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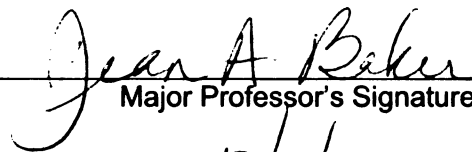has been accepted towards fulfillment
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A Longitudinal Study of Classroom Level Aggression and Social Competency: Effects on Students' Aggressive Behavior

By

Sonia A. Patil

A DISSERTATION

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ABSTRACT

A Longitudinal Study of Classroom Level Aggression and Social Competency: Effects on Students' Aggressive Behavior

By

Sonia A. Patil

This study examined the effects of the classroom social context on the development of student aggression across a school year among elementary school students. Moderating effects of students' initial level of aggression, gender and developmental level were examined. The classroom context was defined as the aggregate level of aggression and social competency. Aggression and social competency were measured using The Behavior Assessment System for Children Teacher Rating Scales (BASC-TRS-C; Reynolds & Kamphaus, 1992). Multiple regression analyses using general linear modeling (GLM) were employed to assess for change in student aggression. Findings indicate that the classroom social context did influence change in student aggression across a school year; however, the findings were not always in the hypothesized direction. Major results included: 1) Initial level of aggression moderated the effects of classroom social competency on student aggression. Higher levels of classroom social competency led to increases in student aggression at lower levels of initial aggression and decreases in student aggression at higher levels of initial aggression; 2) For upper elementary aged students, higher levels of classroom aggression led to more significant decreases in student aggression than lower elementary students, and 3) higher levels of classroom social competency led to more significant increases in aggression for younger students than older elementary students. The implications of the findings are discussed in regard to future research and practice.

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Chapter One

Introduction

There has been a visible increase in disruptive behavioral patterns, which includes

aggression, acting out, hyperactivity, and oppositionality, among school-age youth over

the past three decades (Achenbach, Dummenci, & Rescorla, 2003). This increase is

alarming given the well-established link between childhood problem behaviors and later

maladjustment across academic, social, and psychological functioning. Specifically,

early disruptive behaviors have been connected to later substance abuse, delinquency,

low achievement, dropping out of school, poor social relationships, and antisocial

behavior (Loeber, 1990).

Over the past 40 years, a general consensus has been built that childhood

problems fall into one of two broad categories: externalizing behavior and internalizing

behavior. This consensus has evolved from a large body of literature that has clearly

validated these two broad areas of functioning (Achenbach, 1966; Achenbach &

Edelbrock, 1978). Externalizing behaviors are described as "undercontrolled" behaviors

that are directed toward others. These behaviors include conduct problems,

hyperactivity, and aggression; disruptive behaviors fall into this category. Internalizing

behaviors, in contrast, are described as "overcontrolled" behaviors that are directed

toward the self (i.e. withdrawn, depression, anxiety) (Mash & Dozois, 2003).

Traditionally, externalizing behavior has been examined from a medical model

perspective that focuses on within-child factors (i.e. biological functioning,

temperament). However, over the past thirty years, the work of Urie Bronfenbrenner has

highlighted the importance of understanding children's development and adjustment in

relation to the various contexts in which youngsters reside (Brofenbrenner, 1979, 1992). His ecological perspective challenges scholars and those working with children to consider the multiple contextual influences on human behavior. These contexts include the family, peers, communities, work places, schools, and larger macro-system variables (e.g., culture and societal values).

Of the various contexts in which individuals reside, the family environment has perhaps been the most studied contextual influence on children's development (Werthamer-Larsson, Kellam, & Wheeler, 1991). For example, children's externalizing behaviors are best understood as developing from reciprocal interactions between the child's temperament and behavior and negative parenting (Patterson, 1982). However, from an ecological perspective, it is important to consider other contexts, as they are also likely to affect children's development. One such setting that has the potential to significantly shape children's behavioral adjustment is the classroom. Starting from a young age, children spend a large amount of time in school settings, second only to the home environment. Schools and classrooms afford exposure to more adults and children in settings with rules and practices that are often different from those of their home life (Perry & Weinstein, 1998).

There is a significant amount of research examining structures and practices within the school and classroom environment that contribute to the shaping of children's adjustment. Much of this research has been within the school effectiveness and school climate domains. Early research in these areas focused on physical, structural, and organizational influences on student achievement. These factors are easily observable and measurable (e.g., size of school, student body composition, amount of resources).

Scholars have since shifted focus to classroom- and school-level processes such as instruction, staff collaboration, teacher-student relationships, and peer relationships (Anderson, 1982; Good & Weinstein, 1986). While some of the aforementioned variables (i.e. relationships) reflect the social context, it is only in more recent years that greater attention has been given to the social context of the school environment.

The classroom social context has been conceptualized using a variety of constructs including teacher-student conflict, teacher and peer support and relationships, peer acceptance and rejection, friendships, classroom membership, and belongingness (Baker, 1999; Battistich & Hom, 1997; Battistich, Solomon, Kim, Watson, & Schaps, 1995; Howes, 2000; Kuperminc, Leadbeater, & Blatt, 2001; Kuperminc, Leadbeater, Emmons, & Blatt, 1997). Less commonly, the classroom social context has also been conceptualized as the collective competencies and problem behaviors of students in the classroom (Hoglund & Leadbeater, 2004; Perry & Weinstein, 1998; Werthamer-Larsson et al, 1991).

The latter line of research is valuable as it allows us to examine how the characteristics of a group (i.e. classroom) might affect individual externalizing behaviors. Groups have been defined as "a collection of interacting individuals who have some degree of reciprocal influence over one another" (Rubin, Bukowski, & Parker, 1998, p. 626). The interactions among group members (students) form group characteristics that are not necessarily present in the individual relationship themselves. Social learning theory posits that children learn behaviors and attitudes by observing their peers. Therefore, we can infer that the behavioral characteristics of students in a classroom would significantly shape individual behavior.

Early work examining the influence of group composition on children's development focused on academic competence, race and SES on student achievement (Anderson, 1982; Good & Weinstein, 1986). However, more recently, scholars have broadened their view of student outcomes to include psychological and behavioral indicators such as externalizing and aggressive behaviors. The extant literature suggests that an aggressive classroom climate affects students' problem behavior. However, there are several limitations to the existing research base. First, much of our understanding is limited to the intervention literature which has studied the negative effects of aggregating clinical samples of aggressive children into intervention groups. Second, these studies focus on male youth. Even when females are included in the sample, there is often little discussion and analysis of gender differences. An understanding of whether the social climate is related to student aggression differently given gender seems important given that the expression and frequency of externalizing behaviors are different among male and female youth (Barkley, 2003; Hinshaw & Lee, 2003). Third, despite developmental differences in the expression and frequency studies have not examined whether the classroom social climate affects student aggression differently for older verses younger children. Finally, classroom social climate is almost always assessed by measuring the aggregate aggression in the classroom while the aggregate effects of positive characteristics, such as social competency on externalizing behavior are largely ignored. A classroom characterized by a low level of aggression does not necessarily indicate that the group is composed of socially competent students exhibiting behaviors that allow for positive and successful interactions.

The present study adds to the theoretical and empirical literature base by examining how the social context of the classroom affects the development of aggressive behavior over the course of a school year among elementary school students. The social context was defined as the collective aggression and collective social competency of the students in the classroom. Gender differences, students' initial level of aggressive behaviors, and developmental level were examined as possible moderators.

Chapter Two

Literature Review

This section will begin with an in-depth review of the theoretical framework guiding this study. A discussion of Bandura's social learning theory will be followed by an examination of the existing literature on classroom aggression and social competency. Due to the limited works on the aforementioned topics, the intervention and aggression literature will also be examined to help delineate the empirical connection between group-level aggression and competency and the development of aggressive behaviors among children. In addition, the empirical and theoretical literature on gender, individual behavior (i.e. initial levels of aggressive behavior), and developmental differences in externalizing behaviors will be discussed to address their potential moderating influence.

Theoretical Framework

Bandura's social learning theory (1977, 1983, 1992) has been influential in understanding the effects of the classroom peer environment on the development of children's externalizing behaviors. Social learning theory (SLT) combines the behavioral and cognitive disciplines to provide a framework for how individuals learn and develop within a social context. Central to social learning theory is the influence of models on individual behavior. Modeling serves to teach observers about new behaviors, including when these behaviors are most appropriate. In addition modeling functions as a social prompt, facilitating already acquired behaviors. These ideas will be further explored in the following section with connections made to how the classroom environment may influence students' disruptive and acting out behaviors.

Observational learning.

A core assumption of social learning theory is that learning can occur without direct experience and trial and error (Bandura, 1973, 1977, 1983). Learning is posited to largely occur as a result of observing others or models (i.e. observational learning). Observational learning provides a safe and expedited mechanism for learning. Individuals do not have to perform complex tasks themselves, which if done inaccurately, may lead to harmful results. Learning from direct experience entails learning through trial and error, which may be time consuming. However, observing a competent model provides the observer with knowledge of how and when to execute a behavior leading to acquisition of behaviors in a timelier manner than trial and error would allow.

In order for observational learning to occur models must exist within the learner's environment. However, the mere existence of others (models) does not automatically lead to observational learning. Four processes are thought to be necessary in order for one to learn through observation: attention, memory, motor production, and motivation.

Four necessary components for observational learning.

In order for one to learn a behavior through observation they must attend to the model(s). There are numerous factors that affect attention including observer characteristics (i.e. attentional capacity), environmental features, and model attributes (e.g., age, gender, competence). One factor thought to be especially important is the extent to which the observer perceives similarity to the model (Schunk, 1987). Perceived similarity between model and observer lends theoretical support to the assertion that peers are powerful models, and consequently, that the classroom serves as a powerful context for observational learning. Peers are similar in their developmental level and

needs making them relevant sources of information to children about how to successfully behave to achieve goals.

The second and third factors necessary for observational learning to occur are the observer's ability to retain the observed behavior and the ability to physically produce the behavior. In accordance with SLT, children's ability to retain and accurately produce behaviors they have observed is enhanced within the classroom environment as children are provided with ample opportunities to observe and practice behaviors. Specifically, SLT leads us to hypothesize that within a highly aggressive classroom environment, children are provided with many occasions to view their peers engage in aggressive acts fostering retention. Further, an aggressive environment provides a context in which students are more likely to be able to practice the behavior.

However, acquisition of behavior does not automatically mean the behavior will be executed. The fourth process involved in observational learning is motivation. Modeling an aggressive act depends largely upon whether a child believes they can successfully execute the behavior to achieve the desired outcomes. This phenomenon is known as *self-efficacy*. Students' self-efficacy is fostered when children observe models that are similar to themselves (i.e. peers) engage in disruptive behaviors that lead to successful outcomes. It is through *vicarious experiences* that children form expectations of whether they will successfully be able to execute a behavior. When peers are aggressive and their aggressive acts result in a desired outcome (e.g., toys, attention), observers are *vicariously reinforced*. Conversely, when peers are punished for their aggressive acts, observers are *vicariously punished*. When children see their peers obtain

some desired outcome via aggressive means, they will also be more likely to behave in disruptive ways.

Another component of motivation is the extent to which one finds the observed behavior functional. From a social learning perspective, the functional value of aggression is higher in aggressive environments than non-aggressive environments. Interestingly, normally passive children are posited to learn to aggress when they see that counteraggression is successful in stopping others from victimizing them physically and emotionally. Aggression for a normally passive child becomes functional when approached by aggressive peers (Bandura, 1983; Warren, Schoppelrey, Moberg, & McDonald, 2005).

Observation of models or peers does not solely function to facilitate acquisition of new behavioral patters. The behaviors of models also serve as social prompts for observers to exhibit preexisting behaviors (Bandura, 1973, 1977). This phenomenon is referred to as *response facilitation*. Observing peers engage in aggressive behaviors and the subsequent consequences of their behavior provides observers information about the acceptability of aggression. In highly aggressive classrooms, children observe many acts of aggression by their peers, informing children that aggression in the classroom is socially acceptable, normalizing the behaviors, and subsequently decreasing their inhibition to aggress themselves.

In sum, students' classroom peers are powerful socialization agents, passing on information that facilitates acquisition of new behavioral patterns, information about when those behaviors are most likely to be successful, and the norms and values of particular behavioral patterns in a given context. Within a social learning framework, it

then makes sense to hypothesize that children's externalizing behavior will be affected by their classroom peers. Specifically, individual children's aggressive behavior would be expected to increase over the course of a school year in classrooms characterized by high levels of aggression compared to classrooms with low levels of aggression. Further, in classrooms characterized by high levels of social competency, children's individual externalizing behavior would be expected to decrease because the classroom context would not support observational learning and response facilitation of aggressive, disruptive behavior.

Research on Classroom Social Context and Children's Aggressive Behavior

Research on the influence of classroom level aggression and social competence on externalizing behavior is scarce for the former and virtually nonexistent for the latter. As discussed earlier, this study is framed within social learning theory; that is peers within group contexts influence the behaviors of individual students. Therefore, we can draw from the aggression and intervention literature that has examined the effects of grouping aggressive peers on individual students' later aggressive behaviors.

Research on classroom level aggression.

The extant literature provides inconsistent and conflicting findings on the relationship between classroom aggression and students' individual aggressive behaviors. In several longitudinal studies, classroom aggression did not predict students' externalizing behavior among lower elementary students. Among an urban, Northeast sample, Werthamer-Larsson, et al. (1991) found no differences on teacher-rated aggression between students in "poor" behaving classrooms and "non-poor" behaving classrooms as measured by aggregating student conduct grades. However, a limitation of

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this study includes the use of conduct grades to measure the behavioral characteristic of the classrooms.

Hoglund and Leadbeater (2004) also did not find a relationship between classroom aggression and externalizing behaviors. They examined the influence of student-reported classroom victimization on teacher-rated disruptiveness and aggression among a Canadian and predominantly Caucasian sample. Additionally, among a low-income racially diverse, upper elementary sample, Henry, Guerra, Huesmann, Tolan, VanAcker, and Eron (2000) found that teacher-rated classroom aggression did not predict change in peer-rated individual students' aggression.

However, other studies have found that classroom level aggression did predict change in students' aggression. Boxer, Edwards-Leeper, Goldstein, Musher-Eizenman, and Dubow (2003) conducted a cross-sectional study to examine whether student's exposure to peer aggression as a witness and victim in school was related to their individual student-reported aggressive behavior among an upper elementary school sample. The authors found that an aggressive school environment was associated with higher levels of individual aggression. While a relationship was established between exposure to aggression and individual levels of aggression, the study's cross-sectional design does not allow for inferences about causation.

Using a longitudinal design, Kellam, Ling, Merisca, Brown, and Ialongo (1998) examined whether the level of classroom aggression during 1st and 2nd grade predicted students' individual aggressive behavior in middle school. The authors found a significant effect on the level of classroom aggression to middle school aggression. Students in high aggressive classrooms in the 1st and 2nd grades were found to be more

aggressive in middle school compared to students in low aggression classrooms. However, a limitation of this study was the lack of control for other potential influences on student behavior between 1st and 2nd grades and middle school, making it difficult to infer that aggression in 1st grade classrooms alone contributed to students aggressive behavior in middle school.

Using a sample of 5th and 6th grade students Barth, Dunlap, Dane, Lochman, and Wells (2004) examined how variations in the classroom context as defined by academic achievement and behavioral problems influenced student behavior over the course of the year and in subsequent years. The authors found that exposure to aggressive classroom environments predicted change in student behavior during that school year such that negative classroom behavior was related to increases in negative student behavior. However, when students' behavior was assessed during the following academic year sustained change in student behavior was not found contradicting the findings of Kellam et al. (1998), and raising the question about whether classroom environments necessarily affect students' behavior in the long-term.

One study has looked more closely at this question among a sample of 1st through 3rd grade students (Thomas, Beirman, & The Conduct Problems Prevention Research Group, 2006). The researchers found that overall children's exposure to aggressive classroom contexts during their first three years of elementary school contributed to negative behavioral adjustment; however, they also found significant differences on student behavior given the number of years of exposure. Specifically, students with three years of exposure to aggressive classrooms had significantly higher 3rd grade aggression scores than those exposed to two years of aggressive classrooms. In turn, those exposed

to aggressive classrooms for two years had higher scores in 3rd grade then those with one year or no exposure. This research suggests strong cumulative effects of exposure to highly aggressive classrooms.

Drawing from the aggression intervention literature may be fruitful as scholars in this area have examined how the level of aggression in small group interventions affects students' externalizing behavior. At the forefront of this work are Dishion and his colleagues who have indicated concern over the negative effects of aggregating aggressive youth into small groups. Their concerns have stemmed from a review of empirical work including their own investigations that suggest aggressive youths' behaviors escalated after being involved in intervention groups that were composed of other aggressive youths (Boxer, Guerra, Huesmann, & Morales, 2005; Dishion, McCord, & Poulin, 1999). While their work evidences the ill effects of aggregating aggressive youth together, these studies are limited to male, adolescent, and clinical samples.

Empirical research on classroom-level social competencies

As stated earlier, negative group level characteristics (e.g. aggression) have been examined much more frequently than positive group level characteristics (e.g. social competency). This pattern of research is consistent with traditional research that has focused on the influence of negative characteristics and deficits on children's adjustment. The widely held assumption that the lack of negative characteristics is automatically related to the presences of positive characteristics has been called into question. Researchers now believe that strengths such as adaptive skills and social competency are not necessarily present when individuals exhibit low levels of negative behaviors or

characteristics (Seligman & Csikszentmihalyi, 2000), underling the importance of measuring both students' negative and positive behavioral characteristics.

From a social learning perspective, positive group level characteristics, such as social competency, like group level aggression, affects the individual behavioral development of students. In classrooms made up of socially competent children, the norms of acceptable behavior may be quite different than the norms within classrooms characterized by disruptive students. Consequently, disruptive students may find that their typical behavioral patterns are not effective in the presence of many socially competent peers and subsequently decrease their use of aggressive behavior.

While a strong theoretical rationale exists for hypothesizing that classrooms with high aggregative levels of social competency will be related to decreased student aggression, the research base for this relationship is scant. Two studies were found that examined the effects of positive group level characteristics on students' behavioral adjustment in the classroom. Among an urban, Canadian sample, Leadbeater, Hoglund, and Woods (2003) investigated whether 1st grade classroom characteristics including classroom levels of prosocial behaviors predicted student reports of victimization in the 2nd grade for students with emotional and behavioral problems. They found that prosocial behaviors were not related to decreases in victimization. Interestingly they found that among students with emotional problems, higher classroom levels of prosocial behavior were related to increased reports of victimization. No changes were found for students with behavioral problems.

The authors conducted another study in which they examined whether the concentration of prosocial behaviors in the classroom was predictive of behavioral

problems in a longitudinal study among a 1st grade sample of Canadian children predominantly of Caucasian-European descent (Hoglund & Leadbeater, 2004). Student behavior was measured by children's self-reports of peer prosocial behaviors (e.g., helping, sharing, caring behaviors). The authors found that prosocial levels in the classroom did not mitigate aggressive and disruptive behaviors in children. The authors again found that classroom levels of prosocial behavior did not decrease reports of victimization. Given the nature of the samples it is not possible to generalize these findings to other populations (e.g., non-Caucasian European descent and older children). Further, students rated their peers' prosocial behaviors and given research suggesting differences between how adults rate children's behaviors, how peers rate children, and how children rate themselves the limitations of these results should be noted (Kamphaus & Frick, 2002).

Some research has been conducted within the aggression intervention literature. In response to the large body of intervention research that suggests grouping aggressive youth together exacerbates individual aggressive behavior, a small body of research has examined whether aggregating high-risk students into groups composed of socially competent children might influence the trajectory of externalizing behaviors. The two studies that have examined the aforementioned relationship have indicated conflicting findings. Feldman, Caplinger, and Wodarski (1983) examined whether grouping aggressive children, ages 9 to 16-years old with other aggressive children (pure groups) and grouping aggressive children with non-aggressive children (mixed groups) lead to different outcomes on children's disruptive behaviors. They found that children who

participated in the mixed groups displayed less disruptive behavior in and out of the group sessions than children in the pure groups.

However, more recently Mager, Milich, Harris, and Howard (2005) found that early adolescents in pure intervention groups exhibited greater decreases on teacher-and parent-reported externalizing behavior than those in mixed groups at post-intervention. However, at the 6-month follow-up, no differences existed between the two groups. In addition, the authors found that youth in the pure group behaved more appropriately (i.e. participation and complimenting) than those in the mixed group during the sessions. Mixed groups consisted of a 2:1 ratio of non-aggressive to aggressive students.

Due to limited research and inconsistent findings, the existing literature on classroom level competency does not afford adequate information to make predictions or hypotheses about the effects of classroom-level competency on students' externalizing behavior. Though empirical support is lacking, strong theoretical rationale does exist for hypothesizing that students in "competent" classrooms will exhibit fewer disruptive behaviors.

Initial risk of aggression.

A couple of studies have examined whether the classroom social environment influences the development of aggressive behavior differently given students' initial (or baseline) levels of behavioral problems. However, these studies have only examined the moderating influence of students' initial risk of externalizing behavior for classroom level aggression. Research was not found for classroom level competency.

As part of their analysis, Kellam et al. (1998) examined whether students' initial level of aggression interacted with the classroom level of aggression to influence

students' later aggression in middle school. They found that an interaction did exist such that students with high baseline aggression, in highly aggressive 1st grade classrooms, were found to be most at-risk for severe aggression in middle school compared to students of the same level of aggression in less aggressive classrooms and to students with lower levels of aggression in highly aggressive classrooms. These results indicate that aggressive classroom environments are particularly detrimental for already aggressive students.

In a similarly designed study among elementary school students, Warren et al. (2005) found that highly aggressive classrooms were related to more aggressive behaviors among students at a 2-year follow-up. However, this relationship was stronger for students who had higher initial levels of aggression. Warren et al.'s findings suggest that students' with varying levels of aggression react to classroom aggression in a similar pattern but with different intensities. Further, their findings are consistent with Kellam et al. (1998) both indicating that exposure to an aggressive peer environment is particularly harmful for children already at-risk for aggressive behavior.

Interestingly, within the aggression intervention literature, Boxer et al. (2005) have proposed the "discrepancy-proportional peer influence" principle after finding that the more discrepant a target child's behavior was from that of the group level, the more likely the child's behavior would change in the direction of the peer group's average. This principal was proposed after the authors found that changes in individual student aggression was greatest the more discrepant the initial level of student aggression was from group level aggression among an elementary school sample of high risk students for externalizing behavior. They found that if a student was more aggressive than the group

level, the student was likely to decrease in aggression over time. However, if the student was less aggressive than the group, the student was likely to increase in aggression over time. The discrepancy-proportional peer influence principle does not reflect the findings of Kellam et al (1998) and Warren et al (2005). They found that students with high levels of externalizing behavior in highly aggressive classrooms were more at-risk for later externalizing behaviors than their less aggressive peer in the highly aggressive classrooms. However, it should be noted that their samples were not restricted to only participants identified as high-risk for externalizing problems.

Classroom studies indicate that exposure to an aggressive classroom environment is particularly harmful for children already at high-risk for aggressive behavior. These studies help us to understand for whom an aggressive classroom environment is particularly harmful by grouping students into low-and high-risk groups. However, another way to conceptualize the influence of students' "at-riskness" on the classroom social environment and later aggressive behavior is to examine this relationship across the range of initial levels of risk (aggression scores). The use of this kind of methodology would allow for examination of the moderating effects of initial level of risk of aggressive behavior on the effects of the classroom social environment and later aggression.

As indicated above there is gap in the literature with regard to how socially competent classrooms may affect students' development of aggression given students' level of initial "risk." As discussed earlier, Leadbeater et al. (2003) investigated whether 1st grade classroom characteristics including classroom levels of prosocial behaviors predicted student reports of victimization in the 2nd grade for students with emotional and

behavioral problems. They found that while among students with emotional problems, higher classroom levels of prosocial behavior were related to increased reports of victimization, students with behavioral problems were not affected by classroom levels of prosocial behavior. Assuming that classrooms with higher levels of social competency are related to lower levels of student aggressive behavior, does this relationship look different across the range of students' initial level of risk? It may be reasonable to hypothesize that students who start the school year exhibiting lower levels of aggression (i.e. are at low risk), may not find more socially competent classrooms as influential on their later aggressive behavior than students with higher initial levels of risk. For students with higher initial levels of aggression, more socially competent classrooms may be more meaningful to their later externalizing behavior because these students experience that their current behavioral patterns are not functional, subsequently changing the way they interact with others in order to get their needs met.

Gender differences.

The literature on externalizing behavior suggests significant differences in the prevalence of externalization among males and females. A large body of work indicates that males tend to be more temperamental, hyperactive, aggressive and disinhibited than their female counterparts (Barkley, 2003; Hinshaw & Lee, 2003; Keenan & Shaw, 1997). Further, externalizing behaviors among males have been found to not simply be expressions of antisocial behaviors but are manifested in the everyday play activities of male children (Dipietro, 1981). Given these differences found between males and females one could speculate that gender has a moderating influence on the relationship between classroom level aggression and later aggressive behavior.

The research to date on whether gender differences exist for the relationship between an aggressive classroom context and aggressive behavior is limited to two studies that provide conflicting results. In an exploratory analysis, due to a small sample size, of 1st grade students, Kellam et al. (1998) found that an aggressive social context did not affect female students, though the context did predict males' aggressive behavior in middle school. However, using a longitudinal design, Hanish, Martin, Fabes, Leonard, and Herzog (2005) found that gender moderated the effects of an aggressive climate on individual externalization among low-risk (i.e. two parent household, high SES families), Kindergarten students. The specifically found that exposure to externalizing peers within the classroom predicted aggression, hyperactivity, and anxiety among females. However, significant findings were not found among males.

The findings from Hanish et al. (2005) are inconsistent with the results of Kellam et al. (1998) and findings within the intervention aggression research that has consistently found aggressive contexts to predict subsequent externalizing behaviors among male youth (e.g., Boxer et al., 2005; Dishion et al, 1999; Vitaro, Tremblay, Kerr, Pagani & Bukowski, 1997). However, it should be noted that these studies use a clinical sample mostly comprised of adolescent males while the findings of Kellam et al. and Hanish et al. used early elementary aged, nonclinical male samples.

Interestingly, Hanish et al. (2005) have theorized about why gender may be a moderator for social context and later externalizing behavior. They posit two processes for understanding gender differences: normative process and accumulation process. The normative process predicts that because an aggressive behavior is not typically a normative experience for females as it is for males, exposure to an aggressive

environment would be more detrimental to females' development. The accumulation model, however, predicts that because boys are exposed to more aggressive behavior in their social contexts, higher levels of behavioral problems will result in boys than girls. The findings from their study support the accumulation model. Further research is needed to better understand whether males and females are affected differently by their classroom social context as characterized by aggression and social competency.

Unlike the externalizing literature, research on social competence fails to provide consistent data for gender differences (Rubin et al, 1998), which may support speculation that gender does not act upon the relationship between classroom level social competency and later aggression. The lack of empirical data makes it difficult to hypothesize whether gender has a moderating influence.

Developmental differences.

The literature on aggression indicates developmental differences in the frequency, expression, and function of aggressive behavior. As children move from the preschool to middle childhood years they engage in aggression less frequently. Furthermore, there is a general trend of physical aggression decreasing while verbal and relational aggression increases, paralleling the shift in function of aggressive behaviors. Young children's aggressive behavior is more likely to be instrumental, meaning aggressive behaviors serve to attain some tangible or activity whereas as children get older aggressive acts are more likely to be person-oriented and hostile. Related to the function of aggression, the topography of aggression also changes from overt, physical acts to covert, verbally aggressive acts (Coie & Dodge, 1998; Parker, Rubin, Price, & DeRosier, 1995).

While there is significant research on the above developmental changes with regard to aggression, less is know about how the social context of classrooms might differentially affect students given their developmental level. The research that has examined the effects of the social context of the classroom (i.e. classroom level aggression and classroom level social competency) on students' individual aggression has rarely included study of developmental differences. The aforementioned studies (i.e. Werthamer-Larsson et al., 1991; Hoglund and Leadbeater, 2004; Henry et al., 2000; Boxer et al., 2003; Kellam et al., 1998) have all included samples of elementary aged students. In contrast, research within the aggression intervention field has primarily focused on the grouping effects among adolescents at-risk for aggression. One exception is a study conducted by Boxer et al. (2005), who examined the effects of aggregating groups of students in grades 3 and 6 exhibiting high levels of aggression into small group interventions. The authors found that for students in both grades, exposure to more aggressive intervention groups was related to increases in individual student aggression. However, analyses were not done to determine whether the strength of the relation between group level aggression and student aggression was moderated by grade level.

Social learning theory has a strong cognitive basis in which abilities to attend, retain and make social comparisons are necessary precursors for the process of observational learning to occur (Bandura, 1973). Within the child development literature, it is well established that as children grow older, they acquire more sophisticated and increased cognitive capacities. While studies have shown that children's ability to both attend to and retain information from observation increases with age, little attention has been given to the developmental changes in observational learning (Parke & Slaby,

1983). Given the cognitive abilities that are needed for observational learning to occur, learning effects may be more pronounced for older children. However, while older children may be more capable of learning aggressive behavior through observation than younger children, older children are also less likely to find aggression socially acceptable (Coie & Dodge, 1998).

Summary

Children's aggressive behaviors are of great concern to parents and teachers. In fact, children are most likely referred to school and community agencies because of disruptive and acting out behaviors. An ecological framework pushes us to consider how the classroom social context, an environment in which children spend a tremendous amount of time, affects the trajectory of children's aggressive behavior. One way to conceptualize the social context is to consider the collective aggression and social competency of the students in the classroom. Social learning theory posits that children are influenced by the behaviors of their peers. Thus, when peers engage in aggressive, acting out behaviors, or in prosocial ways children are socialized to behave in the same way.

A review of the relevant empirical literature highlights that a consistent body of research is lacking regarding the influence of the classroom social context on students' aggressive behavior. This problem is exacerbated by the dearth of research about for whom the classroom context might be most important. Three specific areas that would be important to further study include an individual's initial level of aggression, gender, and developmental level as moderators. High-risk students for externalizing problems have been found to have a poorer trajectory across adjustment domains. Males have

been evidenced to exhibit significantly higher levels of behavioral problems than females. Additionally, aggression has been documented to shift in prevalence and expression across the elementary school years. Finally, the social context, defined as aggregating student characteristics has been limited to negative indicators, namely aggression. However, it would be incorrect to assume that non-aggressive classrooms are prosocial, adaptive, and socially competent. If children are embedded within a classroom social context in which their peers are collectively socially competent, will their aggressive behaviors change across the school year? From a social learning theory, one might hypothesize that within a socially competent classroom, children will learn more adaptive behavior, and their aggressive behavior will subsequently decrease.

The study expands upon the literature by examining how both the collective behavioral problems and social competency of students in the classroom affect individual students' aggressive behaviors. In addition, the study explored for whom the social environment of the classroom is important. Specifically, the moderating influence of children's initial level of aggressive behaviors, gender, and developmental level were examined.

Research Questions and Hypotheses

1. Is the level of classroom aggression/classroom social competency related to change in students' aggressive behaviors over the course of a school year after controlling for initial levels of aggressive behavior? It was hypothesized that the aggressive behavior of children will be affected by the classroom social context. Using a social learning perspective it was predicted that in aggressive classrooms, children would become more aggressive over the course of the school year. Conversely, in classrooms

characterized by high levels of social competency, children were expected to become less aggressive over the course of the school year.

2. Does the relationship between classroom aggression/ social competency and students' development of aggressive behavior vary across the range of students' initial level of aggression? It was hypothesized that there would be a positive relationship between classroom aggression and individual aggressive behaviors for all students regardless of initial levels. However, based on previous research findings it was predicted that the relationship between classroom aggression and later aggressive behavior would become stronger as the initial level of risk increases. A negative relationship was hypothesized for classroom social competency and students' aggressive behavior for all students. The relationship was predicted to be stronger at higher initial levels of risk.

3. Does gender moderate the influence of classroom level aggression and classroom level social competency on aggressive behavior? From a social learning perspective, the author hypothesized that for both female and male students there would be a positive relationship between classroom level aggression and aggressive behavior and a negative relationship between classroom level social competency and aggressive behavior. This question was exploratory.

4. Does developmental level moderate the influence of classroom aggression/social competency on students' aggressive behavior? It is hypothesized that the social context will affect students' aggressive behavior at the end of the school year. However, given the lack of research studying the moderating influence of developmental level this research question is exploratory.

Chapter Three

Methods

Participants

The participants in this study were drawn from Addressing the Context of

Teaching for Behaviorally At-Risk Students (ACT EARLY), a three-year longitudinal

study (Baker, Kamphaus, & Horne, 1999). Participants from the ACT Early data set

included 1,434 kindergarten through 5th grade students from four elementary schools

located in a small city in the Southeast. The school district has a large at-risk student

population due to poverty. Approximately 70% of the students participate in the free and

reduced cost lunch program. Additionally, a large percentage of the students from each

school live in public housing units and there is less than a 50% on-time graduation rate

from high school in the district. Poverty and race are confounded in the district with

more African American students eligible for the free and reduced cost lunch program

than students of other races.

The current study drew participants from the larger three-year study. In order to

eliminate dependency in the data contributed by multi-year participants, only one year of

data was selected. There were a total of 697 participants in the data year selected for

analysis. In order to examine change in participants' aggression over time, participants

were included in this study if they had data collected at time 1 and time 2. There were

652 participants who had complete data sets leaving 45 participants with missing data, all

for time 2 data collected in the Spring. Additionally, classrooms with fewer than 10

students were not included to ensure that classroom group level dynamics were being

measured. Two classrooms were eliminated due to insufficient classroom sizes, leading

to an additional 12 participants being eliminated from the data set. One classroom had 9 students and the other classroom had 3 students. This left 8% of the original sample being eliminated due to missing data or insufficient classroom size for a total sample of 640.

Children. The sample included 640 students (52% female) consisting of 14% kindergartens, 21% 1st graders, 15% 2nd graders, 13% 3rd graders, 16% 4th graders and 21% 5th graders. The racial makeup of the participants consisted of 58% African American, 29% White, 9% Hispanic, 2% Asian, and 2% Multi-racial.

Teachers. In the current study there were 39 teacher participants. The sample was 98% female, 83% White and 18% African American. Sixty percent of teachers had 7 or more years of teaching experience and only 5% were in their first year of teaching. Additionally, 69% of teachers had a degree beyond a 4-year bachelor's degree.

Classrooms. Each of the 39 teachers had a separate classroom resulting in 39 different classrooms. Ten percent of the classrooms were Kindergarten classrooms, 25% were 1st grade classrooms, 18% were 2nd grade classrooms, 13% were 3rd grade classrooms, 15% were 4th grade classrooms, and 20% were 5th grade classrooms. Classrooms ranged in size from 11 to 22 students. As indicated earlier, classrooms with fewer than 10 students were not included to ensure that classroom group dynamics were being measured. Two classrooms were eliminated.

Procedure

All children in the four participating schools were recruited to participate in the study. Parental consent forms were sent home at the beginning of the school year in their native language and only those students with active parental consent were included. The

participation rate was over 90% at each of the schools. Prior to participating in the study, teachers provided informed consent and received a small stipend for their participation. For each of the participating students, teachers completed a standardized behavior rating scale, in the fall, about 10-12 weeks into the school year and again in the spring. Teachers completed other study measures as part of the larger study.

Measures

Aggressive Behavior. The Behavior Assessment System for Children Teacher Rating Scales for Children (BASC-TRS-C; Reynolds & Kamphaus, 1992) was used to assess individual students' aggressive behavior. The BASC-TRS-C is a nationally standardized, reliable and valid measure. It consists of 148 items in which teachers rate the frequency of problem and adaptive behaviors on a 4-point scale. There are nine problem behavior scales (Aggression, Conduct Problems, Hyperactivity, Anxiety, Depression, Somatization, Attention Problems, Learning Problems, and Atypicality) and 4 adaptive scales (Adaptability, Leadership, Social Skills, and Study Skills) as well as five composite scores (Externalizing Problems, Internalizing Problems, School Problems, Behavioral Symptoms Index, and Adaptability). Standard scores (T-scores) are used to indicate behavioral adjustment.

Children's aggressive behavior was measured using the Aggression Subscale. Ratings of student aggression were collected at two time points: time 1 was during the fall and time 2 was in the spring of the academic school year. The Aggression Subscale measures both physical and verbal aggression such as arguing, name-calling, verbally threatening others, breaking others' possessions, and hitting others. The Cronbach alpha reliability for the Aggression Subscale ranges from .93 to .95.

Classroom Level Aggression. The Aggression Subscale from the BASC-TRS-C (Reynolds & Kamphaus, 1992) was also used to measure the aggregate level of classroom aggression. Consistent with previous studies exploring similar research questions, classroom level aggression was calculated for each child by summing the aggression t scores of all the children in the class except that of each target child, and dividing the sum by n-1 (Henry et al., 2000; Hoglund & Leadbeater, 2004; Warren et al., 2005; Werthamer-Larsson et al., 1991). This method ensures that a score is computed for each child independently of his or her own aggression protecting against potential confounding effects. Aggression scores collected during the fall were used to calculate the classroom context.

Classroom Level Social Competency. The Social Skills Subscale from the BASC-TRS-C (Reynolds & Kamphaus, 1992) is an adaptive scale and was used to measure the level of social competency in the classrooms. Definitions of social competency have typically included the general idea of effective interactions that allow one to meet their goals and needs, and have often been operationalized by measuring social skills (Rose-Krasnor, 1997, p. 112). The BASC social skills measure examines the "interpersonal aspects of social adaptation (p. 51)," which is consistent with existing definitions of social competence. Sample items include admitting mistakes, complimenting others, encouraging others, offering assistance, beginning conversations appropriately, and saying "please" and "thank you." The Cronbach alpha reliability ranges from .92 to .93. Classroom level social competency was computed in the same manner that classroom level aggression was computed. In each classroom, the social skill t scores collected during the fall were summed for all children except that of each child, and the total was

then divided by n-1 to generate a score for the level of social competency in each classroom for each child. These two scores, classroom aggression and classroom social competency, were used to reflect the classroom social environment to which each child was exposed during the course of a school year.

Data Analyses

Multiple regression analyses using general linear modeling (GLM) were employed to assess whether the classroom social context (class aggression; class social competency) led to change in students' individual aggressive behavior over the course of a school year. The moderating effects of gender and student's initial level of aggressive behavior were also examined. In order to control for the shared variance within classrooms contributed by the nested data (i.e. the same teacher rating all participating students in the classroom), GLM was used (Baker, 2006). GLM models exhibit non-normally distributed residuals, violating the assumption of homoscedasticity that is required in ordinary least squares regression. The current study has a hierarchical data structure as a result of multiple children being rated by the same teacher. GLM corrects for the shared variance within classroom.

For each model the shared variance within classrooms was accounted for by entering in the child's teacher as a random factor. Main effect and interaction terms were entered simultaneously into the regression equations. Moderation effects were tested using procedures recommended by Baron and Kenny (1986). A moderator variable influences the relationship (direction and/or strength) between an independent and dependent variable by interacting with the independent variable to influence the dependent variable (Baron & Kenny, 1986). The means of the independent (i.e.

classroom aggression and classroom social competency) and moderator variables (i.e.

time 1 aggression scores collected during the fall) were centered as recommended by

Aiken and West (1991). For the regression equations using gender as a moderator

variable, males were the reference group. For regression equations assessing the

moderating effects of students' initial level of aggression, the moderator variable was

continuous. To interpret interaction effects that were found in this study, the

unstandardized regression coefficients (B) were used to calculate and interpret the simple

slopes. Untransformed values were used to calculate the slopes (Aiken & West, 1991).

To test the moderating effects of developmental level on the association of the

classroom social context and individual student aggression at the end of the school year, a

mixed model analysis was conducted. A mixed model analysis was used to control for the

nested nature of the teacher and developmental level (i.e. grade) variables. A mixed

model analysis combines an ANOVA and regression using GLM. The ANOVA tested

the relation of grade level on the dependent variable (i.e. student aggression at the end of

the school year). Regression using GLM assessed the effects of the classroom social

context (classroom aggression; classroom social competency) and the interaction of grade

level and classroom social context on the dependent variable. For grade level two groups

were formed: lower elementary grades (K, 1st and 2nd grades) and upper elementary

grades (3rd, 4th and 5th grades). The upper elementary group served as the reference group.

Chapter 4

Results

Preliminary Analyses

Descriptive statistics and visual inspection of the data were conducted to assess

the adequacy of the study variables and integrity of analyses. Means, standard deviations,

medians, and correlations of study variables are presented in Tables 1 and 2. Correlations

among the independent variables did not indicate problems with multicollinearity.

Multicollinearity exists when the independent variables are highly correlated at .7 or

higher (Tabachnik & Fiddell, 2001).

An examination of whether the study variables were normally distributed did

indicate problems with normality. The Kolmogrov-Smirnov statistic indicated violations

of normality for aggression at time 1 and classroom social competency. Further

inspection of normal Q-Q plots indicated significant deviations from normality for time 1

aggression with points deviating from the line at the lower and upper ends. In addition,

significant positive skewness for time 1 aggression and moderate negative skewness for

classroom social competency were observed in the data. Outliers were inspected for the

variables using boxplots, which indicated the existence of outliers in the scores of the

variables. To determine the extent to which the outliers were affecting the data the

original means were compared to recalculated means that excluded the top and bottom

5% of the data (i.e. eliminating the outliers). Little difference was found in the original

and recalculated means indicating that the outliers were not greatly affecting the data

(Pallant, 2001), so the outliers were retained in the data file. Due to significant violations

of normality time 1 aggression and classroom social competency variables were

transformed using logarithmic transformations (Pallant, 2001; Tabachnik and Fiddell, 2001).

Classroom aggression and classroom social competency were measured by computing a mean score for the level of aggression and social competency in the classroom for each student. Given the skewed nature of the variables and the tendency for mean scores to be affected by outliers within the data, median scores were examined to determine whether the mean scores accurately reflected the group-level of aggression and social competency. While the median is also a measure of central tendency, median scores represent the middle score within a data set and are less influenced by extreme scores. Median and mean scores (see Table 1) for both classroom aggression and classroom social competency were very similar indicating that the mean scores were not influenced by extreme scores and accurately reflect the group level of aggression and social competency.

An adequate sample size affects both power (the probability of detecting statistical significant results) and generalizability. Tabachnik and Fiddell (2001, p. 117) provide a formula for calculating sample size requirements that takes into account the number of independent variables: $N > 50 + 80(IV)$. Using this formula, this current study needed an N of 210 ($50 + 80(2)$) to test each proposed model. This study has a sample N of 640.

Results

Across all models, significant values were found for the teacher identification variable indicating significant differences between classrooms on the dependent variable (i.e. time 2 aggression). Effect sizes indicated moderately strong differences between

classroom teachers on ratings of student time 2 aggression at the end of the school year. Table 3 presents the results of all the models tested.

The **first set of hypotheses** examined the contribution of the classroom social context (aggression; social competency) to students' time 2 aggression at the end of the school year after controlling for students' level of time 1 aggression at the start of the school year. Higher levels of classroom aggression were predicted to be related to increases in student aggression from time 1 to time 2, and a higher level of classroom social competency was predicted to lead to decreases in student aggression from time 1 to time 2. Two regression analyses using GLM were conducted to test these hypotheses. The findings did not support the hypotheses. The level of classroom aggression was found to be significantly related to change in students' aggression from the beginning of the school year (time 1 aggression) to the end of the school year (time 2 aggression), $F (1, 599) = 167.53$, $p < .0005$. A small effect size was indicated ($\eta^2 = .22$). Effect sizes were interpreted using Cohen's (1988) recommendations. Results indicated a negative relationship such that higher levels of classroom aggression were related to decreases in student aggression from time 1 to time 2.

The level of classroom social competency was also found to be significantly related to change in students' aggression, $F (1,599) = 44.89$, $p < .0005$ with a fairly small effect size of .07. The direction of change in aggression was unexpected. Classrooms with higher aggregate levels of social competency led to increases in time 2 aggression at the end of the school year.

The **second set of hypotheses** examined whether students' initial level of aggression (time 1 aggression) moderated the relationship between the classroom social context (aggression; social context) and change in students' aggression.

Classroom level aggression was hypothesized to be positively related to students' individual aggression regardless of their initial level of aggression (time 1 aggression); however, it was predicted that the association between classroom aggression and change in student aggression would be stronger for students who started out the school year with higher levels of time 1 aggression. The findings do not support the hypothesis. A statistically significant though small main effect was found for classroom level aggression, $F (1, 598) = 142.59$, $p < .0005$, $\eta^2 = .19$. The findings indicate that higher levels of classroom aggression are related to decreases in student time 2 aggression. A main effect albeit very small was also found for students' initial level of aggression (time 1 aggression), $F (1, 598) = 16.07$, $p < .0005$, $\eta^2 = .03$. Again, the direction of the change in aggression from the fall to spring was not anticipated with findings yielding a negative relationship between time 1 aggression scores in the fall and time 2 aggression scores in the spring. Higher levels of time 1 aggression were related to decreases in time 2 aggression at the end of the school year. An interaction effect was not found, $F (1, 598) = .918$, $p = .339$.

Higher levels of classroom social competency were predicted to be related to decreases in student time 2 aggression across the range of time 1 aggression scores; however, the relationship was hypothesized to be stronger at higher initial levels of aggression (time 1 aggression). An interaction effect was found, $F (1, 598) = 11.53$, $p = .001$; however, the effect size was very small, $\eta^2 = .02$. While a significant interaction

effect was found, the hypothesis was not supported. At higher levels of initial aggression (time 1 aggression), classrooms that had higher levels of aggregate social competency were found to be related to decreases in student time 2 aggression. However, at lower initial levels of aggression (time 1 aggression), classrooms with higher levels of social competency were related to increases in student time 2 aggression (see Figure 1).

The **third set of hypotheses** examined whether gender moderated the association between the classroom social context (aggression; social competency) and change in students' aggression from the beginning (time 1 aggression) to end of the school year (time 2 aggression).

A statistically significant main effect for classroom level aggression was found, F $(1, 598)$ = 1203.41, p<.0005 with a large effect size (η^2 =.67). The association between classroom level aggression and time 2 aggression at the end of the school year was negative. A main effect for gender was also found, F $(1, 598)$ = 8.4, p=.004; however the effect size was very small (η^2 =.01). Males had higher time 2 aggression scores than females. The interaction effect did not reach statistical significance, F $(1, 598)$ = 3.25, p=.07.

A significant main effect for classroom social competency was indicated, F $(1, 598)$ = 247.93, p<.00005 with a moderate effect size (η^2 = .29). This was a positive relationship. Higher levels of classroom social competency were associated with higher levels of time 2 aggression at the end of the school year. The main effect for gender F $(1, 598)$ = .002, p=.96 and the interaction effect, F $(1, 598)$ =.001, p=.98 did not reach statistical significance.

The **fourth set of hypotheses** examined whether developmental level (i.e. grade) has a moderating effect on the association between the classroom social context (aggression; social competency) and change in students' aggression over the course of a school year. An interaction effect was found, $F (1, 623) = 4.29$, $p=.04$, see Figure 3. Students' developmental level was operationalized by forming two groups based on grades: lower elementary (K-1st grades and upper elementary (3rd-5th grades). As classrooms became more aggressive, students' time 2 aggression scores decreased for both lower and upper elementary students. However, as the classrooms become more aggressive, the gap between the two lines depicting the grade levels becomes slightly larger indicating that upper elementary school students' time 2 aggression decreased more significantly than lower elementary school students. A significant interaction for classroom social competency was also found, $F (1, 530) = 5.55$, $p=.02$. For both upper and lower elementary school students, higher levels of classroom social competency were related to increases in student time 2 aggression. However, this effect was significantly stronger for lower elementary school students with a much steeper line upwards indicated (see Figure 3).

Chapter 5

Discussion

This final chapter will briefly restate the research problem and review the methods utilized in this study. The majority of this section will summarize the results and discuss their implications. Incidents of disruptive behavior among school-age youth have increased (Achenbach et al., 2003) which is alarming given that disruptive and aggressive behavior is related to poor academic, behavioral and social adjustment among students who engage in these behaviors repeatedly (Loeber, 1990). Given the significant amount of time children spend in schools, an important context to consider in the development of student behavior is the classroom.

There is a growing literature base that suggests the social context, specifically the behavioral characteristics at the classroom level, may be related to students' behavioral adjustment. This research is primarily focused on assessing how aggressive classrooms contribute to students' own externalizing behavior. Studies have shown that children's exposure to classrooms characterized by high rates of aggression is related to increases in aggressive acts among individual students (e.g., Barth et al., 2004; Kellam et al., 1998; Thomas et al., 2006; Warren et al., 2005).

From a social learning perspective, the behavioral characteristics of classrooms affect individual student behavior because of the strong influence that classroom peers have on "teaching" other students about behavior through observation. By observing frequent aggression within the classroom students learn how and when to aggress, that aggressive acts are normal, socially acceptable and functional within their classroom setting, leading to subsequent aggression among students.

Continued longitudinal research is needed to better understand how exposure to aggressive classrooms affects the development of children's aggression. In particular, studies that examine student characteristics such as developmental level, gender, and initial risk of aggression are important to understanding for whom the negative classroom context is especially harmful. These child characteristics are important to consider as the aggression literature indicates that 1) behaviorally at-risk students have a poorer adjustment trajectory and are more vulnerable to aggressive group contexts than their peers exhibiting low rates of aggression, 2) males exhibit significantly higher levels of behavioral problems, and 3) there is a significant change in the prevalence and expression of aggression across the elementary school years. An additional gap in the research is predominantly the classroom social context has been defined using negative indicators such as aggression instead of positive indicators such as social competence. This current study employed a longitudinal design to investigate the influence of the social context of the classroom on the development of children's aggression across an academic school year among elementary-aged students. The effects of gender, developmental level, and initial levels of aggression were examined. Consistent with previous research on aggressive classrooms, the classroom social context was defined as the aggregate level of aggression in the classroom as indicated by teacher ratings of each student's behavior; however, this study also examined positive characteristics of the classroom social context, social competency.

The following four research questions were examined: 1) Is the classroom social context (classroom aggression; classroom social competency) related to change in individual student aggression over the course of a school year? 2) Is the relationship

between the classroom social context and change in student aggression different across the range of students' initial levels of aggression? 3) Does gender moderate the influence of the classroom social context on students' aggressive behavior? 4) Does developmental level moderate the influence of the classroom social context on change in student aggression over the course of a school year? For research questions one, two and three multiple regression analyses using general linear modeling (GLM) were used to assess whether the classroom social context is related to change in students' aggressive behavior over the course of a school year. For research question 4 a mixed model analysis was used to control for the nested nature of the teacher and developmental level variables. Overall, the study found that the social context of the classroom is related to change in children's aggression across an academic year, and that these effects are different given student characteristics (i.e. initial levels of aggression, gender and developmental level). However, the findings were not always in the hypothesized direction.

Effects of Aggressive Classroom Environments

In this study, the level of classroom aggression was found to be related to change in children's aggression; however, contrary to the study's hypothesis, higher levels of classroom aggression were related to decreases in children's aggression over the course of a school year. Additionally, all children regardless of their initial levels of aggression experienced positive changes in their behavioral adjustment at the end of the school year when exposed to higher levels of classroom aggression. These findings are in conflict with previous studies that used similar methodologies to the current study, which found that aggressive classrooms were related to the development of more aggressive behavior in children (Barth et al., 2004; Duane et al., 2006; Kellam et al., 1998; Warren et al.,

2005). Prior research has also indicated that aggressive classrooms are particularly harmful to students exhibiting high levels of aggression and disruptive behavior (Kellam et al., 1998, Warren et al., 2005). This research parallels findings from the aggressive intervention literature that has well documented the negative effects of aggregating clinical and at-risk aggressive youth into small groups. Disruptive youth have been found to become more aggressive as a result of being exposed to group contexts in which their peers are also exhibiting high levels of disruptive behavior (Ang & Hughes, 2001; Dishion et al., 1999).

The negative effect of aggressive group contexts on the development of children's own aggressive behavior has been conceptualized within a social learning framework. From this perspective, classrooms are posited to serve as powerful environments in which students observe and learn behavioral patterns from their peers. Social learning theory asserts that observational learning is more likely to occur when the observer perceives the model as similar to himself. Thus, peers are believed to be strong socialization agents as they are similar in their characteristics, needs and abilities to other children making them relevant sources of information about behavior. When children are placed in aggressive classrooms, they are provided with frequent opportunities to witness and practice aggressive behaviors. Furthermore, in contexts where there is a high level of aggressive behavior, a social atmosphere is created in which aggression is typically functional and normalized making it a socially acceptable behavioral pattern for children to exhibit (Bandura, 1973; 1977).

Aggressive classrooms and other group contexts are reasoned to be harmful to the behavioral adjustment of all children; however, the research has indicated more negative

effects for students with already high levels of aggressive behaviors. Within the aggression intervention literature, the particularly negative effects of aggregating aggressive youth have been explained by a phenomenon called "deviancy training," which is guided by social learning theory. Deviancy training refers to how aggressive youth within the group context are provided opportunities to become even more aggressive and disruptive by teaching one another new disruptive behavioral patterns, practicing new and old behaviors with one another through their informal interactions and reinforcing negative behaviors (Dishion et al., 1999). Being around other aggressive youth provides willing participants and an audience that allows for disruptive behavior to remain valued and functional.

While the findings from this current study are inconsistent with previous research and theoretical frameworks there are possible explanations for why classrooms with higher levels of aggression led to decreases in children's aggression across a school year. In response to high levels of aggressive behavior at the beginning of the school year, teachers may have altered their behavior and utilized more effective classroom management strategies, including the use of classwide interventions to deal with aggression. Numerous studies have indicated that implementation of classroom management strategies and interventions can successfully change the context of the classroom (e.g., Kellam et al., 1998; Murphy, Theodore, Aloiso, Alric-Edwards, & Hughes, 2007). Yet, research also indicates that aggressive students tend to actually decrease teachers' use of effective behavior management strategies and instead teachers respond to disruptive students using punitive and coercive strategies that can serve to reinforce and perpetuate aggressive student behavior (Nelson & Roberts, 2000). The

teacher sample in the current study do represent an experienced and educated group with 60% of teachers having 7 or more years of teaching experience and 69% of teachers having a degree beyond a 4-year bachelor's degree. It is possible that these teachers may have been better equipped to effectively respond to aggressive classroom climates at the onset of the school year.

Effects of Classroom Social Competency

This study also examined the social context of the classroom by examining how the level of classroom social competency is related to change in student aggression across a school year. The hypothesis that higher levels of classroom social competency would be related to decreases in student aggression at the end of the school year was not supported. It was hypothesized that all students would benefit from being in socially competent classrooms; however, the positive effects were predicted to be more pronounced for students with higher initial levels of aggression. The findings indicated that at higher and mid levels of initial aggression and at higher levels of classroom social competency, student aggression at the end of the school year decreased. Furthermore, the decrease in aggression was more significant at higher levels of initial aggression, which supports the hypothesis. However, at lower levels of initial aggression and higher levels of classroom social competency, student aggression was found to increase. Thus, exposure to socially competent classrooms was found to be related to change in children's aggression quite differently, in fact in opposite ways, given initial levels of aggression.

There is little research examining how levels of classroom social competency affect the development of student aggression. The previous research that does exist

appears inconsistent with the findings of the current study. In one study, Leadbeater et al. (2003) examined the moderating effects of behavioral and emotional problems on classroom social competency and later reports of victimization. Interestingly, they found that students with higher levels of emotional problems (i.e. internalizing behaviors) in classrooms with higher levels of social competency reported increases in relational and physical victimization. Yet, for students with behavioral problems (i.e. externalizing behaviors) the level of classroom social competency did not change students' reports of victimization. This finding is inconsistent with the current study that found at higher levels of initial aggression and higher levels of classroom social competency, decreases in student aggression were reported. However, the two studies do use different constructs. The construct of self-reported victimization while helpful to understand the aggressive nature of a classroom is a different construct from the current study's construct of teacher reported aggression. Often students with disruptive and aggressive behaviors inaccurately interpret the actions of peers and adults as hostile, coercive and aggressive (Crick & Dodge, 1994). In another study, Hoglund and Leadbeater (2004) found that classroom levels of prosocial behaviors did not decrease or mitigate student reported aggressive and disruptive behaviors. This study did not examine variables such as initial levels of aggression that may have had moderating effects on the development of aggression.

The finding that at higher and medium initial levels of aggression, higher levels of classroom social competency were related to decreases in aggressive behavior is consistent with social learning theory. In classrooms that are characterized as more socially competent, students have many opportunities to observe and learn prosocial

behaviors from their peers. Furthermore, classrooms in which students are socially competent may not afford aggressive students with opportunities to practice their aggressive behaviors or provide functional utility for aggressive behaviors. Students who aggress toward those who are socially competent may find that their aggressive acts are not rewarded, as those who are socially competent are more likely to be skilled in dealing with the aggressor. When placed in a context in which aggressive behavior is neither functional nor reinforced, we would expect student aggression to decrease. In turn, new behavioral patterns that are more appropriate might emerge as a result of observing the behaviors of more socially competent peers.

Given the above discussion, it appears that the finding that at lower initial levels of aggression, socially competent classrooms were related to increases in aggression at the end of the school year conflicts with social learning theory. The constructs of aggression and social competency can appear to be behavioral characteristics that are mutually exclusive of one another or exist on opposite sides of the spectrum (Hawley, 2002). This notion is supported by research suggesting children who are aggressive lack friends, are disliked by adults and peers, and in general have less successful social interactions (e.g., Rubin et al., 1998), all indicators of social competence or in this case social incompetence. Interestingly, there is some research that has shown negative and aggressive behaviors to be related to social competence. Vaughn, Vollenweider, Bost, Azria-Evans, and Snider (2003) examined the relationship between negative and aggressive behaviors and social competence among preschool children. The authors found that children characterized as socially competent also tended to have higher rates of initiating negative interactions, described as coercive and dominant, than less socially

competent children. These "socially competent" children were found to be more aggressive and yet also more prosocial then their peers. Their findings are analogous with other research indicating similar positive relationships between aggressive behaviors, such as dominant and coercive behavior, with social competence among young children (Hawley, 2002; Hawley & Vaughn, 2003).

These researchers have couched their findings within social ethology and evolutionary psychology perspectives. These perspectives posit that some children are particularly apt at controlling resources and do so by their ability to utilize both aggressive and prosocial behaviors to attain and control needs and desires. These students are able to differentiate when particular behaviors will allow them to meet their social goals, and while they may utilize aggressive tactics, they frequently exhibit prosocial and affiliative interactions enabling them to maintain social acceptability among their peers. Thus, use of aggressive behaviors have been argued by these researchers to be an indicator of social competence when children are able to differentiate their behavior to access desired resources and meet social goals within specific contexts (Hawley, 2002; Hawley & Vaughn, 2003; Vaughn et al, 2003).

This aforementioned research may help to shed light on this current study's findings. While high classroom levels of social competence may indicate that many peers were engaging in prosocial behaviors, it does not necessarily mean that there was not use of aggressive behaviors within these classrooms. As discussed earlier, socially competent children may also be quite apt at using aggression in functional ways that allow them to also maintain their social status among peers and teachers. It is possible that students with lower levels of aggression attended to these aggressive behaviors

exhibited by socially competent peers and added them to their own behavioral repertoire via observational learning. However, for students with much higher levels of aggression, they may not have the social competencies to be able to differentiate and use aggression in a context-specific way. In fact, highly aggressive kids have been found to generally interpret social situations as aggressive and also respond to social situations with aggressive behavior (Crick & Dodge, 1994).

Another possibility for an increase in aggression among students entering the classroom at low levels of aggression may be that they were picked on and taken advantage of by their socially competent peers, and their subsequent aggression could have been reactive. This theory may parallel the aforementioned findings of Leadbeater et al. (2003) who found that students with higher levels of emotional problems (i.e., internalizing behaviors) in classrooms with higher levels of social competency reported increases in relational and physical victimization. The authors hypothesized that students with emotional problems were particularly vulnerable to manipulation and coercion by their socially competent peers.

Gender Differences

Gender differences were studied to better understand whether the social context of the classroom was related to change in student aggression differently given student gender. While there is a plethora of research indicating gender differences with regard to prevalence and expression of aggression (e.g., Barkley, 2003; Keenan & Shaw, 1997; Hinshaw & Lee, 2003), this study did not find gender differences for the effects of the classroom context on the development of aggression. Similarly, gender differences were also not found when the classroom context was defined by examining the aggregate

levels of social competency in the classroom. The previous research is limited to two studies (i.e. Hanish et al., 2005; Kellam et al., 1995) and the findings were inconsistent.

Interestingly, Hanish et al (1995) found that females were detrimentally affected by aggressive classroom contexts whereas males were not. These findings conflicted with another study conducted by Kellam et al (1998) who found that exposure to aggressive classrooms climates was harmful for boys but not girls. The aggression intervention literature has also well documented the deleterious effects of exposures to aggressive peers among males. The findings from the current study suggest that for both males and females, higher levels of classroom aggression are related to decreases in individual aggression over the course of the school year.

While presently there is not strong theory to support gender differences, two processes have been posited to explain why gender differences may be evident: normative and accumulation processes. Hanish et al. (1995) proposed that aggressive environments may be more detrimental to female development because aggressive behavior is not the typical female experience. The accumulation process was proposed to provide rationale for why aggressive contexts may be more detrimental for males. According to this process, males are predicted to be more detrimentally affected by aggressive environments because they are typically exposed to aggressive behaviors within their social contexts, and the cumulative effects lead to more negative outcomes for males compared to females who do not regularly experience aggression.

Developmental Level Differences

Developmental differences in the prevalence, form, and function of aggression has also been well documented in the literature. As children move from early to middle

childhood, aggressive acts decrease, change from being instrumental (i.e. trying to get something) in nature to more person-directed and hostile and become less overt (i.e. physical) and more covert (i.e. verbal aggression, insults, threats) (Parker et al., 1995; Coie & Dodge, 1998). Consistent with prior research, this study found that younger students had higher reported rates of aggression than older elementary students. This study furthered the research by finding that the classroom context was related to change in students' aggression across a school year differently given developmental level. More aggressive classrooms were found to lead to decreases in student aggression for both upper (3-5) and lower (K-2) elementary aged students. However, as classroom aggression increased, more substantial decreases in aggression over the course of the school year were found among older students. Previous research has not explored how the classroom context might differentially affect the development of students' aggression given their developmental level.

For children to be able to learn behaviors from their peers via observational learning certain abilities must be present including being able to attend, retain and make social comparisons (Bandura, 1973). Given that these cognitive abilities develop and become more sophisticated as children become older, it is possible that older elementary school aged children would be more likely to be affected by the classroom social context.

The social context of the classroom defined by social competency was also found to be related to students' development of aggression differently given developmental level. Again, for both students, higher levels of social competency were related to increases in aggression at the end of the school year; however, the increase was significantly more pronounced for younger students. As documented in the literature,

younger children use more aggressive and coercive acts and aggression among younger children is typically instrumental in nature (Parker et al., 1995). In others words, younger children are more likely to utilize aggression to gain access to something they want or need. The authors of the above-cited work on the positive relationship between social competence and aggression (i.e., Hawley, 2002; Hawley & Vaughn, 2003, Vaughn et al., 2003) suggest the relationship between the two constructs is stronger for younger children. These authors argue that as children become older they view aggression as less socially acceptable than their younger peers, and they will utilize more prosocial strategies to attain resources. It is possible that in this study younger children's more significant increase in aggression as a result of exposure to socially competent classrooms compared to older children is reflective of developmental differences in the relationship between social competence and aggression. Younger children engaging in socially competent behaviors may have been more likely to also be engaging in aggressive behaviors than older students providing more opportunities for observational learning in the lower elementary classrooms. Further, when exposed to aggression, older students might have bee less likely to actually engage in the aggressive acts compared to their younger peers given beliefs about the acceptability of aggression.

Limitations

While this study provides interesting and valuable information, a few limitations should be noted when interpreting the results. First, the behavior rating scales were first administered to teachers ten to twelve weeks after the school year started. At ten weeks, classroom level behavioral characteristics may have already been firmly established and as a result, individual student behavior may have already been affected by the classroom

environment. Thus, scores measuring students' aggression at the start of the school year may have already reflected exposure to the classroom social context, compromising interpretation of the moderating effects of students' initial levels of aggression.

Second, this study measured classroom and student aggression with teaching rating scales. There is the possibility that teacher biases contributed to the findings. Safeguards were taken to minimize any potential biases by using general linear modeling, which accounted for the fact that teachers were rating several children and by calculating a classroom mean for each child.

Third, while this study has added to the literature on classroom social context by examining both negative and positive indicators of group level behavioral adjustment (i.e. aggression and social competency), this study focused on measuring negative outcomes (i.e. aggression) and moderators (i.e. initial levels of aggression) of behavioral adjustment. Examining how the classroom context affects the development of students' social competency and how students' initial level of social competency moderates the effects of student outcomes would have provided a better understanding of how exposure to the classroom social context affects students' behavioral adjustment. Given that aggression and social competency are not dichotomous variables, it is not sufficient to assume a negative relationship between the two variables.

Fourth, while this study helps to understand the influences of exposure to particular classroom contexts on students' adjustment across a year, long-term influences on student adjustment was not assessed. There is some evidence indicating that while aggressive contexts influence change student behavior, change is not necessarily carried across school years (e.g., Barth et al, 2004; Thomas et al., 2006). An important variable

is argued to be the number of years of exposure to aggressive contexts. Barth and colleagues found that while students with one year of exposure indicated elevated aggression, this was not necessarily evident in subsequent years. Students with multiple years of exposure to aggressive classrooms were found to have the most significant increases in aggression suggesting that exposure to aggressive classrooms has cumulative effects on child behavioral adjustment.

Finally, this study did not account for other contextual influences on the development of student aggression over the course of the school year. While group level behavioral characteristics have been shown to influence individual student behavior, it is important to note that these group level characteristics occur within a context in which there are other strong influences such as teacher behavior. It is possible that there were mediating effects such that classroom levels of behavior led to changes in teacher behavior (e.g., use of effective or ineffective classroom management skills, interventions) that in turn influenced the classroom social climate and subsequently the development of individual student aggression.

Implications for Future Research and Practice

Despite the noted limitations, the results of this study have numerous implications for future research and school based practice and policy. As indicated above a limitation of this study is that teachers assessing student behavior may have provided biased ratings of student aggression. Future studies should incorporate other methods for assessing behavior such as direct observations and/or using multiple rating sources (e.g., student and teacher reports) to decrease any potential teacher bias.

Secondly, future research should also examine how negative and positive group level behavioral characteristics affect the development of both students' positive and negative adjustment. The findings from this study indicate that positive and negative classroom characteristics do not necessarily lead to decreases and increases in negative student outcomes, respectively, as one might hypothesize. The findings in this study challenge us to rethink the seemingly dichotomous nature of social competency and aggression. This has significant implications for school professionals intervening with aggressive behavior and attempting to promote prosocial behaviors. The most commonly used practices within schools to address aggressive and disruptive behavior are punitive strategies (e.g., detention and suspensions) (Mayer, 1995). The reliance on such practices is problematic because they focus only on decreasing inappropriate behavior and do not teach students appropriate social skills to allow them to get their needs met in socially acceptable ways. As the research is suggesting, just because a student is not engaging in a disruptive behavior does not necessarily mean that they are engaging in prosocial behaviors that are important for life long adjustment. Reactive strategies that focus on reducing disruptive behavior is not sufficient for promoting positive social behaviors and foster social competency within children.

As noted above, a limitation of this current study was the lack of long-term analysis on how the classroom environment affected students' behavior. Change was only assessed across a school year. Previous studies have indicated conflicting results on whether change in student behavior has long-term effects. Further, studies often fail to examine how subsequent classroom experiences may contribute to behavioral adjustment. Research should continue to examine how classroom environments shape behavior across

an academic year, whether there is any significant long-term influence on behavior, and the mediating variables on long-term influences. Studies will need to assess the subsequent classroom environments to which children are exposed to best understand the influence of classroom environments on behavioral adjustment.

Finally, while this study did not account for teacher-mediated variables on the development of aggression, future research should also include teacher-mediated processes such as teacher use of classroom management strategies and classroom based interventions. Additionally, assessing the academic environment including instructional match to student skill and curriculum and instructional strategies and practices should also be included to understand how these contextual factors may mediate the effects of classroom behavioral characteristics on individual students' behavioral adjustment.

In conclusion, while the findings of this study are not necessarily consistent with prior research, social learning theory or proposed hypotheses, they do indicate that the collective behavioral characteristics (aggression and social competency) of students within a classroom contribute to individual student levels of aggression. This study contributes to the literature base by examining negative and positive classroom behavioral characteristics and finding that aggressive contexts and socially competent classrooms may not necessarily indicate deleterious or positive effects, respectively, on students' adjustment. Further, this study has added to the literature by examining the relation between the classroom context and change in student aggression given gender, developmental level and initial levels of aggression.

Table 1

Means, Medians, and Standard Deviations for Aggression Subscale and Classroom Level Variables

	N	Mean	SD	Median
Aggression Time 2 (Spring)	640	52.67	12.23	--
Aggression Time 1 (Fall)	640	51.25	11.48	--
Classroom Aggression	640	51.25	4.77	51.09
Classroom Social Competency	640	50.89	6.06	51.42

Table 2
Correlations for Study Variables

	1	2	3	4
1. Aggression Time 1 (Fall)	—	.84**	.27**	.09*
2. Aggression Time 2 (Spring)		—	.28**	.11**
3. Classroom Aggression			—	.08*
4. Classroom Social Competency				—

** Significant at the .01 level
* Significant at the .05 level

Table 3

Regression Analyses Predicting Student Aggression from Classroom Social Context and Moderator Variables (Gender and Initial Risk)

Model	Aggression at Time 2 (Spring)		
	F	B	η_1^2
Classroom Social Context			
Classroom Aggression (df=*1,599*)			
Student Aggression Time 1 (Fall)	16.07***	-6.59+	.03
Classroom Aggression	167.53***	-9.93	.22
Teacher (*df = 38, 599)*	9.69***		.38
Classroom Social Competency (df=*1,599*)			
Aggression Time 1 (Fall)	499.46***	-21.9+	.46
Classroom Social Competency	44.89***	770.62+	.07
Teacher (*df = 38, 599)*	5.7***		.27
Initial Risk (aggression level)			
Classroom Aggression (df= 1, 599)			
Classroom Aggression	142.68***	-9.68	.19
Student Aggression Time 1	16.07***	-7.38+	.03
Class Aggression X std aggT1	.918	-.176+	.002
Teacher *(df = 38, 598)*	7.78***		.33

Table 3 (cont'd)

Model	Aggression at Time 2 (Spring)		
	F	B	η^2
Classroom Social Competency (df=1,598)			
Classroom Social Competency	19.16***	565.03+	.03
Student Aggression Time 1	13.99***	-237.72+	.02
Class SC X std aggT1	11.53**	-107.64+	.02
Teacher *(df=38, 598)*	4.98***		.24
Gender *Classroom Aggression* (df=1, 598)			
Classroom Aggression	1203.41***	-12.64	.67
Gender	8.40**	-1.49	.01
Gender X Classroom Aggression	3.25	.192	.01
Teacher *(df=38, 598)*	40.45***		.72
Classroom Social Competency (df=1,598)			
Classroom Social Competency	247.93***	2118.03+	.29
Gender	.002	-2.87	.00
Gender X Classroom SC	.001	.80	.00
Teacher *(df=38, 598)*	12.51***		.45

+Unstandardized Betas represent untransformed values (signs)
*** p <.001   ** p < .01   * p < .05

Table 4

Mixed Model Analysis (Anova and Regression) Predicting Student Aggression from Classroom Social Context and Moderator Variables (Grade level)

Model	Standard error of estimate	F	B (estimates)
Classroom Aggression (df=1,623)			
Grade Level	20.21	.89	19.09
Classroom Aggression	.494	695.61***	-13.04
Class Aggression X Grade	.702	4.29	1.45
Classroom Social Competency (df = 1, 530)			
Grade Level	483.81	5.87**	1172.41
Classroom Social Competency	175.70	153.8**	2178.95+
Class SC X Grade	241.87	5.55*	-570.02+

*Unstandardized Betas represent untransformed values (signs)

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

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Figure 1.
Interaction of Classroom Level Social Competency and Students' Initial Level of Aggression on Aggression at the End of the School Year
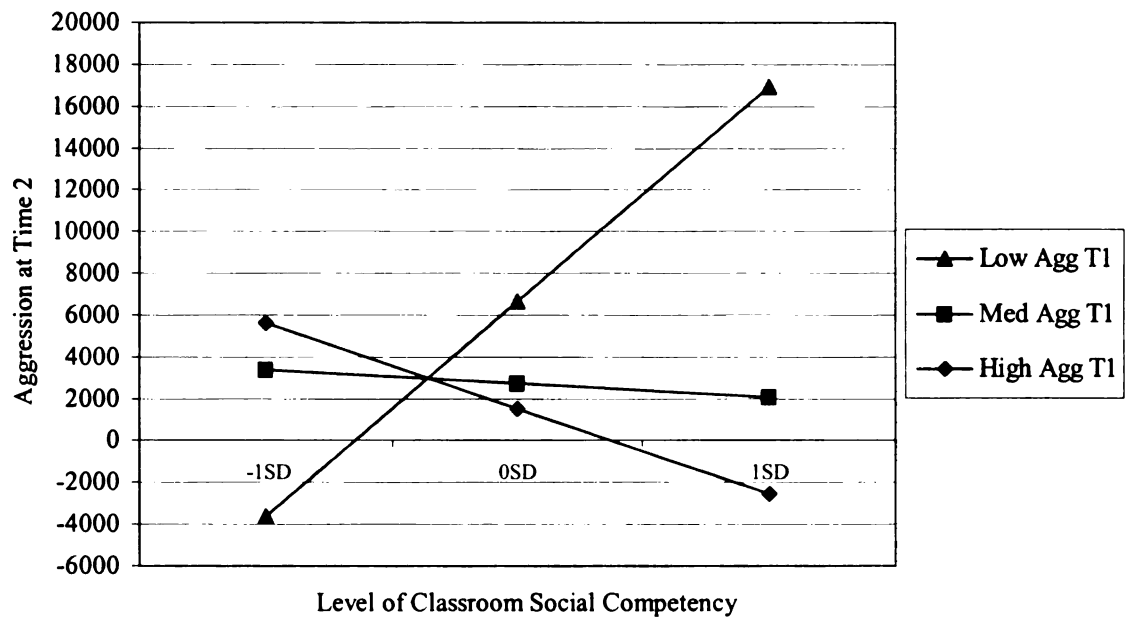

Level of Classroom Social Competency

Figure 2.

Interaction of Classroom Level Aggression and Grade Level on Aggression at the End of the School Year
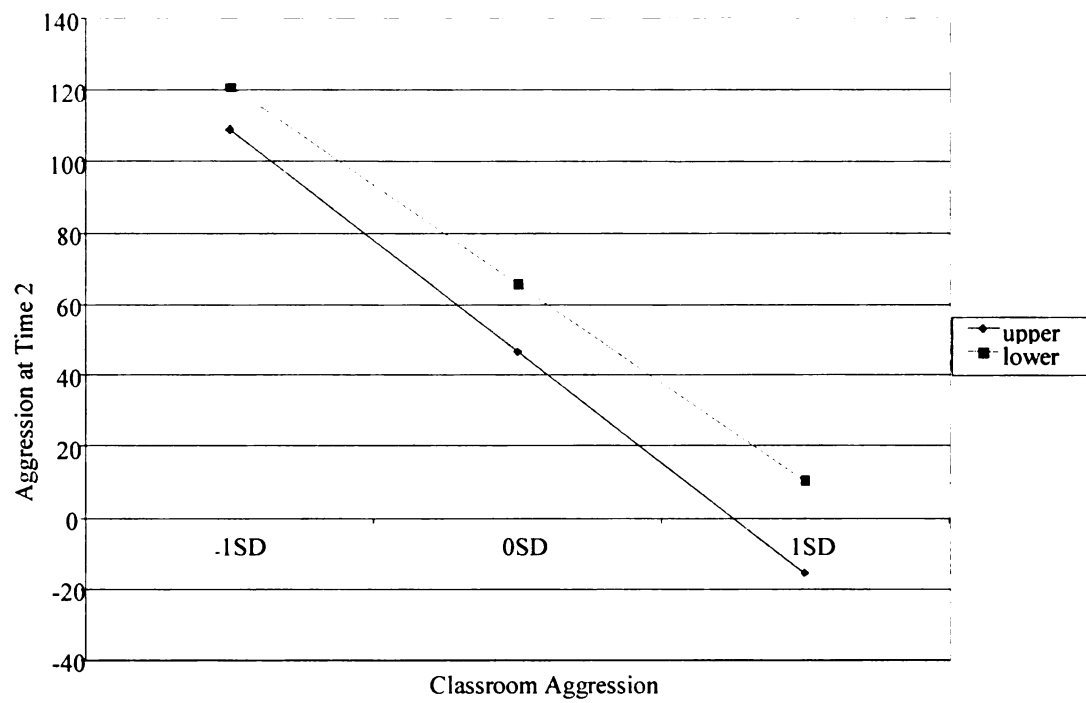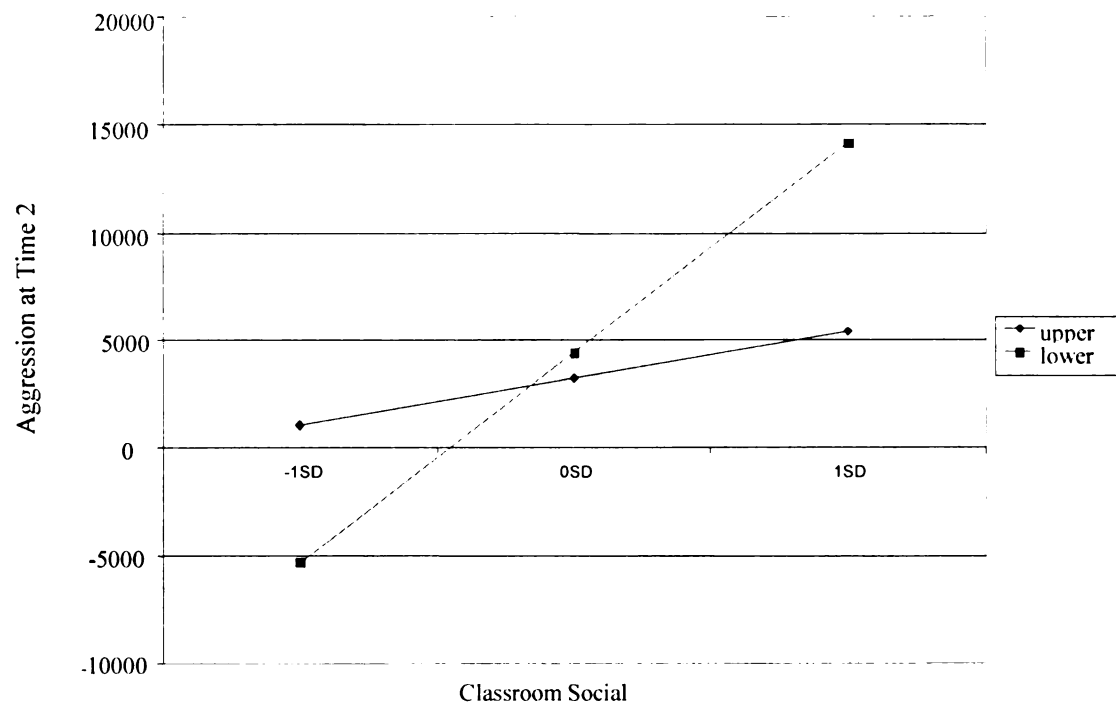
Figure 3.
Interaction of Classroom Level Social Competency and Grade Level on Aggression at the End of the School Year

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