals who model prosocial behavior while unconventional connectedness involves connections with individuals who do not conform to prosocial behavior. Connections to teachers are presumed to be conventional whereas connections with peers can be conventional or unconventional. Since the measure of social belonging did not specifically refer to peers there may be shared variance with teacher support. Once the shared variance is removed, social belonging is primarily tapping into unconventional connectedness to peers, which may explain McNeely and Felci's findings.

The association between school connectedness and peer victimization has been widely studied (Cunningham, 2007; Eisenberg, Neumark-Sztainer, & Perry, 2003; Espelage & Holt,

2001; Lester, Cross, Shaw, & Dooley, 2012; Skues, Cunningham, & Pokharel, 2005; You et al. 2008). A sense of school connectedness differs among students who are identified as bullies, victims, or bully-victims (Cunningham, 2007; Haynie et al. 2001). Cunningham's (2007) examined the levels of bonding to school for bullies, victims and bully-victims in a sample of 517 students aged 11- 15 years in 6th, 7th, and 8th grade enrolled in private Catholic schools in Australia. School bonding was measured using two subscales – *attachment* and *commitment*. The Commitment scale measured students' commitment to school in terms of academic performance, working hard, and following rules. The Attachment scale assessed emotional bonding and was reflected with items that measured sense of belonging and perception of a supportive and caring school environment. Students who were classified as bullies reported higher levels of attachment to school than did victims or bully-victims. Contrarily victims were higher on levels of commitment compared to bullies and bully-victims. The bully-victim group had low levels of attachment and commitment to school and at highest risk for psychosocial functioning. This research highlights that bullies scored higher on attachment than victims or bully-victims. The authors make meaning of this finding suggesting that the attachment scale did not necessarily measure prosocial behaviors and therefore may have been measuring students' attachment to antisocial peer groups. Moreover, since bullies, victims and bully-victims perceived adults in the school as more tolerant of bullying, it may lend to bullies feeling an attachment to school as a result of tolerant attitudes for bullying.

Research findings demonstrating that bullies have a good attachment to school are not consistent across the literature. A study by Espelage and Holt (2001) examining psychosocial correlates of bullying and victimization in middle school revealed that bullies perception of sense of belonging was lower than non-bullies, and did not differ from victims sense of belonging to

school. Lester, Cross, Shaw, and Dooley (2012) analyzed data collected from 3459 students aged 11-14 years old (Grades 7 – 9) transitioning from elementary (i.e. Grade 7 marks the end of primary school in Australia) to secondary school. School connectedness was measured with four items: *I feel close to people at this school; I feel like I am part of this school; I am happy to be at this school; the teachers at this school treat students fairly*. Their findings demonstrate a reciprocal relationship between perpetration-victimization and school connectedness. Generally students reported a decreased sense of belonging to school as they moved into higher grades as a consequence of perpetration-victimization. However students with a decreased sense of belonging (e.g. in Grade 8) also experienced an increase in perpetration-victimization in Grade 9.

A lower sense of connection to school associated with bullying may also impede academic achievement as demonstrated in a study by Skues, Cunningham, and Pokharel, (2005). The relationship between school connectedness and academic success in Year 7 to 12 for students who were being bullied by peers in an Australian high school was explored. They found that students in lower grades reported more bullying and that students who were most frequently bullied were less connected with their peers, teachers and school. Students who were less connected to school were also less motivated to perform well in school. School connectedness was made up of three scales that measured students' sense of connectedness to peers (i.e. how well they get along with others), teachers (there are teachers who care about me), and school (I look forward to going to school). Skues et al.'s findings can be understood from motivational theorists' perspectives who claim that students' sense of relatedness is an internal process that influences motivation and guides behavior. Thus if students do not have good relationships with adults in the school (i.e. teachers) it may threaten the development of self. Research findings are based on early adolescence however similar trends were found in

elementary aged children, in that a lower sense of connection to school was reported among bullies and bully/victims (Raskauskas et al., 2010).

Young adolescents transitioning from elementary to junior high school may experience a decrease in their sense of connection to school as a result of moving from smaller and more intimate schools where their needs may be easily met, to larger and more impersonal school contexts (Orpinas & Horne, 2010; Pereira & Pooley, 2007). In light of Connell and Wellborn's (1991) self-systems process theory, the social context is viewed as either facilitating or inhibiting a student's motivation and his or her developing sense of self. Students' perception of school connectedness is influenced by the developmentally appropriate support provided which increases opportunities in the adoption of meaningful roles, the provision of safety, and engagement in academics (Whitlock, 2006). Research by Whitlock (2006) highlighted salient themes associated with school connectedness in 8th, 10th, and 12th grade youth. Contextual correlates included opportunities for meaningful input into school policies, student-adult interactions, and the extent to which classroom material was engaging to students. These contextual components that were associated with school connectedness are consistent with broad construct of school connectedness that includes teacher support, commitment, belonging, and engagement.

Highlighting developmental supports that influence students' connection to school have implications for intervention programs. To date research shows that interventions for bullying that have been somewhat effective are based on a whole-school approach with core features modeled from the Olweus Bullying Prevention Program which to date has been most effective (Olweus, 2004; Smith, Schneider, Smith, & Ananiadou, 2004). This program intervenes at the individual, classroom, parent, and school level. Orpinas and Horne (2010) also discuss a social

skill development program that includes various components aimed at developing a positive school climate. Enhancing students' connection to school may require interventions at the individual level (e.g. aiming to help students develop skills to recognize opportunities and initiate behavior to engage in activities) and at the classroom and school level addressing contextual factors that are developmentally relevant (e.g. excellence in teaching, school values, caring and respect, student input in the curriculum) that could enhance youth's sense of belonging to school (Orpinas & Horne, 2010).

Catalano, Haggerty, Oesterle, Fleming, and Hawkins (2004) summarize findings from two longitudinal research investigations undertaken by the Social Development Research Group - the Seattle Social Development Project (SSDP) and Raising Healthy Children (RHC). This was a longitudinal intervention study that examined students' trajectories for school connectedness highlighting its significance for youth wellbeing, as well as its moderating effects for school violence (i.e. including bullying). The preventative intervention was multi-component involving teacher training in classroom instruction and management, a social competence promotion curriculum for the students, and developmentally-sequenced parent training curricula. School bonding was measured with five items: '*I like school'*; *'Most mornings I look forward to going to school'*; *'I do extra schoolwork on my own'*; *'When I have an assignment, I keep working on it until I'm finished'*; *'I like my classes this year'*. This research draws attention to interventions that are multi-component rather interventions centered solely on the individual. Positive outcomes of the intervention suggest that internal processes may play a role for school connectedness however there is the necessity of intervening also at various levels including at the classroom and family level to promote school connectedness. Catalano et al. (2004) reported

that school bonding was associated with reduced school problems, violence, alcohol abuse and risky behaviors.

Given that research provides strong evidence for the association between school connectedness and peer victimization, a goal of this research was to examine students' level of school connectedness as an individual characteristic in multi-level models associated with bullying perpetration and victimization in Grade 7 and Grade 8 of junior high school. School connectedness is a psychosocial variable that reflects an individual's internal processes (e.g. motivation) and the interpersonal abilities that maintain emotional wellbeing relevant to adolescents development. Furthermore, school connectedness is understood from a motivational aspect where students' sense of belonging need be fulfilled for positive social outcomes.

In the present study, school connectedness construct is an overarching measure with four dimensions *commitment, power*, *belonging*, and *belief.* Commitment is assessed through questionnaire items that explore students' investment in attaining goals and succeeding in the school. Belief includes items that represent fair treatment, respect, and safety. Belonging explores how much the student feels that he or she belongs, has friends, and feels comfortable and safe at school. Lastly, power is represented by items that reflect the amount of support and caring demonstrated by adults in the school, and the amount of student input and opportunity for decision-making at the school. Together these dimensions of connection create a comprehensive and cohesive construct to measure students' relationship with school and reflect the critical requirements for developing feeling of connectedness to school as defined by the Wingspread Declaration (Wingspread Conference, 2004). These dimensions of school connectedness have been employed by Brown and Evans (2002) in a study with adolescents investigating the relationship between student participation in extracurricular activities and their sense of school

connectedness. The empirical evidence demonstrating a relationship between peer victimization and school connection guides this research to explore school connection as a psychosocial factor at the individual level predicting bullying perpetration and victimization.

In concluding this chapter, empirical research on factors associated with individual characteristics and bullying interactions was reviewed. Theoretical underpinnings for research evidence presented in this chapter stem from evolutionary and socio-biological perspectives emphasizing theories of social dominance which have been fruitful in explaining peaks in bullying during junior high school years. Evidence supporting cognitive developmental perspectives that emphasize the role of cognition and students' language and literacy as determinants of peer victimization is scarce, however research highlights that social discourse skill may precipitate bullying interactions. Further investigation is warranted for the role of linguistic comprehension in bullying interactions, an issue that is addressed in the present research. Finally, research demonstrates that feeling connected to school is a protective factor that promotes students well-being and is linked to bullying. After examining the empirical assumptions supporting individual characteristics, the micro systematic classroom context requires scrutiny. The next chapter reviews empirical evidence supporting social contextual models of bullying interactions.

Chapter 3

Empirical Evidence on Classroom Environment and Student Outcomes

Research on bullying has been centered on individual processes associated with a bully or victim. While theoretical perspectives that focus on individual attributes have generated a productive line of research, bullying and peer victimization remains an interpersonal problem. To attribute mainly to individual, internal processes or (social) cognitive characteristics culpability for the bullying phenomenon often neglects the interpersonal aspect that most researchers now realize is indisputably, the process and outcome of interest. From this perspective, conceptual frameworks that assume child features as the primary precipitants of peer victimization may be inadequate. Children grow and develop character from their interactions and experiences within specific contexts such as classrooms and schools. Proximal processes occurring in the classroom influence students' social and academic outcomes (Gest & Rodkin, 2011; Pianta et al., 2008; Roland & Galloway, 2002). Additive models that assume the distinct contributions of the individual and environment, and transactional-ecological developmental models that explain the dynamic processes by which individual and environment shape each other are better suited for understanding peer victimization (Jimerson, Hart, & Renshaw, 2012; Kochenderfer-Ladd, Ladd, & Kochel, 2009; Swearer & Espelage, 2011).

The remainder of this chapter reviews research on the effects of classroom environment on student outcomes understood from social learning perspectives and developmental-contextual frameworks. A well-established amount of multilevel research literature has explored school level factors associated with bullying (Green, Dunn, Johnson, & Molnar, 2011; Konishi, Hymel, Zumbo, & Li, 2010; Ma, 2002; Reis, Trockel, & Mulhall, 2007; Richard, Schneider, & Mallet, 2011; Waasdorp, Pas, O'Brennan, & Bradshaw, 2011), however there is limited research on

general teaching practices that examine the emotional and instructional support of the classroom as proximal processes that determine the social and academic development of youth (Brown, Jones, & Aber, 2010; Gest & Rodkin, 2011; Osher et al., 2004; Pianta et al. 2008).

Classroom management, instructional and emotional support. The natural occurring variations in classroom environments and its effects on students' academic and social outcomes have gained some attention in recent years (Hamre & Pianta, 2001; Mashburn et al. 2008; Pianta et al., 2008; van Tartwijk, den-Brok, Veldman, & Wubbles, 2009). Children's experience in classrooms was explored by Pianta et al., (2008) in a longitudinal field study with 1st to 5th grade students. The authors examined the associations between observed emotional and instructional support in the classroom and children's academic trajectories in math and reading achievement. Classroom observations were conducted using the Classroom Observation Systems for 1st, 3rd, and 5th grade (COS-1, COS-3, and COS-5) that rate classroom climate and children's experiences in the classroom. Measures included the instructional quality of the setting (i.e. whole class, small group, individual work), activities (i.e. math, literacy, transitions/management), teacher behavior (i.e. attends to child, teaches basic skills, inferencing/analysis, managerial discipline, affect positive, affect negative, disciplining), and child engagement. Global rating at the classroom-level included two composites: *emotional support* (i.e. over-control, chaos, positive emotional climate, negative emotional climate, detachment of teacher, teacher sensitivity) and the *instructional support* (i.e. productive use of instructional time and richness of instructional activities).

Pianta et al. (2008) found some support for the impact of proximal processes in the classroom and children's development in reading and math. More specifically, the emotional quality of teacher-student interactions influenced children's outcomes for reading and math

achievement in higher grades (i.e. 3rd and 5th grade for reading and 5th grade for math). It is worthwhile noting that the impact of classroom processes on academic gains was apparent even after individual child characteristics (i.e. gender, prior academic skills, and poverty) were taken into account, further upholding the criticism of developmental models. These findings highlight the potential importance of children's socio-emotional experiences with teachers and the general emotional climate of the classroom. From a social learning perspective it may be that teachers who create classrooms that cultivate a sense of community and employ activities that foster student collaboration may increase student engagement. For example, teacher enthusiasm in the presentation of literacy activities may have an indirect influence on student motivation for reading.

A reasonable interpretation of these results draws attention to the importance of children feeling comfortable and well supported, which stems from emotionally secure relationships with teachers in the classroom. However the non-experimental nature of the study does not allow for drawing strong causal inferences. The lack of evidence of a significant relationship between emotional support and academic achievement in earlier grades may suggest that the emotional climate of the classrooms becomes more important as children move to higher grade levels. Some of the methodological limitations of the study may have influenced the findings and thus interpretation is with caution. The time spent observing classrooms in 1st grade was reduced by half the time relative to 3rd and 4th grade observations. Classroom observations in 1st grade were based on 3-hours (compared to 6 hours in third and fourth grade), which may not have been sufficient to capture all of the key characteristics of the classroom climate. A final important note is warranted on the statistical method used to analyze the data. Pianta et al. (2008) analyzed the data using a growth mixture model to assess change over time. Observations were on the

classroom and the experiences of the target child drawn from a previous larger study (i.e. NICHD). Thus the 'effects' of this inquiry are based on target children. Including multiple children in each classroom, multilevel modeling could have been used to analyze the nested nature of this data (i.e. students nested in classrooms) which yields more precise estimates of coefficients and classroom effects.

The impact of classroom environment on children's academic attainment anticipates a similar relationship between classroom processes and children's social outcomes. Mashburn et al. (2008) examined children's behavior and social skills in a large study with prekindergarten children from 671 classrooms in 11 states. The quality of teacher-child interactions was assessed with two global domains – *instructional* and *emotional support*, using the Classroom Assessment Scoring System (CLASS; Pianta, LaParo, & Hamre, 2006) similar to Pianta et al.'s (2008) study. The emotional support factor is comprised of a positive climate that reflects enthusiasm, enjoyment and respect displayed between teacher-student interactions and peer interactions. The extent that teachers provide comfort, reassurance, encouragement and effective behavior management measured teachers' sensitivity. Instructional support is comprised of concept development which reflects how well teachers promote high order thinking skills and creativity through problem solving, integration and discussions. The quality of feedback (i.e. verbal evaluations) provided by teachers for work, comments, or ideas was also considered as instructional support.

Mashburn et al. (2008) results further accentuate the positive effects of high quality instructional interactions on children's academic and language skills. Emotional interactions of high quality were also associated with increased social competence and less problem behavior among students. In this study, social competence included items such as 'student participation in

the class discussion', 'completes work', and 'is well liked by peers'. The study results are consistent with social learning theories implying that teachers who have positive interactions with students are modeling respect, which in turn is perhaps imitated in student-student relationships. Moreover, the behavioral management component in the classroom represents the teachers' ability to use effective strategies that prevent and redirect problem behavior. These research findings support the notion that learning is a social process and the proximal processes that reflect emotional and instructional aspects of the classroom impact student's academic, language and social competence. Mashburn et al. (2008) employed multilevel modeling to analyze the nested nature of the data thus increasing the reliability of classroom effects. While the findings of this study are interesting, they do not explore bullying per se. Furthermore, classroom mechanisms that influence primary classrooms may largely vary because of the differences that exist between primary and junior high school classrooms contexts.

The impact of emotional and instructional support in the classroom on bullying was also examined in a study by Roland and Galloway (2002). The research examined the association between teachers' management of the class, the social structure of the class and bullying in 2,002 students from Grades 4-6 in Norwegian primary schools. Teachers' *management* of the classroom included four aspects (i.e. Caring, Teaching, Monitoring, and Intervention*)* that were rated by students. *Caring* was concerned with whether teachers care about pupils, are interested in pupils out of school activities, try to help with problems, and build friendships with pupils. *Teaching* assessed teachers' competence in explaining subject matter, plenary activities, group activities, and transitions between activities. *Monitoring* asked pupils about their homework, work during lessons, behavior in the classroom and during breaks, and teacher monitoring. Lastly, *intervention* was problem oriented and focused on how the teacher reacted when

something was unacceptable. Students also provided data on bullying (i.e. being bullied and bullying others) and family conditions (i.e. student relation with family). The *social structure* of the class was rated by teachers using three constructs (i.e. Relations, Concentration, and Norms). *Relations* concerned the informal relations between pupils, and the cohesion domain (i.e. friendship, support, attraction, isolation, power, and relations between subgroups). *Concentration* was related to learning activities and how well pupils concentrated when they executed different activities, and how smoothly they changed from one activity to another. *Norms* about informal relations between pupils (e.g. *Most pupils agree that it is right to help other pupils who are being bullied*) and schoolwork (e.g. *Most people agree that school work is important*) in addition to norms on teacher authority were rated.

The findings of Roland and Galloway's (2002) research revealed classroom-level differences in bullying others and being bullied. Management and structure both had a significant negative relationship with bullying others (i.e. -0.28 and -0.41, respectively) with the effect of structure being stronger suggesting that classrooms that were cohesive, friendly, and supportive had less classroom-level bullying. Path analysis with structure, management, and family entered stepwise revealed that these variables predicted 22% of the variance of bullying others. A significant positive relationship was evident between management and social structure. Interestingly, management had an indirect effect on bullying via social structure. These findings to some extent support the Rodkin and Gest (2011) conceptual model linking teaching practices, classroom peer ecologies, and youth outcomes in understanding bullying and victimization. In Rodkin and Gest's model, general teaching practices shape peer ecologies, indirectly influencing bullying/aggression. The social structure variable used in Roland and Galloway's research was not defined merely as peer relations as it also included items assessing on-task behavior, bullying

and academic norms. However the positive association between management and social structure suggests that classrooms perceived by students as having teachers who care, are competent (in teaching), monitor activities closely, and are effective in managing problem behavior will have better informal relations between subgroups of peers, and increased student engagement and positive behavior norms.

Roland and Galloway's (2002) classroom-level effects should be interpreted cautiously because their methodology does not determine the direction of the influence of variables. It may be that bullying among students influences the social structure of the class. Longitudinal studies to further explore this relationship are recommended. Furthermore, correlations and multiple regressions were used to analyze the relationships, thus class-level effects were revealed from descriptive statistics of aggregated classroom data by examining the standard deviations and minimum/ maximum scores. Similar to the Pianta et al.'s (2008) study, multilevel analyses as an appropriate level of analysis for clustered data and including all children in the class would yield more reliable findings.

Teacher-student relationships. The literature discussed thus far indicates that the emotional support provided in the classroom impacts students' global development. Teachers are mostly responsible for the emotional support provided in the classroom and serve as important role models that help cultivate children's development, their social aspirations, knowledge and skills.

Children's behavior is swayed by their interpretations of the classroom atmosphere and the quality of relationship with their teachers (Deault & Savage, 2013; Woolfolk-Hoy & Weinstein, 2006). Students who perceive their teachers as caring and feel respected are more likely to trust their teachers and seek help in times of need (Newman, 2000). By contrast,

conflict between students and teachers is more likely to result in students displaying disruptive and maladaptive behavior (Brengden et al., 2011). Positive interaction with teachers is associated with student well-being and psychosocial adjustment (Andreou, 2000; Blankemeyer, Flannery, & Vazsonyi, 2002; Reinke & Herman, 2002). Crosnoe, Johnson, and Elder (2004) examined intergenerational bonding in schools and the contextual and behavioral correlates of teacher-student relationships. The study examined the relationship between school bullying, student-teacher connectedness and academic performance. The data was based on a Canadian sample of 27, 217 students aged 15 years drawn from the 2003 data collection in part of the Programme for International Student Assessment (PISA) sponsored by the Organization for Economic Co-Operation and Development (OECD). Student-teacher connectedness reflected the student-teacher relationship, and was measured using students' perception of their connectedness with teachers (e.g. most teachers' are interested in students' well-being). Their findings showed a significant negative relationship between bullying and academic achievement (i.e. math and reading) however student-teacher connectedness had a buffering effect on this relationship. Once again, this may be relevant in light of cognitive-developmental models and earlier criticism that social and emotional aspects might moderate this association. An interaction between school climate of bullying and student-teacher connectedness was revealed for both math and reading achievement. For students who reported higher levels of school connectedness (i.e. reflecting the teacher-student relationship), the deleterious effects of bullying climate were less than for those students who reported lower levels of connectedness with teachers. Results suggest that intergenerational relationships served as a protective resource. Students' views of favorable teacher-student relationships and high teacher-student bonding had positive effects on both academic and behavioral outcomes.

Shin and Hye-Yeon (2008) investigated the role of teacher-student relationships and peer victimization for preschool children in Korea. Although the age group is not relevant to the focus of the present study, their findings provide useful insight on features of teacher-student relations more generally. They looked at two dimensions of teacher-student relationships (i.e. closeness and conflict) and how it was linked to student adjustment. They found that children who rated high in peer victimization also rated high in child-teacher conflict and low on teacher closeness. Shin and Hye-Yeon findings are consistent with the existing literature highlighting the significance of interrelationships between adults and students, and student outcomes (Konishi et al. 2010; Rudasill, Reio, Stipanovic, & Taylor, 2010). Their research extrapolates two succinct dimensions of teacher-student relations (i.e. closeness and conflict). These dimensions have been used in research that examined conflict in the classrooms and gender differences in teacher-student relationships, revealing that boys experienced more distance and conflict with teachers than girls (Koepke & Harkins, 2008). Shin and Hye-Yeon data was based solely on teacher perceptions thus necessitating studies that use multi-informants to strengthen findings and triangulate data.

One may question whether teacher-student relationships can help overcome hereditary disposition differences that may put a child at risk for victimization or bullying. The effects of teacher-student relationships on potential genetic propensity for aggressive behavior and peer victimization were demonstrated by Brendgen et al. (2011) in a study that examined the gene-environment processes linking aggression, peer victimization and teacher-student relationships. Similar to Shin and Hye-Yeon's (2008) study, teacher perceptions of teacher-student relationships were assessed using the STRS (Pianta & Steinberg, 1992) for the amount of closeness and conflict. Brengden et al.'s study showed that while a possible genetic disposition

for aggressive behavior may increase a child's risk of victimization by the peer group, a positive relationship with the teacher may indirectly offset this risk by reducing the expression of this genetic propensity. While the study investigates the genetic propensity for aggressive behavior, which is understood from a biological perspective, the finding that teacher-student relationships can override genetic dispositions suggests that behavior is a result of social processes occurring in a social context. Teachers-student relationships may be important in shaping students behavior and have a mediating effect on bullying. In high school, teacher-student relationships may be more difficult to establish as a result of the organizational structure of schools. Secondary schools are larger with complex structures including hierarchical layers and numerous teaching staff. Students have more subjects, moving from class to class, with perhaps less chance of one teacher having a strong influence on their development. The multitude of teachers in a students' life can make it more difficult to develop close relationships with teachers. The present research investigates the role of teacher-student relationships as a characteristic of the classroom influencing bullying.

Social comparison and competition in the classroom. Classrooms can provide extensive opportunities for social comparisons because of its evaluative atmosphere that is made up of inherent reward systems based on performance, teacher's concern with achievement, and parents' expectations (Dijkstra, Kuyper, van der Werf, Buunk, & van der Zee, 2008). According to Festinger's (1954) classic social comparison theory, students evaluate their opinions and abilities, and seek accurate appraisals of themselves among similar peers. A review of the literature on social comparison in the classroom suggests that students compare their performances to peers who perform better. These upward comparisons can lead to better

academic performances however they can also enhance negative affect in students by reminding them they are inferior (Dijkstra et al. 2008).

As students move from elementary to junior high school, the structure and culture of classrooms change and there is often more emphasis on whole-class instruction, grades and competition (Orpinas & Horne, 2010; Pellegrini & Van Ryzin, (2011). In a two-year longitudinal study, Feldlaufer, Midgely, and Eccles (1988) investigated changes in classroom environment in mathematics instruction from elementary (Grade 6) to junior high school (Grade 7). The sample included 117 sixth grade classrooms and 138 seventh grade classrooms. The classroom environment measure that was developed by the authors has three forms: Student Classroom Environment Measure (SCEM), Teacher Classroom Environment Measure (TCEM), and Observer Classroom Environment Measure (OCEM). They included multiple sources to increase the reliability of the measure since some items are better rated by one source over the other. Their findings revealed a consensus between teacher, student and observer ratings that students had less autonomy and fewer opportunities for input in seventh grade. Moreover, student and teacher perceived a decrease in cooperation and interaction from pre-transition to post-transition. An unexpected finding revealed that students actually perceived sixth grade classrooms as more competitive than seventh grade classrooms. However this could have resulted due to the limitation of the competition subscale which used only two items to measure competition (i.e. *tries to be the first one to answer a question; tries to be the first to complete work*). These items may be picking up on covert behavior that is more visible in earlier grades when students are not as self-regulated and may be more inclined to shout out responses. Furthermore sixth grade student ratings may be impacted by their developmental stage, which in turn may influence their perception of the classroom environment. Teachers and observers did

not find any differences in competition from pre- to post- transition classrooms. There was evidence of increased social comparison behavior among students in seventh grade classrooms; and teacher-student relations were perceived as less friendly, supportive and caring after transitioning to seventh grade. Feldlaufer, Midgely, and Eccles research highlights the developmental mismatch in classrooms environments from primary to secondary school that may be debilitating student growth. For example, a teacher-student relationship that is less nurturing during this transition may lead to decreased motivation, and increased social comparison in seventh grade classrooms, at a time when students may be more self-conscious and focused on ability which can lower youth self-concept of their abilities.

Although Feldlauer et al.'s (1988) study showed no evidence of increased competition in high school classrooms, the present research used the same classroom indices (i.e. SCEM, TCEM, and OCEM) to measure classroom environment using three sources (i.e. student, teacher, and observer) and further investigates the role of competition. The competition subscale demonstrates decent reliability and validity, and as a variable of interest in the present study, it was used to further investigate classroom environment in junior high school.

In a study by Nocentini, Menesini and Salmivalli (2013), the variable *competition* was measured at the individual (pupil) level and it was associated with bullying over time for adolescents in Grades 9 and 10. Furthermore, competition was more strongly related to males. The construct of competition reflected a desire for social success and for greater social status and power. Items rating competition included "*Winning in a competition makes me feel more powerful as a person"*, "*If you don't get the better of others, they will surely get the best of you*", "*People who quit during a competition are weak*", "*Competition inspires me to excel*". More so, students who scored high on competition were also higher on the bullying index. Although

competition was not a measure of the classroom environment per se, it demonstrates its association with bullying even at the individual level. In the Nocentini et al. study, competition was construed as a drive for social dominance nevertheless inferences can still be made regarding its association with bullying. It could be anticipated that classrooms with a large amount of students holding competitive personalities might experience a rise in bullying. In their multilevel study, individual level predictors included trait aggression, gender and competitiveness that explained the majority of the variation however there remained a significant amount of variation (i.e. 27%) accounted for by the classroom level predictors (i.e. pro bully and anti-bullying). Pro bullying behaviors had a negative effect on bullying whereas anti-bullying behavior had a decelerating effect on bullying over time stressing the importance of bystanders in bullying interactions. These findings emphasize the developmental aspects of the classroom relevant to social development, and further support developmental-contextual frameworks for understanding youth outcomes such as bullying. To my knowledge, there is no existing research that assesses competition in the classroom and its relationship with bullying, thus Nocentini et al. research is discerning. Although the findings of their study must be cautiously interpreted with regards to bullying since it was measured based on a single item question, their research is insightful since competition is a variable of interest in the present study.

In contrast to the nature of competition, cooperation in a classroom enhances peer affiliations. Roseth, Johnson, and Johnson (2008) adopted a social contextual view to examine the mechanisms that promote adolescents achievement and peer relations in a meta-analysis including 148 studies. In this meta-analysis goal structures are defined in relational terms as opposed to contextual (i.e. classroom goal structures). Relational and contextual goal structures differ in that the former exist within students and the latter within contexts. From a relational

perspective these goal structures determine how students' goals are interdependently linked to each other's goals. The meta-analyses revealed that cooperative goal structures were involved in promoting higher levels of achievement and positive peer relations than were competitive or individual goal structures. Cooperative goal structures have a positive interdependence because students perceive that they can attain their goals only if all other students they are cooperatively linked with also attain their goals. In contrast, competitive goal structures have a negative interdependence because a student can obtain his or her goal only if other students they are competitively linked with fail to obtain their goal. Individual goal structures have no interdependence since students can reach their goals regardless of whether other students' reach their own goals.

Cooperative goal structures are associated with benefits for all students' meanwhile competitive goal structures have only personal benefits and are detrimental to others' not attaining their goals. In light of social interdependence theory, classroom practices that include cooperative goal structures have interactional patterns that promote helping behavior, sharing of resources and information, and being trustful toward one another. Cooperation increases mutual liking between peers which in turn promotes positive peer relations. Instead, competitive goal structures create oppositional interaction patterns that involve obstructing other students' goal attainment and effort, hiding resources and information from each other, and acting in distrustful ways (Roseth et al. 2008). Hence classrooms that do not provide opportunity for cooperation may indirectly influence peer relations in a negative way since there is less opportunity for peer affiliation. Highlighting aspects of the classroom such as cooperation and interaction that may be associated with bullying perpetration and victimization are crucial for informing intervention programs stressing the significance of multi-component anti-bullying programs that intervene at

the classroom level. The present research investigates the relationship between subscales of the classroom environment that include cooperation, interaction, student input and competition and the influence of classroom characteristics on peer affiliations and youth outcomes for bullying perpetration and victimization.

Teaching practices and peer ecology. In more recent years research is emerging on the role of classroom teaching practices and peer ecologies (Farmer et al., 2006), the effects of social status hierarchies and group norms for peer victimization (Ahn, Garandeau, & Rodkin, 2010).

Gest and Rodkin (2011) investigated the social management of the classroom from a developmental-contextual perspective testing their conceptual model that emphasizes peer ecologies and teaching practices. This study included measures of teacher behavior, teacher attitudes toward aggression and teacher-reported grouping strategies. The classroom peer ecology was evaluated by measuring the positive and negative social ties, status hierarchies, and behavioral norms. Generally it was found that teachers disapproved of aggression and were supportive of students who were withdrawn. The authors found an association between teaching practices and classroom peer ecologies. Teachers who considered seating arrangements and grouping strategies that promoted peer affiliations had higher ratios of liking to disliking and a higher density of friendships in the classroom. The consideration of seating charts and small groups in the classroom also resulted in less pronounced status hierarchies. Furthermore, teachers that demonstrated higher level of emotional support had higher rates of friendship reciprocity in the classroom. Finally it was found that teachers who disapproved of aggression influenced the behavior norms of the classrooms and peer nomination of aggression in that student perceived less aggression/bullying in the classroom.

The Gest and Rodkin (2011) study investigated the influence of teaching practices, classroom peer ecologies and youth outcomes of bullying in elementary grades. It is of particular interest because it provides evidence for the Rodkin and Gest (2011) conceptual framework that is tested in the present research. A strength of Gest and Rodkin's (2011) study is the investigation of various contextual influences on student behavior (i.e. general teaching practices, peer context and network related teaching) that emphasizes knowledge of social networks and management of social structures. However the study was limited by the statistical approach used to analyze the data. Simple correlations were used despite the clustered nature of the data (i.e. students nested within classrooms). Instead, the use of multilevel modeling to analyze the data would increase the validity and possibly also the reliability of these classroom effects, and yield more precise estimate of effects.

Gest and Rodkin's (2011) research adopts a developmental-contextual framework suitable for understanding bullying as it considers various contextual influences. However as previously mentioned, it does not take into account the influence of student characteristics and the possible interactions with characteristics of the classroom and peer ecology. To examine the interaction between individual factors and the relational context of the classroom on student outcomes, individual characteristics that have been associated with bullying would provide a more comprehensive outlook on the bullying phenomenon. The present research adopts this developmental contextual approach for studying bullying (by exploring the clustered nature of data focusing on classroom-level analyses) and in addition, it also considers the contribution of individual pupil factors consistent with transactional-developmental models which consider the dynamic processes by which students and contexts (i.e. classroom) shape each other (Jimerson, Hart, & Renshaw, 2012). Furthermore, it addresses some of the gaps in Gest and Rodkin's

(2011) research by employing hierarchical linear modeling for exploring the clustered nature of data.

Conclusions

This chapter reviewed empirical evidence for the influence of classroom context on student social outcomes. A positive link between classroom climate that is high in emotional quality (e.g. teacher-student relations), less problem behavior, and better academic outcomes has been established in the research. Classroom processes that influence student behavior are numerous. The developmental mismatch for classroom environment from elementary to junior high school may hinder students' development and learning. Research showed that there are fewer opportunities for cooperation, interaction and student input in junior high school classrooms than in elementary classrooms. Furthermore there is an increase in whole-class instruction and deterioration in teacher-student relationships which are relevant for social and academic outcomes. Surprisingly, students perceived junior high school classrooms as less competitive, an unexpected finding that warrants further investigation. Research adopting developmental-contextual models (i.e. Gest & Rodkin, 2011) that incorporate teaching practices including emotional and instructional support, and network related strategies (i.e. grouping strategies) demonstrate how these aspects help shape peer ecologies of the classroom and influence youth outcomes of aggression/bullying. Developmental-contextual paradigms consider the classroom ecology, however the role of the individual characteristics that may impact teacher-student interactions and outcomes of bullying perpetration and victimization are neglected in these models. A transactional-ecological developmental model might be better suited to understand the dynamic processes that take place between the individual and his or her environment.

There is an equifinality for bullying, implicating numerous individual and classroom characteristics, and the interactions among these factors that require further analysis. An investigation of characteristics of junior high school classrooms that influence this phenomenon is needed. There is a lack of research that examines classroom environments and characteristics delineated in Feldluafer et al's (1988) study as relevant to junior high school contexts. These gaps in the research guide the present study. More so, there is a need to examine the individual characteristics reviewed in this literature that are relevant to outcomes of bullying perpetration and victimization using multilevel models. To my knowledge, classroom research on the influence of instructional and emotional support provided in the classroom has been investigated at the elementary grades only, in one study (i.e. Gest & Rodkin, 2011). The impact of general teaching practices on outcomes of bullying perpetration and victimization need further investigation at the junior high school grades when there is a peak in bullying (Nansel et al. 2001; Olweus, 2010).

The nature of most classroom-based research has focused on the relationship between classroom normative beliefs and attitudes toward aggression and bullying among children and adolescents (Henry et al. 2000; Kuppens, Grietens, Onghena, Michiels, & Subramanian, 2008; Scholte, Sentse, & Granic, 2010). Generally, findings of these studies demonstrate that permissive attitudes toward bullying are more likely to augment children's bullying behavior. Although the influence of classroom attitudes and norms for bullying are important considerations because they impact students' behavior and explain some of the variation that exists between classrooms (Henry et al. 2000; Scholte et al. 2010), these factors are beyond the scope of this research.

This research focuses on classroom practices and peer ecologies. It takes into account the individual and classroom variables discussed in this literature that resonate as important contributors to understanding bullying, and explores them within a multilevel model including an individual and classroom-level. The present study addresses gaps in the research by examining contextual influences of the classroom environment while controlling for individual characteristics, using an appropriate grain of analysis for the nested nature of the data, to predict bullying perpetration and victimization in Grades 7 and 8 students of junior high school.

Chapter 4*:* Research Objectives

Aims of the present study

The present study has three main objectives. First, it aims to explore classroom teaching practices, peer ecologies, and bullying perpetration and victimization among Grades 7 and 8 junior high school students. Various indices are used to explore the classroom environment using student, teacher and observer ratings. The Classroom AIMS Instrument assesses atmosphere, instruction, management, and student engagement as rated by observers. The Classroom Environment Measure (CEM) includes three sources (i.e. teacher, student, observer) and evaluates numerous dimensions of the classroom environment (i.e. cooperation/interaction, competition, social comparison, teacher-student relations, teacher-value of reading, student input, task organization, teacher control/student interaction, teacher internal relations with student, grades). Rodkin and Gest's (2011) conceptual model of teaching practices, classroom peer ecologies, and youth outcomes is used in this research. Rodkin and Gest's model views the classroom peer ecology as a proximal determinant of youth outcomes shaped by teacher-student interactions and network-relating teaching impacting youth outcomes. Several direct and indirect pathways are assumed in the model (see Figure 1).

The present research uses several measures of classroom environment to assess general teacher-student interactions in Rodkin and Gest's (2011) conceptual model. These indices (i.e. AIMS and CEM) are similar to the instructional and emotional support investigated in Rodkin and Gest's model however they include additional processes that may be crucial during this developmental period (i.e. social comparison and competition). Specifically, the influence of classroom processes as measured by the CEM and AIMS on outcomes of bullying perpetration and victimization was explored (Path D). The classroom peer ecology was assessed using social

status as a single dimension representing power and dominance relations among peers and examined as a proximal determinant of bullying perpetration and victimization outcomes (Path A). The influence of general teaching practices on the classroom peer ecology (i.e. social status outcomes) are also explored (Path B). For this research, Rodkin and Gest's model illustrated in Figure 2 has been altered to a multilevel model and includes an individual level that examines the influence of student characteristics on bullying perpetration and victimization. Classroom effects are considered after controlling for student characteristics that may be associated with bullying perpetration and victimization. This multilevel model accounts for the individual and classroom variation in bullying perpetration and victimization (Figure 2).

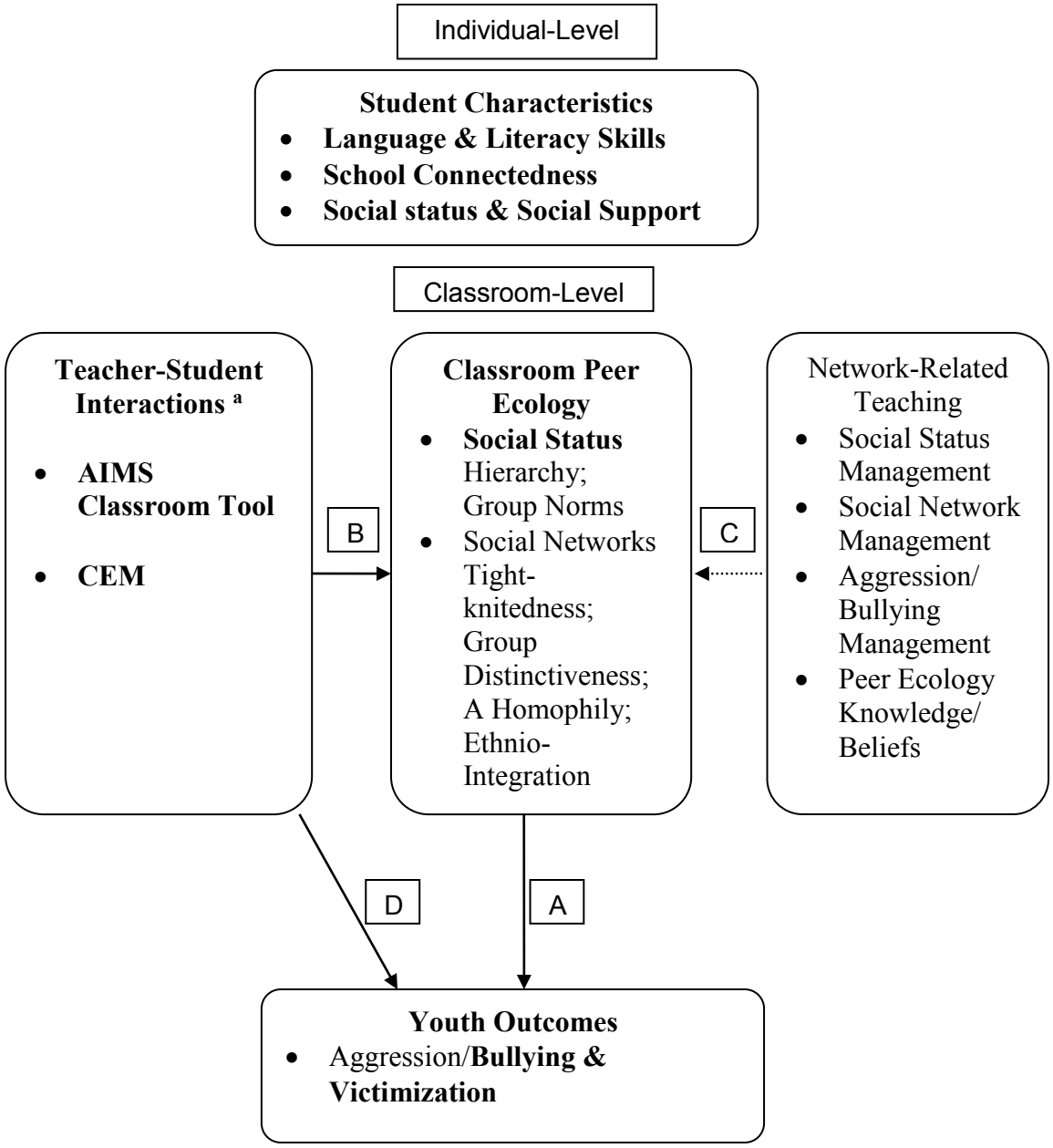

Figure 2. A multilevel model modified from Rodkin and Gest's (2011) conceptual framework of teaching practices, classroom peer ecologies, and youth outcomes. Bold text and bold arrows depict variables and direct relationships tested in the present study.

A second aim of the present study is to examine student characteristics and their predictive nature for bullying perpetration and victimization. This study furthers the investigation

of individual pupil characteristics that have been theoretically linked to outcomes of bullying perpetration and victimization. Outcomes for the bully/victim role are not undertaken in the present research. Specifically, students' language and literacy skills, school connectedness, peer social status, and social support from friends are examined as predictors of bullying perpetration and victimization. Typically, overall academic attainment and language abilities have been investigated in relation to problem behavior and bullying. In this research, listening and reading comprehension skills are examined as a benchmark of reading attainment and as indices of a student's developmental level and broader language abilities. The present study assesses school connectedness as an individual predictor associated with bullying perpetration and victimization within a multilevel model. Empirical evidence demonstrates that students who are bullied or victimized feel less connected to school. In the present study, school connectedness is considered from a motivational and self-determination perspective reflecting a measure of youth psychosocial adjustment to school and analyzed at the individual level. School connectedness explores student connection and feelings to school.

A third aim of this study is to explore the within- and between-classroom variance that exists in junior high school classes. This study uses a nested design (i.e. students nested in classrooms) and hierarchical linear modeling to analyze the interactions between student-and classroom-level variance. This two level model determines the variability between classrooms but also the proportion of variance explained by individual and classroom level factors.

Strengths of the research design. The present design uses a multi-method, multi-informant approach. Classroom environment is measured using structured observation with independent observers, student, and teacher perceptions to triangulate data. The present study uses structured observations conducted by paired observers to complete the classroom AIMS

instrument. AIMS is an observational tool that has emerged from qualitative research to evaluate effective teaching practices in elementary schools (Pressley et al. 2001; Roehrig & Christesen, 2010) and has been used in leading research in the field (Bohn, Roehrig, Pressley, 2004; Deault & Savage, 2013; Pressley et al. 2001). Although the scale has been used in elementary grades, it is also suitable for high school language arts classrooms (Roehrig & Christesen, 2010). Observers also completed the Observation Classroom Environment Measure (OCEM; Midgley et al. 1991). Student perception of the classroom environment was assessed with the Student Classroom Environment Measure (SCEM) and teachers' ratings of the classroom environment used the Teacher Classroom Environment Measure (TCEM) that was created alongside the OCEM and SCEM with similar categories.

Research questions. The objectives of this study have been formulated as specific research questions. This study examines how bullying perpetration and victimization can vary among classrooms and the amount of within- and between-classroom variation that exists. The classroom as the unit of analysis will examine how aspects of classroom environment are related to bullying perpetration and victimization outcomes as understood from a developmental-contextual perspective. The strength of association between individual predictors and bullying perpetration and victimization across classrooms is explored lending to transactional-ecological developmental models. This research will examine if characteristics of the classroom environment (i.e. AIMS and CEM) remain predictors after controlling for individual factors; and it will also examine any interactions occurring between student and classroom level predictors. Lastly, this research investigates the relationship between classroom environment and social status to determine whether aspects of classroom environment are predictors of social status outcomes. Some of the research questions in this study have been explored for the first time in

the literature. Therefore broad research questions are set out rather than specific and directional hypotheses. The following research questions will thus be addressed:

1. Are classroom environment indices of AIMS and CEM associated with bullying perpetration and victimization outcomes?

2. Which student characteristics (i.e. gender, reading and listening comprehension skills, school connectedness, social support, and social status) are related to outcomes of bullying perpetration and victimization?

3. Are aspects of the classroom environment assessed by AIMS and CEM significant predictors of bullying perpetration and victimization even after controlling for individual-level predictors including gender, language and literacy skills, school connectedness, social status and social support?

4. Are there interactions between individual factors (i.e. gender, school connectedness, social status and social support) and classroom level factors (i.e. AIMS and CEM) in relation to bullying perpetration and victimization?

5. Is the classroom peer ecology (i.e. social status) influenced by aspects of the classroom environment assessed by AIMS and CEM?

Chapter 5: Method

Participants

Research design. This was a non-experimental correlational study that used a hierarchical data structure to investigate student and classroom characteristics. The study had two defined data levels: individual and classroom. This design with students nested within classrooms was used to explore the effects of individual characteristics on bullying outcomes, and the interactional effects of classroom characteristics with individual characteristics on classroom outcomes of bullying perpetration and victimization. The present two-level design focused on the classroom environment as the explanatory variable to determine the variability that exists within and between classrooms.

A goal in designing this study was to assure that it had enough power to detect any effects. The software Optimal Design (Raudenbush et al., 2011) was used to determine the sample size needed to detect classroom effects with a power of .80, which is generally considered as sufficient by the research community. To conduct this power analysis, parameters are estimated based on the research in the field. Hence for this research, it was estimated that 42 classrooms were required with an approximate total of 630 students to detect a small to medium small size (d =.3). This computation was based on a significant alpha level of α = .05 with 15 students in each classroom and with an estimated between classroom variance of p = .05. If a covariate such as SES is included as explaining 10% of the variance the total of classrooms is reduced to 40.

This research addressed some of the methodological issues that permeate this field of research regarding assessment, measures and instruments. This design used multimethod, multi-informant outcome measures.

Recruitment. This classroom-based project included both students and teachers in Grades 7 and 8 classrooms in Quebec junior high schools. In accordance with research ethical guidelines, the principal researcher began by seeking consent from McGill University ethics committee, and then proceeded to attain consent from school board administrators, principals, teachers, parents, and students. Two school boards in and around the Montreal area were recruited to participate in the study. A formal ethical and administrative process was followed for approval from both school boards. Once approval was attained, the secretary of the research committee for each school board made the initial contact with school principals to introduce the project.

Following the school board approval, the researcher contacted the principals of the school and scheduled a meeting with them to explain the goals of the project. Principals and teachers were provided with recruitment letters that outlined the purpose of the study, goals of the study, ethical considerations, and the projected timeline of the project (Appendix A and B). Principals and teachers signed letters of consent to grant permission to participate in the study with their classrooms. After obtaining consent from teachers, parents were contacted to grant permission for their child to participate in the study. Parents were informed of the purpose of the study, objectives, and their ethical rights as research subjects. Parents provided full consent for the participation of their child in the study by signing a consent letter. All students who were granted permission from their parents to participate in the study also provided their verbal assent to partake in the project. At the start of the project, the principal investigator read a verbal assent statement included in the student survey booklets to which students signed their initials if they agreed to participate (Appendix C).

Sample characteristics. The total sample consisted of 678 Grade 7 (*n*=355) and Grade 8 (*n*= 323) student participants with 49% boys (*n*= 332) and 51% girls (*n*=346) from 38 English Language Arts (ELA) classes in six junior high schools across two school boards. Students' age ranged from 11 to 14 years (*M*=12.82, *SD*= 0.72). Sixteen teachers (out of a total of 28 ELA teachers) participated in this study with a variety in years of teaching experience from 4.5 to 41 years (*M*=12.19, *SD*=7.32). ELA teachers participated in the study with multiple classes provided that there were ten or more students in a class with consent to participate. Out of the 16 teacher participants, seven teachers participated with two ELA class groups, three teachers with four ELA class groups, three teachers with three ELA classes, and another three teachers with one ELA class group (Figure 3).

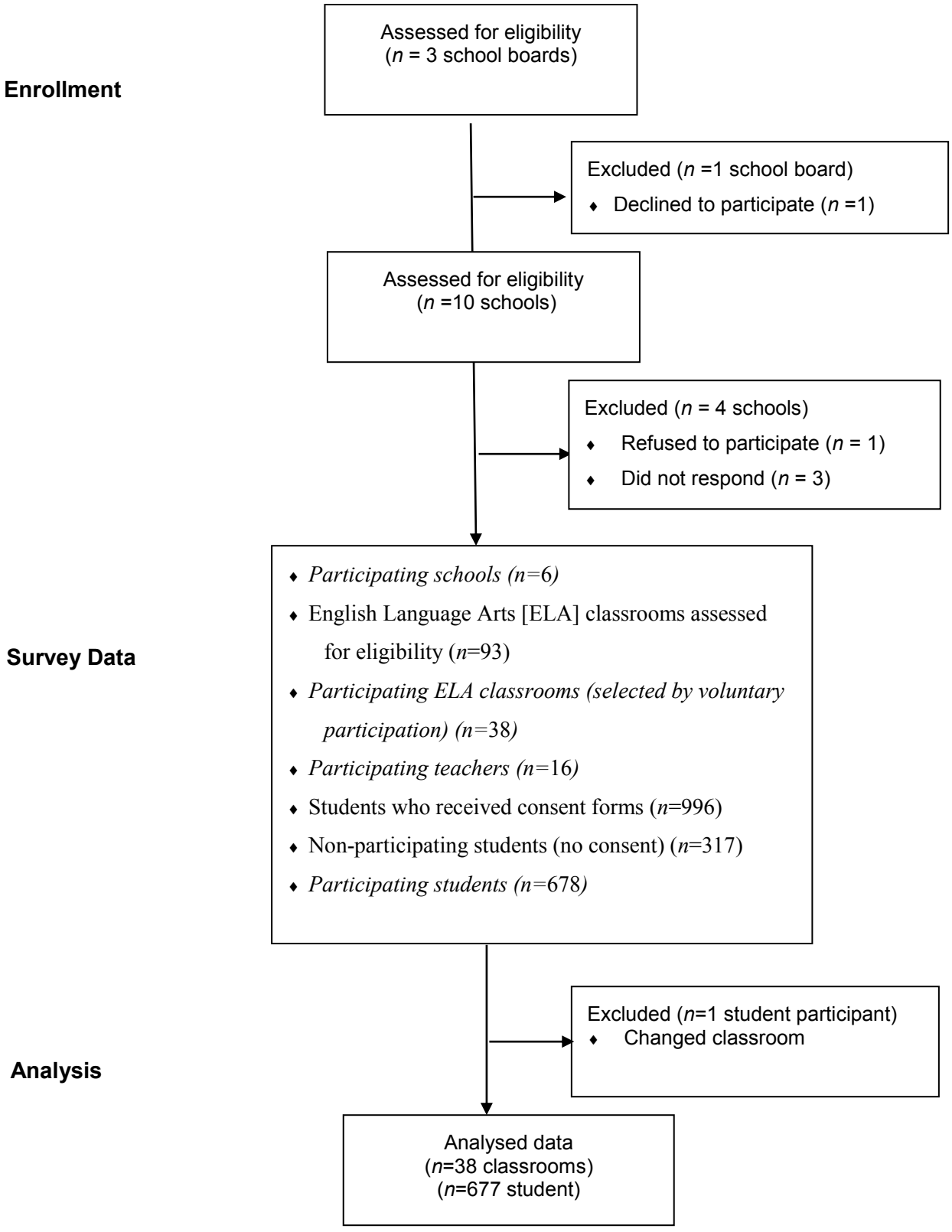

Figure 3. Consort Flow Diagram of Study Sample

Classrooms varied in size, ranging from 10 to 29 student participants (*M*=19.18, *SD*=6.54). Only classrooms of one subject area (i.e. ELA) were included in the study to avoid having a crossover of the same sample of students in a different subject. ELA classes were chosen for methodological and conceptual reasons. Since ELA is a core subject area in high school, all students have ELA as a subject in their daily schedule assuring that the student population had equal chance of participating in the project. At a conceptual level, one of the variables of interest was students' language and literacy skills. Since listening and reading comprehension tests were part of the research activities, it was felt that choosing ELA classes was more natural and in synchrony with the subject matter. Furthermore, one of the measures implemented to assess classroom environment, which is central in this study, was created for ELA classes.

At the start of the study, parents were asked to complete a questionnaire to collect identifying characteristics of the sample including student's ethnic origin, the presence of any learning problems, parental educational background, and enrollment in extracurricular and/or sports outside school. Postal codes were collected to describe the geographical profile of the area's population determining the social economic status using Statistics Canada census data. Information on the questionnaire revealed that 55.2 % of students were of European descendant, 4.4 % South Asian (i.e. East Indian, Pakistani, Sri Lankan), 1.4 % Southeast Asian,1.3% African American, 1% Aboriginal (i.e. North American Indian, Metis, Inuit), 0.7% West Asian, 0.7 % Latin American, 23.3 % of other descendent not mentioned while 11.7 % did not provide a response. The ethnic origins of participants were compared against Statistics Canada 2011 National Household Survey [NHS] (http://www.statscan.gc.ca/) to establish that the sample was representative of Quebec's ethnocultural diversity. A chi-square test was used to compare the

sample to the population census data and it revealed that our sample data was representative of the diverse ethnic cultures in Quebec $\chi 2$ (6, 678) = 11.94, p<.05. Information on the presence of any learning problems was included in the questionnaire since learning disabilities has been related to bullying perpetration and victimization however this information was not analyzed. The questionnaire revealed 5.8% of students had learning problems. Sixty-six percent of those students specified with any learning problems were first identified between the ages of 60 to 108 months.

Both mother and father's educational level was provided using a 7-point ordinal scale: (1) elementary school only; (2) did not receive high school graduation diploma; (3) left school with graduation diploma; (4) technical training; (5) College/CEGEP; (6) university bachelor's degree; (7) graduate degree. Mother's educational level was distributed as follows: 1.3 % attended elementary only, 3.8% attended high school but did not receive a high school diploma, 13.7% received a high school diploma, 13.1% received technical training, 34.2% attained a college/CEGEP degree, 20.2% held a Bachelor's degree, 8.0% a graduate degree while 5.6% provided no response. Mothers' education was compared against Statistics Canada 2011 NHS (http://www.statscan.gc.ca/) to establish the representativeness of our sample to the total population in Quebec for females aged 25 to 64 years. The results of a chi-square showed that the sample in this study was significantly different $\chi 2$ (6, 678) = 18.68, p<.05 for mother's education level. Mothers' educational level in the study sample was higher than the Quebec educational levels for females of 25 years and over. An inspection of the data revealed a higher percentage of mothers in the present sample with a college and university bachelor's degree compared to the national female sample. Father's education was distributed as follows: 1.2% attended elementary only, 9.1 % attended high school but did not receive a diploma, 16.1%

received a high school diploma, 14.2% received technical training, 26.3% attained a college/CEGEP degree, 17.3% held a Bachelor's degree, 7.8% held a graduate degree and 8.1% provided no response. Fathers' education was compared against Statistics Canada 2011 NHS (http://www.statscan.gc.ca/) to establish the representativeness of our sample to the total population in Quebec for males aged 25 to 64 years. The results of a chi-square showed that the sample in this study was also significantly different χ^2 (6, 678) = 12.40, p<.05 for fathers' education level. There was a lower percentage of fathers' in the study sample with technical training, and a higher proportion with a college and university bachelor's degree than the Quebec male population of 25 years and over.

Measures

All measures were group administered by the principal investigator during class time according to strict procedure and verbal protocol. The principal investigator provided the same instructions across all classrooms and followed the same order for test administration. Students who did not participate in the research were given alternative learning activities by their regular classroom teacher. The researcher made sure that students were seated with sufficient space between each other to allow for privacy. Booklets were administered to students with identification numbers that replaced their names to maintain confidentiality. At the outset of the study, the researcher read a script to the students explaining the nature of the activities and obtained their verbal assent. Students provided their initials on the booklet if they agreed to participate in the study. Students completed the listening comprehension activities and then proceeded to complete the questionnaires and surveys included in the booklet. For the listening comprehension activity, the principal investigator read each passage followed by the statements to participating students. For the remaining of the surveys, the principle investigator read the

first three items out loud and then asked students to complete it on their own. They were reminded to keep their responses private by covering their booklet. If they had questions or could not read any of the items, the principle investigator clarified or read the items for the student. To ascertain that students provided a response for all items in the survey booklet (except for the listening comprehension activities) the principal investigator reminded students to review all items in their booklet for proper completion.

Student measures

Bullying survey. Bullying perpetration and victimization outcomes were assessed using the Illinois Bully Scale (IBS; Espelage & Holt, 2001). This is a 17-item scale with three subscales assessing the frequency of *bullying*, *victimization* and *fighting* behavior. The bully subscale consists of 9 items: *I upset other students for the fun of it; In a group I teased other students; I helped harass other students; I teased other students; I threatened to hurt or hit another student; I was mean to someone when I was angry; I spread rumors about other students; I started arguments or conflicts; I encouraged people to fight*. The victimization subscale consists of 4 items: *Other students picked on me; Other students called me "gay" or made fun of me; Other students called me names; I got hit and pushed by other students*. The fighting subscale consists of 4 items: *I fought other students I could easily beat; I got in a physical fight; I got into a physical fight because I was angry; I hit back when someone hit me first.* Students read each statement and responded how many times they engaged in the activity or how many times these things happened to them at school in the last 30 days. The response options are as follows: 0= *Never, 1= 1 or 2 times, 2= 3 or 4 times, 3= 5 or 6 times, 4= 7 or more times*. A total score for each subscale (i.e. bully, victimization, and fighting) was calculated. The range of scores for bully was 0-36; victimization 0-16, and fighting 0-16. The IBS is

included in a compendium of assessment tools developed for researchers and practitioners to measure the range of bullying experiences. Factor loadings reported by Espelage & Holt (2001) for self-reported bullying behavior items ranged from .52 to .75 and this factor accounted for 31% of the variance in the factor analysis. The bullying scale is correlated .65 with the Youth Self-Report aggression scale (Achenbach, 1991). Factor loadings for the victimization items ranged from .55 to .92 and accounted for 6% of the variance. Factor loadings for fighting items ranged from .50 to .82 and accounted for 12% of the variance. The Cronbach alpha level for each of the subscales is exemplary i.e. bullying = .87; fighting = .83; victimization = .88. Based on the present sample of 678 participants the Cronbach alpha level for each subscale is as follows: bullying = .77; fighting = .58; and victimization = .79. The internal reliability of the fight scale was low however this construct was not an outcome variable of interest in the present study and therefore not used.

Student self-reports used to examine the prevalence of bullying perpetration and victimization is a commonly used method. Strengths of self-reports include the wide acceptance of these measure by researchers in the field, the established psychometric properties increasing the reliability (as is the case with the IBS measure used in the present study); and the unique information provided that does not overlap with other informants assessments of victimization or bullying (Leff, Freedman, Macevoy, & Power, 2004). In addition, self-reports are low in cost and they assess diverse types of bullying behaviors. These measures assess the perspective of the bully, victim, and bully-victim, not relying on consent from peers as in peer nomination techniques (Furlong, Sharkey, Felix, Tanigawa, & Green, 2010)

Language and literacy skills. Students' listening and reading comprehension was tested using Profiles in Listening and Reading (PILAR; Carlisle, 1989a). This test reveals the level of

text that an individual can comprehend through listening and reading. It is based on a method known as the sentence verification technique (SVT) developed by Royer et al., (1979, 1987) that uses four different type of sentences (i.e. *originals, paraphrases, meaning changes, distracters*) to determine the students' comprehension level (see Appendix D for a sample of text passages and sentences verifications). This technique is sensitive to differences in text readability and in reading skills. In addition, it is sensitive to variations in background knowledge necessary to interpret the text and differences in working memory capacity. The test is a measure of passage comprehension rather than just sentence comprehension, and correlates well with other scores that assess comprehension. PILAR reveals the level a student can comprehend either by reading or listening and provides an analysis of the student's profile by comparing their reading and listening skills. Since the test has different readability levels it can guide interpretation of whether a student's reading level is high or low. Furthermore, with group administration the test can be used as a screening device comparing an individual students' performance to that of their group. The PILAR test was chosen primarily for practical reasons. This resource is from the Psychology in Education Portfolio (1999) and is free to copy within certain restrictions, by the purchaser. Furthermore the measure has language comprehension processes and is easily administered in a group setting.

The author tested and established validity for PILAR (Carlisle, 1989b). Carlisle (1989) administered listening and reading subtests in a group while the Word Recognition subtest (also developed by Carlisle, 1989) was administered individually. Analysis of performances showed that poor comprehenders' were weaker on all three subtests. PILAR distinguishes good comprehenders' from poor comprehenders' with a high degree of accuracy. The three PILAR subtests correctly predicted the membership of the group 94.6 % of the time (Carlisle, 1989).

PILAR composite scores that include all three subtests (i.e. reading, listening, and word recognition) are moderately correlated with other standardized measures of similar skills e.g. WRAT reading subtest (.63), SAT reading comprehension (.72), and listening comprehension (.60) (Carlisle & Felbinger, 1991). The internal consistency of PILAR within the present sample based on Cronbach's alpha is .79 for listening comprehension and .82 for the reading subtest. The PILAR was administered according to the manual's instructions for group administration. Testing began with two practice passages and continued with the remaining test passages that included two years below the group level and continued up to two years above the group level. The manual's instructions for group administration suggests administering the remaining passages in increasing order up to four years above the group level in order to find each pupil's performance ceiling. Due to time limitations for administering surveys and more importantly in order not to exhaust students, a total of five test passages excluding the practice passages were administered in this study. Passage content include discursive explanations of an event or phenomenon with topics familiar to students and at age appropriate levels.

The listening comprehension subtest was administered during the first class visit. The principal investigator read each passage to the group followed with twelve sentences. Students had to identify whether the sentence was the same or had the same meaning as the sentences in the passage. Students answered 'YES' if the idea of the sentence they heard was in the passage or 'NO' if the idea was not in the passage. The principal investigator began with two practice passages to assure that students understood what to do. After this practice, the principal investigator began reading the passages starting with a passage that was two years below the group year level and continued up to two years above the group year level.

The reading comprehension subtest was administered during the second class visit.

Students were given a booklet with the reading passages. On each page there was one passage and on the back of the page there were twelve sentences corresponding to that passage. Once the student read the passage and turned the page to the sentences, they were not allowed to turn back to the passage. Using the same procedure as for the listening comprehension test, students had to identify whether the sentences were the same or had the same meaning as the sentences in the passage. Students answered 'YES' if the idea of the sentence they read was in the passage or 'NO' if the idea was not in the passage. The principal investigator circulated around the classroom to assure that students were completing this activity properly according to instructions.

For both the listening and reading comprehension, each correct answer has a score of '1'. According to the scoring guide, an individual needs to score 9 out of 12 on a passage to receive a passing score. Scores are interpreted by comparing the highest readability level reached by the student in reading and listening, to their chronological age. Student scores for both listening and reading comprehension were examined to detect if a trend of increasing difficulty (reduced facility) was evident (i.e. more errors as passage difficulty increased). The data revealed inconsistent patterns with a higher percentage of passing scores for the increasingly difficult passages as designed by the PILAR test. For example, data for all 677 students on listening comprehension task revealed a higher percentage of passing scores on passages B, C and E relative to passage A (Figure 4). Figure 4 and 5 demonstrate the overall percentage of passing scores for listening and reading passages A to E.

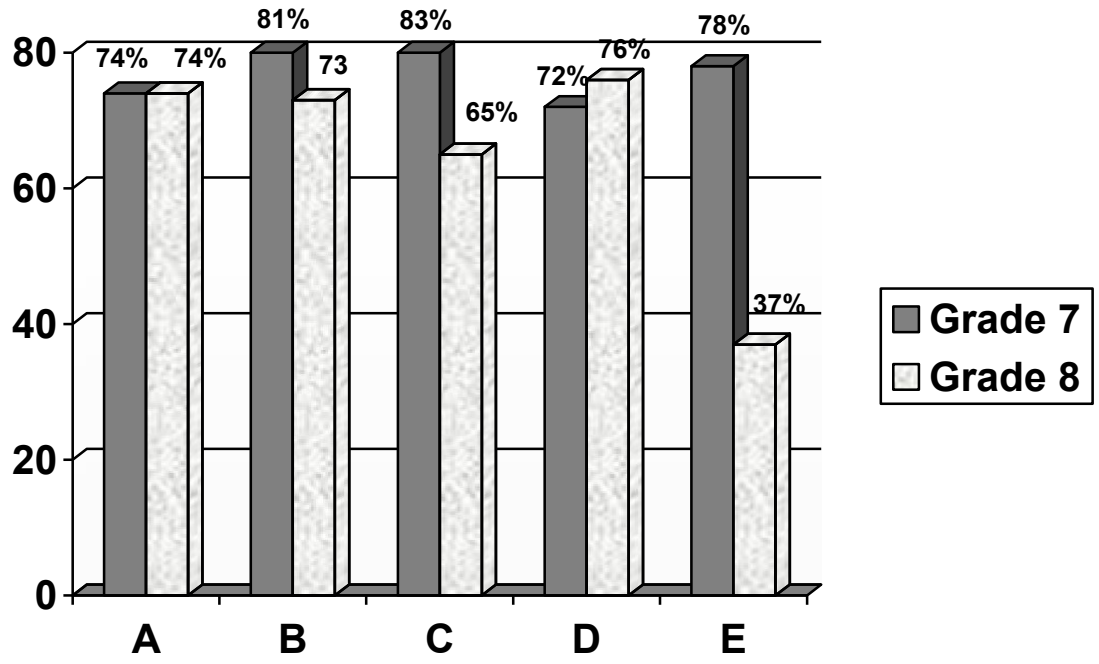

Figure 4. Percentage of Passing Scores for Listening Comprehension Passage

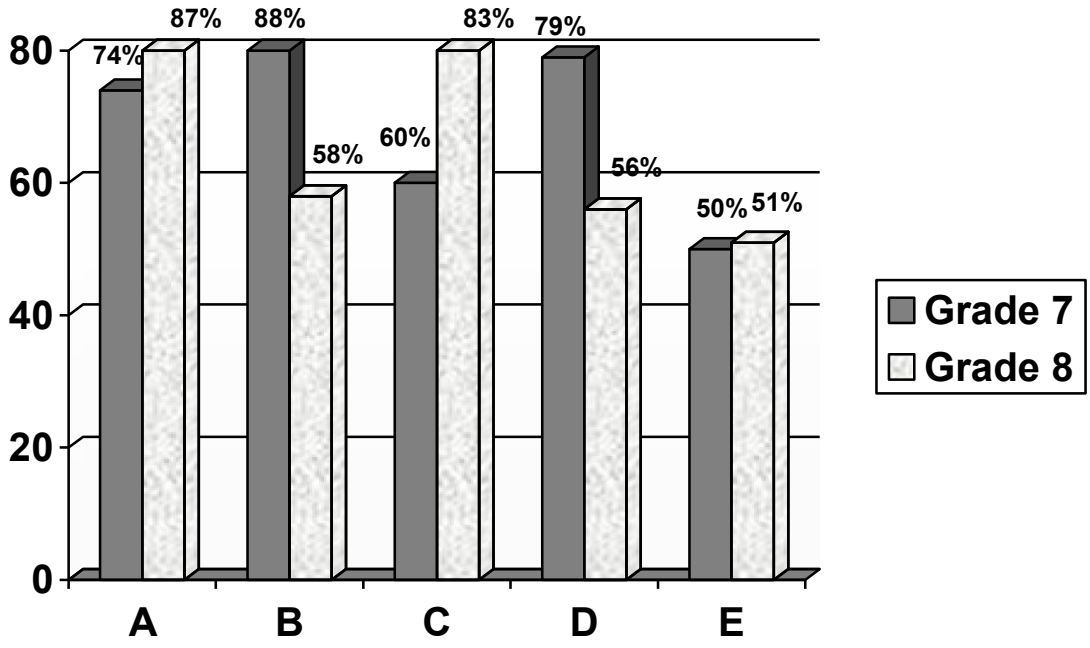

Figure 5. Percentage of Passing Scores for Reading Comprehension Passages

As a result of this discrepancy in findings for passage difficulty, a different scoring method was adopted. In the present study an overall total score for all five passages of each subtest (i.e. listening and reading) was calculated. Each student received two comprehension scores out of 60, for listening and reading. The yes/no response format of the test makes it possible to achieve 50% of correct responses by guessing alone. In order to correct for this guessing bias, a sensitivity score (d' prime score) was calculated for each student's total score (i.e. listening and reading comprehension) and used in all subsequent analyses. Raw scores out of 60 were converted to *z*-scores and tested to see if they followed the same normal distribution with a mean equal to 0.5 (i.e. raw score of 30) and a variance equal to 0.00416. *Z*-scores falling within one standard deviation (i.e. 1.96) were assumed to lie within this normal distribution and therefore the score was substituted by the distribution mean (i.e. 0.5), which is equivalent to a raw score of 30 (out of 60) on the listening and reading comprehension. If the chance of violation is less than α= 0.05, the hypothesis of a normal distribution with a mean of 0.5 is rejected indicating that scores were not by chance alone and therefore original raw scores were retained.

Social status. The Social Inclusion Survey (SIS; Frederickson & Furnham, 1994; 1998a, 1998b) is a sociometric technique used to indicate how well each student is accepted within the class or school group. SIS provides information about a student's social acceptance and inclusion in an unobtrusive manner. SIS is made up of two short questionnaires on which there is a space to include the names of pupils in the class. Only names of those students with consent were included on the questionnaire. Opposite each name there are four circles, one containing a *question mark* and three others containing a *smiling*, *sad* and *neutral* schematic face. On the *Like to Work (LITOW)* questionnaire, students tick the face that shows how much they like to 'work

with' each student listed. On the *Like to Play (LITOP)* questionnaire students tick off how much they like to 'play with' each student. The smiling face indicates that they like to work (or play) with that classmate; the straight-mouthed (neutral) face indicates they do not mind working or playing with that classmate and the sad face indicates they prefer not to work with or play with that classmate. Students are asked to tick the question mark if they do not know the student well enough to indicate whether they would like to work or play with them. For the high school sample of this study, the like to 'play with' was rephrased with like to 'hang around with' during their recess and lunch. The LITOW and the LITOP are sensitive measures for social acceptance and inclusion however they do not provide any insight on reasons for social rejection.

Each questionnaire was group administered to all participants during the second class visit. The principal investigator read the instructions and emphasized the importance of confidentiality. Students were seated apart and worked through it independently. They were asked to complete the questionnaires individually and to use a book or paper to cover their responses. Students were reminded to not show their responses to their peers or discuss them during or after the completion of this activity.

Confidentiality of their responses was emphasized before and upon completion of the questionnaires. Each student received a social acceptance score for both questionnaires. The number of faces ticked was compared to cut-off scores. A student is described as 'popular' if they received a number of happy faces that is equal or exceeds the cut-off for happy faces and 'rejected' if they received a number of sad faces that is equal or exceeds the number of sad faces. Students who did not exceed the cutoff scores were considered as 'average' status.

SIS has increased content validity as it assesses social acceptance across the major contexts interaction in the school environment (i.e. play and work) and provides a differentiated

profile of social inclusion across groups (i.e. same and opposite sex peers). The test-retest reliability with a sample of 254 pupils aged 9-12 years over a five-week period is .70 to .78 for the proportion of smiles and frowns received on the LTOP. Over the same period, there was a 68% agreement between the two times of assessment in assigning social acceptance as 'popular', 'average', and 'rejected' (Frederickson & Furnham, 1998a). Peer nomination technique is a commonly used method in education (Biehler, Snowman, D'Amico, & Schmid, 1999) and the inter-rater consensus reliability is high because they provide an index of agreement between all peer raters in the rating of each particular classmate (Leff et al., 2004). In the present study, peer nominations were cross-gender as opposed to same sex nominations that are higher in reliability due to the increased interest in cross-sex friendships and heterosexual activities that emerge at this age.

Peer support. The *Social Support- Friends* scale was used to measure student perceptions of peer support. The Social Support-Friends scale was adopted from the *Transitions Study of Stress and Well Being in Young Adulthood Wave II Questionnaire* found online (http://www2.fiu.edu/~lchrc/pdfs/w2instrument.pdf). The Transitions Study is a longitudinal project that examines substance use trajectories and issues associated with life transitions from childhood to adolescence and adolescence to adulthood (Life Course & Health Research Center, 1997). The scale includes 11 items that provide information on the student participant's relationships with friends. Eight items are rated on a likert-type scale (1) *strongly agree* (2) *somewhat agree* (3) *somewhat disagree* (4) *strongly disagree*. These items include: *You feel close to your friends, You have friends who would always take the time to talk over your problems, should you want to; Your friends often let you know that they think you are a worthwhile person; When you are with your friends you feel completely able to relax and be*

yourself; No matter what happens, you know that your friends will always be there for you should you need them; You know that your friends have confidence in you; You feel that your friends really care about you; You often feel really appreciated by your friends. Item nine asked the question '*About how often do you see one or more friends or talk to them on the phone?'* Students chose one of the following responses *(1) I hardly ever see or talk to them (2) Once or twice a month (3) Once or twice a week (4) Every day or almost every day*. Item 10 asked the question *'Thinking of those people whom you feel close to rather than those who are just acquaintances, about how many friends do you have who live nearby, say within an hour's drive (do not count friends with whom you may live)?* Students had to provide a total number of friends. This item was not used in any analysis. Item 11 was rated on a different scale and not included in the questionnaire. This item asked '*How many of your friends regularly do the following…'*. Since there was concern for the appropriateness of the response options listed (e.g. have a job, drink alcohol heavily, carry guns, belong to a gang) for this age group and the content was not theoretically meaningful for this research, this item was excluded. In the present sample, the Cronbach alpha for items 1 through 9 is .88.

School connectedness. The School Connectedness Scale (Browns & Evans, 2002) was used to assess students' sense of connectedness to school based on four elements: c*ommitment, power, belonging, and belief.* The Commitment construct is a 4-item index rating these statements: *I can be a success at this school*; *It pays to follow the rules at my school; My school work helps in things that I do outside of school; I can reach my goals through this school.*; The Power construct has 4-items: *Adults at this school listen to students' concerns; Adults at this school act on students' concerns; The principal at this school asks students about their ideas; I have many opportunities to make decisions at my school.* The construct for

Belonging includes 4-items: *I can be myself at this school; I feel like I belong at this school; I have friends at this school; I am comfortable talking to teachers at this school about problems.* Lastly, the Belief construct also includes 4-items: *The rules at my school are fair; We do not waste time in my classes; Students of all racial and ethnic groups are respected at my school; When students have an emergency someone is there to help.* Each item was rated on a scale of 1=strongly disagree to 4=strongly agree. For each subscale: Commitment, Power, Belonging and Belief an average score was calculated. An overall school connectedness score including all four subscales was calculated for each student.

The school connectedness scale includes four conceptually distinctive subscales i.e. Power, Belief, Belong, and Commitment that form a comprehensive and cohesive measure. Items of the scale were developed from focus group discussions to obtain data from a youth perspective about the causes of student problem behavior and connection or disconnection to school (Brown, Leigh, & Barton, 2000). A confirmatory factor analysis revealed three of the four subscales (Belief, Belong, and Commitment) were supported. Items on the Power subscale merged onto the Belief subscale. The Cronbach coefficient alpha loadings for Belief, Belong and Commitment were .81, .85, and .51 respectively. The Cronbach alpha for the school connectedness scale based on a diverse sample of 1739 adolescents in Grades 7-12 in schools from two districts varying in composition (i.e. socioeconomically diverse and affluent) was .86 (Brown & Evans, 2002). Predictive validity of the scale was assessed by examining correlations among the school connectedness scale with three related school measures i.e. substance abuse, participation in school activities and self-reported grades. The school connectedness scale was significantly correlated with all three school measures, -.32, .08, .08, respectively (Brown et al., 2000). In the present sample of 678 Grade 7 and 8 students, the Cronbach's alpha for the school

connectedness scale is .84. Only the overall school connectedness score was used in subsequent analyses that included the four subscales.

Classroom Measures

Observations of classroom practices. Classrooms were observed using the Classroom AIMS Instrument (AIMS; Roehrig et al., 2003), a structured observational tool used to rate teaching practices and classroom environment. The AIMS instrument was developed from a series of qualitative studies that described exemplary classrooms and focused on broad elements of effective teaching (e.g. classroom community, classroom management, and motivational tone) (Pressley et al. 2001; Roehrig & Christesen, 2010). AIMS is an acronym for **A**tmosphere, **I**nstruction/Content, **M**anagement, and **S**tudent Engagement which represent the four categories of the tool that cover a broad range of the classroom life. The tool was developed from a qualitative analysis of classroom teaching practices that were associated with high student engagement and literacy improvements in elementary students. These practices used by 'exemplary' teachers covered a broad range of classroom life and were not solely focused on reading instruction. Preliminary validity evidence suggests that AIMS captures elements such as teaching practices that demonstrate effective classroom management, positive reinforcement, scaffolding and the promotion of self-regulation as domains of exemplary teaching that motivate and engage students (in grades K -12) in learning. The instrument has been content-validated by educational researchers and expert teachers to include items describing practices that would be emphasized by an exemplary teacher, (Roehrig & Christesen, 2010; Stanulis & Floden, 2009).

The Classroom AIMS Instrument provides converging evidence on the nature of effective teaching. Other reliable and valid observational instruments such as the Classroom Assessment Scoring System (LaParo, Pianta, & Stuhlman, 2004; CLASS) that captures elements of the

classroom climate in addition to instructional and managerial constructs overlap with the classroom AIMS tool. The four categories of AIMS were inducted using grounded theory analysis, and confirmatory factor analysis was used to find the best fit for data items within each subcategory (Roehrig & Christesen, 2010). The subcategories within Atmosphere represent what the teacher does to the physical and interpersonal environment to keep students involved in learning (i.e. fostering a sense of community, providing a sense of choice/fostering control, expressing high expectations). The Instructional construct includes subcategories that represent lessons, activities and the teacher's instructional styles (i.e. using content and activities that are engaging, making cross-curriculum connections, providing scaffolding and academic monitoring). The subcategories in Management represent order, rules, routines, and procedures (i.e. encouraging behavior self-regulation, monitoring behavior/task). Student engagement is a single factor that includes items that are observable indicators of students engaged in learning tasks (i.e. excitement, participation and staying on task).

For the present study a refined version of the AIMS instrument was used which includes the most important and relevant items that reflect the teaching practices observed in exemplary classrooms (Roehrig & Christesen, 2010). The shortened-version of the AIMS is a 75-item (the original version consists of 130 items) observational instrument with evidence of validity and reliability. Construct validity is demonstrated with significant and large positive correlations across classroom practice categories (i.e. Atmosphere, Instruction/Content, Management and Student Engagement), and the internal consistency for each category is good i.e. Atmosphere (α = .87), Instruction (α = .90), Management (α = .74), and Student Engagement (α = .79) (Roehrig & Christesen, 2010). In the present study the Cronbach's alpha demonstrated excellent

reliability levels: Atmosphere (α =.94), Instruction (α =.95), Management (α =.89), and Student Engagement (α =.86).

Classroom observations were based on 150 minutes (i.e. two class lectures of 75 minutes) during regular teaching activities (following the methodology outlined by Roehrig et al., 2003). Two observers took detailed notes on the activities, verbalizations, behaviors and interactions that occurred between teachers and students in the classroom. Upon completion of classroom observations (which took place over the course of two classroom visits) observers independently completed the AIMS rating scale and then collaborated to complete an 'agreed' version of the scale with a consensus for each item score. Items rated as '1' indicated that the item was *seldom representative*, '2' *somewhat/inconsistently representative* and '3' *consistently representative*. If there was not enough information to rate a particular item, a score of '0' was granted. Field notes taken during the observation were used to provide evidence in rating items. Once 100% agreement had been reached on all items and the combined rating of the classroom instrument was completed, an average score for each category (i.e. Atmosphere, Instruction, Management, Student/Engagement) was calculated. All four categories were merged to calculate a summary AIMS average score, which represents whether teaching was consistent with exemplary teaching practices.

Classroom observations training. Research assistants recruited as observers for the project were all undergraduate psychology students in Year 2 or beyond of their program of study. Observers were interviewed and selected based on their previous experience working with children or youth in group settings to assure an understanding of processes and dynamics of classroom settings. Research assistants received approximately five hours of training on the *Classroom AIMS Instrument* from the principal investigator before conducting any classroom

observations. During the first session, trainees (research assistants) worked in pairs and familiarized themselves with the AIMS scale and its content by going through each item and providing examples of behaviors that could represent that item. Items were deliberately discussed with the principal investigator and behaviors exemplifying that item were shared. In the second session, trainees watched three videos of classroom instruction and recorded notes on what they observed. Then trainees proceeded to individually complete the AIMS scale. Once completed, the trainees were paired to compare their ratings for each item. There was high inter-rater reliability ranging from 82.7% - 84.0% for same ratings of items. Trainees ratings for the items were then compared to a scale completed by the principal investigator and the inter-rater reliability ranged from 78.7% - 85.4%.

Classroom environment measure. The Observer Classroom Environment Measure (OCEM*;* Midgley, Eccles, & Feldlaufer, 1991) was completed by each observer following classroom observations. The OCEM was designed to measure the classroom environment. The OCEM was developed alongside the Student Classroom Environment Measure (SCEM) and the Teacher Classroom Environment Measure (TCEM) to sample students and teachers perceptions of the learning environment. These measures were designed for the Transition at Early Adolescence project investigating the relationship between difference in classroom environment of primary and secondary mathematics classrooms and the difference in attitudes toward mathematics (Midgley et al. 1991). The use of all three sources of information to assess classroom environment takes into account a range of perceptions and provides a more robust measure of classroom environment. Strong theoretical considerations and scrutinizing other widely used classroom environment measures guided the selection of items for this measure. Extensive pilot testing in upper-elementary and junior high school math classes refined the

selection of items for the measure. For SCEM, OCEM, and TCEM the factor structure revealed all items load at >.34, >.40, and >.40 respectively. Intercorrelations among composites for each source (i.e. OCEM, SCEM, and TCEM) are low to moderate indicating that items are measuring distinct but somewhat related dimensions of the classroom (Feldlaufer, Midgley, & Eccles, 1988). Published Cronbach's alpha coefficients for the OCEM composites based on a sample of n = 2000 showed good internal consistency (Feldlaufer, Midgley, & Eccles, 1988). The OCEM is a 29-item scale with seven composites: *student input* (SI), α = .78; *student input-contracts* (SIC), α = .82; *task organization* (TO), α = .79; *competition* (C), α =.70; *teacher control/student interaction* (TCSI), α = .89; *teacher-student relations* (TSR), α = .78; and *teacher-informal relations with students* (TIRS), α = .63. In the present sample (n= 678), the reliability with Cronbach's alpha was only acceptable for C (.65) while poor for the remaining composites SI (.07), SIC (.20), TO (.52), TCSI (.56), TSR (.37), TIRS (.56).

Items are scored using a scale with a score of 1= never, 2 = sometimes, 3 = often or always while other items are scored using 1 = false or 2 = true. For TSR one item score was reversed so the meaning is consistent with other items in the subscale. Likewise for the TCSI subscale, two items were reversed scored for consistency of meaning within the scale. For each composite (i.e. SI, SIC, TO, C, TCSI, and TIRS), a sum score was calculated adding all items within each subscale.

Student perceptions of classroom environment. The Students' Classroom Environment Measurement (SCEM*;* Midgley, Eccles, & Feldlaufer, 1991) was administered to gain student perceptions of the classroom environment. Classroom participants (i.e. students) are reliable sources for information as they are sensitive to long-standing attributes of the environment, which an outside observer may not detect. SCEM has 28 items and includes five

composite subscales with acceptable published internal consistency: *Co-operation/interaction (CI)*, α = .65; *Competition (C)*, α = .68; *Social comparison (SC)*, α = .59; *Teacher/student relations (TSR),* α = .75; *Teacher-valuing of reading (TVM),* α = .56. In the present sample (n = 678) the reliability of internal consistency based on Cronbach's alpha was also acceptable: CI (.67), C (.71), SC (.74), TSR (.78), teacher value of reading (TVR) (.59), and actual and preferred decision making (APDM) (.45). The Cronbach's alpha for the full scale including all composites was (.71). The wording of items in the original TVM composite was changed to adapt it to English Language Arts classrooms measuring teacher valuing of reading (TVR) in the present study. Midgley et al. (1991) state that the classroom environment measure is appropriate for all classroom subjects and that wording of the items in sources can be modified to the subject area.

Items 1 through 18 are rated on a 4-point scale *1= not very often* to *4 = very often*. For the TSR construct most items are phrased so that strong agreement indicates a positive relationship with teacher. However three of the items are phrased in the reverse (i.e. #12, #14, and #15) therefore to make those items comparable to the other items, reversed scores were used. A score for each composite is calculated by summing up all items within the subscale. Items 19 through 28 are statements on classroom activities that measure actual and preferred environment. Students respond YES or NO for each statement. The 'odd' items are questions for the actual student input in decisions making for classroom rules and activities (e.g. Do you have a say about where you sit in class?) while the 'even' items ask whether the student feels they should have input in decisions for classroom rules and activities as stated in the preceding question (e.g. Do you think you should have a say in this?). For these items, scoring was as follows: 'Yes' responses = 1 point, 'No' responses = 2 points.

Teacher perceptions of classroom environment. The Teacher Classroom Environment Measure (TCEM; Midgley et al. 1991) was used to investigate teachers' perceptions of their general teaching practices, discipline techniques, student autonomy and cooperative interactions in the classroom. The TCEM consists of 21-items and four composite subscales with published Cronbach's alpha: *Student input (SI)*, $\alpha = .60$; *task organization (TO)*, $\alpha = .70$*; co-operation/interaction (CI),* $\alpha = .77$; *and grades (G),* $\alpha = .76$. In the present sample the internal consistency was good for CI (.85), acceptable for TO (.64), G (.64) and (APDM) (.73), while there was poor reliability for SI (.54) subscale.

Items are based on a 5-point scale, *1= never to 5 = always*. Items for each subscale are summed up to create a score for each composite i.e. SI, TO, CI, and G.

Procedure

Data were collected during two academic years beginning in November 2012 until December 2013. The research design consisted of two phases of data collection: group administered student surveys during class time and classroom observations. Following the previously described recruitment phase, the principal investigator met with teachers either individually or in a group meeting with the principal of the school to discuss the research design, logistics of data collection and to distribute parent consent forms. Along with the parent consent forms, parents were also asked to complete a voluntary parent questionnaire that requested information about their child including date of birth, the presence of any learning problems, enrollment in any extracurricular activities outside school, and ethnic origin. As well, mother and father's educational experiences were requested.

At the start of the project the principal investigator met with the school's guidance counselor or behavior technician to discuss the research, procedures and measures; and to attain

information on the school's policy or initiatives on bullying. The principal investigator administered all surveys to participating students during two class visits. Student participants who were absent during class visits were gathered in follow up visits to the school, to complete the surveys. Once all student survey data was collected, classroom observations were initiated and conducted by the principal investigator jointly with a trained research assistant to increase reliability of data.

Student Surveys

All student data was collected during two classroom visits. Prior to beginning the testing, assent was obtained from all students by having them put their initials on the first page of the student booklets that included the verbal assent statement read to them. During the first class visit, the principal investigator administered the PILAR listening comprehension test according to the group administration procedure outlined in the manual. Students completed two practice passages to ensure that they understood what to do. Following the listening test, students completed the remaining surveys in the booklets: the IBS, School Connectedness Scale, Student Classroom Environment Scale, and the Social Support Scale. For each survey, the principal investigator read out loud the first three statements and then students completed the remaining of the survey on their own. The principal investigator circulated the classroom answering any student questions or reading items that required clarification. Students completed the following surveys: Illinois Bully Scale, School Connectedness scale, Student Classroom Environment Measure, and the Social Support scale. During a second visit to the classroom students first completed the SIS (peer nomination) and then proceeded to complete the PILAR reading comprehension test, individually.

Classroom Observations

English Language Arts classrooms were observed during two 75-minute lessons for a total of 150 minutes, using a non-participant observation method. Classroom observations were conducted in pairs according to the methodology outlined by Roehrig et al. (2003). The principal investigator was an observer in the pair for all classroom observations. Observers took detailed notes of all activities, verbalizations, behaviors and interactions between teacher and student. Immediately after the second class observation, observers independently filled out the AIMS rating scale and the OCEM. Once the independent ratings were completed, then an agreed version of the scale was filled out. Observers discussed and compared ratings for each item. Items with discrepancies (i.e. with different independent ratings) were further discussed and each observer referred back to the field notes to find evidence of specific behaviors in order to come to an agreement. Scores on the agreed version were calculated by averaging across each item in the four categories. Items assigned a '0' were excluded from the overall average for the category as recommended by Roehrig et al. (2003). The final products were four scores representing the average rating for each category i.e. Atmosphere, Instruction/Content, Management, and Student Engagement.

The OCEM was also completed by observers immediately after the second classroom observation. The observers independently completed the scale and then jointly completed an agreed version. Likewise, items that observers rated differently were further discussed and observation notes were reviewed to provide the best rating or most representative of the classroom learning environment. Items were summed to reach a total score for each subscale. The final product consisted of seven scores representing the agreed scores for each category of the scale: Student Input (SI), Student-Input-contracts (SIC), Task Organization (TO),

Competition (C), Teacher Control/Student Interaction (TCSI), Teacher-Student Relations (TSR), and Teacher-Informal Relations with Students (TIRS).

During the classroom observation phase teachers were asked to complete the TCEM. A main interest of this research is the influence of classroom practices on outcomes of bullying perpetration and victimization therefore the classroom environment was assessed using various methods - direct observations, student perceptions and teacher perceptions. A multi-informant approach was used aimed at triangulating the data and providing a more robust measure of the classroom environment.

Chapter 6: Results

Overview

This research examined the influence of individual and classroom characteristics on student outcomes of bullying perpetration and victimization. Five research questions were addressed in this study. Question 1 examined what classroom-level factors are significantly related to bullying perpetration and victimization. Question 2 examined which individual-level factors i.e. gender, students' reading and listening comprehension skills, the amount of social support, school connectedness and social status are significant predictors of bullying perpetration and victimization outcomes. Question 3 explores whether classroom environment and teaching practices as measured by AIMS and CEM are significant predictors of bullying perpetration and victimization when controlling for individual-level predictors of bullying perpetration and victimization. Question 4 investigates whether these classroom- level factors interact with individual-level factors in relation to bullying perpetration and victimization. Lastly, question 5 examined whether these same classroom environment influences social status outcomes among peers in the classroom.

Hierarchical linear modeling (HLM) was used to examine the variation that exists within and between classrooms for bullying perpetration and victimization outcomes; and to answer the five questions posed by this research

Preliminary Data Analyses

Data screening. Prior to analysis, the accuracy of data was examined by randomly selecting 20% of the data and checking data point entries in SPSS against raw data. During

inspection, 93 data point errors were found out of 22084 data cells which corresponds to <0.5% of the proofread sample and is considered an acceptable degree of random error.

Descriptive statistics were examined to ensure that variables were normally distributed and assumptions of normality, specifically homogeneity of variance and linearity were met using standard approaches (Tabachnick & Fidell, 2007). For large sample sizes, graphical methods are most appropriate for assessing normality of data (Field, 2009; Tabachnick & Fidell, 2007). Residual files for specified models in HLM were visually inspected with graphs using Q-Q plots and scatterplots. Q-Q plots of bully perpetration and victimization outcome variables showed a slight deviation from a normal distribution. More importantly, there was evidence of heterogeneity of variance for outcomes of bullying perpetration and victimization. Consequently, these variables were transformed using square root transformations, and with these transformations the assumption of homogeneity of variance was then met in both cases. HLM analyses were conducted using transformed and untransformed data, and findings for all specified models were similar. Thus to ease the interpretation and understanding of the findings it was decided to present results using untransformed data. In multilevel analyses, collinearity among predictors can cause problems in estimating the regression coefficients. To check for collinearity, the variance inflation factor (VIF) was examined for individual- and classroom-level variables. The VIF values for predictors were less than 2.5 indicating that the variance of an estimated regression coefficient will not be increased because of collinearity. There was missing data for only one student in the sample therefore the case was deleted when running analyses in HLM. Descriptive statistics for student-level variables and classroom-level variables are presented in Table 1 and Table 2.

Table 1

Descriptive Statistics for Student-Level Variables

Measure	Min	Max	M	S.D.	%
Bully	0	24	3.38	3.46	
Victim	0	16	2.78	3.04	
PILAR LC (*d'*)	22.00	60.00	47.02	7.14	
PILAR RC (*d'*)	22.00	60.00	45.93	7.86	
SCHL CONN	1.00	4.00	3.03	0.39	
SOCSUP	1.00	4.00	3.41	0.49	
SCEM					
CI	5.00	20.00	10.63	2.76	
C	2.00	8.00	4.94	1.72	
SC	2.00	8.00	6.05	1.68	
TSR	6.00	24.00	19.79	3.54	
TVR	3.00	12.00	8.61	1.96	
APDM	10.00	20.00	15.84	1.83	
SIS LITOW[a]					
Average					78.80
Rejected					2.10
Popular					19.00
SIS LITOP[a]					
Average					81.10
Rejected					5.90
Popular					12.80

Note. *N*= 678

Key: PILAR LC (*d'*)= listening comprehension (d'prime) sensitivity score; PILAR RC (*d*')= reading comprehension (d'prime) sensitivity score; SCHL CONN= school connectedness; SOCSUP= social support from friends; SCEM= student classroom environment measure; CI= cooperation/interaction; C= competition; SC= social comparison; TSR= teacher/student relations; TVR= teacher-valuing of reading; APDM= actual & preferred decision-making; SIS LITOP= social inclusion survey, 'like to play with' based on whole group ratings; SIS LITOW= social inclusion survey, 'like to work with' based on whole group ratings.

[a]*n*=677 for RC, LITOP, LITOW

Table 2

Descriptive Statistics for Classroom-Level Variables

Classroom Indices	Min	Max	M	S.D.
AIMS				
ATMOS	1.56	2.97	2.42	0.35
INSTR	1.46	3.00	2.44	0.43
MNGMT	1.42	3.00	2.55	0.41
SENGMNT	1.00	3.00	2.45	0.55
TOT AIMS	1.64	2.99	2.47	0.40
SCEM				
CI	7.85	14.67	10.69	1.52
C	3.50	6.00	4.93	0.67
SC	4.31	7.60	6.00	0.76
TSR	13.21	22.55	19.61	2.10
TVR	5.36	9.58	8.54	0.86
APDM	10.00	20.00	15.87	0.60
OCEM				
SI	3.00	6.00	4.47	0.95
SIC	3.00	5.00	3.79	0.81
TO	5.00	8.00	7.63	0.67
C	4.00	8.00	5.05	1.16
TCSI	7.00	10.00	8.74	1.06
TSR	8.00	15.00	13.16	1.91
TIRS	6.00	10.00	8.95	1.21
TCEM				
SI	4.00	13.00	7.76	2.07
TO	8.00	20.00	13.40	2.77
CI	5.00	10.00	7.34	1.58
G	4.00	10.00	7.47	1.97
APDM	10.00	20.00	16.32	2.60

Note. N = 38

Key: AIMS= atmosphere, instruction, management, student engagement; ATMOS= atmosphere; INSTR= instruction/content; MNGMT= management; SENGMNT= student engagement; TOT AIMS= average score for all four subcategories; SCEM= student classroom environment measure; CI= cooperation/interaction; C= competition; SC= social comparison; TSR= teacher/student relations; TVR= teacher-valuing of reading; APDM= actual & preferred

decision-making; OCEM= observer classroom environment measure; SI= student input; SIC= student input/contracts; TO= task organization; TCSI= teacher control/student input; TIRS= teacher-internal relations with students; TCEM= teacher classroom environment measure; G= grades.

Rationale for Using HLM to Respond to Research Questions

The research design used in this study considers the influence of classroom environment on student outcomes of bullying perpetration and victimization. HLM was used to analyze the data because it takes into account the structural nature of the data with students nested within classrooms; and it assumes that students share unique contextual influences and experiences of the classroom that influence individual outcomes, yielding measures that are not independent. With HLM, each level (i.e. student and classroom) is represented by its own submodel that denotes relationships among predictors within a given level; and specifies how predictors at one level are influenced by predictors at another level. Some of the advantages of HLM are the improved estimates of individual effects as each classroom estimate is based on weighted composites of information from that classroom and the relations that exist in the overall sample. HLM partitions the variance and covariance components with unbalanced nested data into within- and between-classroom components (Raudenbush & Bryk, 2002).

HLM allows us to build successive models by adding or removing variables and determining whether variables should be fixed or random. These models are used to test hypotheses and explore relationships between variables emerging from the literature and to employ exploratory types of analyses utilizing more data driven approaches. In building models, we start with the simplest model (i.e. no predictors) which specifies the amount of variance within and between classrooms. In subsequent models, parameters are added step by step to

determine which predictors are significant and how much error variance is accounted for by level-1 and 2 predictors. An important consideration for model building is the location of level-1 and level-2 predictors. A brief explanation for choosing the location (centering) of predictors follows.

Centering. In HLM centering of variables under study need to have a precise meaning that is derived from theoretical concerns in the research. Since the intercepts and slopes in level-1 become outcome variables at level-2, it is important to understand the meaning of those outcome variables. The intercept in the level-1 model is influenced by the predictor variable, thus centering simplifies interpretation. In HLM there are four possibilities for locating predictors: *(1) the natural metric (uncentered)* used when there is a true zero that has a meaningful interpretation; (2) *centering around the grand mean* adjusts the predictors around an overall grand mean irrespective of unit (i.e. classroom); (3) *centering around the group mean* locates the predictors around their corresponding level-2 units where the intercept β_{0j} becomes the unadjusted mean; (4) *other location* is used when a population mean is known by the researcher and set to that value. The choice of centering for the present analyses are outlined below in the specified models for each research question.

Model specification. In the present study, two-level models were used to answer the research questions. In order to proceed with HLM analyses the first step was to establish whether there was significant between-group variability between classrooms with respect to individual outcomes of bullying perpetration, victimization and social status among peers (i.e. rejected, popular, average). This is the simplest model equivalent to a One-Way ANOVA with random effects also known as a fully unconditional model, which means there are no level-1 or level-2 predictors.

Model 1: One-Way ANOVA with random effects

Level-1 Model

$BULLY_{ij} = \beta_{0j} + r_{ij}$

Level-2 Model

$\beta_{0j} = \gamma_{00} + u_{0j}$

In this model, the equation at level-1 represents the bully perpetration outcome for student (*i)* nested in classroom (*j*) predicted by the classroom intercept (β_{0j}) (i.e. mean) and level-1 random error (r_{ij}) which is assumed normally distributed with a mean of zero and a constant level-1 variance, σ^2. The equation at level-2, the classroom intercept (β_{0j}) is predicted by the grand-mean outcome of bullying in the population and the random effect (u_{oj}) assumed to have a mean of zero and a variance τ_{oo}.

The One-way ANOVA model includes classroom-effects (at level-2) and student effects (at level-1). The model is useful as a preliminary step because it produces a point estimate and confidence interval for the grand mean (*γoo*) and provides information for within-group variability and between-group variability on outcome variables (i.e. bullying perpetration, victimization and social status). With information at each level, the degree of dependence of the observations within each classroom considered the intraclass correlation coefficient (ICC) can be calculated. The ICC represents the proportion of variance in the outcome that is between classrooms (i.e. level-2 units) (Raudenbush & Bryk, 2000). A significant finding for this model indicates that there is variation between classrooms and proceeding with HLM is appropriate in order to build subsequent models.

Second, a regression with Means-as-Outcomes Model was tested to respond to research question 1 and 5. In this model predictors at level-2 (i.e. classroom environment measures) are

introduced to determine their association with the outcome variables (i.e. bullying perpetration, victimization and social status).

Model 2: Means-as-Outcomes

Level-1 Model

$BULLY_{ij} = \beta_{0j} + r_{ij}$

Level-2 Model

$\beta_{0j} = \gamma_{00} + \gamma_{01}*(SCEM\_CI_j) + \gamma_{02}*(SCEM\_SC_j) + u_{0j}$

The level-1 equation (i.e. student model) remains unchanged where bullying outcomes are viewed as varying around their classroom means. The level-2 equation (classroom model) is elaborated so that the classroom mean is now predicted by factors of the classroom environment. Subscales of classroom environment indices rated by observers (i.e. AIMS, OCEM), teachers (i.e. TCEM) and students (i.e. SCEM) were tested in separate models. Only subscales of the classroom environment measure with reliability for internal consistency of above .60 were included in the model. Predictors in the level-2 equation have been centered around the grand mean. Problems of numerical instability are less likely to result as a choice of centering for level-2 predictors, therefore choice of location for level-2 predictors is not as critical. Whatever choice is made, it is relatively easily interpretable. Raudenbush and Bryk (2002) state that it is often convenient to center all of the level-2 predictors around their corresponding grand means (p.35).

Third, a One-way ANCOVA Model with random effects was used to address research question 2. This model includes predictors at level-1 (e.g. gender, school connectedness, and social status) to determine their association with the outcome variables (i.e. bullying perpetration and victimization).

Model 3: One-way ANCOVA with Random Effects

Level-1 Model

$$BULLY_{ij} = \beta_{0j} + \beta_{1j}*(GENDER_{ij}) + \beta_{2j}*(SCHCONN_{ij}) + \beta_{3j}*(LITOP_{ij}) + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + u_{0j}$$
$$\beta_{1j} = \gamma_{10}$$
$$\beta_{2j} = \gamma_{20}$$
$$\beta_{3j} = \gamma_{30}$$

The equation at level-1 includes predictors (i.e. gender, SES, school connectedness, social status, and social support) tested in the student level model. Only significant predictors were retained in the final models. The classroom distribution of bullying perpetration is characterized by the intercept, β_{0j} and the slopes, β_{1j}, β_{2j}, β_{3j} (gender, school connectedness, and social status among peers, respectively) . In this model, the predictors in level-1 equation are centered around the grand mean. Grand mean centering is the standard choice for level-1 predictors in ANCOVA models because it yields an intercept (β_{0j}) that can be interpreted as an adjusted mean (Raudenbush & Bryk, 2002).

Fourth, an extension of the random-effects ANCOVA model or simply a type of random-intercept model was used to test research question 3. In this model, predictors at level-1 and at level-2 are included to examine if classroom-level effects (e.g. subscales of AIMS, OCEM, and SCEM) remain even after controlling for individual-level effects of gender, school connectedness, and social status.

Model 4: Random Intercept ANCOVA

Level-1 Model

$$BULLY_{ij} = \beta_{0j} + \beta_{1j}*(GENDER_{ij}) + \beta_{2j}*(SCHCONN_{ij}) + \beta_{3j}*(LITOP_{ij}) + r_{ij}$$

Level-2 Model

$\beta_{0j} = \gamma_{00} + \gamma_{01}*(SCEM\_CI_j) + \gamma_{02}*(SCEM\_SC_j) + u_{0j}$
$\beta_{1j} = \gamma_{10}$
$\beta_{2j} = \gamma_{20}$
$\beta_{3j} = \gamma_{30}$

In this model of bullying perpetration, there are level-2 covariates γ_{01}, γ_{02}, γ_{03} (e.g. student perceptions of cooperation/interaction, and social comparison) while also controlling for the effects of level-1 covariates and the random effects of level-2 units (i.e. classrooms). The predictors both at level-1 and level-2 have been centered around the grand mean.

Lastly, an Intercepts- and Slopes-as-Outcomes Model estimates the variability in both intercepts and slopes across the level-2 units (i.e. classrooms), this model was used to respond to question 4 which investigates if there are any interactions between individual and classroom level factors in relation to bullying perpetration and victimization. This full model provides the main effects at level-1 and at level-2, and the cross-level interactions between student and classroom at the different levels.

Model 5: Intercepts-and-Slopes-as-Outcomes

Level-1 Model

$BULLY_{ij} = \beta_{0j} + \beta_{1j}*(GENDER_{ij}) + \beta_{2j}*(SCHCONN_{ij}) + \beta_{3j}*(LITOP_{ij}) + r_{ij}$

Level-2 Model

$\beta_{0j} = \gamma_{00} + \gamma_{01}*(SCEM\_CI_j) + \gamma_{02}*(SCEM\_SC_j) + u_{0j}$
$\beta_{1j} = \gamma_{10} + \gamma_{11}*(SCEM\_CI_j) + \gamma_{12}*(SCEM\_SC_j)$
$\beta_{2j} = \gamma_{20} + \gamma_{21}*(SCEM\_CI_j) + \gamma_{22}*(SCEM\_SC_j)$
$\beta_{3j} = \gamma_{30}$

The level-1 equation includes significant student characteristics from the ANCOVA analysis (i.e. gender, school connectedness and social status). In the level-2 equation, the level-1 intercept and slopes are modeled not only by the level-2 grouping variable as a random factor but

also by the level-2 classroom variables. In this model, school connectedness and social status variables are centered around the group mean to represent the unadjusted mean that corresponds to level-2 units (i.e. classrooms). Classroom variables at level-2 (i.e. cooperation/interaction and social comparison) are centered around the grand mean. To test interactions, it is practical to center level-1 predictors around their group mean and level-2 predictors around the grand mean to reduce correlations between first and second level variables (Kreft, de Leeuw, & Aiken, 1995).

Results for HLM Analyses

Results for unconditional models. The results of the One-Way ANOVA Models with Random Effects are presented in Table 3 for bullying perpetration and victimization outcomes. For all analyses, results for final estimation of fixed effects with robust standard errors are reported. With unbalanced data (i.e. unequal number of participants in each classroom) standard errors estimates for fixed effects are generally too small and hypothesis testing based on normal distribution is too liberal (Raudenbush & Bryk, 2002). In the present study, class size varies between 10 and 29 participant students therefore robust errors are more precise estimates. Robust variance estimates are highly diagnostic because a large discrepancy between the model-based and robust standard errors signals model misspecification. In our analyses examination of discrepancies were small to none indicating that models were well specified.

Table 3

Results for the One-Way ANOVA Model with Random Effects for Bullying Perpetration and Victimization

Fixed Effects	*B*	*S.E*	*t*-ratio	*d.f*	*p*-value
Bullying	3.33	.19	17.19	37	<.001
Victimization	2.81	.15	18.40	37	<.001
Random Effects	*S.D.*	Variance Component	*d.f*	χ^2	*p*-value
Bullying	.90	.81	37	88.54	<.001
Victimization	.63	.40	37	65.80	.003

The fully unconditional model investigates whether there is variability between classrooms on outcomes of bullying perpetration and victimization. The results indicate that the intercepts were statistically significant for dependent variables with a significant amount of variability between classrooms for bullying perpetration and victimization. The ICC representing the proportion of variance between classrooms for bullying perpetration (6.9%) and victimization (4.3%) suggests that there is enough between-class variability to warrant consideration of classroom-level effects. The magnitude of variation among classrooms in their mean outcome for bullying perpetration and victimization is calculated. The *plausible values range* for these means are [1.57, 5.09] for bullying perpetration and [1.58, 4.04] for victimization. Under the normal assumption, it is expected that 95% of the classroom means fall within the range. The final estimation of variance components demonstrates statistically significant variation between classrooms in bullying perpetration and victimization.

Social status among peers is a variable with multicategorical outcomes (i.e. 0= rejected, 1= popular, 2= average) therefore multinomial regression with a multinomial logit link was used. The outcome at level-1 is thus the log-odds of falling into a specific category (i.e. rejected or

popular) relative to a 'reference category' (i.e. average). The *unconditional model* estimated the extent of between-classroom variation on the two outcomes: η_{0ij}, the log-odds of being rejected (relative to average), and η_{1ij} the log-odds of being popular (relative to average) for LITOP and LITOW. For LITOP, the results revealed that the log-odds of rejected or popular status are significantly lower (relative to average status), $\gamma_{00(0)} = -2.78$, $t = -12.73$, $p<.001$ and $\gamma_{00(1)} = -2.02$, $t = -11.35$, $p<.001$ respectively. There is statistically significant variation for the rejected $\mu_{0(0)} = 0.65$, $\chi^2 = 61.45$, $df = 37$, $p = .007$ and for the popular category $\mu_{0\,(1)} = 0.61$, $\chi^2 = 82.23$, $df = 37$, $p < .001$ (Table 4).

Similarly for LITOW, the log-odds of rejected or popular are significantly lower relative to average status, $\gamma_{00(0)} = -3.66$, $t = -15.14$, $p<.001$ and $\gamma_{00(1)} = -1.46$, $t = -10.92$, $p<.001$ respectively. There is evidence of statistical significant variation for the popular category, $\mu_{0\,(1)} = .31$, $\chi^2 = 67.46$, however not for the rejected category $\mu_{0(0)} = .15$, $\chi^2 = 29.50$, *ns* (Table5).

Table 4

Results for the Multinomial Unconditional Model with Random Effects for 'Like to Play With' [LITOP]

Fixed Effect	Coefficient	*S.E*	*t*-ratio	*d.f.*	*p*-value	*OR*	95% CI
For Category 0							
For INTRCPT1, $\beta_{0(0)}$							
INTRCPT2, $\gamma_{00(0)}$	-2.78	0.22	-12.73	37	<0.001	0.06	(0.04,0.10)
For Category 1							
For INTRCPT1, $\beta_{0(1)}$							
INTRCPT2, $\gamma_{00(1)}$	-2.02	0.18	-11.35	37	<0.001	0.13	(0.09,0.19)

Note. Category 0= 'rejected' social acceptance status, Category 1= 'popular' social acceptance status. The reference category is 'average' social acceptance status

Table 5

Results for the Multinomial Unconditional Model with Random Effects for 'Like to Work With' [LITOW]

Fixed Effect	Coefficient	*S.E*	*t*-ratio	*d.f.*	*p*-value	*OR*	95% CI
For Category 0							
For INTRCPT1, $\beta_{0(0)}$							
INTRCPT2, $\gamma_{00(0)}$	-3.66	0.24	-15.14	37	<0.001	0.03	(0.02,0.04)
For Category 1							
For INTRCPT1, $\beta_{0(1)}$							
INTRCPT2, $\gamma_{00(1)}$	-1.46	0.13	-10.92	37	<0.001	0.23	(0.18,0.30)

Note. Category 0= rejected social acceptance status, Category 1= popular social acceptance status. The reference category is 'average' social acceptance status

Results for research question 1. *Are classroom environment indices of AIMS and CEM associated with bullying perpetration and victimization outcomes?*

In order to examine the influence of classroom environment on outcomes of bullying perpetration and victimization, a regression with Means-as-Outcomes model was tested using the observer (i.e. AIMS, OCEM), teacher (i.e. TCEM), and student (SCEM) indices of classroom environment as predictors at level-2. Separate models for each of the classroom indices (i.e. OCEM, AIMS, and TCEM) were tested. Results of these models revealed that OCEM, AIMS, and TCEM did not influence outcomes of bullying perpetration and victimization. Since subscales of these indices were not significant predictors, analyses were discontinued and not discussed any further with regards to bullying perpetration and victimization. The association between SCEM subscales and bullying perpetration and victimization outcomes are detailed below.

For bullying perpetration, only subscales of SCEM with an acceptable internal consistency estimate of reliability above .60 were considered in the models. Thus,

cooperation/interaction (CI), social comparison (SC), competition (C) and teacher-student relations (TSR) were considered as level-2 predictors. To determine the best fit model and significant classroom-level predictors, some model development was required. In the first model CI, SC, C and TSR were entered in the level-2 equation. This model yielded a deviance statistic of 3582.03. In HLM a deviance statistic is used to compare model fit. A likelihood-ratio test based on a chi-square distribution examines the difference in deviance statistic for a restricted model and a general alternative model. A second model was tested with only significant predictors included in the level-2 equation. Since TSR, C and CI yielded results that were non-significant, these predictors were removed from the equation, and the single predictor (i.e. SC) was entered in the level-2 equation. The results of this restricted model showed that SC was no longer a significant predictor of bullying perpetration. The deviance statistic of this model was reduced to 3576.16 however the likelihood-ratio test comparing the restricted model (i.e. SC) with the alternative model (CI, SC, C, and TSR) was non-significant indicating that the variation in the outcome was negligible.

To further explore whether adding multiple predictors in the model would influence the outcome of bullying, a third model was tested. In this model, one of the non-significant predictors was reintroduced to the level-2 equation. Since CI was the variable more closely associated to bullying perpetration as demonstrated by the probability value, it was entered in the level-2 equation with SC. The introduction of CI in the model increased the predictive value of SC to a significant level however CI remained non-significant. This model yielded an intercept γ_{00}= 3.32 (*t*= 2018.40, *p. <.001*). CI demonstrated a negative association with bullying perpetration γ_{01}= - 0.14 (*t*= -1.28, *ns*) indicating that classrooms with more cooperation and interaction had lower bullying perpetration outcomes however this effect did not reach statistical

significance. Social comparison had a positive relationship with bullying perpetration, γ_{02}= .51 (t= 2.17, p= .037) indicating that classrooms with more social comparison were associated with increased bullying perpetration outcomes. The deviance statistic for this model was increased (i.e. 3579.06) from the previous model (i.e. 3576.16) including only SC as a level-2 predictor. In spite of this small increase, the likelihood-ratio test for the difference in deviance statistic was insignificant and therefore the model including CI and SC with fixed effects for bullying perpetration was retained.

The residual variance between classrooms, τ_{00} = 0.72 is smaller than the original, τ_{00} = 0.81 estimated in the context of the random ANOVA model (see Table 3). An index of proportion of '*variance explained'* at level-2 was computed by comparing the τ_{00} of the present model including level-2 predictors (i.e. CI and SC) to the base model (i.e. random ANOVA) with no level-1 or level-2 predictors. Thus the estimated proportion of variance between classrooms explained by this model with CI and SC is $\underline{\tau_{00}}$ (random ANOVA) minus τ_{00} (CI, SC), divided by τ_{00} (random ANOVA), (0.81- 0.72)/0.72 = 0.24). That is 24% of the true between-classroom variance in bullying is accounted for by CI and SC. A chi-square statistics (χ^2) for the estimation of variance components tests whether bullying varies significantly between classrooms once CI and SC are controlled. The results indicate that after controlling for CI and SC, significant variation among classrooms in bullying perpetration remains to be explained χ^2 (35, N= 677) = 77.89, p = .001. After removing the effect of CI and SC, the *conditional intraclass correlation* (ICC) was reduced to 6.0 % from 6.9% in the random ANOVA model. There is a trivial decrease in the deviance statistics for the covariance components in the current model compared to the random ANOVA model, however the likelihood-ratio test demonstrates that the outcome for variation is not significant. Table 6 presents results of the regression with means-as-

outcomes model with level-2 predictors compared to the random ANOVA unconditional model (as baseline) with no level-1 or level-2 predictors for bullying.

Table 6

Comparing Results for Unconditional Model and Regression with Means-as-Outcomes Model for Bullying Perpetration and Victimization

	Bullying		Victimization	
Predictor	Model 1: Unconditional Model (no predictors)	Model 2: Means-as-Outcomes Model (level-2 predictors)	Model 1: Unconditional Model (no predictors)	Model 2: Means-as-Outcomes Model (level-2 predictors)
Fixed effects				
Intercept γ_{00}	3.33*** (0.19)	3.32*** (0.18)	2.81***(0.15)	2.87*** (0.11)
Class Size γ_{01}				-0.05* (0.02)
Cooperation/Interaction (CI) γ_{01}		-0.14 (0.11)		
Social Comparison (SC) γ_{02}		0.51* (0.24)		
Competition (C) γ_{02}				0.78*** (0.20)
Teacher-Student Relations (TSR) γ_{03}				-0.13** (0.04)
Random Effects				
Level-1 variance	11.06 (3.33)	11.06 (3.33)	8.85(2.97)	8.83(2.97)
Level-2 variance	0.81***(.90)	0.72***(.85)	0.40**(.63)	0.09 (0.30)
Intraclass correlation	0.07		0.04	
Goodness-of-fit (Deviance)	3580.01	3579.06	3419.96	3409.75

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

For victimization, SCEM variables that reflect competition (C), teacher-student relations (TSR) and class size were significant predictors at level-2 with an intercept γ_{00} = 2.87 (t = 25.60, p< .001). Class size and victimization were inversely related γ_{01} = - 0.05 (t = -2.82, p= .008) indicating that in larger classroom with more students there is less victimization. There was a positive association between perceived competition and victimization, γ_{02} = 0.78 (t = 4.74,

p<.001) demonstrating that more competitiveness in the classroom is related to higher outcomes of victimization in the classroom. Analyses also revealed an inverse relationship for teacher-student relations and victimization, γ_{03}= - 0.13, (t= -3.08, p= .004), that is classrooms with higher scores on TSR depicting better teacher-student relations were associated with lower outcomes of victimization. The residual variance between classrooms, τ_{00} = .09 is smaller than the original, τ_{00} = .40, as estimated in the context of the random ANOVA model.

The estimated proportion of explained variance between classrooms explained by the model with class size, C and TSR was (.40 - .09)/.40= 0.775. That is to say, 77.5% of the true between-classroom variance in victimization is accounted for by class size, competition, and teacher-student relations. The chi-square test χ^2 (34, N= 677) = 36.37, *ns*, concluded that victimization outcomes no longer vary across classrooms once class size, competition, and teacher-student relations is controlled. After removing the effect of class size, C, and TSR the *conditional* ICC, which was 4.2% in the random ANOVA model, was reduced to 1.0%. A reduction in the deviance statistics of the current covariance components represented an improved model compared to the random ANOVA model however this difference remains non-significant. Table 6 presents the results of the means-as-outcomes conditional model compared to random ANOVA unconditional model for victimization.

Results for research question 2. *Which student characteristics (i.e. gender, reading and listening comprehension skills, school connectedness, social, support, and social status) are related to outcomes of bullying perpetration and victimization?*

To investigate which student characteristics were significant predictors of bullying perpetration and victimization, a One-Way ANCOVA model with random effects was tested. For bullying perpetration, individual characteristics were entered in the model at level-1: gender,

SES, listening and reading comprehension scores, school connectedness, and social status including both LITOW and LITOP. To keep a parsimonious model, only significant predictors were retained in the final model. To test for significant predictors several models were developed. First a model including level-1 predictors that were related to language and literacy skills alone i.e. listening and reading comprehension were entered in the level-1 equation. The results of this model revealed that listening and reading comprehension were not significantly related to bullying perpetration outcomes.

A second model was tested including social status acceptance for LITOW and LITOP. The categories for LITOP and LITOW status were as follows: 0= rejected; 1= average; and 2= popular. The results of this model showed that only LITOP was a significant predictor. The bullying perpetration intercept was $\gamma_{00} = 3.34$ ($t = 17.36$, $p < .001$). LITOP was positively related to bullying perpetration $\gamma_{10} = 0.78$ ($t = 2.50$, $p = .013$) indicating social status of average and popular are related to increased outcomes of bullying perpetration. Contrarily, LITOW was negatively related to bullying $\gamma_{20} = - 0.31$ ($t = - 0.79$, *ns*) however it did not reach significance.

The final model was developed to include significant predictors revealed in the previous models (i.e. LITOP) and SES, gender and school connectedness as level-1 predictors. Since SES was not significantly associated with bullying perpetration, it was dropped from the model. The results revealed that gender, school connectedness and LITOP were student characteristics significantly related to bullying perpetration outcomes, with an intercept of $\gamma_{0\,0} = 2.99$, ($t = 7.57$, $p < .001$). The fixed effects for gender revealed girls were less bullied than boys, $\gamma_{10} = - 0.85$, ($t = -3.30$, $p = .002$). School connectedness was inversely related to bullying perpetration, $\gamma_{20} = - 1.81$, ($t = -5.11$, $p < .001$) indicating that higher scores on school connectedness were related to less bullying perpetration outcomes. The LITOP social status rating by whole group was also

associated with bullying perpetration, γ_{30}= 0.72, (t = 2.35, p= .019) suggesting that a status of average or popular is associated with increased bullying perpetration outcomes.

An index of the *proportion of reduction in variance or 'variance explained'* at level 1 is computed by comparing the student-level variance (σ_2) with level-1 predictors in the present model to the random ANOVA model with no predictors. To calculate the proportion of variance explained at level 1, σ_2 (gender, school connectedness, LITOP) is subtracted from σ_2 (random ANOVA) divided by the σ_2 (random ANOVA), (11.06 – 10.47)/11.04= .053. Significant individual predictors of bullying reduced the within-class variance by 5.3%. Hence, gender, school connectedness, and LITOP accounted for approximately 5% of the student-level variance in the outcome. The deviance statistics for the current covariance components was reduced from the random ANOVA model suggesting a better model fit however the difference is non-significant. Table 7 presents the results of the random ANOVA unconditional model and the one-way random effects ANCOVA model for bullying perpetration.

Table 7

Comparing Results for One-Way ANOVA Model and Random ANCOVA Model for Bullying Perpetration and Victimization

	Bullying		Victimization	
Predictor	Model 1: ANOVA Model (no predictors)	Model 2: ANCOVA Model (level-1 predictors)	Model 1: ANOVA Model (no predictors)	Model 2: ANCOVA Model (level-1 predictors)
Fixed effects				
Intercept γ_{00}	3.33*** (0.19)	2.99*** (0.36)	2.81*** (0.15)	3.04*** (0.16)
Genderβ_1		- 0.85** (0.28)		- 0.47** (0.18)
School Conn β_2		-1.81***(0.35)		- 2.38*** (0.29)
LTOP β_3		0.72* (0.31)		
Random effects				
Level-1 variance	11.06*** (3.33)	10.47*** (3.24)	8.85 (2.97)	8.08 (2.84)
Level-2 variance	0.81 (0.90)	0.72	0.40** (0.63)	0.28* (0.54)
ICC	0.07		0.04	
Goodness-of-fit (Deviance)	3580.00	3538.63	3419.96	3354.49

Note. LTOP= like to play with; ICC= intraclass correlations

*p <.05; **p <.01; ***p <.001; (standard error)

For victimization, the following individual characteristics were entered in the model at level-1: gender, SES, listening and reading comprehension scores, school connectedness, social support and social status including both LITOW and LITOP. The same models as bullying perpetration were developed for outcomes of victimization that is, a first model testing included literacy measures (i.e. listening and reading comprehension), and a second model testing with social status acceptance descriptors as predictors. Both these models revealed non-significant findings indicating that literacy measures for listening comprehension and reading comprehension are not predictors of victimization, and neither is social status for LITOW and LITOP related to victimization outcomes.

In the final model, the remaining variables i.e. SES, gender, and school connectedness were entered as level-1 predictors. Only significant predictors were retained to keep with a parsimonious model. The results revealed that gender and school connectedness were significantly related to victimization yielding an intercept of $\gamma_{00} = 3.04$, ($t = 16.77$, $p < .001$). The fixed effects for gender were $\gamma_{10} = -0.47$, indicating that for girls the mean score for victimization outcomes was lower. School connectedness and victimization revealed an inverse relationship $\gamma_{20} = -2.38$, ($t = -8.28$, $p < .001$) signifying that higher ratings on school connectedness, that is a student with a strong sense of connection to his or her school was associated with lower mean outcomes of victimization.

An index of the proportion of reduction in variance or '*variance explained*' at level 1 is computed by comparing the student-level variance (σ_2) with level-1 predictors to the random ANOVA model with no predictors. To calculate the proportion of variance explained at level 1, σ_2 (random ANOVA) is subtracted by σ_2 (school connectedness, gender), and divided by the σ_2 (random ANOVA), (8.85 – 8.08)/8.85= .087. Significant individual predictors of victimization reduced the within-class variance by 8.7%. Hence, gender and school connectedness accounted for approximately 9% of the student-level variance in the outcome. The deviance statistics for the current covariance components was reduced from the random ANOVA model suggesting a better model fit however the difference between models is negligible. Table 7 presents the results of the random ANOVA unconditional model and the one-way random effects ANCOVA model for victimization.

Results for research question 3. *Are aspects of the classroom environment assessed by AIMS and CEM significant predictors of bullying perpetration and victimization even after*

controlling for individual-level predictors including gender, language and literacy skills, school connectedness, social status and social support?

To address this question, a Random-Intercept ANCOVA Model was tested with predictors included at level-1 and level-2. For bullying perpetration outcomes, significant individual predictors revealed by the random ANCOVA model were included in the level-1 equation (i.e. gender, school connectedness, LITOP) and only significant classroom characteristics revealed by the regression with means-as-outcomes model were included in the level-2 equation (i.e. SC). The results showed that after controlling for individual characteristics (i.e. gender, school connectedness, LITOP), the classroom environment variable SC remained a significant predictor. The model yielded a significant intercept (mean), γ_{00}= 3.75, (t= 15.55, p<.001). SC remains positively related γ_{02} = 0.42, (t= 2.05, p= 0.048). The proportion reduction in variance or variance-explained statistics for each of the random coefficients (intercepts and slopes) as classroom environment predictors are added to the level-2 model is calculated by comparing the τ_{qq} estimated from the current fitted model to a 'base' or reference model (i.e. random ANCOVA). The proportion of variance explained is equal to τ_{qq} (random ANCOVA) minus τ_{qq} (fitted model), divided by τ_{qq} (random ANCOVA), (.72 - .65)/. 72 = 0.097. This indicated that 9.7% of the parameter variation in bullying perpetration outcomes has been explained by SC when controlling for gender, school connectedness and social status for LITOP. Table 8 presents the results of the final fitted model for bullying perpetration.

Table 8

Comparing Results for Random ANCOVA Model and Intercepts- and Slopes-as-Outcomes Model for Bullying Perpetration and Victimization

	Bullying		Victimization	
Predictor	Model 2: Ancova Model (level-1 predictors)	Model 3: Intercepts & Slopes-as-outcomes Model (level-1 & 2 predictors)	Model 2: Ancova Model (level-1 predictors)	Model 3: Intercepts & Slopes-as-Outcomes Model
Fixed effects				
Interceptγ_{00}	2.99*** (0.36)	3.75*** (0.24)	3.03*** (0.18)	3.04*** (0.15)
Genderγ_{10}	-0.85** (0.28)	-0.84** (0.25)	-0.47* (0.22)	- 0.48** (0.22)
School Connγ_{20}	-1.81*** (0.35)	-1.82*** (0.35)	-2.38*** (0.29)	-2.33** (0.32)
LTOPγ_{30}	0.72* (0.31)	0.70* (0.31)		
SCEM CIγ_{01}				
SCEM SC γ_{02}		0.42* (0.21)		
SCEM Cγ_{01}				0.67** (0.23)
SCEM TSRγ_{02}				-0.27** (0.08)
Genderβ_1 X TSR γ_{12}				0.23**(0.10)
Random effects				
Level-1 variance	10.47 (3.24)	10.47 (3.23)	8.08* (2.84)	8.08 (2.84)
Level-2 variance	0.72*** (0.85)	0.65*** (0.67)	0.28* (0.53)	0.17 (0.42)
Goodness-of-fit (Deviance)	3538.63	3538.02	3354.50	3342.72

Note. SCEM= student classroom environment measure; CI= cooperation/interaction; SC = social comparison; C= competition; TSR= teacher-student relations; ICC= intraclass correlation
*p <.05; **p <.01; ***p <.001; (standard error)

For victimization, significant individual predictors revealed by the random ANCOVA model (i.e. gender, school connectedness) were controlled by including them at level-1, and significant classroom characteristics revealed from the regression with means-as-outcomes model (i.e. C, TSR, class size) were included at level-2 as predictors of victimization outcomes for classrooms. The results showed that after controlling for individual characteristics (i.e.

gender, school connectedness) classroom environment variables C and TSR remained significant predictors. Class size was no longer significant after controlling for individual characteristics therefore it was dropped from the model to improve the fit. The fitted model yielded an intercept, γ_{00}= 3.04, (t= 19.77, p<.001). Competition remains positively associated with victimization outcomes, γ_{01}= 0.67, (t= 2.87, p=.007) indicating that higher scores for C which represented a more competitive classroom atmosphere were associated with increased outcomes for victimization. Teacher-student relations was negatively related to victimization outcomes, γ_{02} = -0.27, (t= -3.33, p= .002) suggesting that higher scores on TSR which indicate better teacher-student relationships were associated with decreased outcomes of victimization. The proportion reduction in variance or variance-explained statistics for each of the random coefficients (intercepts and slopes) as classroom environment predictors are added to the level-2 model is calculated by comparing the τ_{qq} estimated from the current fitted model to a 'base' or reference model (i.e. random ANCOVA). Thus, the proportion of variance explained is equal to τ_{qq} (random ANCOVA) minus γ_{qq} (fitted model), divided by γ_{qq} (random ANCOVA), (.28 - .17)/.28= 0.39. This indicated that 39% of the parameter variation in victimization outcomes has been explained by C and TSR after controlling for individual predictors (i.e. gender and school connectedness). The deviance statistics for the current covariance model was reduced to 3342.72. Table 8 presents the results of the final fitted model for victimization.

Results for research question 4. *Are there interactions between individual factors (i.e. gender, school connectedness, social status and social support)and classroom level factors (i.e. AIMS and CEM) in relation to bullying perpetration and victimization?*

To explore whether any cross-level interactions existed between individual and classroom characteristics, an Intercepts- and Slopes-as-Outcomes Model was tested. For bullying,

classroom variable SC were entered at level-2 for predicting within-classroom slopes (i.e. gender, school connectedness, and LTOP). The results revealed no significant cross-level interactions between student-level and classroom-level variables.

With regards to victimization, a significant cross-level interaction between gender and teacher-student relations was evident. For the gender slope, γ_{10} = - 0.48, (t= -2.77, p=.006), TSR was a significant predictor γ_{11} = 0.23, (t= 2.40, p= 0.017) indicating that males with lower scores for TSR had more victimization than girls with lower scores for TSR (Figure 6).

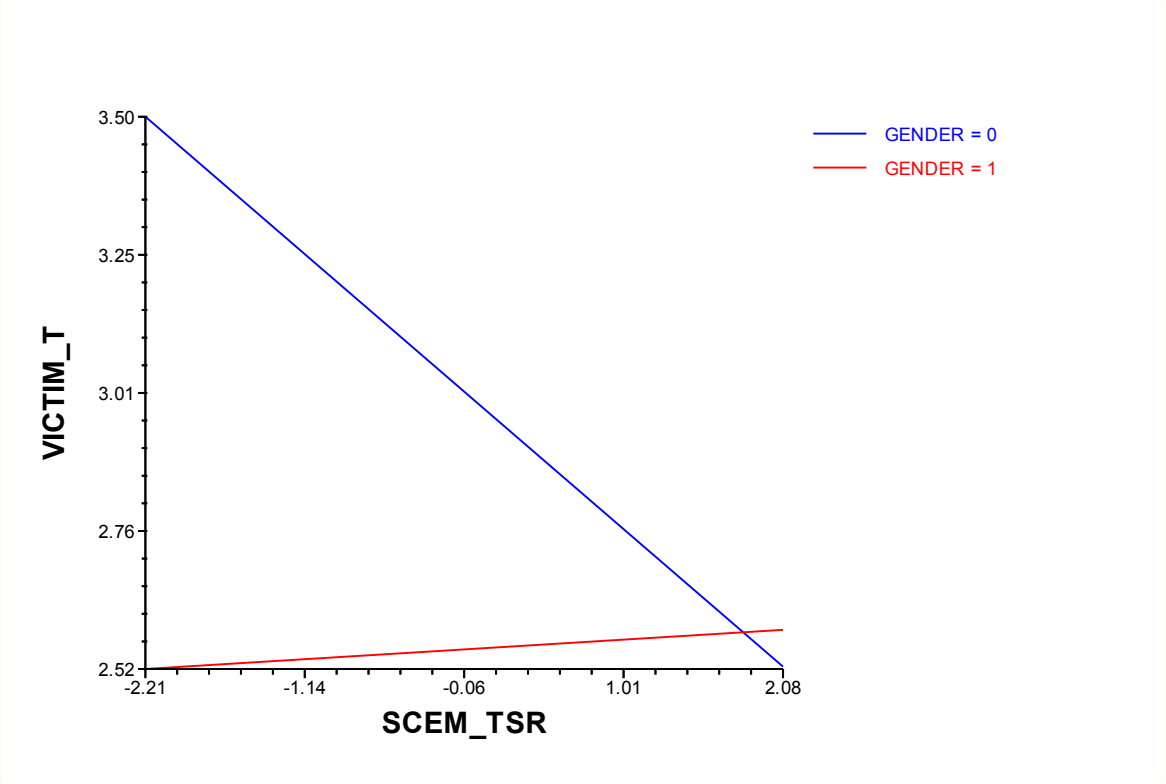

Figure 6: Gender and Teacher-Student Interaction For Victimization Outcomes

Results for research question 5. *Is the classroom peer ecology (i.e. social status) influenced by aspects of the classroom environment assessed by AIMS and CEM?*

The influence of classroom environment on student social status outcomes was tested with a multinomial regression model. This model investigated the different associations of level-

2 predictors with the probabilities of different social statuses among peers (i.e. rejected, popular, and average). Social status outcomes for LITOP and LITOW were modeled as a result of the significant differences in status between classrooms revealed by One-Way ANOVA model.

A multinomial logit link is a common and convenient logit link for multinomial regression (Raudenbush & Bryk, 2002). The outcome at level-1 is the log-odds of falling into category *m* (i.e. popular or rejected) relative to the 'reference category' *M* (i.e. average). The unconditional model revealed a statistical difference in the extent of between-classroom variation for the outcomes of rejected and popular relative to average for LITOP and LITOW (see Tables 4 and 5). To determine whether social status outcomes are influenced by classroom environment, conditional models including level-2 predictors were analyzed for LITOP and LITOW.

In the *conditional model* level-2 predictors of classroom indices (i.e. AIMS, OCEM, TCEM, SCEM) were included to determine whether classroom environment is associated with social status for LITOP and LITOW. In this model, at level-1 each student's pair of log-odds was equal to a classroom-specific intercept, and at level-2 the intercept was a function of the different classroom environment indices (i.e. AIMS, OCEM, TCEM, SCEM). The intercept at level-2 varied randomly. Separate models for each of the classroom indices were analyzed including only subcategories with acceptable reliability of above .60 entered at level-2.

To begin, the social status for LITOP outcomes were analyzed. Subcategories of the AIMS classroom measure were included as level-2 effects. The multinomial results revealed significant associations between *Atmosphere, Instruction, Student Engagement,* and the log-odds of 'rejected' social status relative to average social status. For Atmosphere and Student Engagement, the log-odds of being rejected was *OR* = 4.40 and *OR*=11.51 respectively. A value

greater than 1 indicates an increased odd of a rejected social status, therefore atmosphere and student engagement were associated with an increased odd of being rejected. For Instruction/Content, the log-odds of being rejected was *OR*= 0.02, a value less than zero therefore indicating a decreased odds of being rejected relative to average. With regards to popular social status, Student Engagement was the only significant predictor, *OR*= 3.72 indicating that with more student engagement there are greater odds of being popular relative to average social status. Table 9 presents the results of the multinomial logit model for social status outcomes and AIMS.

Table 9

Multinomial Logit Model for 'Like to Play With' [LITOP] Outcomes Associated with AIMS

Fixed Effect	Coefficient	*SE*	*t*-ratio	*DF*	*p*-value	*OR*	95% CI
For Category 0[a]							
For INTRCPT1, $\beta_{0(0)}$							
INTRCPT2, $\gamma_{00(0)}$	-3.00	0.21	-14.20	33	<0.001	0.05	(0.03,0.08)
ATM, $\gamma_{01(0)}$	1.48	0.73	2.03	33	0.050	4.40	(1.00,19.44)
INS, $\gamma_{02(0)}$	-3.77	0.80	-4.70	33	<0.001	0.02	(0.00,0.12)
MAN, $\gamma_{03(0)}$	-1.46	0.73	-1.99	33	0.055	0.23	(0.05,1.04)
SENG, $\gamma_{04(0)}$	2.44	0.54	4.52	33	<0.001	11.51	(3.83,34.59)
For Category 1[a]							
For INTRCPT1, $\beta_{0(1)}$							
INTRCPT2, $\gamma_{00(1)}$	-2.06	0.17	-12.21	33	<0.001	0.13	(0.09,0.18)
ATM, $\gamma_{01(1)}$	0.52	1.02	0.51	33	0.614	1.68	(0.21,13.38)
INS, $\gamma_{02(1)}$	-1.61	0.90	-1.78	33	0.084	0.20	(0.03,1.26)
MAN, $\gamma_{03(1)}$	-0.17	0.92	-0.18	33	0.855	0.84	(0.13,5.49)
SENG, $\gamma_{04(1)}$	1.32	0.54	2.45	33	0.020	3.72	(1.25,11.10)

Random Effect	*SD*	Variance Component	*DF*	χ^2	*p*-value
INTRCPT1(0), $u_{0(0)}$	0.16	0.03	33	31.45	>0.500
INTRCPT1(1), $u_{0(1)}$	0.78	0.61	33	69.97	<0.001

Note. CI= confidence interval; OR= odds ratio; SE= standard error; DF= degrees of freedom; SD= standard deviation; ATM= atmosphere; INS= instruction/content; MAN= management; SENG= student engagement

[a]Category 0= 'rejected' social acceptance status, Category 1= 'popular' social acceptance status. The reference category is 'average' social acceptance status

Next, conditional models were tested including subcategories of the OCEM, TCEM, and SCEM. Commencing with the OCEM, the subscale for C (as the only subscale with acceptable internal reliability) was entered as a level-2 predictor however it did not reach statistical significance. Teacher perceptions of the classroom were assessed with subscales of the TCEM as level-2 effects. Variables included TO, CI, G, and APDM. The effect of CI was statistically significant for the logit of rejected status versus average status, *OR*= 0.64, CI= [0.427, 0.962] indicating decreased odds of being rejected relative to average. For popular status, *OR*= 0.984, CI= [0.750, 1.292] was also associated with decreased odds however it did not achieve statistical significance. Lastly, composites of SCEM based on student perceptions of the classroom with internal reliability above .60 (i.e. CI, C, SC, TSR) were entered in the multinomial model as predictors of social status outcomes for LITOP. Cooperation/Interaction, C, and TSR did not reach significance and therefore were removed from the model. The final model with SC as a single classroom predictor was entered in the level-2 equation. The value of the log-likelihood function of the restricted model (i.e. SC) was lower indicating a better fitted model. The results demonstrated that SC is associated with increased odds of being rejected, *OR*= 2.11, CI= [1.18, 3.79] and popular, *OR*= 2.23, CI= [1.48, 3.34] relative to average social status.

Classroom determinants of social status for LITOW outcomes were analyzed next. First models using classroom environment rated by observers were tested. The AIMS subcategories (i.e. Atmosphere, Instruction, Management, and Student Engagement) were entered as level-2 effects. Only Instruction had a significant effect for the rejected status, *OR* = 0.04, CI = [0.006-0.225], that is higher quality instruction was associated with decreased odds of being rejected

over average status. For OCEM, C was significantly associated with a popular status *OR*=1.26, CI= [1.04-1.52] demonstrating that the higher competition in the classroom is associated with increased odds of being popular relative to average status. Models using teacher perceptions of the classroom environment included subscales of the TCEM (i.e. TO, CI, G, and APDM) entered as level-2 predictors. Only CI was significantly associated with popular status, *OR*= 1.36, CI= [1.136, 1.617] revealing that classrooms with higher cooperation and interaction were associated with increased odds of a popular status among peers. Lastly, a model using student perception of the classroom environment included subscales of the SCEM (i.e., CI, C, SC, and TSR) as classroom predictors at level-2. Only C was significantly associated with rejected peer status, *OR*= 2.91, CI= [1.195, 7.095] indicating increased odds of rejected compared to average status in classrooms where competition was rated as high.

Chapter 7: Discussion

This multilevel research study examined the association between student characteristics, classroom environment, and outcomes of bullying perpetration and victimization in Grade 7 and 8 students. The study also evaluated the extent to which classroom environment predicts social acceptance in the classroom. The findings of the five research questions addressed in this study are discussed in relation to theory and previously presented research literature. The limitations of this research, its unique contribution and future directions are also discussed.

Classroom Environment, Bullying Perpetration and Victimization

The first question aimed to examine the influence of classroom environment rated by observers, students, and teachers: *Are classroom environment indices of AIMS and CEM associated with bullying perpetration and victimization outcomes?*

Classroom differences. Prior to addressing this first question, it was necessary to establish whether there was classroom variation for bullying perpetration and victimization in order to model existing variation at the individual- and classroom-level. A primary and important finding is that there was significant classroom-level variation for bullying, victimization and social status outcomes. Approximately 7% of the variance in bullying scores and 4 % of the variance in victimization scores consisted of differences between classrooms. The estimated variance attributed to classroom effect is consistent with the empirical literature for bullying and aggression (Atria, Strohmeier, & Spiel, 2007; Barth et al. 2004; Roland & Galloway, 2002; Scholte, Sentse, & Granic, 2010). The between classroom variation for bullying perpetration and victimization revealed in this research contributes to the literature, and replicates findings in a Canadian educational context for junior high school classrooms.

Significant variation suggests that classroom dynamics are not constant mechanisms but rather they are established by classroom processes that include instructional, emotional and organizational aspects which influence the prevalence of bullying perpetration and victimization. The existing classroom variation for bullying perpetration and victimization was examined and modeled within individual and classroom level models to determine factors that explain differences between classrooms.

Bullying perpetration outcomes. The first research question investigating the classroom environment revealed that only student perceptions of classroom indices were significantly associated with outcomes of bullying perpetration and victimization. Observer and teacher ratings of the classroom environment did not reveal any significant findings. It was expected that classroom observations would have some predictive value but observers' perception of the classroom did not reveal any significant findings in this study. Students perception of the classroom measured with subscales of the SCEM did predict bullying perpetration and victimization. Student perceptions are arguably highly reliable sources for information since they (students) are in principle, at least more sensitive to the long-standing attributes of the environment (Feldlaufer et al. 1988) than for example, external observers of classrooms. For SCEM, a higher level of social comparison in the classroom environment was related to increased outcomes of bullying perpetration. Social comparison was measured with two items assessing if students compare their work and grades with peers in the classroom. This finding supports Festinger's (1954) classical social comparison theory in that students evaluate their abilities and seek accurate appraisals among their peers which can lead to increased performance, but it can also bring out negative affect in students.

Social comparison (rated by students) as a significant characteristic of the classroom environment in Grades 7 and 8 is in line with Feldlaufer et al. (1988) research findings that students perceived more social comparison after transitioning to high school in Grade 7. Together these findings suggest that social comparison is a crucial aspect in early adolescence possibly contributing to the increase in bullying at this age. To my knowledge, the present study is the first to assess social comparison in the classroom and its relationship with bullying in junior high school. The structure and culture of secondary schools need to be considered as they may be less supportive of new social groupings, include more public evaluations and emphasis on grades, and less cooperation and interaction, possibly hindering peer affiliations (Eccles, Midgley, & Adler, 1984).

The organizational factors including classroom environments that do not facilitate social and academic development combined with students' developmental changes may contribute to the instrumental use of aggression in pursuit of social dominance, especially among boys (Pellegrini, 2008). Social comparison predicting bullying perpetration can also be understood in view of social dominance theories (Sidanius & Pratto, 1999) emphasizing the role of dominance derived from the ability to defeat others during the transition from primary school to secondary school (Pellegrini & Van Ryzin, 2011; Pellegrini et al. 2010). This literature argues that bullying may be in service of establishing social dominance status to gain resources (during transitions from primary to secondary school) when there are new or emerging social groups and a greater emphasis on peer relations. Pellegrini and Long (2002) found direct evidence that bullying increases from primary to middle school (i.e. sixth and seventh grade), and that bullying mediates students' dominance status during this transition. Findings of the present study

highlight the impact of classrooms practices that encourage high amounts of social comparison among peers, which in turn may increase competition and opportunities for bullying interactions.

The amount of cooperation and interaction in the classroom did not have a significant effect on bullying however it did have a negative relationship indicating that classroom environments with higher cooperation and interaction are associated with less bullying perpetration. Research by Feldlaufer et al. (1988) demonstrated that teachers and students perceive a decrease in cooperation and interaction in junior high school classrooms. This aspect of the classroom environment did not have a significant impact on student outcomes for bullying perpetration or victimization, however it did increase the effects of social comparison on classroom outcomes of bullying perpetration to a significant level. Further inspection of these two variables (i.e. social comparison and cooperation/interaction) indicated a small but significant positive correlation suggesting that there may be some shared variance between these two classroom variables. The inclusion of cooperation/interaction with social comparison in the classroom level model (as a second classroom predictor) strengthened the impact of social comparison on bullying perpetration and rendered it as a significant predictor of bullying perpetration.

Although it was revealed that cooperation/interaction and social comparison explained approximately 24 % of the between classroom variance for bullying outcomes, there still remains between classroom variance that needs further exploring. There are a number of factors (beyond the scope of this study) that may potentially contribute to divergent classroom outcomes for bullying, for example teachers' attitudes toward bullying and their knowledge and belief about bullying (Allen, 2010; Farmer et al., 2011; Holt, Keyes, & Koenig, 2011). Drawing attention to these factors highlights the network-related teaching strategies in Rodkin and Gest's (2011)

conceptual model of teaching practices and classroom peer ecologies. Moreover, student attitudes toward bullying and the salience of behavior norms in classrooms are important factors that influence classroom climate (Bellemore, Witkow, Graham, & Juvonen, 2004; Bonnet et al. 2009; Roland & Galloway, 2002; Scholte et al. 2010). These factors could account for the remaining variation that exists between classrooms in outcomes of bullying perpetration.

Victimization outcomes. Aspects of the classroom environment that impact victimization differ from those that impact bullying perpetration. This research indicates that teacher-student relations have a significant influence on students who are victimized but not for students who bully. Students' perception of a better teacher-student relationship was associated with less victimization. In the present study, teacher-student relations were reflected by the amount of teacher's care, fairness, respect and attention to student needs. The finding that teacher-student relations influence victimization outcomes more so than bullying perpetration is in accordance with literature discussed by Doll et al. (2011) stating that teacher support is imperative especially for students who are at risk for victimization (Doll, Song, Champion, & Jones, 2011; Kochenderfer-Ladd & Pelletier, 2008). They conclude that classrooms are safer places when students feel that teachers are warm, caring and engaging, which in turn promotes students' trust in their teachers to protect them from harm or victimization. This also fosters students with a sense of class membership and belonging. Teachers who monitor to protect against bullying and respond swiftly to incidences, demonstrate that bullying is unacceptable and at the same time create an anti-bullying climate in the classroom. Doll et al. (2011) state that teachers are powerful role models in the classroom therefore the values and expectations that they convey about respect, courtesy, and fairness become deeply embedded in the classroom's social ecology. Teachers have a vital role in recognizing and intervening in bullying therefore it

is not surprising that teachers who are less sensitive to students' needs may be viewed as less caring and unresponsive. Clearly, this is in relation with social learning theories that propose modeling and observation as social processes in learning. A classroom climate that provides a sense of community begins with healthy teacher-student relations that serve as a facilitator of peer relationships. Through instruction and modeling, teachers provide strategies to help students manage conflicts adaptively.

The competitive nature of the classroom environment also strongly predicted victimization. Classroom environments rated high on competition were associated with increased victimization. The negative effects of competition for increasing student victimization are understood in relation to the assumptions of social interdependence. That is, highly competitive environments promote negative interaction patterns and behaviors that obstruct individual goal attainment, which lead to a negative emotional energy that results in increased disliking and rejection in the classroom. Since students who are victimized are quite often also rejected (Boulton, 1999; Card & Schwartz, 2009; Hanish & Guerra, 2000; Schuster, 1999), competition in the classroom serves as a moderator such that the association between rejection and victimization is stronger in highly competitive classrooms.

Class size was considered as a demographic variable of the classroom significantly predicting victimization. Most studies have not found any relationship between class size and bullying (Bonnet et al., 2009; Whitney & Smith, 1993; Olweus, 1993). However, in one study examining school variables linked to victimization, a significant relationship between large, overcrowded classrooms and increased forms of peer victimization was revealed (Khoury-Kassabri et al., 2004). In the present study a reverse relationship was found demonstrating that classrooms with more students were associated with less victimization. Although it was

anticipated that class size would be positively related with victimization, it may be that classroom that are larger in size (i.e. more students) may have social network peer ecologies with increased subgroups and social ties, providing each student with a niche and the social support that protects them from being victimized and targeted by bullies.

Class size, competition, and teacher-student relations were classroom level variables that were significantly associated and explained 77.5% of the between-classroom variance for victimization outcomes. These variables accounted for a large proportion of the variance at the classroom level and the statistical models demonstrated that there remained no significant variation to be explained. Kochenderfer-Ladd and Pelletier (2008) investigated the influence of teachers' belief of bullying and its effects on classroom management strategies and students coping strategies with peer victimization. They found that teachers with normative beliefs about bullying were less likely to intervene in bullying episodes while teachers with assertive beliefs advocated assertion to deal with the problem. Also, students who used problem coping strategies sought teachers' support in times of need and reported less victimization. Kochenderfer-Ladd and Pelletier's research highlights the need for understanding the influence of teacher beliefs and views on bullying, and its impact on classroom coping strategies which in turn may have an effect on teacher-student relationships. Teachers' monitoring and teachers' awareness of bullying are integrated parts of the classroom ecology that may support or discourage bullying. For example teachers who are not aware of the possibility of bullying may overlook bullying that is covert (Doll et al. 2011). This also raises questions regarding how teachers define and conceptualize bullying. In all, although class size, competition and TSR were classroom variables that explained a significant proportion of the variance, how teachers' conceptualize

bullying and their beliefs and attitudes about bullying could account for any remaining differences in peer victimization between classrooms that nonetheless should be considered.

The findings for the first research question examining the impact of classroom environment on youth outcomes for bullying perpetration and victimization partly supports Rodkin and Gest's (2011) conceptual model highlighting the link between teaching practices and bullying demonstrated in Path D of the model (see Figure 1). In the present research, different aspects of the classroom environment relevant to the high school context (i.e. social comparison, competition, emphasis on grades) were considered as part of the general teaching practices in Rodkin and Gest's (2011) conceptual model. Social comparison was the only significant predictor for bullying perpetration outcomes. The underlying motives of social comparison that include self-evaluation and self-enhancement may be prevailing functions at this age in striving for dominance status among peers. Social comparison may also lead to increased competition, in the present study competition was a characteristic associated only with victimization and not bullying. Teacher-student relationship was also a significant classroom predictor of victimization outcomes. These findings support Rodkin and Gest's model emphasizing the emotional support aspect of general teacher-student interactions highlighted in Path D as having a direct impact on youth outcomes.

Individual Characteristics Associated With Bullying Perpetration and Victimization

The second research question addressed in this research was as follows: *Which student characteristics (i.e. gender, reading and listening comprehension skills, school connectedness, social, support, and social status) are related to outcomes of bullying perpetration and victimization?*

Gender emerged as an associated characteristic with boys reporting more bullying perpetration and victimization than girls. These gender differences are consistent with literature highlighting higher prevalent rates for bullying among boys (Espelage & Holt, 2001; Espelage et al., 2000; Nansel et al. 2001). School connectedness was also an individual predictor for both bullying perpetration and victimization. Students who reported higher connection to school were associated with less bullying perpetration and victimization. The finding that school connectedness was negatively associated with peer victimization is consistent with research in field examining adolescents' sense of school connectedness and victimization (Cunningham, 2007; Lester et al. 2012; McNeely & Falci, 2004 Waasdorp et al., 2011). However, most research demonstrates a negative association between school connectedness and victimization more often than with bullying perpetration. Cunningham (2007) found differences in bully, victims, and bully-victims perceptions for sense of connection to school. Bullies were more attached to their school than victims or bully-victims while victims were more committed to their school than bullies. Students who were classified as bully-victims were low on both commitment and attachment to school and at the highest risk of psychosocial functioning. In this study school connection was measured using an average score summed across four constructs that included commitment, power, beliefs, and belonging. Drawing from motivational theories, the constructs that measured school connectedness in this study reflect the fundamental psychological needs of competence, autonomy, and relatedness that are part of the self-system process conceptualized by Connell and Wellborn (1991). The robust relationship revealed between junior high school students perception of school connectedness and outcomes for bullying perpetration and victimization suggests that this is an important construct during adolescence. This has implications for intervening at the individual, class and school level to

enhance students' connectedness to school as summarized in Catalano et al.'s (2004) literature on a longitudinal intervention study undertaken by the Social Development Research Group to enhance youth connection to school.

Students' social acceptance among peers emerged as a significant individual characteristic that predicted only bullying perpetration outcomes. In the present study, a popular social status (i.e. for hanging out with) was associated with increased bullying perpetration. These results are consistent with a study by Juvonen et al. (2003) that found bullies had a popular social status among peers using peer nominations, which are considered reliable sources of information. Juvonen et al. found that bullies were psychologically stronger (i.e. less depression, social anxiety, and loneliness) than classmates not involved in bullying and enjoyed high social status among classmates. In fact an investigation on social standings of students who bully their peers during adolescence revealed that bullies share similar social status and peer acceptance as non-bullies, and that popularity was related to bullying only for males (Espelage & Holt, 2001). These findings of the present study suggest that mechanisms of social dominance can be at play since there are significant findings for gender and social status. Students may use agonistic strategies of dominance such as bullying to climb the social hierarchy (Pellegrini & Long, 2002) which is also related to their attractiveness to opposite-sex peers (Pellegrini & Bartini, 2001).

The finding that social status predicted bullying outcomes was also a test of Rodkin and Gest's (2011) conceptual model (illustrated as Path A in Figure 2). This pathway suggests that social status, as part of the classroom peer ecology is a proximal determinant of bullying outcomes. Nonetheless, a closer examination of the influence of the classroom peer ecology is needed. For example different features of the classroom peer ecology (i.e. status hierarchies, structural embeddedness, and group norms) as delineated in the literature (Rodkin & Gest, 2011)

could possibly explain some of the classroom level variance for bullying perpetration and victimization outcomes. The social network dimension of peer ecologies and social network teaching strategies need further investigation in high school classrooms to determine its direct and indirect influence on youth outcomes for bullying perpetration and victimization.

Classroom Effects Controlling for Individual Characteristics of Bullying Perpetration and Victimization

The third question posed by this research: *Are aspects of the classroom environment assessed by AIMS and CEM significant predictors of bullying perpetration and victimization even after controlling for individual-level predictors including gender, language and literacy skills, school connectedness, social status and social support?*

Research results showed that for bullying perpetration outcomes, social comparison in the classroom remained a significant predictor even after holding constant the individual effects of gender, school connectedness, and peer social status. This indicates that individual effects explain a small amount of student level variation within classrooms, however classroom effects have a prominent role in explaining the between classroom differences in outcomes of bullying. For victimization outcomes, classroom effects of competition and teacher-student relations remained after considering individual level variation of gender and school connectedness. Classroom effects for victimization explained a significant proportion of the variance after controlling for these individual effects. The findings of this research support social-ecological approaches for understanding bullying in that the individual has an influence on his/her environment, and the proximal processes within the classroom that include peer context and teacher-student interactions can have mediating effects for bullying perpetration and victimization. The conceptual model proposed by Rodkin and Gest (2011) explores the

classroom context as a microsystem and takes into account these contextual influences as proximal correlates for youth outcomes. The present research supports some of the links in Rodkin and Gest's model. However this study used a multilevel approach that included variables at the classroom level controlling for individual level variance, and additional variables at the individual level as covariates to isolate effects. Furthermore the interactions between individual and classroom levels factors were explored. Examining the individual factors extends Rodkin and Gest's model and lends to a transactional-ecological developmental model that considers how individual and environments shape behavior. The findings reveal that individual characteristics are accountable for variation in bullying perpetration and victimization nonetheless contextual influences are important for determining these outcomes.

Individual by classroom interactions. The fourth question: *Are there interactions between individual factors (i.e. gender, school connectedness, social status and social support) and classroom level factors (i.e. AIMS and CEM) in relation to bullying perpetration and victimization?*

This research also explored cross-level interactions between individual and classroom factors. Interestingly, an interaction was found between gender and teacher-student relationships that is boys who had low scores for teacher-student relations were at an increased risk for victimization more so than girls who had low scores for teacher-student relations. This gender difference is less evident as quality of teacher-student relationship increases. In general this may hint that boys' relationship with teachers do not serve exactly the same function as girls' relationship with teachers nonetheless still demonstrating its protective function. It may be that boys might seek less support from teachers out of fear of being perceived as weak among classmates. More so, there is literature stating that teachers' management of boys' and girls'

aggressive behavior differs from as early on as preschool, and this may have lasting effects. Teachers respond to girls by providing more comfort whereas with boys teachers use discipline with higher power strategies such as reprimand, punishment, and loud voice (Hanish et al., 2011). Findings from a study examining gender differences in teacher-student relations revealed that teachers perceived their relationship with male students as higher in conflict and with less closeness (Koepke & Harkins, 2008). Thus, it can be speculated that boys form different relationships with teachers that are not as close. From a social learning perspective, since boys experience more conflict with teachers, this type of dynamic can be vicariously reinforced in classrooms. Furthermore teacher gender may play a role. In this study, all teachers were female except for one teacher who was male, perhaps gender of the role model (i.e. male or female teacher) may influence the quality of teacher-student relationships for boys and girls. Further research is needed to explore the source of these gender differences in teacher-student relationships.

Classroom Environment and Peer Ecology

The final question of this research explored social status as part of the classroom peer ecology: *Is the classroom peer ecology (i.e. social status) influenced by aspects of the classroom environment assessed by AIMS and CEM?*

This research question was addressed to test the assumption in Rodkin and Gest's (2011) conceptual model which asserts that general teaching practice also indirectly influences bullying perpetration and victimization outcomes via the classroom peer ecology. This was illustrated by pathway B in Rodkin and Gest's model. Although this study did not employ a path analysis method, it did investigate the likelihood that classroom environment measured by subscales of AIMS and CEM influenced peer ecologies.

A first notable finding regarding peer affiliations was that significant classroom variation exists between classrooms for social status outcomes (i.e. average, rejected, and popular) in the play (i.e. LITOP) and work (i.e. LITOW) context. These differences in social status outcomes across classrooms allowed for further investigation of the classroom characteristics that influence peer affiliation and social acceptance (i.e. social status outcomes) in work and play contexts. In this study, social status using peer nominations was examined as an individual predictor of bullying perpetration and victimization and also as an outcome variable. This study explored if classroom characteristics were predictors of student social status, testing Path B of Rodkin and Gest's (2011) conceptual model.

LITOP outcomes. Social status outcomes for LITOP were modeled and classroom indices based on observers, teachers, and students' perceptions were included as classroom level effects. Based on observers' ratings, the AIMS classroom instrument revealed that atmosphere, instruction, and student engagement was associated with social status outcomes. Surprisingly, the odds for being rejected were greater than being average in classrooms with higher scores on atmosphere and student engagement. This finding was unexpected however it may be that while classrooms that foster a sense of community through cooperative atmospheres and high student engagement allow for students to get acquainted, this type of environment may also further expose students who are rejected for their weaknesses. In order to make sense of these findings, perhaps students who may be at risk for rejection become isolates, therefore classroom environments that require a lot of cooperation and engagement may be more challenging for these students to get involved possibly exacerbating their poor social status among peers. The instructional aspect of the classroom that involves engaging content and activities, high instructional density, cross-curricular connections, encouragement of self-regulation, provision

of scaffolding and activities within a zone of proximal development was associated with an increased odd of being average status over a rejected or popular status. This is consistent with Gest and Rodkin (2011) research on teaching practices and classroom peer ecologies in that they found teaching practices that increased instructional support resulted in less pronounced classroom status hierarchies (i.e. more egalitarian status among peers). The OCEM also based on observers' ratings was explored however subscales of this measure had low reliability except for the competition construct, which was acceptable. Nonetheless competition did not significantly affect social status outcomes for hanging out context. For teachers' perception of the classroom environment measured with the TCEM, cooperation/interaction emerged as a significant aspect of the classroom influencing social status outcomes. It was revealed that teacher ratings of cooperation/interaction was associated with decreased odds of a rejected over average status. Cooperation/interaction in classrooms is reflected by how often students are allowed to talk to other students while working and ask other students for help with their work.

Student perceptions of the classroom environment using the SCEM revealed that higher social comparison in the classroom was significantly associated with the increased likelihood of a rejected or popular status over an average status. It can be speculated that classrooms with a lot of social comparison among peers would heighten the emphasis for classmates' social standings creating status hierarchies as opposed to more egalitarian social status networks (i.e. average statuses) within the classrooms.

LITOW outcomes. Social status outcomes for LITOW were also analyzed to explore effects of classroom environment based on observers, teachers, and students' perceptions. Observations of the classroom using AIMS and OCEM revealed constructs that were related to social status outcomes of LITOW. Instruction/Content measured by the AIMS had a significant

effect on the odds of a rejected status in the classroom. Students were less likely to be rejected in classrooms that were rated higher on instruction and content which is similar to findings for the LITOP. For the OCEM, competition had a significant effect for popular status. Competitive classrooms were more likely to predict a popular status over an average status. Competition was a predictor only for social status in LITOW perhaps because items measuring this variable (competition) are closely associated with work context. Student perceptions of the classroom environment using the SCEM also revealed that competition in the classroom was associated with LITOW social status outcomes in that competition was associated with an increased chance of being rejected relative to an average status. Similar to the effects of social comparison on social status outcomes for LITOP, competition in the classroom can accentuate statuses among peers by placing emphasis on the individual abilities of students.

In summary, the findings of this study support socio-ecological frameworks that consider both individual and contextual influences of social development. Generally this research supports Rodkin and Gest's (2011) model adopted as the underpinning for understanding the microsystem of the classroom and the proximal processes that influence youth outcomes (i.e. bullying perpetration and victimization). To my knowledge, it was the first study to examined classroom practices using various indices of the classroom assessed by different sources (i.e. observers, students, and teachers) in junior high school level Grades 7 and 8 when bullying peaks. This study explored the instructional and emotional support that reflects aspects of the classroom that are developmentally relevant during the transition from primary to secondary classrooms.

This research used a multilevel approach that allowed for the examination of individual predictors associated with bullying perpetration and victimization thus extending Rodkin and

Gest's (2011) model to include the individual as an interacting force. Individual predictors associated with bulling and victimization are mainly considered from theoretical perspectives (i.e. single causal models) that help understand the relationship with aggression and bullying. Consistent with the literature and perhaps supporting evolutionary perspectives, gender was a significant predictor with boys being at higher risk for bullying perpetration and victimization. Student characteristics including indices of development (i.e. listening and reading comprehension) understood from a cognitive development model that have yet to be studied in the literature were not supported in this research and did not predict bullying perpetration or victimization. Further investigation using a different measure of linguistic comprehension could be implemented. A student's sense of connection to school was also examined as a psychosocial variable implicating motivation and self-determination processes of behavior. Students' perception of school connectedness was a strong individual predictor for both bullying perpetration and victimization suggesting a relationship between school connection and bullying. However, it is important to note that the direction of this relationship remains to be determined. The finding that a more preferable social status (e.g. average and popular) was associated with increased bullying could be understood from a social dominance perspective arguing that students may use bullying as a mean to gain dominant status among peers.

Evidently student characteristics are associated with bullying and can be understood within frameworks that focus solely on the individual. Albeit introducing contextual factors such as classroom processes and peer affiliations account for a substantial proportion of variance accentuating the classroom effects for bullying perpetration and victimization, and lending support to child by environment models for understanding this phenomenon.

Limitations of the Current Study

Several limitations of the present study need be considered when interpreting the results.

Study sample. The study included 38 classrooms for data analysis with a total of 678 student participants. The power analysis conducted while designing this research revealed that 42 classrooms with an approximate total of 630 students was required to detect a small effect size (d = .3) (Cohen, 1988). Thus, the sample size of the present study was several classrooms short from this estimated number of classrooms that would yield minimal effects. Multilevel research that employs classroom-level analyses often include sample sizes that are large, most times exceeding 50 classrooms (Barth et al. 2004; Bellmore, Witkow, Graham, & Juvonen, 2004; Mashburn et al. 2008; Scholte et al. 2010; Thomas, Bierman, & Powers, 2011). Nonetheless the sample size of the present study (i.e. 38 classrooms) held adequate power to detect classroom effects and was within the constraints for time, resources, and funding available for this doctoral work. The challenges inherent in methods using groups as units of analysis is that they require much larger sample sizes than needed in individual-analysis.

The sample in the present study was representative of Quebec's ethno cultural diversity however it was not representative for parent educational levels. Mothers in this sample had higher education (i.e. Cegep and University Bachelor degree) while the percentage of fathers who had a university degree (i.e. Bachelor degree) was also higher in the present sample. There was a lower portion of fathers in the present sample who had technical training than the Quebec population. A reason for this difference in education between the study sample and Quebec's population may be a result of the 38 classrooms recruited for this study being primarily located in suburban and Greater Montreal areas which may have different demographics.

Study design. The present research was a correlational study testing relationships between variables, therefore inferring causal relationships is not possible. Inherent in correlational research is also the problem of establishing causal directionality. For example, the finding that school connectedness is related to bullying perpetration and victimization needs further investigating to discern whether having a low connection to school leads to bullying perpetration and victimization or that bullying others and being victimized affects school connectedness. Longitudinal or experimental research to discern this relationship is necessary. Still, the contribution of this correlational research is important because it demonstrates statistical relationships between variables that could be further investigated in experimental or longitudinal research. Furthermore this research work gives a sense of what factors at various levels (i.e. individual and classroom) of the complex system of schools should be addressed in intervention studies.

Reliability of measures. Bullying perpetration and victimization was assessed using self-reports with adolescence. Self-reports are the most common method of assessing bullying and are considered reliable since students have first-hand knowledge that may be unknown to others. However a criticism of this method is that there may be potential bias for under- or over-reporting of bullying perpetration or victimization. Future studies would benefit from including teacher reports and peer nominations of bullying perpetration and victimization to corroborate data with self-reports. Peer nomination techniques are especially valid across time and accurate because the informants (i.e. peers) have experience with target students (i.e. bully or victim) in various contexts (Pellegrini, 2004). To compare rates of bullying perpetration and victimization from the present sample to prevalence rates found in the literature among young adolescents, students that scored one standard deviation above the sample mean for bullying or victimization

were considered bullies or victims respectively. In using this method, this study yielded 13.7% of students with bullying status and 15.3% with victimization status. These frequencies are comparable to findings in the literature of self-reported outcomes for bullying perpetration and victimization (Espelage & Holt, 2001; Espelage, Holt, & Henkel, 2003; Pellegrini, Bartini, & Brooks, 1999). Even so, biases related to self-reporting of bullying perpetration and victimization behavior remain a limitation of this study. Another important consideration of the IBS is that it assesses behaviors in the past thirty days therefore not providing insight on the systematic or chronic nature of these behaviors. In addition to the reliability of the measures for detecting bully or victim behaviors, a limitation regarding the different roles in understanding the bullying phenomenon is that this study did not examine the bully/victim role.

There were some shortcomings for the sociometric technique used in this study. The SIS collected ratings from both sexes which can yield less popular nominations from the opposite sex. However since adolescence is a time when boys and girls develop an interest in one another and there is an increase in heterosexual activity and peer groups (Pellegrini, 2004) it seemed appropriate that peer nominations include boys and girls (i.e. whole group).

The present study failed to demonstrate any evidence that students' listening and reading comprehension skills predicted bullying or victimization. The measure used to assess listening and reading comprehension (i.e. PILAR) needs further consideration. First, group administration of both the listening and reading comprehension tests were altered to include only two passages above the group level as opposed to four passages (above group level) due to time constraints and to control for extraneous variables such as fatigue. Most students scored well above fifty percent therefore the inclusion of more passages would better discern listening and reading abilities between students and avoid ceiling effects. Second, PILAR has been used only in

research studies conducted by the authors that developed the test (i.e. Carlisle & Felbinger, 1991) thus the validity of this test has not been established in any other studies. Students' scores on the PILAR did not predict any outcomes; it may be that these listening and reading comprehension tests are not sensitive enough to identify students with weaknesses in language comprehension processes. Third, PILAR has not been fully standardized, instead it is used to assess student readability levels. Nonetheless PILAR does correlate well with other tests assessing comprehension suggesting reasonable validity. In this sample PILAR had good internal reliability. This test was chosen to assess students' listening and reading comprehension skills for its practicality with group administration. Future funded work with fully standardized test norms for this population is warranted.

The classroom was a central focus of this research study. Classroom observations consisted of two class lectures of seventy-five minutes each and information gathered from these observations were used to complete the observer rating scales (i.e. AIMS and OCEM). Although the inter-rater reliability was high when completing the agreed version of each scale, some items were difficult to rate because the practice or feature was not consistently observed during the lessons. The OCEM scale includes true or false items that were more difficult to rate since there is no continuum. The subcategories of the observer scales used in the present study (i.e. AIMS and OCEM) did not yield any significant findings as classroom characteristics influencing bullying perpetration and victimization. Future studies would benefit from the information provided by the subcategories of the classroom environment scales implemented in this research work. However in order to capture the instructional and emotional climate of the classroom, the time spent observing classrooms should be increased. The AIMS tool is a reliable measurement for evaluating literacy practices in elementary classrooms however it has not been used in any

research assessing classrooms other than early elementary grades. Although the authors state that the instrument can be used in high school classrooms, this research, to my knowledge is the first to experiment with this tool in junior high school classrooms yielding non-significant findings. Perhaps the developmental differences between elementary and high school classrooms may account for some of the difficulties in evaluating some items of the subscales. In junior high school classrooms the structural aspect of teaching may include less variability. Students are more autonomous and often are working independently on specific tasks for longer periods of time. During classroom observations where students worked on their own throughout the lesson, there was a limited amount of information available to observers in order to rate items on the classroom environment scales.

The CEM and its three sources (i.e. observer, teacher, and student) were used in an attempt to triangulate the classroom data however there was no evidence of this. One reason that may account for this is that the scales for each source use different rating systems for subscale items (e.g. true/false), making some sources (i.e. OCEM) more difficult to rate. The internal reliability for the subscales of this the OCEM had poor internal reliability except for the competition subscale. The TCEM and SCEM had acceptable to good reliability except for a few subscales that were low and thus excluded from analyses.

Testing of theory. The present research was a partial investigation of Rodkin and Gest (2011) conceptual model of teaching practices, classroom peer ecologies, and youth outcomes. This study examined the influence of classroom peer ecologies (i.e. social status) on bullying perpetration and victimization outcomes (Path A), how teaching practices impact social status as one of the dimensions of classroom peer ecologies (Path B); and the influence of teaching practices on bullying perpetration and victimization (Path D). This research did not investigate

the influence of network-related teaching on the classroom peer ecology (as illustrated by Path C). Also, the investigation of classroom peer ecologies was limited. Only one feature of the peer ecology was examined (i.e. social status) while the social network dynamics were not studied. More advanced statistical techniques such as hierarchical causal path modeling are needed to further the investigation of the direct and indirect pathways in future model testing of large samples.

Implications and Directions for Future Research

An implication of these findings is that classrooms are not static but rather dynamic environments that shape peer ecologies and influence youth outcomes. This research sheds light on features of the classroom that are related to bullying perpetration and victimization in Grades 7 and 8 of junior high school. This study revealed that increased competition and social comparison in the classroom was associated with increased levels of victimization and bullying perpetration, respectively. Bullying is most prevalent during junior high school years. In early adolescence students have a greater need for peer acceptance and transitioning from primary to secondary school further challenges these needs. Students strive for social dominance and in their quest for it, aggression and bullying may be a strategy to gain dominant status among peers (Hawley, 1999; Pellegrini, 2004; Pellegrini & Long, 2002). Nishina (2004) argues in view of social dominance theory that social hierarchies are adaptive behaviors and part of an evolutionary process. If we accept this view then bullying is an inevitable and otherwise inescapable phenomenon during the adolescent years when social hierarchies are being established; unless teachers are cognizant of social structures and proactively incorporating network related teaching practices.

Albeit that bullying may be part of adaptive functioning, social dominance theory does not predict that bullying cannot be reduced. Gene-environment interactions demonstrate that even with behavior that is 'hard-wired', different environments lead to different expressions of this behavior. Keeping this in mind, attempts to alleviate bullying perpetration and victimization would require that schools and teachers implement instructional practices that include cooperative goal structures and strategies that minimize differences between peers. Teaching practices that encourage student cooperation allow students to get familiar with each other while increasing positive peer affiliations and in turn possibly reducing bullying. Future studies could look at the effects of cooperative and competitive goal structures in the classroom across different grade levels using cross-sectional studies and the effects of classroom interventions strategies on bullying in schools. Evidence from these studies could reveal factors that would better inform intervention programs tailored to the developmental needs of primary and secondary classroom environments.

Healthy teacher-student relations emerged as an important predictor of peer victimization. Teachers, who are warm, engaging, responsive to their students' needs and have high expectations of students, create safer classroom environments and improve students' sense of class membership. When students feel that teachers care and are sensitive to their needs, they are more likely to trust that they (teachers) will protect them from peer victimization in the classroom (Doll, Song, & Siemers, 2004). Since teacher-student relations are associated with victimization, it would be insightful to investigate the association between teachers' attitudes toward bullying and how swiftly and judiciously they respond to peer victimization. Intervention programs for bullying perpetration and victimization need to hone in on evaluating and strengthening the quality of teacher-student relationships and the gender differences that may

pose a risk for healthy teacher-student relations. Training could include strategies to aid teachers' foster student trust, and place efforts on helping them learn how to create positive experiences with their students. This may add a new element to bullying interventions by placing a greater emphasis on professional workshops oriented on enhancing teacher-student relationships.

An interesting finding of this research was the influence of classroom practices on peer social status, which is conceptualized in Rodkin and Gest's (2011) model for youth outcomes. Teaching practices that influence the instructional and emotional aspect of the classroom including atmosphere, student engagement, instruction, cooperation/interaction, teacher-student relations, social comparison and competition are also related to social status outcomes. The present study only examined social status (i.e. popular and rejected) as a function of classroom environment. Instructional practices that are engaging and incorporate student feedback promote peer affiliations and should be considered as part of intervention programs at the classroom level. Differences in social status outcomes across classrooms could guide future studies to investigate various dimensions of the peer ecology (i.e. status hierarchies and group norms) and the social network of the classroom peer ecology. The Rodkin and Gest model also considers network-related teaching practices as an aspect of the educational setting (i.e. classroom) that shapes peer ecologies and future research could investigate this aspect of the model. To progress research in the field, hierarchical causal testing could be used to examine the effects of teaching practices and network related teaching that mediated the relationship between peer ecology and bullying perpetration and victimization.

The sources used to assess classroom environment need further scrutinizing. This research revealed student perceptions of the classroom environment as most predictive for

examining associations with outcomes of bullying perpetration and victimization. Most studies use teacher perceptions of classroom environment however measures using student perceptions of the classroom are reliable sources since students are immersed in classrooms and arguably thus have the most knowledge on the environment. Nonetheless, independent observations are objective and important sources of information about classrooms. This study did not yield any significant relationships using classroom observation and it may be as a result of the amount of time spent observing classrooms. In order for observers to capture a real sense of the classroom environment, the time spent observing classrooms should be increased.

This classroom research revealed that after considering general teaching practices there remains some unexplained classroom level variance in bullying perpetration that requires further investigation. In addition to general teaching practices and network related teaching (already mentioned above), how teachers define or constitute bullying should also be considered. Teacher attitudes and beliefs have been widely studied in the bullying literature and considered as relevant, however there is a need for multi-level models that consider these aspects at the classroom level after controlling for individual factors. Since teacher attitudes influence how and when they intervene in bullying interactions which in turn is associated with students coping strategies for peer victimization, teacher training needs to include these dimensions and link them to effective classroom teaching practices to maximize the success of prevention and intervention programs (Holt & Keyes, 2004; Kochenderfer-Ladd & Pelletier, 2008).

Conclusions and Contributions

This multi-level research used a nested design with students nested within classrooms to analyze the variation in outcomes of bullying perpetration and victimization as a function of the classroom environment in Grades 7 and 8 students. Classroom effects revealed by this research

conducted in a Canadian context with junior high school students are noteworthy. The study demonstrated that student outcomes of bullying perpetration and victimization are associated with aspects of the classroom environment, specifically social comparison, competition, and teacher-student relations. The social dominance theory has been applied to understand bullying in junior high schools (Pellegrini & Long, 2002) however social comparison and competition have not been studied as aspects of the classroom environment influencing bullying perpetration and victimization in junior high school contexts. This study is the first to examine the influence of these classroom characteristics (i.e. social comparison and competition) in classroom-level models. This research was framed within a social-ecological approach focusing on the proximal processes that occur within the microsystem of the classroom with numerous underlying theoretical assumptions. A model adopted by Rodkin and Gest (2011) explicitly describing candidate classroom processes that influence bullying perpetration and victimization was used in this research, and extended to include an individual level that also considers child factors. Using classrooms as a unit of statistical analysis takes into consideration the shared within classroom variance and the non-shared class variance.

Individual characteristics of bullies and victims are discerned in the literature (Underwood & Rosen, 2011). The present study revealed gender and school connectedness as significant predictors of bullying perpetration and victimization. Social status was also a predictor of bullying revealing that students who have neutral affiliations or considered popular among their peers are associated with more bullying. School connectedness was analyzed at the individual level as a student characteristic indicating psychosocial adjustment. Few studies have examined school connectedness as an individual characteristic in multi-level models.

Framing bullying perpetration and victimization within a broad ecological system allows for inspection of individual characteristics at the center of the model and the proximal processes within the microsystem (i.e. classroom) that interact with each other. Understanding the theoretical underpinnings of peer victimization can help guide developmentally appropriate intervention programs for junior high school classrooms. This research is a clear contribution to the literature on bullying. It demonstrates a link between classroom teaching practices that promote competition and social comparison among peers in the classroom and its association with increased bullying perpetration and victimization in general, again, for the first time in the field. It also extends the literature in the field with its investigation of classroom characteristics that influence peer ecologies. It is concluded that this research is a step in the right direction of discerning the joint influences of individual and contextual factors on bullying perpetration and victimization. It is also argued that these findings will guide intervention and prevention programs tailored for Grades 7 and 8 in junior high schools that enhance classroom environments and promote social competence and positive social adjustment to help alleviate bullying and peer victimization.

References

Achenbach, T.M. (1991). *Manual for the Youth Self-Report and 1991 Profile*. Burlington, VT: University of Vermont Department of Psychiatry.

Ahn, H.J., Garandeau, C.F., & Rodkin, P.C. (2010). Effects of classroom embeddedness and density on the social status of aggressive and victimized children. *The Journal of Early Adolescence, 30,* 76-101. doi: 10.1177/0272431609350922

Allen, K.P. (2010). Classroom management, bullying, and teacher practices. *The Professional Educator, 34,* 1-15. Retrieved from http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=ea193f40-960f-45b3-ac33-714feb8aeee6@sessionmgr110&vid=4&hid=114

Andreou, E. (2000). Bully/victim problems and their associations with psychological constructs in 8-12 year old Greek schoolchildren. *Aggressive Behavior, 26*, 49-56.

Atlas, R., & Pepler, D.J. (1998). Observations of bullying in the classroom. *The Journal of Educational Research, 92* (2), 86-99. doi: 10.1080/00220679809597580

Atria, M., Strohmeier, D., & Spiel, C. (2007). The relevance of the school class as social unit for unit for the prevalence of bullying and victimization. *European Journal of Developmental Psychology, 4*(4), 372-387. doi:http://dx.doi.org/10.1080/17405620701554560

Ball, H.A., Arseneault, L. Taylor, A., Maughan, B., Caspi, A., & Moffit, T.E. (2008). Genetic and environmental influences on victims, bullies, and bully-victims in childhood. *Journal of Child Psychology and Psychiatry, 49*(1), 104-112. doi: 10.1111/j.1469-7610.2007.01821.x

Bandura, A. (1969). Social-learning theory of identificatory processes. In D.A Goslin (Ed.) *Handbook of socialization theory and research* (pp. 213-261). Chicago: Rand McNally & Company

Bandura, A. (1978). Social learning theory of aggression. *Journal of Communication, 28*, 12-29. doi: 10.1111/j.1460-2466.1978.tb01621.x

Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs: NJ:Prentice Hall

Barth, J. M., Dunlap, S. T., Dane, H., Lochman, J. E., & Wells, K. C. (2004). Classroom environment influences on aggression, peer relations, and academic focus. *Journal of chool Psychology, 42,* 115-133. doi: 10.1016/j.jsp.2003.11.004

Bellemore, A. D., Witkow, M. R., Graham, S., & Juvonen, J. (2004). Beyond the Individual: The impact of ethnic context and classroom behavioral norms on victims' adjustment. *Developmental Psychology, 40*, 1159-1172. doi: 10.1037/0012-1649.40.6.1159

Benenson, J.F. (2009). Sex differences in aggression from an adaptive perspective. In M.J.Harris (Ed.), *Bullying, rejection, & peer victimization. A social cognitive neuroscience perspective* (pp. 171-198). New York: Springer Publishing Company

Bercovitch, F.B. (1991). Social stratification, social strategies, and reproductive success in primates. *Ethology and Sociobiology, 12*, 315-333.

Bernstein, I.S. (1976). Dominance, aggression, and reproduction in primate societies. *Journal of Theoretical Biology, 60*, 459-472. doi: 10.1016/0022-5193(76)90072-2

Biehler, R. F., Snowman, J., D'Amico, M., & Schmid, R. F. (1999). *Psychology Applied to Teaching - Canadian Edition*. Toronto: ITP Nelson Canada.

Blankemeyer, M., Flannery, D. J., & Vazsonyi, A. T. (2002). The role of aggression and social competence in children's perceptions of the child-teacher relationship. *Psychology in the Schools, 39*, 293-304.

Bohn, C., Roehrig, A., Pressley, M. (2004). The first days of school in the classrooms of two more effective and four less effective primary grades teachers. *Elementary School Journal, 104*, 269-287.

Bond, L., Butler, H., Thomas, L., Carlin, J., Glover, S., Bowes, G., & Patton, G. (2007). Social and school connectedness in early secondary school as predictors of late teenage substance use, mental health, and academic outcomes. *Journal of Adolescent Health, 40*, 9-18. doi: 10.1016/j.jadohealth.2006.10.013

Bonnet, M., Goossens, F. A., Willemen, A. M., & Schuengel, C. (2009). Peer victimization in Dutch school classes of four-to-five-year-olds: Contributing factors at the school level. *The Elementary School Journal, 110*, 163-177.

Boulton, M.J. (1999). Concurrent and longitudinal relations between children's play-ground behavior and social preference, victimization, and bullying. *Child Development, 70*, 944-954. Retrieved from http://www.jstor.org/stable/1132253

Brendgen, M. et al. (2011). Gene-environment processes linking aggression, peer victimization and teacher-child relationship. *Child Development,82*(6), 2021-36. doi: 10.1111/j.14678624.2011.01644.x

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

Bronfenbrenner U, Ceci S.J. (October 1994). "Nature-nurture reconceptualized in developmental perspective: a bioecological model". *Psychological Review 101*(4)*,* 568–586. doi:10.1037/0033-295X.101.4.568

Brown, R. & Evans, W. (2002). Extracurricular activity and ethnicity: Creating greater school connection among divers student populations. *Urban, Education, 37*, 41-58

Brown, J.L., Jones, S.M., & Aber, J.L. (2010, March). *The longitudinal impact of a universal school-based social-emotional and literacy intervention on classroom climate and teacher processes and practices*. Paper presented at the 2010 Conference on Society for Research on Educational Effectiveness, Evanston, IL. Abstract retrieved from https://www.sree.org/conferences/2010/program/

Brown, R.A., Leigh, G.K., & Barton, K. (2000). The school connection scale: A factor analysis, *Psychological Reports, 87*, 851-858. Retrieved from http://www.amsciepub.com/doi/abs/10.2466/pr0.2000.87.3.851

Buhs, E. S., Ladd, G. W., & Herald-Brown, S. L. (2010). Links to peer rejection, classroom engagement, and achievement. In S. R. Jimmerson, S. M. Swearer, D. L. Espelage (Eds.), *Handbook of bullying in schools: An international perspective* (pp. 163-185). New York, NY: Routledge

Buhs, Ladd, & Herald (2006). Peer exclusion and victimization: Processes that mediate the relation between peer group rejection and children's classroom engagement and achievement. *Journal of Educational Psychology, 98*, 1-13

Camodeca, M. & Goossens, F. A. (2005). Aggression, social cognitions, anger and sadness in bullies and victims. *Journal of Child Psychology and Psychiatry, 42*, 186-197. doi: 10.1111/j.1469-7610.2004.00347.x

Campbell, W. N., & Skarakis-Doyle, E. (2011). The relationship between peer conflict resolution knowledge and peer victimization in school-aged children across the language continuum. *Journal of Communication Disorder, 44*, 345-358. doi:10.1016/j.jcomdis.2011.01.005

Card, N.A., & Schwartz, D. (2009). Social networks and peer victimization: The contexts of children's victimization by peers. In M.J.Harris (Ed.), *Bullying, rejection, & peer victimization. A social cognitive neuroscience perspective* (pp.319-344). New York: Springer Publishing Company

Carlisle, J. F. (1989). Diagnosing comprehension deficits through listening and reading. *Annals of Dyslexia, 39*,159-175.

Carlisle, J. F. (1989). The use of the sentence verification technique in diagnostic assessment of listening and reading comprehension. *Learning Disabilities Research, 5*, 33-44.

Carlisle, J. F., & Felbinger, L. (1991). Profiles of Listening and Reading Comprehension. *The Journal of Educational Research, 84*, 345-354. Retrieved from http://www.jstor.org/stable/27540440

Catalano, R. F., Haggerty, K. P., Oesterle, S., Fleming, C. B., Hawkins, J. D. (2004). The importance of bonding to school for healthy development: Findings from the Social Development Research Group. *Journal of School Health, 74*, 252-261.

Catts, H.W., Adlof, S.M., & Weisner, S.E. (2006). Language deficits in poor comprehenders: A case for the simple view of reading. *Journal of Speech, Language, and Hearing Reseach, 49*, 278-293.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New Jersey: Lawrence Erlbaum

Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In M. R. Gunnar and L. A., Sroufe (Eds), *Self Processes and Development: The Minnesota Symposia on Child Development*, Vol. 23., (pp. 43-77). Hillsdale, NJ: Lawrence Erlbaum

Conti-Ramsden, G. & Botting, N. (2004). Social difficulties and victimization in children with SLI at 11 years of age. *Journal of Speech, Language, and Hearing Research, 47,* 145-161. doi: 10.1044/1092-4388(2004/013)

Cowlishaw, G., & Dunbar, R.I.M. (1991). Dominance rank and mating success in male primates. *Animal Behavior, 41*, 1045-1056

Craig et al. (2009). A cross-national profile of bullying and victimization among adolescents in 40 countries. *International Journal of Public Health, 54*, 216-224. doi: 10.1007/s00038 009-5413-9

Crick, N.R., & Dodge, K.A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*, 74-101. Retrieved from http://psycnet.apa.org/journals/bul/115/1/74.pdf&productCode=pa

Crick, N.R., & Dodge, K.A. (1996). Social information-processing mechanisms in reactive and proactive aggression. *Child Development, 67*, 993-1002. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8624.1996.tb01778.x/pdf

Crosnoe, R., Johnson, K. M., & Elder, G.H. (2004). Intergenerational bonding in school: The behavioral and contextual correlates of student-teacher relationships. *Sociology of Education, 77,* 60-81. doi: 10.1177/003804070407700103

Cunningham, N.J. (2007). Level of bonding to school and perception of the school environment by bullies, victims, and bully victims. *Journal of Early Adolescence, 27*,457-478. doi: 10.1177/0272431607302940

Dake, J. A., Price, H. J., Telljohann, S. K. (2003). The nature and extent of bullying at school. *Journal of School Health, 73*, 173-180.

Deault, L., & Savage, R. (2013). Effective Grade 1 classroom contexts for reading and language growth: Evidence from typical children and children at risk of attention difficulties. *Journal of Psychological Abnormalities in Children, 2,* 1-10.

Demaray, M. K., & Malecki, C. K. (2011). The role of social support in the lives of students involved in bullying. In D. L. Espelage and S. M. Swearer (Eds.), *Bullying in North American Schools* (pp.182-190). New York: Routledge

Demeray, M. K., Malecki,C. K., Jenkins, L. N., & Westermann, L. D. (2012). Social support in the lives of students involved in aggressive and bullying behaviors. In S. R. Jimerson, A. B. Nickerson, M. J. Mayer, & M. J. Furlong (Eds.) *Handbook of school violence and school safety: International research and practice* (2nd Edition, pp. 57-67). New York, NY: Routledge.

Dijkstra, P., Kuyper, H., van der Werf, G., Buunk, A.P., van der Zee, Y.G. (2008). Social comparison in the classroom: a review. *Review of Educational Research, 78*, 828-879. doi: 10.3102/0034654308321210

Dodge, K. A. (1986). A social information processing model of social competence in children. In M. Perlmutter (Ed.), *Minnesota Symposium on Child Psychology* (Vol. 18, pp. 77-125). Hillsdale, NJ: Erlbaum

Dodge, K.A., & Coie, J.D. (1987). Social information processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology, 53,* 1146-1158.

Dodge, K. A., Lansford, J. E., Burks, V. S., Bates, J. E., Pettit, G. S., Fontaine, R., & Price, J. M. (2003). Peer rejection and social information-processing factors in the development of aggressive behavior problems in children. *Child Development, 74*, 374-393.

Doll, B., Song, S., & Siemers, E. (2004). Classroom ecologies that support or discourage bullying. In D. L. Espelage, & S. M. Swearer (Eds.*), Bullying in American schools: A social-ecological perspective on prevention and intervention* (pp. 161-183). Mahwah,NJ: Erlbaum

Doll, B., Song, S., Champion, A., & Jones, K. (2011). Classroom ecologies that support or discourage bullying. In D. L. Espelage & S. M. Swearer (Eds.), *Bullying in North American schools* (2nd edition, pp. 147-158). New York, NY: Lawrence Erlbaum

Eccles, J., Midgley, C., & Adler, T. (1984). Grade-related changes in the school environment: Effects on academic achievement. In J.G. Nicholls (Ed.), *The development of achievement motivation* (pp.283-331) Greenwich, Ct: JAI Press

Eccles, J.S., Wigfield, A., & Schiefele, U. (1998). Motivation to succeed. In N. Eisenberg (Ed.), *Handbook of child psychology* (Vol.3), Social emotional and personality development (pp. 1017-1096). New York: Wiley.

Eisenberg, M.E., Neumarek-Sztainer, D., Perry, C.L. (2003). Peer harassment, school connectedness, and academic achievement, *Journal of School Health, 73*, 311-316.

Espelage, D.L. & Holt, M.K. (2001). Bullying and victimization during early adolescence. *Journal of Emotional Abuse, 2,* 123-142. doi: 10.1300/J135v02n02_08

Espelage, D.L, & Holt, M.K. (2013). Suicidal ideation and school bullying experiences after controlling for depression and delinquency. *Journal of Adolescent Health, 53*, s27-s31. doi:10.1016/j.jadohealth.2012.09.017.

Espelage, D. L., & Swearer, S. M. (2009). Contributions of three social theories to understanding bullying perpetration and victimization among school-aged youth. In M. J. Harris (Ed.), *Bullying, rejection, and peer victimization: A social cognitive neuroscience perspective* (pp.151-170). New York, NY: Springer

Espelage, D.L., & Swearer, S.M. (2010). A socio-ecological model for bullying prevention and intervention: Understanding the impact of adults in the social ecology of youngsters. In S.R. Jimerson, S.M. Swearer, & D.L. Espelage (Eds.), *Handbook of bullying in schools. An international perspective* (pp. 61-72). New York: Taylor & Francis

Espelage, D. L., Bosworth, K., & Simon, T. R. (2000). Examining the social context of bullying behaviors in early adolescence. *Journal of Counselling and Development, 78*. 326-333.

Espelage, D. L., Holt, M. K., & Henkel, R. R. (2003). Examination of peer-group contextual effects on aggression during early adolescence, *Child Development, 74*, 205-220.

Espelage, D. L., Mebane, S. E., & Swearer, S. M. (2004). Gender differences in bullying: Moving beyond mean level differences. In D. L. Espelage & S. M. Swearer (Eds.), *Bullying in American schools. A social-ecological perspective on prevention and intervention* (pp.15-35). Mahwah, NJ: Lawrence Erlbaum.

Farmer, T.W., McAuliffe Lines, M., & Hamm, J.V. (2011). Revealing the invisible hand: The role of teachers in children's peer experiences. *Journal of Applied Developmental Psychology, 32,* 247-256. doi: 10.1016/j.appdev.2011.04.006

Farmer, T.W., Goforth, J.B., Hives, J., Aaron, A., Jackson, F., Sgammato, A. (2006). Competence enhancement behavior management. *Preventing School Failure: Alternative Education for Children and Youth, 50*(3), 39-44, doi: 10.3200/PSFL.50.3.39-44

Farrington, D. P., & Ttofi, M. M. (2009). School-based programs to reduce bullying and victimization. Olso, Norway: Campbell Systematic Reviews. doi: 10.4073/csr.2009.6

Feldlaufer, H., Midgley, C., & Eccles, J.S. (1988). Student, teacher, and observer perceptions of the classroom environment before, and after transition to junior high school, *The Journal of Early Adolescence, 8,* 133-156. doi: 10.1177/0272431688082003

Field, A. (2009). Discovering statistics using SPSS (3 ed.). Los Angeles, CA: SAGE Publications

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 10*, 117-140. doi: 10.1177/001872675400700202

Frederickson, N. L. (1994). *An investigation of the social status of integrated children with moderate learning difficulties*. Unpublished PhD dissertation, University of London.

Frederickson, J., & Cameron, R.J. (1999). *Psychology in Education Portfolio*. NFER-Nelson: Windsor.

Frederickson, N.L. & Furnham, A.F. (1998a). Sociometric classification methods in school peer groups: A comparative investigation. *Journal of Child Psychology and Psychiatry, 39,* 921-933. doi: http://onlinelibrary.wiley.com/doi/10.1111/1469-7610.00392/pdf

Frederickson, N.L. & Furnham, A.F. (1998b). Sociometric-status-group classification of mainstreamed children who have moderate learning difficulties: An investigation of personal and environmental factors. *Journal of Educational Psychology, 90*, 772-783.

Furlong, M.J., Sharkey, J.D., Felix, E.D., Tanigawa, D. & Green, J.G. (2010). Bullying assessment. A call for increased precision of self-reporting procedures. In S.R. Jimerson, S.M. Swearer, & D.L.Espelage (Eds.), *Handbook of Bullying in Schools. An International Perspective* (pp. 329-346). New York: Taylor & Francis

Furlong, M. J., Chung, A., Bates, M., & Morrison, R. L. (1995). Who are the victims of school violence? A comparison of student non-victims and multi-victims. *Education and Treatment of Children, 18*, 282-298.

Gest, S.D., & Rodkin, P.C. (2011). Teaching practices and elementary classroom peer ecologies. *Journal of Applied Developmental Psychology, 32*, 288-296. doi:10.1016/j.appdev.2011.02.004

Gifford-Smith, M. E., & Brownell, C. A. (2003). Childhood peer relationships: Social acceptance, friendships, and peer networks. *Journal of School Psychology, 41*, 235-284.

Green, J. G., Dunn, E. C., Johnson, R. M., & Molnar, B. (2011). A multilevel investigation of the association between school context and adolescent nonphysical bullying. *Journal of School Violence, 10*, 133-149. doi 10.1080/15388220.2010.539165

Gough, P. & Tunmer, W. (1986). Decoding, reading, and reading disability. *Remedial and Special Education, 7*, 6–10.

Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development, 72*, 625-638. Retrieved from http://www.jstor.org/stable/1132418

Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development, 76,* 949-967.

Hanish, L. D., Hill, A., Gosney, S., Fabes, R. A., & Martin, C. L. (2011). Girls, boys, and bullying in preschool. The role of gender in the development of bullying. In D. L. Espelage & S. M. Swearer (Eds.), *Bullying in North American schools* 2nd Edition (pp. 132-146). New York, NY: Lawrence Erlbaum

Hanish, L.D., & Guerra, N.G. (2000). Predictors of peer victimization among urban youth. *Social Development, 9*, 521-543. doi/10.1111/1467-9507.00141/pdf

Hanish, L. D., Kochenderfer-Ladd, B., Fabes, R. A., Martin, C. L., & Denning, D. (2004). The classroom context of bullying in early childhood. In D. L. Espelage & S. M. Swearer (Eds.), *Bullying in American schools: A social ecological perspective on prevention and intervention* (pp.141-159). New York, NY: Erlbaum

Harris, M. J. (2009). Taking bullying and rejection (inter) personally: Benefits of a social psychology approach to peer victimization. In M. J. Harris (Ed.), *Bullying, rejection, & peer victimization. A social cognitive neuroscience perspective* (pp.3-23). New York, NY: Springer Publishing

Hawker, D. S. J., & Boulton, M. J. (2000). Twenty-years' research on peer victimization and psychosocial maladjustment: A meta-analytic review of cross-sectional studies. *Journal of Child Psychology and Psychiatry, 41*, 441-455. Retrieved on http://onlinelibrary.wiley.com/doi/10.1111/1469-7610.00629/pdf

Hawkins, J.D., Guo, J., Hill, K.G., Battin-Pearson, S., Abbott, R.D. (2001). Long-term effects of the Seattle social development intervention on school bonding trajectories. *Applied Developmental Science, 5,* 225-236. doi: 10.1207/S1532480XADS0504_04

Hawley, P. H. (1999). The ontogenesis of social dominance: A strategy-based evolutionary perspective, *Developmental Review, 19*, 97-132.

Haynie, D.L., Nansel, T., Eitel, P., Crump, A.D., Saylor, K., Yu, K., & Simons-Morton, B. (2001). Bullies, victims, and bully/victims: Distinct groups of at-risk youth. *Journal of Early Adolescence, 21*, 29-50. doi: 10.1177/0272431601021001002

Henry, D., Guerra, N. G., Huesmann, R., Tolan, P. H., Van Acker, R., & Eron, L. (2000). Normative influences on aggression in urban elementary school classrooms. *American Journal of Community Psychology, 28*, 59-81. Retrieved from http://www.springerlink.com/content/x6722575812qg0w3/fulltext.pdf

Hodges, E.V., Boivin, M., & Vitaro, F., & Bukowski, W.M. (1999). The power of friendship: Protection against an escalating cycle of peer victimization. Developmental Psychology, 35, 94-101. Retrieved from http://psycnet.apa.org/journals/dev/35/1/94.pdf&productCode=pa

Holt, M. K., & Espelage, D. L. (2007). Perceived social support among bullies, victims, and bully-victims. *Journal of Youth and Adolescence, 36*, 984-994. doi: 10.1007/s10964-006 9153-3

Holt, M. K., & Keyes, M. A. (2004). Teachers' attitudes toward bullying. In D. L. Espelage, & S. M. Swearer (Eds.), *Bullying in American Schools: A social-ecological perspective on prevention and intervention* (pp.119-139). Mahwah, NJ: Lawrence Erlbaum Associates

Holt, M. K., Finkelhor, D., & Kantor, G. K. (2007). Multiple victimization experiences of urban elementary school students: Associations with psychosocial functioning and academic performance. *Child Abuse & Neglect, 31*, 503-515. doi: 10.1016/j.chiabu.2006.12.006

Holt, M., Keyes, M., & Koenig, B. (2011). Teachers' attitudes toward bullying. In D.L.Espelage & S. M. Swearer (Eds.), *Bullying in North American schools* (pp.119-131). New York, NY: Routledge

Janssen, I., Craig, W.M., Boyce,W.F., Pickett, W. (2004). Associations Between Overweight and Obesity With Bullying Behaviors in School-Aged Children. *Pediatrics, 113*, 1187-1194. Retrieved from http://pediatrics.aappublications.org/content/113/5/1187.full.html

Jimerson, S.R., & Hart, S.R., & Renshaw, T.L. (2012). Conceptual foundations for understanding youth engaged in antisocial and aggressive behaviors. In S.R.Jimerson, A.B. Nickerson, M.J. Mayer, & M. J. Furlong (Eds.), *Handbook of school violence and school safety. International research and practice* (2nd edition, pp. 3-14). New York: Routledge

Juvonen, J., Graham, S., & Schuster, M.A. (2003). Bullying among young adolescents: The strong, the weak, and the troubled. *Pediatrics, 112*, 1231-1237.

Kaltiala-Heino, R., Rimpellä, M., Marttunen, M., Rimpellä, A., & Rantanen, P. (1999). Bullying, depression, and suicidal ideation in Finnish adolescents: school survey. *British Medical Journal, 319,* 348-351.

Kaukiainen A., Salmivalli, C., Lagerspetz, D., Tamminen, M., Vauras, M., Maki, H., et al. (2002). Learning difficulties, social intelligence, and self-concept: Connections to bully-victim problems. *Scandinavian Journal of Psychology, 43*, 269-278.

Khoury-Kassabri, M., Benbenishty, R., Astor, R. A., & Zeira, A. (2004). The contributions of community, family, and school variables to student victimization. *American Journal of Community Psychology, 34*, 187-204. Retrieved from http://www.springerlink.com/content/v0q46406736j2346/fulltext.pdf

Knox, E., & Conti-Ramsden, G. (2003). Bullying risks of 11 year-old children with specific language impairment (SLI): Does school placement matter? *Journal of Language and Communication Disorders, 38,* 1-12.

Kochenderfer-Ladd, B. (2003). Identification of aggressive and asocial victims and the stability of their peer victimization. *Merrill-Palmer Quarterly*, 401-453.

Kochenderfer-Ladd, B. (2004). The role of emotions in adaptive and maladaptive coping with peer victimization. *Social Development, 3*, 329-349. doi: doi/10.1111/j.1467-9507.2004.00271.x

Kochenderfer, B. J., & Ladd, G. W. (1997). Victimized children's responses to peers' aggression: Behaviors associated with reduced versus continued victimization. *Developmental and Psychopathology, 9,* 59-73.

Kochenderfer-Ladd, B., & Pelletier, M.E. (2008). Teachers' views and beliefs about bullying: Influences of classroom management strategies and students' coping with peer victimization. *Journal of School Psychology, 46*, 431-453. doi:10.1016/j.jsp.2007.07.005

Kochenderfer-Ladd, B., & Wardrop, J. L. (2001). Chronicity and instability of children's peer victimization experiences as predictors of loneliness and social satisfaction trajectories. *Child Development, 72*, 134-151. Retrieved from http://www.jstor.org/stable/1132476

Kochenderfer-Ladd, B., Ladd, G. W., & Kochel, K. (2009). A child and environment framework for studying risk for peer victimization. In M. J. Harris (Ed.), *Bullying, rejection, & peer victimization. A social cognitive neuroscience perspective* (pp. 27-52). New York, NY: Springer Publishing

Koepke, M. F., & Harkins, D. A. (2008). Conflict in the classroom: gender differences in the teacher-child relationship. *Early Education and Development, 19*(6)*,* 843-864. doi: 10.1080/10409280802516108

Konishi, C. Hymel, S., Zumbo, B. D., Li, Z. (2010). Do school bullying and student-teacher relationships matter for academic achievement? A multilevel analysis. *Canadian Journal of School Psychology, 25*, 19-39. doi: 10.1177/0829573509357550

Kreft, I.G., de Leeuw, J., & Aiken, L.S. (1995). The effect of different forms of centering in hierarchical linear models. *Multivariate Behavioral Research, 31*(1), 1-21. doi: 10.1207/s15327906mbr3001_1

Kuppens, S., Grietens, H., Onghena, P., Michiels, D., & Subramanian, S. V. (2008). Individual and classroom variables associated with relational aggression in elementary-school aged children : A multilevel analysis. *Journal of School Psychology, 46,* 639-660. doi: 10.1016/j.jsp.2008.06.005

La Paro, K.M., Pianta, R.C., Stuhlman, M. (2004). The classroom assessment scoring system: Findings from the prekindergarten year. *The Elementary School Journal, 104*, 409-426. Retrieved from http://www.jstor.org/stable/3202821

Leff, S. S., Freedman, M. A., Macevoy, J. P., & Power, T. J. (2004). Considerations when measuring outcomes to assess for the effectiveness of bullying-and aggression-prevention programs in school. In D.L. Espelage & S. M. Swearer (Eds.), *Bullying in North American Schools*, (pp.205-223). New York, NY: Routledge

Lester, L., Cross, D., Shaw, T., & Dooley, J. (2012). Adolescent bully-victims: Social health and the transition to secondary school. *Cambridge Journal of Education, 42,* 213-233. doi: 10.1080/0305764X.2012.676630

Libbey, H. P. (2004). Measuring student relationships to school: Attachment, bonding, connectedness, and engagement. *Journal of School Health, 74*, 274-283.

Luciano, S., & Savage, R. (2007). Bullying risk in children with learning difficulties in inclusive settings. *Canadian Journal of School Psychology, 22*, 14-31. doi: 10.1177/0829573507301039

Losel, F., Bliesener, T., & Bender, D. (2007). Social information processing, experiences of aggression in social contexts, and aggressive behavior in adolescents. *Criminal Justice and Behavior, 34*, 330-347. doi:10.1177/0093854806295833

Ma, X. (2002). Bullying in middle school: Individual and school characteristics of victims and offenders. *School Effectiveness and School Improvement: An International Journal of Research, Policy, and Practice, 13*, 63-89. doi:10/1076/sesi.13.1.63.3438

Maslow, A.H. (1970). *Motivation and personality (2nd edition).* New York: Harper & Row

Maslow, A.H. (1943). A theory of human motivation, *Psychological Review, 50*(4), 370-396. Retrieved from http://psychclassics.yorku.ca/Maslow/motivation.htm

Mashburn, A. J., et al. (2008). Measure of classroom quality in Prekindergarten and children's development of academic, language and social skills. *Child Development, 79*, 732-749.

McKenney, K. S., Pepler, D., Craig, W., & Connolly, J. (2006). Peer victimization and psychosocial adjustment: The experiences of Canadian immigrant youth. *Journal of Research in Educational Psychology, 9*, 239-264.

McNeely, C., & Falci, C. (2004). School connectedness and the transition into and out of health-risk behavior among adolescents: A comparison of social belonging and teacher support. *Journal of School Health, 74*, 284-292. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1746-1561.2004.tb08285.x/pdf

Meltzer, H., Vostanis, P., Ford, T., Bebbington, P., & Dennis, M. S. (2011). Victims of bullying in childhood and suicide attempts in adulthood. *European Psychiatry, 26*, 498-503. doi:10.1016/j.eurpsy.2010.11.006

Midgley, C., Eccles, J. S., & Feldlaufer, H. (1991). Classroom environment and the transition to junior high school. In B. J. Fraser and H. J. Walberg (Eds.), *Educational environments: Evaluation, antecedents, and consequences.* Oxford: Pergamon Press.

Miles, S. B., & Stipek, D. (2006). Contemporaneous and longitudinal associations between social behavior and literacy achievement in a sample of low-income elementary school children. *Child Development, 77,* 103–117.

Mishna, F. (2003). Learning disabilities and bullying: Double jeopardy. *Journal of Learning Disabilities, 36*, 336-347. doi: 10.1177/00222194030360040501

Mishna, F. (2012). Bullying: A guide to research, intervention, and prevention. New York: Oxford University Press Inc.

Molcho, M., Craig, W., Pickett, W., Harel-Fisch, Y., Overpeck, M., & HBSC Bullying Writing Group (2009). Cross-national time trends in bullying behavior 1994-2006: Findings from Europe and North America. *International Journal of Public Health, 54*, S1-S10. doi: 10.1007/s00038-009-5414-8

Murray-Harvey, R., Slee, P.T., & Taki, M. (2010). Comparative and cross-cultural research on school bullying. In S.R. Jimerson, S.M. Swearer, & D.L. Espelage (Eds.), *Handbook of bullying in schools. An international perspective* (pp. 35-47). New York: Taylor & Francis

Nabuzoka, D. (2003). Teacher ratings and peer nominations of bullying and other behavior of children with and without learning difficulties, *Educational Psychology, 23*, 307-321. doi:10.1080/0144341032000060147

Nansel, T.R., Overpeck, M., Pilla, R.S., Ruan, W.J., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth. *Journal of American Medical Association, 285*, 2094-2099.

National Center for Education Statistics (2013). Indicators of school crime and safety: 2013. (NCES Publication No. 2014042). Washington, DC: US Department of Education. Retrieved from http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014042

Newman, R.S. (2000). Social influences on the development of children's adaptive help seeking: The role of parents, teachers, and peers. *Developmental Review, 20*, 350-404. doi: 10.1006/drev.1999.0502

Nishina, A. (2004). A theoretical review of bullying: Can it be eliminated? In C. E. Sanders & G. D. Phye (Eds.), *Bullying: Implications for the classroom* (pp. 36-62). CA, USA: Elsevier Academic Press

Nocentini, A, Menesini, E., & Salmivalli, C. (2013). Level and change of bullying behavior during high school: A multilevel growth curve analysis. *Journal of Adolescence, 36,* 495-505. doi: 10.1016/j.adolescence.2013.02.004

Olweus, D. (1991). Bully/victim problems among school children: Some basic facts and effects of a school-based intervention program. In D. Pepler & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp.411-448). Hillsdale, NJ: Erlbaum.

Olweus, D. (1993). *Bullying at school: What we know and what we can do*. Oxford, UK: Basil Blackwell.

Olweus, D. (2004). The Olweus Bullying Prevention Programme : design and implementation issues and a new national initiative in Norway. In P.K. Smith, D. Pepler, and K. Rigby (Eds.), *Bullying in schools. How successful can interventions be?* (pp.13-36). Cambridge, UK: Cambridge University Press

Olweus, D. (2010). Understanding and researching bullying: Some critical issues. In S.R. Jimerson, S.M. Swearer, & D.L. Espelage (Eds.), *Handbook Of Bullying in Schools. An international perspective* (pp. 9-33). New York: Taylor & Francis

Orpinas, P. & Horne, A. M. (2010). Creating a positive school climate and developing social In S. R. Jimerson, S. M. Swearer, & D. L. Espelage (Eds.), *Handbook of bullying in schools: An international perspective* (pp.49-59). New York, NY: Routledge New York, NY: Routledge

Osher, D., Vanacker, R., Morrison, G. M., Gable, R., Dwyer, K., Quinn, M. (2004). Warning signs of problems in schools: Ecological perspectives and effective practices for combating school aggression and violence. *Journal of School Violence, 3*, 13-37. doi: 10.1300/J202v03n02_03

Parker, J.G., Rubin, K.H., Price, J.M., & DeRoisier, M.E.(1995). Peer relationships, child development, and adjustment: A developmental psychopathology perspective. In D. Cicchetti & D.J. Cohen (Eds.), *Developmental Psychopathology (Vol.II)*. New York: Wiley

Pellegrini, A. D. (2004). Bullying during the middle-school years. In C. E. Sanders & G.D. Phye (Eds.), *Bullying: Implications for the classroom* (pp.177-202). San Diego, CA: Elsevier Academic Press

Pellegrini, A. (2008). The roles of aggressive and affiliative behaviors in resource control: A behavioral ecological perspective. *Developmental Review, 28*, 461-487. doi: 10.1016/j.dr.2008.03.001

Pellegrini, A.D., & Bartini, M. (2001). Dominance in early adolescent boys : Affiliative and aggressive dimensions and possible functions. *Merrill-Palmer Quarterly, 47*, 142-163. doi: 10.1353/mpq.2001.0004

Pellegrini, A. D., & Long, J. D. (2002). A longitudinal study of bullying, dominance, and victimization during the transition from primary school through secondary school. *British Journal of Developmental Psychology, 20*, 259-280. Retrieved from http://onlinelibrary.wiley.com/doi/10.1348/026151002166442/pdf

Pellegrini, A. D., & Long, J. D. (2004). Part of the solution and part of the problem : The role of peers in bullying, dominance, and victimization during the transition from primary school through secondary school. In D.L.Espelage & S.M.Swearer (Eds.), *Bullying in American schools: A social-ecological perspective on prevention and intervention* (pp.107-117). Mahwah, NJ: Lawrence Erlbaum

Pellegrini, A. D., & Van Ryzin, M. J. (2011). Part of the problem and part of the solution. The role of peer in bullying, dominance, and victimization during the transition from primary school to secondary school. In D. L. Espelage & S. M. Swearer (Eds.) *Bullying in North American Schools* (2nd edition, pp. 91-100). New York, NY: Routledge

Pellegrini, A. D., Bartini, M., & Brooks, F. (1999). School bullies, victims, and aggressive victims: Factors relating to group affiliation and victimization in early adolescence, *Journal of Educational Psychology, 91*, 216-224.

Pellegrini, A. D., Long, J. D., Solberg, D., Roseth, C., Dupuis, D., Bohn, C., & Hickey, M. (2010). Bullying and social status during school transitions. In S. R. Jimerson, S. M. Swearer, & D. L. Espelage (Eds.), *Handbook of bullying in schools: An international perspective* (pp. 199-210). New York, NY: Routledge

Pepler, D.J., & Craig, W. (2000). *Making a difference in bullying: The LaMarsh research report # 60*. York University, Toronto. Retrieved from http://psycserver.psyc.queensu.ca/craigw/Craig_Pepler_2000_REPORT_Making_a_Difference_in_Bullying.pdf

Pepler, D.J., Craig, W.M., Connolley, J.A., Yuile, A., McMaster, L., & Jiang, D. (2006). A perspective on bullying. *Aggressive behavior, 32*, 376-384.

Pereira, A., & Pooley, J. (2007). A qualitative exploration of the transition experience of students from a high school to a senior high school in rural Australia. *Australian Journal of Education, 51*(2), 162-177.

Perry, D. G., Hodges, E. V. E., & Egan, S. K. (2001). Determinants of chronic victimization by peers: A review and a new model of family influence. In J. Juvonen & S. Graham (Eds.), *Peer harassment in school: The plight of the vulnerable and victimized* (pp. 73-104). New York, NY: Guilford Press

Pianta, R.C., & Steinberg, M.S. (1992). Relationships between children and kindergarten teachers from the teachers' perspective. In R.C. Pianta (Ed.), *Beyond the parent: The role of other adults in children's lives* (pp.61–80). San Francisco: Jossey-Bass.

Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2006). *The Classroom Assessment Scoring System* (CLASS). Brooks Publishing

Pianta, R. C., Belsky, J., Vandergrift, R. H., Houts, R., & Morrison, F. J. (2008). Classroom effects on children's achievement trajectories in elementary school. *American Education Research Journal, 45*, 365-397. doi: 10.3102/0002831207308230

Pressley, M., Wharton-McDonald, R., Allington, R., Block, C.C., Morrow, L., Tracey, D., Baker, K., Brooks, G., Cronin, J., Nelson, E., & Woo, D. (2001). A study of effective first-grade literacy instruction. *Scientific Studies of Reading, 5*(1), 35-58.

Public Safety Canada. (2008). *Bullying prevention: Nature and extent of bullying in Canada.* Retrieved June 25, 2014 from http://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/bllng-prvntn/index-eng.aspx

Raskauskas, J. L., Gregory, J., Harvey, S. T., Rifshana, F., & Evans, I. M. (2010). Bullying among primary school children in New Zealand: relationships with prosocial behavior and classroom climate. *Educational Research, 52*, 1-13.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage Publications

Raudenbush, S.W., Spybrook, J., Congdon, R., Liu, X., Martinez, A., Bloom, H., & Hill, C. (2011). *Optimal Design Plus Empirical Evidence* (Version 3.0). Retrieved from http://www.wtgrantfoundation.org/resources/consultation-service-and-optimal-design

Reijntjes, A., Kamphuis, J. H., Prinzie, P., & Telch, M. J. (2010). Peer victimization and internalizing problems in children : A meta-analysis of longitudinal studies. *Child Abuse and Neglect, 34*, 244-252. doi: 10.1016/j.chiabu.2009.07.009

Reinke, W. M., & Herman, K. C. (2002). Creating school environment that deter antisocial behaviors in youth. *Psychology in the Schools, 39*, 549-559.

Reis, J., Trockel, M. , & Mulhall, P. (2007). Individual and school predictors of middle school aggression. *Youth & Society, 38*, 322-347. doi: 10.1177/0044118X06287688

Rhee, S.H. & Waldman, I.D. (2002). Genetic and environmental influences on antisocial behavior: A meta-analysis of twin and adoption studies. *Psychological Bulletin, 128*(3), 490-529. doi: 10.1037//0033-2909.128.3.490

Richard, J. F., Schneider, B. H., & Mallet, P. (2011). Revisiting the whole-school approach to bullying: Really looking at the whole school. *School Psychology International, 33,* 263-284. doi: 10.1177/0143034311415906

Rodkin, P.C., & Berger, C. (2008). Who bullies whom? Social status asymmetries by victim gender. *International Journal of Behavioral Development, 32 (6)*, 473-485. doi: 10.1177/0165025408093667

Rodkin, P. C., & Gest, S. D. (2011). Teaching practices, classroom peer ecologies, and bullying behaviors among schoolchildren. In D. L. Espelage & S. M. Swearer (Eds.), *Bullying in North American schools* 2nd Edition (pp.75-90). New York, NY: Lawrence Erlbaum

Rodkin, P.C., Farmer, T.W., Pearl, R., & Van Acker, R. (2000). Heterogeneity of popular boys: Antisocial and prosocial configurations. *Developmental Psychology, 36*, 14-24.

Roehrig, A. D., & Christesen, E. (2010). Development and use of a tool for evaluating teacher effectiveness in grades K-12. In V. J. Shute, & B. J. Becker (Eds.), *Innovative assessment for the 21st Century* (pp. 207-228). New York, NY: Springer.

Roehrig, A. D., Pressley, M., Dolezal, S. E., Mohan, L., & Bohn, C. M. (2003). *Classroom AIMS Instrument: A checklist of effective classroom practices (atmosphere, instruction/content,*

management) and student engagement for the early primary grades (K-4). Unpublished measure.

Roland, E., & Galloway, D. (2002). Classroom influences on bullying. *Educational Research, 44*, 299-312. doi: 10.1080/0013188022000031597

Rose, C. A. (2011). Bullying among students with disabilities. In D. L. Espelage, & S. M. Swearer (Eds.), *Bullying in North American schools* (pp.34-44). New York, NY: Routledge Roseth, C.J., Johnson, D.W., and Johnson, R.T. (2008). Promoting early adolescents' achievement and peer relationships: The effects of cooperative, competitive, and individualistic goal structures. *Psychological Bulletin, 134*, 223-246. doi: 10.1037/0033-2909.134.2.223

Royer, J. M., Green, B. A., & Sinatra, G. M. (1987). The sentence verification technique: A practical procedure for testing comprehension. *Journal of Reading, 30*, 413- 421.

Royer, J. M., Hastings, C. N., & Hook, C. (1979). A sentence verification technique for measuring reading comprehension. *Journal of Reading Behaviour, 11*, 355-363.

Rudasill, K. M., Reio, T. G., Stipanovic, N., & Taylor, J.E. (2010). A longitudinal study of student-teacher relationship quality, difficult temperament, and risky behavior from childhood to early adolescence. *Journal of School Psychology, 48*, 389-412. doi: 10.1016/j.jsp.2010.05.001

Ryan, R. M., & Deci, E. L. (2000a). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *The American Psychologist, 55*, 68-78. doi: 10/1037//0003-066X.55.1.68

Ryan, R. M., & Deci, E. L. (2000b). Intrinsic and extrinsic motivation: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54-67. doi: 10.1006/ceps.1999.1020

Scherr, T. G., & Larson, J. (2010). Bullying dynamics associated with race, ethnicity, and immigration status. In S. R. Jimerson, S. M. Swearer, & D. L. Espelage (Eds.), *Handbook of bullying in schools: An international perspective* (pp. 199-210). New York, NY: Routledge

Scholte, R., Sentse, M., & Granic, I. (2010). Do actions speak louder than words? Classroom attitudes and behavior in relation to bullying in early adolescence. *Journal of Clinical Child & Adolescent Psychology, 39*, 789-799.

Schuster, B. (1999). Outsiders at school: The prevalence of bullying and its relation with social status. *Group Processes & Intergroup Relations, 2*, 175-190. doi:10.1177/1368430299022005

Seals, D., & Young, J. (2003). Bullying and victimization: Prevalence and relationship to gender, grade level, ethnicity, self-esteem, and depression, *Adolescence, 38*, 735-747.

Sentse, M., Scholte, R., Salmivalli, C., & Voeten, M (2007). Person-group dissimilarity in involvement in bullying and its relation with social status. *Journal of Abnormal Child Psychology, 35*, 1009-1019. doi: 10.1007/s10802-007-9150-3

Shin, Y., & Hye Yeon, K. (2008). Peer victimization in Korean preschool children: The effects of child characteristics, parenting behaviors, and teacher-child relationships. *School Psychology International, 29,*590-605. doi: 10.1177/0143034308099203

Shochet, I. M., & Smith, C. L. (2012). Enhancing school connectedness to prevent violence and promote well-being. In S. R. Jimerson, A. B. Nickerson, M. J. Mayer, M. J. Furlong

(Eds.), *Handbook of school violence and school safety: International research and practice* (2nd Edition, pp, 475-486). New York, NY: Routledge

Sidanius, J., & Pratto, F. (1999). Social dominance: An intergroup theory of social hierarchy and oppression. New York, NY: Cambridge University Press

Skues, J.L., Cunningham, E., & Pokharel, T. (2005). The influence of bullying behaviours on sense of school connectedness, motivation, and self-esteem. *Australian Journal of Guidance & Counselling, 15,* 17-26.

Smith, P. (2004). Bullying: Recent developments. *Child and Adolescent Mental Health, 9*, 98-103.

Smith, P.K. (2010). Bullying in primary and secondary schools: Psychological and organizational comparisons. In S.R.Jimerson, S.M. Swearer, & D.L. Espelage (Eds.), *Handbook of bullying in schools. An international perspective* (pp. 137-149). New York: Taylor & Francis

Smith, J.D., Schneider, B.H., Smith, P.K., Ananiadou, K. (2004). The effectiveness of whole-school antibullying programs: A synthesis of evaluation research. *School Psychology Review, 33*(4), 547-560.

Stanulis, R.N., & Floden, R.E. (2009). Intensive mentoring as a way to help beginning teachers develop balanced instruction, *Journal of Teacher Education, 60*,112-122. doi: 10.1177/0022487108330553

Statistics Canada (2011). National Household Survey. Retrieved on February 5 2014 from http://www12.statcan.gc.ca/nhs-enm/index-eng.cfm

Swearer, S. M., & Doll, B. (2001). Bullying in schools: An ecological framework. *Journal of Emotional Abuse, 2*, 7-23.

Swearer, S. M., & Espelage, D. L. (2011). Expanding the Social-Ecological framework of bullying among youth : Lessons learned from the past and directions for the future. In D. L. Espelage & S. M. Swearer (Eds.), *Bullying in North American schools* (2nd Edition, pp. 3-10). New York, NY: Routledge

Swearer, S. M., Espelage, D. L., Vaillancourt, T., & Hymel, S. (2010). What can be done about school bullying ? Linking research to educational practice. *Educational Researcher, 39*, 38-47. doi: 10.3102/0013189X09357622

Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics* (5th ed.) New York: Allan & Bacon.

Thomas, D. E., Bierman, K. L., & Powers, C. J. (2011). The influence of classroom aggression and classroom climate on aggressive-disruptive behavior. *Child Development, 82*, 751-757. doi: 10.1111/j.1467-8624.2011.01586.x

Totten, M. & Quigley, P. (2003). *Bullying, school exclusion and literacy*. Canadian Public Health Association

Totten, M., P. Quigley & M. Morgan. (2004). *CPHA Safe School Survey for Students in Grades 4-7.* Ottawa: Canadian Public Health Association and Department of Justice Canada. http://acsp.cpha.ca/antibullying/english/surveys/4-7_survey.html

Trzesniewski, K. H., Moffitt, T. E., Caspi, A., Taylor, A., & Maughan, B. (2006). Revisiting the association between reading achievement and antisocial behavior: New evidence of an environmental explanation from a twin study. *Child Development, 77*, 72–88.

Ttofi, M.M., Farrington, D.P., Lösel, F., & Loeber, R. (2011). The predictive efficiency of school bullying versus later offending: A systematic/meta-analytic review of longitudinal studies. *Criminal Behavior and Mental Health, 21*, 80-89. doi: 10.1002/cbm.808

Tuvblad, C. & Baker, L.A. (2011). Human aggression across the lifespan: Genetic propensities and environmental moderators. *Advances in Genetics, 75*, 171-214. doi: 10.1016/B978-0-12-380858-5.00007-1.

Underwood, M. K. & Rosen, L. H. (2011). Gender and bullying. Moving beyond mean differences to consider conceptions of bullying, processes by which bullying unfolds, and cyberbullying. In D. L. Espelage & S. M. Swearer (Eds.), *Bullying in North American schools* (pp 13-22). New York, NY: Lawrence Erlbaum

Vaillancourt, T., Hymel, S., & McDougall, P. (2003). Bullying is power: Implications for school-based intervention strategies. *Journal of Applied School Psychology, 19*, 157-176. doi: 10.1300/J008v19n02_10

Vallance, D. D., Cummings, R. L., & Humphries, T. (1998). Mediators of the risk for problem behavior in children with language learning disabilities. *Journal of Learning Disabilities, 31*, 160-171.

van Tartwijk, J., den-Brok, P., Veldman, I., & Wubbles, T. (2009). Teachers' practical knowledge about classroom management in multicultural classrooms. *Teaching and Teacher Education, 25*, 453-460. doi:10.1016/j.tate.2008.09.005

Varjas, K., Henrich, C.C., & Meyers, J. (2009). Urban middle school students' perceptions of bullying, cyberbullying, and school safety. *Journal of School Violence, 8*, 159-176

Waasdorp, T. E., Pas, E. T., O'Brennan, L. M., & Bradshaw, C. P. (2011). A multilevel perspective on the climate of bullying : Discrepancies among students, school staff, and parents. *Journal of School Violence, 10*, 115-132. doi: 10.1080/15388220.2010.539164

Waters, S. K., Cross, D. S., & Runions, K. (2009). Social and ecological structures supporting adolescent connectedness to school: A theoretical model. *Journal of School Health, 79*, 516-524.

Waters, S., Cross, D., & Shaw, T. (2010). Does the nature of the school matter? An exploration of selected school ecology factors on adolescents perceptions of school connectedness. *British Journal of Educational Psychology, 80*, 381-402. Retrieved from http://onlinelibrary.wiley.com/ doi/10.1348/000709909X484479/pdf

Whitlock, J. L. (2006). Youth perceptions of life at school: Contextual correlates of school connectedness in adolescence. *Applied Developmental Science, 10*, 13-29. doi: 10.1207/s1532480xads1001_2

Whitney, I., & Smith, P.K. (1993). A survey of nature and extent of bullying in junior/middle and secondary schools. *Educational Research, 35* (1), 3-25. doi:10.1080/0013188930350101

Wingspread Conference (2004). Wingspread declaration on school connectedness. *The Journal of School Health, 74*, 33-234. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1746-1561.2004.tb08279.x/pdf

Woolfolk-Hoy, A., & Weinstein C. (2006). Student and teacher perspectives on classroom management. In C. M. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management, research, practice and contemporary issues* (pp. 181–219). Mahwah, NJ: Erlbaum.

You, S., Furlong, M. J., Felix, E., Sharkey, J. D., & Tanigawa, D. (2008). Relations among school connectedness, hope, life satisfaction, and bully victimization. *Psychology in the Schools, 45*, 446-460. doi: 10.1002/pits.20308

Appendices

Appendix A: Recruitment Letter to School Principals

November 26, 2012.

Dear Principal:

My name is Maria Di Stasio, I am a PhD candidate in the Department of Educational and Counselling Psychology at McGill University. I work under the supervision of Dr. Robert Savage, who is a professor at McGill University with an extensive research background on cognitive processes in literacy.

I am writing to present my doctoral research project and invite your school's participation in this study over the coming school year. I am interested in learning more about bullying interactions in schools. The goal of my research is to further explore contextual influences on bullying behavior and victimization of students in elementary and junior high school. I am particularly interested in investigating children in Cycle 3 (i.e. grades 5 and 6) and youth in Grades 7 and 8. My doctoral study will build on existing multilevel research exploring ecological factors that influence bullying at the individual, classroom and school level. Specifically, I am interested in examining individual characteristics such as students' language and literacy skills, their connectedness to school, social support and peer status. In addition, classroom environment will be explored using observations and surveys. I will investigate mechanisms of the classroom such as teaching practices and emotional tone of the classroom that may mediate the impact of individual characteristics on bullying interactions. Such research has the potential to support teacher practices and the development of effective interventions for preventing bullying. We hope to learn how different contexts influence bullying interactions and identify the characteristics that may put students at risk for victimization or perpetration.

The project will begin by asking teachers if they would like to take part in the study with their classroom students. Once we have received consent from teachers we will be sending parents a letter explaining the research study, as well as a consent form to approve their child's participation in the project. With the consent form we will attach a brief questionnaire to collect information on parent education level and ethnic background that will be used for the purposes of knowing demographics of the population being studied. We will visit each classroom a maximum of 4 times for approximately one hour per visit. We will administer questionnaires to all students that we have permission for and conduct classroom observations for two of those visits. For peer social status surveys, all participating children will be asked to provide ratings concerning how much they like to work and play/hang out with other participating children. All questionnaires will be group administered. The approach in working with school staff will be a collaborative one, so we will be sure to communicate with teachers about the objectives and activities involved with the research. We will also respect the many demands on teachers' time by working around their schedules and minimizing interruptions to the class, keeping our research activities as quick and efficient as possible.

All information collected for this study will be kept completely confidential. In the event that a child discloses abuse or neglect or imminent harm to oneself or others, confidentiality will be broken. Only the main researcher and members of Dr. Savage's research team involved in the study will have access to the data. Research presentations and publications about this study will not contain any personal or identifying information on any individual's performance, teacher's practice, classroom, or school. All surveys and questionnaires are not meant for screening students and will be used only for research purposes therefore no individual results will be disclosed. Participation in the study is completely voluntary and they can withdraw at any time. Their decision to terminate participation on any grounds will not affect any relationships with the researcher or McGill University. Minimal to no risks are foreseen as a result of participating in this project.

If you would like for your school to participate in this project, I would be happy to discuss the details of the proposal and timeframe of the study in more depth. I will be in contact within the next week to set up a meeting, if you so desire, to discuss these aspects of the project. If you have any questions about my research project in general or about your teachers and students' role in this study, please contact me, or my supervisor, as we would be happy to answer any questions you may have about this project:

Researcher: Di Stasio Maria, maria.distasio@mail.mcgill.ca / (514) 880-7509
Supervisor: Dr. Robert Savage, robert.savage@mcgill.ca / (514) 398-3435

Further, should you have any ethical concerns regarding this research project, you may contact Lynda McNeil, the Research Ethics Officer of REB-III studies for McGill University, by email at lynda.mcneil@mcgill.ca or by phone at (514) 398-6831,

If you wish your school to be part of this study please fill in the information and sign below:

Name of School (please print) _____
Total Number of Students enrolled in this school _____
Your Name (please print) _____
Signature_____ Date_____

We hope that your school will be part of this valuable ongoing research. Looking forward to hearing from you.

Sincerely,

Maria Di Stasio
PhD Candidate, Graduate Studies
Faculty of Education, McGill University

Dr. Robert Savage
Professor & Graduate Advisor
Faculty of Education, McGill University

Appendix B: Recruitment Letter to School Teachers

December 03, 2012.

Dear Teacher:

My name is Maria Di Stasio, I am a PhD candidate in the Department of Educational and Counselling Psychology at McGill University. I work under the supervision of Dr. Robert Savage, who is a professor at McGill University with an extensive research background on cognitive processes in literacy.

I am writing to present my doctoral research project and invite you and your class to participate in this study over the coming school year. I am interested in learning more about bullying interactions in schools. The goal of my research is to further explore contextual influences on bullying behavior and victimization of students in elementary and junior high school. I am particularly interested in investigating children in Cycle 3 (i.e. grades 5/6) and youth in Grades 7 and 8. My doctoral study will build on existing multilevel research exploring ecological factors that influence bullying at the individual, classroom and school level. Specifically, I am interested in examining individual characteristics such as students' language and literacy skills, their connectedness to school, social support and peer status. In addition, we will explore the classroom environment using observations and surveys. Such research has the potential to support teacher practices and the development of effective interventions for preventing bullying.

The project will begin by sending parents a letter explaining the research study, as well as a consent form to approve their child's participation in the project. With the consent form we will attach a brief questionnaire for parents in order to collect information that will help us better understand the school demographic.

We will visit the classroom a maximum of 4 times for approximately one hour each. During one visit we will administer a reading and listening passage comprehension test to all participating students and ask them to complete a bully questionnaire. In a second visit we will ask students to complete surveys on peer social status and support, school connectedness, and classroom environment. For surveys on peer social status, all participating children will be asked to provide ratings concerning how much they like to work or play/hang out with other participating children. All our assessments will be group administered to those students who we have permission for and each measure takes approximately between 15 – 30 minutes to complete. You (teachers) will also be asked to complete a short questionnaire on classroom environment during this time or at a more convenient time. In the last two visits, two research assistants will conduct classroom observations taking notes on lectures and regular teaching activities for one hour to complete classroom environment measures. We hope to work collaboratively with you in carrying out the objectives and activities involved in the research project. To respect the demands on your time, we will do our best to work around your schedule and to minimize interruption to the class, keeping our research activities as quick and efficient as possible. All student and teacher assessments will be kept short and administered one time only.

Information collected for this study will be kept completely confidential. Only in the event that a child discloses abuse or neglect or imminent harm to oneself or others will confidentiality be broken. Only the main researcher and members of Dr. Savage's team involved in the project will have access to the data. Individual results on all measures administered to children are not meant to screen students and will be used only for research purposes therefore results will not be disclosed to any party. Data used for publication will be presented in an anonymous form in order to ensure confidentiality and anonymity of your involvement. Further, your participation is completely voluntary and you have the right to withdraw from the study at any time without indicating any reason. Your decision to withdraw will not influence the nature of the ongoing relationship you have with the researcher and/or McGill University either now, or in the future. Students participating will also be told that they are free to withdraw from the study at any time without indicating a reason. Minimal to no risks are foreseen as a result of participating in this project

If you would like your class to participate in this project, I would be happy to discuss the details of the proposal and timeframe of the study in more depth. Feel free to contact me or my supervisor at the phone number or email address below if you have any questions or concerns regarding this research or your role in this study.

Researcher: Di Stasio Maria, maria.distasio@mail.mcgill.ca / (514) 880-7509
Supervisor: Dr. Robert Savage, robert.savage@mcgill.ca / (514) 398-3435

Further, should you have any ethical concerns regarding this research project, you may contact Lynda McNeil, the Research Ethics Officer of REB-III studies for McGill University, by email at lynda.mcneil@mcgill.ca or by phone at (514) 398-6831.

If you wish to be part of this study please carefully read, answer and sign below:

Grade level & subject (please print) _____

What is the total number of students in your class? _____

How many years have you been teaching? _____

Name of Teacher (Please print) _____

Signature_____ Date_____

We hope that your class would like to be part of this exciting project and look forward to working with you over the coming school year.

Sincerely,

Maria Di Stasio
PhD Candidate, Graduate Studies
Faculty of Education, McGill University

Dr. Robert Savage
Professor & Graduate Advisor
Faculty of Education, McGill University

Appendix C: Verbal Assent for Student Participants

Verbal Assent

"Hello class, my name is Maria Di Stasio, and I am a student from McGill University. I am very happy to have the opportunity to spend some time with you this morning (or afternoon). I will be collecting information for my research project which helps us learn more on bullying in schools and how students feel about their peers, classrooms and the school.

Today I will be asking all students that I have permission from parents to participate in some listening activities and to fill out a questionnaire on bullying along with a few other different surveys. In a second visit to your classroom, you will be asked to complete a reading activity and one other questionnaire.

In one of the questionnaires you will be asked how much you like to hang out/play and work with friends who will also be rating you. Then you will also answer questions about your classroom and your school. All your answers on all the questionnaires and surveys will be kept private and are confidential. Only if researchers feel that you or a classmate is in any danger of harm, the school administration will be notified. I would like you to also keep your answers private by not looking at what your neighbors are putting down and not talking about what you are putting down during and after class. Any information that I will use in writing up research reports will not have your names attached to it.

If you have any questions or problems during the activities you have been asked to complete please let me know. You are free to withdraw from these activities at any time without giving any reasons.

Students who will not be participating can work on school work or activities assigned by myself or your teacher during this time."

Student's Initials: _____

Here is a list of resources if needed:

http://www.stopabully.ca/

www.stopbullying.org

National Suicide Prevention Lifeline at http://www.suicidepreventionlifeline.org/

or call 1-800-273-TALK (8255)

TEL-JEUNES 1-800-263-2266 or visit online at www.teljeunes.com

KidsHelpPhone.ca 1-800-668-6868

Appendix D: Sample of PILAR Text Passages and Sentence Verification

Practice Passage 1: The Elephant

The elephant has many uses for his strange-looking trunk. When he holds up his trunk, he can tell which way the wind is blowing. He uses his trunk to pluck fruit and leaves from the trees. By curling his trunk, he can hold his food while he nibbles at his meal. The elephant draws water up through his trunk for a big drink. Sometimes he sprays water or sand across his back to chase off insects or other pests.

1. The elephant has many uses for his strange-looking trunk. YES NO

2. He chews his food with large, flat teeth YES NO

3. He can figure out which way the wind is blowing when he holds his trunk up. YES NO

4. He is not able to spray water or sand across his back to chase off insects or other pests. YES NO

5. Elephants have large floppy ears. YES NO