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## The Influence of Classroom Aggression and Classroom Climate on Aggressive-Disruptive Behavior

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### Abstract

Research suggests that early classroom experiences influence the socialization of aggression. Tracking changes in the aggressive behavior of 4179 children from kindergarten to second-grade (ages 5–8) this study examined the impact of two important features of the classroom context—aggregate peer aggression and climates characterized by supportive teacher-student interactions. The aggregate aggression scores of children assigned to first-grade classrooms predicted the level of classroom aggression (assessed by teacher ratings) and quality of classroom climate (assessed by observers) that emerged by the end of grade 1. HLM analyses revealed that first-grade classroom aggression and quality of classroom climate made independent contributions to changes in student aggression, as students moved from kindergarten to second grade. Implications for policy and practice are discussed.

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Accumulating research suggests that the classroom context may play an important role in socializing student aggressive behavior – particularly during the initial years of elementary school. Several studies suggest that being placed in first-grade classrooms that contain many aggressive peers promotes student aggression that has enduring effects (Barth, Dunlap, Dane, Lochman & Wells, 2004; Kellam, Ling, Merisca, Brown & Ialongo, 1998; Thomas, Bierman & the Conduct Problems Prevention Research Group [CPPRG], 2006). Within this milieu of classroom aggression, social norms that sanction aggression may encourage aggressive behavior and foster peer acceptance of aggressive students (Farmer, Xie, Cairns, & Hutchins, 2007; Henry et al., 2000). Indeed, in social groups characterized by high levels of aggression, aggressive children are less likely to be rejected by peers than in less aggressive groups (Boivin, Dodge & Coie, 1995). Aggressive peers also model aggressive responding, promoting aggression via social synchrony (Farmer et al., 2007) and peer contagion, including the provocation and differential reinforcement of aggressive behaviors (Dishion & Patterson, 2006).

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Conversely, research suggests that classroom climates characterized by high rates of positive and supportive teacher-student interactions foster the development of self-regulation and conflict management skills, thereby reducing student aggression (Hamre & Pianta, 2005; Wilson, Pianta & Stuhlman, 2007). Measures of classroom climate typically focus on several key features of positive teacher-student interaction in the classroom, including sensitive teacher responding to child needs, positive classroom management strategies, and low rates of critical and over-controlling teacher behavior (Howes, 2000; NICHD Early Child Care Research Network [ECCRN], 2005). Studies have demonstrated that positive classroom climates promote student learning engagement, and enhance student social competence (NICHD ECCRN, 2005; Wilson et al., 2007). Positive classroom climates may also reduce aggressive-disruptive behaviors in two ways – via the teacher’s use of effective discipline and management strategies that discourage student misbehavior, and via the instruction and modeling teachers provide to help students manage conflicts adaptively, including support for appropriate emotional expression and social problem-solving skills (Hamre & Pianta, 2005; Howes, 2000).

Whereas prior research examining classroom context and the socialization of student aggression has focused on peer-level classroom aggression or the quality of classroom climate, the present study examined these two important classroom influences together. First, the study examined the impact of the aggregate aggression scores of incoming students (based on kindergarten ratings) on the classroom context that emerged at the end of first grade, including classroom aggression (the aggregate aggression scores students based on first-grade teacher ratings) and classroom climate (based on observer ratings). It was hypothesized that first-grade teachers would find it more difficult to create a positive classroom climate when faced with high rates of aggression in incoming students.

In addition, the study examined the unique and interactive effects of first-grade classroom aggression and classroom climate on the development of student aggression, as children moved from kindergarten to second grade. On the one hand, classroom climate and classmate aggression levels should be inter-correlated, given prior evidence that positive classroom climates are associated with reduced levels of classroom behavior problems (Hamre & Pianta, 2005; NICHD ECCRN, 2005). At the same time, classroom aggression and classroom climates are postulated to affect student aggression through different mechanisms. Hence, even when teachers promote a positive classroom climate, an aggressive peer group may undermine aggression control via social norming and peer contagion processes. In other words, it is not clear that effective teacher management can completely counteract the negative effects of placement in a first-grade classroom containing many aggressive students. For this reason, it was postulated that an interaction effect might emerge, in which the quality of classroom climate would have a stronger impact on child aggression when aggregate classroom aggression levels were low, but less of an effect when aggregate classroom aggression levels were high. In the latter case, it was anticipated that peer influence might promote child aggression despite effective teacher management in the classroom.

## METHOD

### Participants

Participants were 4179 children (51% boys, 49% girls) in 214 first-grade classrooms<sup>1</sup> assigned to a no-treatment control condition of a longitudinal prevention study (see CPPRG,

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<sup>1</sup>This study included 498 participants who moved into first grade classrooms after the start of the school year and, hence, were not included in a prior publication (CPPRG, 1999); it excluded 147 students who remained with the same teacher in grades 1 and 2.

1999). Classrooms were drawn from 27 schools in four diverse geographic sites (Durham, NC; Nashville, TN; Seattle, WA; and rural central Pennsylvania). The participants ranged in age from 5 to 8 years (mean age = 6.4 years), with the ethnic composition being 55.6% European American, 36.1% African American, and 8% individuals of other ethnicities.

### Measures and Procedures

**Classroom aggression**—To create a classroom-level measure of peer aggression, we selected five items from the *Teacher Observation of Classroom Adaptation-Revised* (TOCA-R; Werthamer-Larsson, Kellam, & Wheeler, 1991) that specifically described overt aggressive behavior (e.g., yells at others, fights, teases, breaks things, harms others). Teachers rated the frequency of each behavior for each child in the classroom using a six-point Likert scale (*Almost Never to Almost Always*). Scores collected at the end of first grade year were averaged to create a classroom aggression score. Higher scores represented more classroom aggression.

**Classroom climate**—To assess classroom climate, trained research assistants observed each classroom for 30-minute sessions during the spring of first grade. Observations occurred at least twice on different days ( $M = 4.4$  observations per class), using a computer-assisted rating program (Tapp & Fiel, 1991) that included 3 items from the *Classroom Atmosphere Ratings* (CAR; Solomon, Watson, Delucchi, Schaps & Battistich, 1988). Ratings focused on the atmosphere of the entire classroom and ranged from 1 (very high) to 5 (very low). Items were: 1) teacher responsiveness to student's needs and feelings; 2) teacher emotional support and use of praise and encouragement (vs. critical or negative teacher tone); and 3) quality of student engagement in classroom discussions and activities. Observers watched videotapes and participated in in-situ practice sessions during a 6-week training period. Reliability in the field produced moderate kappas, .62 to .81. Ratings were averaged across observers and items to give each classroom an overall score for classroom climate ( $\alpha = .92$ ). Higher scores on this measure of classroom climate represented more negative climate.

**Child aggressive-disruptive behavior**—The *Authority Acceptance Scale* of the TOCA-R was used to assess each child's aggressive-disruptive behavior in kindergarten and at the end of second grade. On this 10-item scale, teachers rated the frequency of each child's aggressive behaviors (yells, fights, harms others) and disruptive behaviors (stubborn, disobedient, breaks rules) on a six-point Likert scale (*Almost Never to Almost Always*;  $\alpha = .95$ ).<sup>2</sup> Higher scores on this measure represented more individual child aggressive behaviors.

### Analysis Plan

Correlations were computed to evaluate the impact of the aggression levels of students assigned to various first grade classrooms before the year began (based upon aggregated aggression ratings provided by kindergarten teachers) on the two measures of classroom context collected in the spring of the first-grade year, classroom aggression (aggregated aggression ratings provided by first-grade teachers) and classroom climate (observer ratings). These correlations assessed the degree to which the aggression levels of students assigned to first-grade classrooms predicted the classroom context that emerged.

Then, an HLM assessed the impact of two aspects of the first-grade classroom context (classroom aggression, classroom climate) on changes in child aggression between

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<sup>2</sup>Only overt aggressive behaviors were included in the measure of classroom aggression, in order to avoid overlap with the measure of classroom climate. The full Authority Acceptance scale was used to represent student outcomes, in order to assess the impact of classroom context on broad-band externalizing behaviors.

kindergarten (base-line) and the end of second grade (outcome). In this predictive model, ratings of change in student aggressive behavior were provided by kindergarten and second-grade teachers, whereas classroom aggression ratings were provided by first-grade teachers, creating independent informants.

## RESULTS

### Correlations

As shown in Table 1, the level of aggregate baseline aggression among incoming students (as rated by kindergarten teachers, prior to first-grade entry) significantly predicted the level of classroom aggression that emerged in first grade ( $r = .26, p < .01$ ), and the quality of classroom climate that emerged in first grade ( $r = .19, p < .05$ ). These findings suggest that the prevalence of pre-existing aggressive behavior among students assigned to particular first-grade classrooms is an important predictor of the quality of the first-grade context that will emerge. At the same time, the magnitude of these associations is quite modest, suggesting substantial malleability of the group context. When measured concurrently in the spring of first grade, classroom aggression and classroom climate were significantly correlated ( $r = .27, p < .01$ ). Again, the level of association was only moderate, suggesting these are interrelated but partially independent indices of classroom context.

### Multi-level modeling

A hierarchical linear model (HLM) was computed to test the hypothesis that first-grade classroom aggression and classroom climate would contribute independently to changes in student aggressive-disruptive behavior, and to evaluate possible interactions between these two dimensions of classroom context. Child aggressive-disruptive behaviors rated by second-grade teachers served as the dependent variable. Kindergarten aggression and child sex and race were included as Level 1 covariates, and site was included as a Level 2 covariate. Second-grade classrooms served as the level 2 grouping variable, and measures of first-grade classroom aggression (aggregated teacher ratings) and first-grade classroom climate (observer ratings) served as the independent variables. To aid interpretation, the predictors and dependent variable were z-scored prior to entering them into the model. Results are shown in Table 2.

Both first-grade classroom aggression and classroom climate emerged as significant predictors of change in child aggressive-disruptive behavior from kindergarten to grade 2. The standardized beta coefficients for classroom climate and classroom aggression were .09 and .08, respectively, indicating that as classroom climate or classroom aggression scores for a given class increased by 1 standard deviation, the average second-grade aggressive outcomes scores for children increased by approximately one-tenth of a standard deviation. No evidence of significant interaction between classroom aggression and classroom climate emerged, suggesting independent main effects for these dimensions of classroom context.<sup>3</sup>

## DISCUSSION

Given evidence that high levels of first-grade classroom aggression (Kellam et al., 1998) and poor classroom climate (Wilson et al., 2007) can contribute to lasting increases in student aggression, these two aspects of classroom context warrant further study. The present study was the first to examine these two dimensions of classroom context together. The results document that pre-existing levels of aggression displayed by children assigned to various

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<sup>3</sup>The same analysis done using aggregate peer nominations to assess classroom aggression (rather than teacher ratings) produced a standardized beta coefficient of .04,  $p = .10$ .

first grade classrooms have a significant, though relatively small, impact on the quality of classroom context that emerges in those rooms. In addition, the findings document significant, unique, though small impacts of first-grade classroom aggression and first-grade classroom climate on changes in student aggression, that are sustained a full year after first-grade classroom exposure. Correspondingly, efforts to improve classroom contexts may require a two-pronged set of efforts – those designed to improve teacher management practices and enhance social-emotional support in classrooms, and those designed to disperse students showing elevated levels of aggressive behavior across classrooms and reduce the negative peer dynamics associated with groups that contain many aggressive members.

### **Classroom Aggression and Climate**

Although studies of classroom climate typically focus on the teacher's skill as the primary determinant of positive student-teacher relationships and effective classroom management (Hamre & Pianta, 2005), this study documents the impact of pre-existing levels of student aggression as well. Specifically, aggregated levels of kindergarten aggression displayed by students assigned to various first-grade classrooms significantly predicted the quality of climate that emerged in those classrooms and the level of classroom aggression reported by first-grade teachers. However, the impact was relatively small, with kindergarten levels of student aggression accounting for less than 10% of the variance in first-grade classroom-level aggression and less than 5% of the variance in first-grade classroom climate.

These results suggest that being assigned to a first-grade classroom characterized by elevated levels of aggregate student aggression is disadvantageous. In the present study, higher classroom aggression scores reflected both higher median levels of aggression, suggesting the “average” student was more aggressive than in low aggression classrooms, and they included a larger number of highly aggressive children (e.g., children scoring in the top 10% in the sample). Classrooms with these student characteristics may make it difficult for teachers to forge positive relationships with students and use effective behavior management strategies to maintain classroom control. Under such circumstance, teachers may rely more heavily on negative control tactics. Paradoxically, such tactics, particularly when accompanied by reduced levels of positive teacher-student interactions, may elicit student resistance, contributing to escalations in coercive teacher-student interactions and impeding the development of a positive classroom climate (Pianta & Stuhlman, 2004). However, the relatively low magnitude of the association between incoming students' aggression levels and later classroom climate suggests that a teachers' capacity to establish and maintain a positive, social-emotionally supportive classroom climate is not highly constrained by the level of aggression among incoming students. Indeed, improving teachers' abilities to create a positive classroom climate when faced with elevated levels of student aggression may be an important strategy for reducing aggressive behavior problems at school.

Prior research examining classroom context effects on child aggression have focused either on the quality of the classroom climate or student aggression levels in classrooms, but not both. When measured in the spring of the first-grade year, classroom climate and classroom aggression were significantly correlated. However, the moderate level of association suggests that they represent distinct aspects of classroom context. Furthermore, when both classroom climate and classroom aggression were entered into the predictive model at the same time, each of these aspects of classroom context contributed unique variance to the prediction of change in student aggression from kindergarten to second grade.

## The Independent Contribution of Classroom-Level Aggression

In recent years, significant concerns have been raised about the iatrogenic effects of peer contagion in groups that contain many aggressive children (Dishion & Patterson, 2006). Much of this research has concentrated on aggressive children grouped together for interventions (Dishion & Patterson, 2006), but evidence of peer influence is also evident in elementary classrooms, where high levels of peer aggression are associated with greater tolerance of aggressive behavior (Henry et al., 2000) and improved acceptance of aggressive children (Boivan et al., 1995). Present findings suggest that, even when teachers manage effectively and promote a positive classroom climate, the density of aggressive peers in the classroom affects student outcomes. The mechanism of transmission may operate by way of peer contagion that occurs outside of the classroom, or it may operate via an effect on normative beliefs about aggression at a more general level rather than direct behavioral modeling (Henry et al., 2000).

It is worth noting that, in this study as in others, the impact of classroom aggression on student aggression was relatively small when measured a full year after exposure. However, children attending schools in high-crime neighborhoods that serve a high proportion of socioeconomically disadvantaged students are typically exposed to high classroom aggression for multiple years, compounding the negative influence over time (Thomas et al., 2006). Even a relatively small effect, when it affects all children in a classroom, and when it is magnified by repeated exposures across years of elementary school, may have a substantial effect on population rates of aggression. In addition, it is likely that the actual impact of exposure to aggressive classrooms is unequally distributed across students. Students who are at elevated risk for the development of externalizing behavior problems, due to elevated aggressive behavior, inattention, or socialization difficulties within the family setting appear most vulnerable to the effects of poor classroom contexts (Pianta, LaParo, Payne, Cox & Bradley, 2002; Thomas, Bierman, Thompson, Powers & CPMRG, 2008).

Interestingly, no significant interaction emerged between classroom aggression and classroom climate. This suggests that each dimension contributes uniquely (and about equally) to the impact of classroom context on child aggression. This finding also suggests that improving the climate of even the most aggressive classrooms might have some positive benefits for the early behavioral development of children.

## Limitations and Future Directions

An important methodological limitation of the current study was the reliance on teacher ratings to assess child aggressive-disruptive behavior. Kindergarten and second-grade teacher ratings assessed change in child aggressive-disruptive behavior, and first-grade teacher ratings assessed first-grade classroom aggression, providing independent informants for classroom context and child outcome. Nonetheless, teacher-ratings are based upon children's classroom behavior, and do not assess child aggression comprehensively across settings. In addition, although analytic models controlled for site, it is possible that other context differences not measured or controlled here (e.g., neighborhood characteristics) were correlated with poor quality classrooms and child outcomes.

Future studies could expand the predictive model by examining other features of context that might affect the functional adaptability of aggressive behavior at school and account for increases in child aggression, such as exposure to neighborhood risks and community violence (Guerra, Huesmann, & Spindler, 2003). Such work could yield a rich source of information on how variables adjoining school grounds work in concert with classroom risks to affect child behavior maladjustment and the potential for serious conduct problems in the

school setting. Subsequent research could also extend the present findings by better explicating the mechanisms associated with classroom context effects. For example, more precise assessment of the specific role played by various teacher management strategies, teacher student relationships, and student-peer interactions might help “unpack” mechanisms of influence of the classroom climate.

### Policy and Practice Implications

The present findings suggest that additional efforts are needed to improve the ecology of classroom contexts, particularly in schools serving many high-risk students. Professional development support to improve teacher management practices and promote positive teacher-student relations appear warranted. At the same time, the present findings suggest that classroom-level peer aggression may operate to increase student aggression even when teachers are able to create a positive climate in the classroom. Hence, focusing interventions primarily on teacher classroom management skills may be insufficient to reduce risks associated with children’s exposure to classrooms containing many aggressive peers. Additional intervention approaches should be evaluated in terms of their capacity to reduce the negative peer dynamics associated with aggressive peer ecologies. These include interventions designed to promote the development of nonaggressive, prosocial norms in classrooms (Durlak, Weissberg, Taylor & Dymnicki, 2011), interventions that focus on motivating peers to support positive classroom behavior, such as the Good Behavior Game (Kellam et al., 2008), and other approaches that attend systematically to student behavioral factors and positive/negative peer influence when organizing classroom composition, seating, and grouping arrangements.

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**Table 1**

## Correlations among Measures of Classroom Context

	<b>First-Grade Classroom Context</b>	
	<b>Classroom Aggression</b>	<b>Classroom Climate</b>
Classroom Aggression (Kindergarten)	.26**	.19*
Classroom Aggression (First-grade)		.27**

Note: These are correlations among classroom-level scores.

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 $p < .05$ .

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 $p < .01$ .

**Table 2**Hierarchical Linear Models Predicting 2<sup>nd</sup> Grade Aggression Outcomes

Source of Variance	Unstandardized Coefficients (Standard Errors)	Standardized Coefficients (Standard Errors)
Intercept	.63 (.04)*	.06 (.03)
<u>Child Characteristics</u>		
Kindergarten Child Aggressive-Disruptive Behavior	.51 (.03)*	.49 (.03)*
<u>Classroom Characteristics</u>		
Classroom Climate	.13 (.04)*	.09 (.03)*
Classroom Aggression	.16 (.04)*	.08 (.02)*
Classroom Climate X Classroom Aggression	-.02 (.05)	.01 (.02)
<u>Random effects for unconditional model</u>		
μ: Group-level variance	.15 (.02)*	.15 (.02)*
τ: Individual-level variance	.81 (.02)*	.81 (.02)*
<u>Random effects for conditional model</u>		
μ: 1: Group-level variance, intercept	.08 (.02)*	.13 (.02)*
μ: 2: Group-level variance, slope intercept	.01 (.01)	.04 (.01)*
μ: 3: Group-level variance Kindergarten slope	.04 (.01)*	.04 (.01)*
τ: Individual-level variance	.54(.02)*	.57 (.02)*

Note: Additional covariates in this analysis included child sex, child race, and site. For unstandardized coefficients, classroom climate and classroom aggression were both centered in the model.

\*  $p < .01$ .