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Resolving conflict creatively: Evaluating the developmental effects of a school-based violence prevention program in neighborhood and classroom context

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Abstract
This study evaluated the short-term impact of a school-based violence prevention initiative on developmental processes thought to place children at risk for future aggression and violence and examined the influence of classroom and neighborhood contexts on the effectiveness of the violence prevention initiative. Two waves of developmental data (fall and spring) were analyzed from the 1st year of the evaluation of the Resolving Conflict Creatively Program (RCCP), which includes 5053 children from grades two to six from 11 elementary schools in New York City. Three distinct profiles of exposure to the intervention were derived from Management Information System (MIS) data on between classroom differences in teacher Training and Coaching in RCCP, Classroom Instruction in RCCP, and percentages of students who are Peer Mediators. Developmental processes that place children at risk were found to increase over the course of the school year. Children whose teachers had a moderate amount of training and coaching from RCCP and who taught many lessons showed significantly slower growth in aggression-related processes, and less of a decrease in competence-related processes, compared to children whose teachers taught few or no lessons. Contrary to expectation, children whose teachers had a higher level of training and coaching in the RCCP but taught few lessons showed significantly faster growth over time in aggressive cognitions and behaviors. The impact of the intervention on children's social cognitions (but not on their interpersonal behaviors) varied by context. Specifically the positive effect of High Lessons was dampened for children in high-risk classrooms and neighborhoods. Implications for future research on developmental psychopathology in context and for the design of preventive interventions are discussed.

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Despite recent declines in violent crime in both the general population and the youth population, violence among youth continues to be a problem of epidemic proportions (Blumstein, 1995; FBI, 1997; Fox, 1996). Because of the apparent difficulties in successfully treating already established conduct disorder, violence, and antisocial behavior during adolescence (Kazdin, 1985, 1993), a growing number of violence prevention efforts focus on the elementary school years (Samples & Aber, 1998; Tolan & Guerra, 1994a, 1994b). Rigorous evaluations of several such school-based violence prevention efforts have been mounted recently (Mercy & Potter, 1996). Early results indicate partial success in reducing aggressive/antisocial behavior for boys, not girls (Farrell & Meyer, 1997), for fourth to sixth graders, not second and third graders (Metropolitan Area Child Study Research Group, 1997), and as measured by behavioral observations, not by parent and teacher ratings (Grossman et al., 1997).

But to date, few of these studies examined the impact of the school-based preventive intervention on the development of underlying social-cognitive and interpersonal behavioral processes thought to lead to aggression/conduct disorder or to place children at higher risk for future violence.[1] A developmental psychopathology perspective emphasizes the identification of processes that mediate the influence of risk factors on maladaptation as targets of preventive interventions (Cicchetti, 1993; Dodge, 1993). Preventive intervention research can make important contributions to the study of developmental psychopathology by conducting tests of systematic efforts to change processes thought to lead to maladaptation (Cicchetti & Toth, 1992; Kellam & Rebok, 1992). Of particular relevance to this Special Issue, none of the studies examined whether features of neighborhood and classroom context either directly affect, or moderate, the impact of the preventive intervention on these developmental processes. While rarely examined empirically, a contextual perspective is central to theory in developmental psychopathology (Cicchetti & Toth, 1998; Coie & Jacobs, 1993; Richters & Cicchetti, 1993; Susman, 1993).

The specific aims of this study are to (a) assess the short-term impact of a major school-based violence prevention program (the Resolving Conflict Creatively Program) on several key developmental processes known to place children at risk for future aggression and violence, (b) test the robustness of the program's impact on subgroups of children defined by demographic status (gender, age/grade) and risk status (depression, academic underachievement), and (c) examine the influence of neighborhood and classroom contexts on these developmental processes and on the impact of the intervention. Our overarching goal is to better understand whether the potential of school-based interventions (such as the Resolving Conflict Creatively Program) to redirect the developmental trajectories of low-income urban children away from violence and antisocial behavior varies by child characteristics and by classroom and neighborhood context.

Resolving Conflict Creatively Program: Designing an Evaluation to Match the Intervention

The Resolving Conflict Creatively Program (RCCP) is over a decade old. It began in three elementary schools in Brooklyn, NY and has grown to serve thousands of children in over 90 schools in New York City. It is also currently being replicated in 11 other sites across the country from Anchorage, Alaska to Atlanta, Georgia. The overall objectives of the RCCP are to help young people see that they have many choices besides passivity or aggression for dealing with conflict, and to help them develop skills to make those choices real in their own lives. Developed collaboratively over time by Educators for Social Responsibility Metropolitan Area (ESR Metro) and the New York City Board of Education (BOE), the intervention now consists of three major

1. The Metropolitan Area Child Study Research Group and the FAST TRACK study group are two notable exceptions. Both have collected extensive data on change in developmental processes, but are still in the process of publishing these results.

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components: (a) the recruitment, training and ongoing coaching and support of teachers in a curriculum promoting conflict resolution skills and intergroup understanding (Teacher Training and Coaching); (b) the classroom instruction of children by trained teachers in the conflict resolution and intergroup understanding curriculum (Classroom Instruction); and (c) the recruitment, training, and supervision of children as peer mediators who facilitate the resolution of conflicts and understanding of intergroup differences among children not only in the classroom but also on the playground and elsewhere (Peer Mediation). Additional features of RCCP include the training of administrative and parent leaders to support the development of RCCP in the school and, in just a few of the most advanced schools, an additional targeted intervention for the highest risk children.[2] (See Aber, Brown, Chaudry, Jones, & Samples, 1996, for a more detailed description of the intervention.) Together, these components seek to change the classroom, peer group, and school contexts in which children learn how to resolve conflict.

A defining characteristic of RCCP's approach is to begin in a school by recruiting and training a few highly motivated volunteer teachers and to slowly recruit and train more teachers and add more program components (e.g., peer mediation, targeted intervention) over a period of several years until the school is completely "saturated" and all the components of the model are implemented. Thus, while teachers "select" into the intervention (some as early "volunteers," some as later "draftees," some not at all), children do not. (There is no official policy or anecdotal evidence that children are assigned to classrooms on the basis of whether teachers are active participants in RCCP.)

For these reasons, the decision was made to employ a quasiexperimental evaluation design to reflect the normal evolution and implementation of the program.[3] Four schools were identified and recruited in each of four districts in New York City to participate in the evaluation. Each school represented a different stage of program evolution. And presumably teachers also varied in their level of interest and enthusiasm in participating in and implementing RCCP. (See Methods section for details of school selection.)

Thus, the RCCP can be operationalized at several levels: between schools, as stage of program evolution/degree of "saturation"; and within schools, between children and classrooms, as variation in the amount of Teacher Training and Coaching, Classroom Instruction, and Peer Mediation to which the children are exposed. In this paper, we focus on within-school, between-child variation in their exposure to these three main components of the intervention. Specifically, we examine the separate and combined effects of Teacher Training and Coaching, Classroom Instruction, and Peer Mediation on short-term change in developmental processes believed to lead to aggression/conduct disorder and to place children at risk for future violence. Specifically, we hypothesized that children's greater exposure to each of the components of RCCP would lead to positive changes in certain social-cognitive and interpersonal-behavioral processes. We were uncertain about whether these components would operate additively or synergistically.

Social-Cognitive and Interpersonal-Behavioral Processes

Several key developmental processes that underlie the ontogeny of aggression and conduct disorder and that place children at risk for vio-

2. As traditionally implemented, RCCP is a "universal preventive intervention" targeting all children in a classroom, not a multidomain intervention specifically targeting high risk children (as recommended by Dodge, 1993). But RCCP continues to evolve and has begun a "targeted" intervention for the highest risk children which it has implemented in a few schools.

3. A true "random assignment" experiment was unacceptable to RCCP because it would not have permitted RCCP to evaluate the impact of the program *as implemented* on children's development. Because children were arbitrarily assigned to teachers independent of teacher's willingness to participate in RCCP, a quasiexperimental design still permits us to make an unbiased estimate of the effects of children's exposure to RCCP on their development.

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lence and antisocial behavior in adolescence have recently been identified (Coie & Dodge, 1998). In this study, we focus on a subset of these processes that meet several important criteria: (a) they appear to emerge and/or are consolidated in middle childhood, (b) they are consistent with RCCP's practice-based theory of what their intervention is designed to change, (c) they can be measured reliably and validly via group administration in classrooms, and (d) they are potentially sensitive to short-term change. At its most general level, the RCCP curriculum is designed to help children think, feel, and act differently in situations of interpersonal conflict.[4]

More specifically, we hypothesized that children's exposure to RCCP would affect the social-cognitive development of hostile attributional biases and aggressive fantasies, and the behavioral development of competent and aggressive interpersonal negotiation strategies and symptoms of conduct disorder. Hostile attribution biases are a form of cognitive distortion or misperception of social cues which result in the tendency to over attribute hostile intent to a provocation in social situations regardless of actual intent (e.g., benign or ambiguous) (Dodge, 1986). Aggressive fantasies are a form of cognitive script rehearsal about aggressive or antisocial events (Huesmann, 1986). Prior research has demonstrated that these two social cognitive processes increase the probability that children will react aggressively in challenging social problem solving situations (Dodge, 1986; Dodge, Murphy & Buchsbaum, 1984; Dodge, Pettit, McClaskey, & Brown, 1986; Huesmann & Eron, 1984, 1986).

Both developmental-structural theory (Selman, Beardslee, Schultz, Krupa, & Podoresky, 1986) and social information processing theory (Dodge, 1986) hypothesize that social cognitive processes like hostile attributional bias and aggressive fantasies predispose children both to enacting more aggressive negotiation strategies and fewer competent negotiation strategies in situations of interpersonal conflict. For example, Dodge has found that children's social-cognitive assessment of social situations predicts their choice of problem solving strategies, both aggressive strategies (hit, fight, threaten) and competent strategies (reason, negotiate, invoke authority) (Dodge, 1986; Dodge, McClaskey, & Feldman, 1985).

Finally, children's conduct problems, both self-reported and adult rated, have been found to be related to almost all of these social-cognitive and interpersonal behavioral processes (Dodge, Pettit, Bates, & Valente, 1995). Reports of conduct problems among elementary school-aged children are one of the strongest predictors of later maladjustment, including delinquency (White, Moffitt, Earls, Robins, & Silva, 1990) and conduct disorder in adolescence (Loeber, 1991). Thus, we reasoned that if participating in RCCP can positively impact on children's hostile attributional biases, aggressive fantasies, interpersonal negotiation strategies, and conduct problems, then it would reduce their risk for future aggressive, violent, and antisocial behavior.

On the basis of prior research, we expected that (urban) elementary school children would experience an increase in risk factors (and a decrease in protective factors) both over the course of a school year and across grades (Dryfoos, 1990; Farrell & Meyer, 1997; Grossman et al., 1997; Metropolitan Area Child Study Research Group, 1997). For these reasons, we hypothesized that exposure to RCCP would slow the expected growth in children's aggressive fantasies, hostile attributional biases, aggressive interpersonal negotiation strategies, and symptoms of conduct disorder. Similarly, we hypothesized that exposure to RCCP would also slow the decline in competent interpersonal negotiation strategies.

Neighborhood and Classroom Context

Despite the powerful theoretical influence of Bronfenbrenner's concept of the ecology of human development, very few studies of child development (in general) or evaluations of developmental interventions to prevent psycho-

4. Although RCCP's curriculum is also designed to improve intergroup understanding, we were unable to identify or adapt measures that permitted us to test RCCP's effects on this important feature of development.

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pathology (in particular) have empirically examined the influence of neighborhood or community context on developmental change and intervention-induced change. With the seminal work of William Julius Wilson (1987), both social and developmental scientists renewed their interest in neighborhood and communities as contexts for child and adolescent development (Aber, Gephart, Brooks–Gunn, Connell, & Spencer, 1997; Brooks–Gunn, Duncan, & Aber, 1997; Sullivan, 1998).

Researchers studying neighborhood context effects face many difficult conceptual and methodological challenges: How should neighborhoods be defined? What characteristics of neighborhoods have the greatest effect on human development and by what mediating processes? How should studies be designed to most sensitively detect potential neighborhood effects? (See Brooks–Gunn et al., 1997 for an extensive discussion of these and related issues.) In this study, we define neighborhood to mean the census tract of children's residence. We focus on two compositional features of children's neighborhood of residence thought to both influence children's development and possibly counter the positive impact of a school-based violence prevention effort. These two features are an index of employment, occupation, and income variables (neighborhood poverty) and the homicide rate (neighborhood violence). Through a variety of modeling, socialization, and resource allocation processes (Brooks–Gunn, Duncan, Klebanov, & Sealand, 1993; Duncan, Brooks–Gunn, & Kelbanov, 1994), poor/dangerous neighborhoods may directly promote the development of social cognitions and interpersonal negotiation strategies that place children at risk for future violence. These same neighborhood features may make it more difficult for a school-based preventative intervention to have a positive effect.

Thus, in this study we hypothesized that children in very poor/dangerous communities would score higher in risk processes (e.g., aggressive fantasies, hostile attribution bias) and lower on protective processes (competent interpersonal negotiation strategies) than children in somewhat poor, but safer communities. (Remember, these are all urban low income communities.) In addition, we hypothesized that the positive effects of participation in RCCP may be dampened for children residing in the poorest/most dangerous neighborhoods.

In addition to the more distal context of neighborhood, children's classrooms constitute a more proximal context of great potential importance both to the ontogeny of aggression and conduct disorder and to the success of a classroom-based preventive intervention. Kellam and his colleagues have argued that the aggression level of first-grade classmates affects children's developmental trajectories during elementary school (Kellam et al., 1998; Kellam & Rebok, 1992, Werthamer–Larsson, Kellam, & Wheeler, 1991). While many features of classroom context could be assessed, we decided to focus on children's normative beliefs about aggression (Huesmann & Guerra, 1997). We reasoned that in classrooms in which children believed it was more acceptable to resolve disagreements through physical and verbal aggression, children were more likely to score high on the social cognitive and interpersonal-behavioral processes that place them at risk for future violence. We also hypothesized that such a classroom context would dampen the positive effects of RCCP.

In summary, this study reports the short-term impact of a school-based preventive intervention (RCCP) on the change in several social-cognitive and interpersonal processes thought to place children at risk for future violence. RCCP attempts to deflect children's developmental trajectories by systematically changing their classroom contexts: by training teachers and classmates in conflict resolution and promoting peers to mediate conflict. We test the effects of the three main components of this contextual intervention—Teacher Training and Coaching, Classroom Instruction, and Peer Mediation—on change among second to sixth grade children from fall to spring of the 1st year of the evaluation. Because recent research suggests that the efficacy of school-based violence prevention efforts may vary by gender (Farrell & Meyer, 1997), grade (Metropolitan Area Child Study

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Research Group, 1997), and risk status (Metropolitan Area Child Study Research Group, 1997; Reid, 1993), we will test for these subgroup differences in response to the intervention as well. Of particular relevance to this Special Issue, we also test the impact of both neighborhood poverty/violence and classroom normative beliefs about aggression on both the underlying developmental processes and on the efficacy of the preventive intervention. In doing so, we raise several critical issues about the study of developmental psychopathology in context.

Method

Procedure

Data for this study come from the evaluation of the RCCP, a comprehensive intervention in violence prevention and intergroup understanding that involves 1700 teachers and 45,000 children in 112 elementary, middle, and high schools throughout New York City. The evaluation focuses on over 8,000 children and nearly 400 teachers in 15 elementary schools across four districts in New York City. The elementary schools are divided into four groups in varying stages of intervention: nonintervention, beginning stage, integration of some program components, and integration of all program components. This quasiexperimental evaluation design allows the relative effects of no program implementation to be compared to varying levels of implementation and examines if RCCP meets its own self-defined goals and objectives in 15 schools.

The schools were conceived as points along a continuum of program evolution. (Table 1 summarizes the planned intervention in the 15 schools.) Group A schools moved from the "no intervention" level in Year 1 to a "beginning" level of intervention in Year 2.

The other 11 schools were selected from among the 87 schools already involved with RCCP. Group B received the "beginning" level of intervention in Year 1 and moved to the "consolidation" level in Year 2. Group C advanced from the "consolidation" level in Year 1 to the "saturation" level in Year 2. Finally, Group D moved from the "saturation" level in Year 1 to the "full model" in Year 2. Data were collected during the 1994–1995 and 1995–1996 school years, using four data collection points—fall and spring of each school year.

To reduce possible confounds, the schools in each group were drawn equally from four major school districts within the city of New York. Groups of schools were chosen whose student race/ethnicity, poverty status, and school size were comparable. The sample of children was representative of the population receiving the RCCP on key demographic factors. An estimated 60% of the student body in each school received reduced or free lunch. Thirty-eight percent of the sample was African American, 36% Latino, 22% White, and 4% Asian. Children were evenly distributed across grade, with the exception of a relatively small number of sixth graders. (First graders were eventually dropped from the study because it proved very difficult to collect complete and reliable data from them using the group data collection methods we employed.)

Sample

All students in a school were included in the study unless a "refusal to participate" form was returned by a parent or signed by a student. Students who were severely mentally or physically challenged, as identified by school principals, were also excluded from the study.

Data for this paper come from the first year of data collection (fall 1994 and spring 1995) and include students in grades two through six from the B, C, and D schools[5] (see Table 2 for overall sample characteristics). (The children from the A schools were excluded because in Year 1 there are no within-school, between-child, and classroom differences in participation in RCCP.) The total sample from Times 1 and 2 was 5053 children, 47.9% girls, 52.1% boys, 42.7% Black, 35.6% Latino, 16.2% White, and 5.5% other (including

5. Because implementation of the RCCP did not occur in the A schools until Year 2 of the study, only data from the B, C, and D schools were included in this paper on Year 1 results. Children's actual exposure to the RCCP in these schools ranged from no exposure to exposure to the fully saturated model.

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Table 1. *Types of intervention*

Group A in Year 1	Group A in Year 2, Group B in Year 1: Beginning	Group B in Year 2, Group C in Year 1: Consolidation	Group C in Year 2, Group D in Year 1: Saturation	Group D in Year 2: Full Model
No Intervention	Teacher Training 25-h intro training course for five teachers Classroom Instruction and Staff Development Classroom instruction (five classrooms, 30 lessons each) Classroom visits by staff developer (10 days/school) Other Components Administrators' training (2 days)	Teacher Training 25-h intro course for five new teachers 5-h advanced training for five teachers Classroom Instruction and Staff Development Classroom instruction (10 classrooms, 30 lessons in each) Classroom visits by staff developer (15 days/school) Other Components Administrators' training (2 days) Peer mediation	Teacher Training 25-h intro course for all teachers who can attend (up to 20 teachers) 5-h advanced training for five teachers Classroom Instruction and Staff Development Classroom instruction (up to 30 classrooms, 30 lessons in each) Classroom visits by staff developer (25 days/school) Other Components Administrators' training (2 days) Peer mediation Parent training	Teacher Training 25-h intro training for all who can attend 5-h advanced training for 20 teachers Classroom Instruction and Staff Development Classroom instruction (35 classrooms, 30 lessons each) Classroom visits by staff developers (25/school) Other Components Administrators' training (2 days) Peer mediation Parent training Targeted intervention for high-risk youth

Table 2. *Sample characteristics*

	Demographic Characteristics	
Total *N* second through sixth graders	5053[a]	
Total *N* teachers	289	
Mean age (years)	Time 1: 9.3	Time 2: 9.6
Grades 2 and 3	47.4%	
Grades 4, 5, and 6	52.6%	
Gender	Male: 52.1%	
	Female: 47.9%	
Race/ethnicity	Black: 35.6%	
	White: 16.2%	
	Latino: 42.7%	
	Other: 5.5%	
School lunch receipt	Full price: 11.6%	
	Reduced price: 6.1%	
	Free: 82.3%	
Neighborhood violence (mean homicides per 10,000 between 1991 and 1993—NYC Department of Health)	3.5	
Neighborhood poverty (% of nonelderly poor with incomes below federal poverty line–1990 census)	44.3% in tracts where 1–19% of residents are poor 42.7% in tracts where 20–39% of residents are poor 13% in tracts where >40% of residents are poor	
Low/low homicide/poverty	32.3%	Mean poverty = 9%, mean homicides = 1.24
Med./med. homicide/poverty	39.8%	Mean poverty = 22%, mean homicides = 2.88
High/high homicide/poverty	27.9%	Mean poverty = 34%, mean homicides = 6.83

[a]Includes only intervention schools. *N*s vary in the following analyses due to missing data from one or more sources.

Native American and Asian). Data collected from 289 teachers on program implementation were also included. At Time 1 (fall 1994) approximately 84% of students in the target population completed the protocol and at Time 2 (spring 1995) approximately 80% of the targeted student population completed the protocol. Comparisons between participating and nonparticipating children demonstrated no significant differences between these groups on variables such as gender, race/ethnicity, school attendance rates, and reading and math achievement scores. Data were collected using classroom-based group administration procedures. The psychometric properties of all measures used in the study were found to be adequate across age/grade and race/ethnic subgroups.

Constructs and variables

Four sets of variables, collected from different sources, were used in the present study. Data on exposure to the RCCP curriculum were extracted from Year 1 of the Management Information System collected and organized by ESR Metro. Student demographic data were gathered from school record information provided by the New York City Board of Education. Individual student developmental data and classroom context data were collected during classroom periods in both the fall (two classroom periods) and spring (one classroom period) of the school year. Finally, data on levels of poverty and violence in census tracts were extracted from Summary Tape File 3A of the 1990 census of Population and Housing and from the New York City Department of Health via the Infoshare database.

Levels of intervention. Exposure to RCCP was operationalized using data from three RCCP components: teacher training and coaching in RCCP, classroom instruction in RCCP, and the percentage of trained peer mediators in each classroom.

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Teacher training and coaching is a count of the number of contacts a teacher had with the RCCP (that is, training sessions attended, one-on-one meetings with the staff developer, and classroom visits by the staff developer). The number of contacts over the course of the year ranged from 0 to 20, and teachers in the RCCP had an average of four contacts. The teacher training and coaching variable was skewed due to the large number of children whose teachers were either not trained in RCCP (received no staff development) or whose teachers were trained but did not report receiving any staff development. Thus, the variable was recoded into a scale with values from 0 to 4.

Classroom instruction in RCCP is composed of the total number of lessons given by trained teachers to their classrooms. Lessons given by teachers are based on the RCCP elementary school curriculum, and focus on key skills such as active listening, assertiveness, negotiation, and problem solving. Skills are taught through role playing, interviewing, small group discussion, and brainstorming. The number of lessons given over the course of the year ranged from 0 to 55 with children whose teachers were trained in RCCP receiving an average of 13 lessons. Again, in order to adjust for skewness in the distribution of the classroom instruction variable due to the large number of children whose teachers were either not trained in RCCP (did not give any lessons), or children whose teachers were trained but did not report giving any lessons, the variable was recoded into a scale with values of 0–5.

The percentage of peer mediators in the classroom is calculated as the ratio of trained peer mediators to total number of students in the classroom. Mediators are selected by nominations from their classmates and/or by the completion of an application process. In most cases, final selection is by teachers. In either case, mediators are ultimately selected to be representative of the larger school demographics. Mediation duty is carried out in the school lunch room and on the playground. Mediators are trained to intervene in arguments that appear to be escalating by approaching the disputants and offering mediation. If students consent, mediators and students find a quiet area to conduct the mediation. The percentages of peer mediators in any classroom ranged from 0 to 30%.[6] To adjust for skewness, this variable was recoded into a scale with values from 0–4.

Key demographic variables included in the analysis were student ethnicity (Black, White Latino, Other), gender, age at Time 1 ($\bar{x} = 9.3$ years), and school lunch status (full price, reduced price, free). For all grade subgroup analyses, children were grouped into "lower grades" (second and third grades) and "higher grades" (fourth, fifth, and sixth grades).

Based upon previous research and developmental theory, student developmental process and outcome data were originally conceptualized as falling into three general categories: beliefs and cognitions, negotiation strategies, and psychological symptomatology.

Social cognitions. Two constructs were used as measures of children's social cognitions about aggression: children's aggressive fantasies and their attributional biases about aggression. Aggressive Fantasies was measured using the What I Think instrument (Huesmann & Eron, 1986). The subscale was composed of six items with sample items such as "Do you sometimes have daydreams about hitting or hurting someone you don't like?" The total sample α at Time 1 was .63 and at Time 2 was .59. Children's Hostile Attributional Biases were measured using an adaptation of the Home Interview originally developed by Dodge (1986; Dahlberg, Toal, & Behrens, 1996). This instrument contains six items which assess children's hostile attributional biases toward peers. Hypothetical ambiguous provocations were presented as vignettes with accompanying illustrations and children were asked to attribute hostile or benign intent to the provocateur. The total sample α at Time 1 was .73 and at Time 2 was .78.

6. Please note that in only one classroom were 30% of the students peer mediators. The smaller schools generally had higher percentages of peer mediators because in all schools the total number of peer mediators was divided evenly between classrooms.

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Interpersonal negotiation strategies. Two constructs were used as measures of children interpersonal negotiation strategies. Competent interpersonal negotiation strategies in a *proactive* situation were measured using the Social Problem Solving Measure developed by Lochman and Dodge (1994). This instrument was designed to assess the fluency and quality of children's generated responses to eight hypothetical social problems requiring some initiative on the part of the child. The subscale was created by recoding the items as either competent (1) or noncompetent (0) response and then averaging across items. The total sample α at Time 1 was .53 and at Time 2 was .52. Aggressive interpersonal negotiation strategies in a *reactive* situation were measured using the Home Interview (described above) (Dahlberg et al., 1996). For this scale children were asked what they would do next after being shown and read a vignette (there were a total of six vignettes) describing an ambiguous provocative situation. The subscale was created by recoding the items as either aggressive (1) or nonaggressive (0) response and then averaging across items. The total sample α at Time 1 was .87 and at Time 2 was .89.

Psychological symptomatology. Conduct problems were composed of an average of eight items from the 44-item Seattle Personality Inventory (Dahlberg et al., 1996; Greenberg, 1994). Sample items include "Do you get into a lot of fights?" and "Do you tease or make fun of other kids?" The total sample α at Time 1 was .62 and at Time 2 was .65.

Risk status. Two variables were used as indicators of children's relative risk status for later aggression and antisocial behavior: depression and academic underachievement. Depression was measured at Time 1 using an 11-item scale from the Seattle Personality Inventory (Greenberg, 1994). Sample items include "Do you feel unhappy a lot?" and "Do you feel that most things are not fun?" The total sample α for this scale was .69. Children's academic achievement was collected from the New York City Board of Education and is represented by a composite of their 1994 normal curve equivalency scores on the Degrees of Reading and CAT Math standardized tests. This variable ranged from 1 to 99 and had an average of 46.7. Both of these variables were split at the median to create categories of high and low risk.

Classroom context. Children's overall classroom context was operationalized as the classroom norm about whether or not the use of aggression is acceptable in certain situations. Children's beliefs about the acceptability or unacceptability of aggressive behaviors was assessed at Time 1 using the Normative Beliefs about Aggression scale (Guerra, Huesmann, & Hanish, 1995; Heusmann & Guerra, 1997). The total normative beliefs scale ranges from (1) low normative beliefs (the use of aggression is "perfectly OK") to (4) high normative beliefs (the use of aggression is "really wrong"). Children's individual scores were aggregated by classroom and each child was reassigned their classroom's average score. The average score across classrooms was 3.2. The variable was then split at the median to create low and high categories of classroom level normative beliefs.

Neighborhood context. Neighborhood poverty and violence scales were created using 1990 Census data and 1991–1993 census tract-level data on violence related deaths from the New York City Health Department. Neighborhood level data were appended via geocoding procedures to student developmental data. Children came from approximately 444 census tracts across New York City. Building on work conducted by Duncan and Aber (1997) and Aber and Jones (1998), an index of Neighborhood Poverty was created using the following 1990 Census variables: percentage of nonelderly poor; percentage of employed females (16–64) (reversed, r); percentage of workers in labor or service occupations; percentage of families with incomes below $10,000/year; percentage of individuals with 13+ years schooling (r); percentage of workers in executive/professional occupations (r); percentage of families with incomes over $30,000/year (r); percentage of individuals with less than 12 years schooling; percentage

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of females (16–64) employed 27+ weeks (r). Using data from the NYC Health Department an index of Neighborhood Violence was calculated as the average homicide rate for the years 1991–1993. Because of their moderately high correlation ($r = .468$) the poverty and homicide variables were broken into the following categories: (1) low poverty/low homicide (scores below the median on both poverty and homicide), (2) medium poverty/medium homicide (either low poverty/high homicide or high poverty/low homicide based upon the median scores), and (3) high poverty/high homicide (scores above the median on both poverty and homicide). Refer to Table 2 for percentages of children falling into each category.

Results

The results will be described in two parts. The preliminary analyses of (a) patterns of change during the school year in the developmental process and outcome variables independent of exposure to the intervention and (b) data reduction strategies to describe patterns of relationships among the intervention components and among the process and outcome variables will be described. Building on these preliminary analyses, the main analyses section addresses (a) the relationship between exposure to the RCCP and change over Year 1 in children's aggressive cognitions, behavior, and symptomatology; (b) analyses of the impact of two demographic (child gender and grade) and two risk (depression and academic underachievement) factors on the relationship between exposure and change in developmental processes and outcomes; and (c) the main effects of two contextual factors (classroom normative beliefs about aggression and neighborhood violence and poverty) on developmental processes and outcomes, as well as the moderating effect of these contextual factors on the relationship between exposure to RCCP and change in developmental processes and outcomes.

Preliminary analyses

Paired samples *t* tests were conducted on the student developmental processes and outcomes to examine patterns of change between Time 1 (fall 1994) and Time 2 (spring 1995). As shown in Table 3, children reported significantly higher mean levels of aggressive fantasies, hostile attributional biases, aggressive strategies, and conduct problems, and significantly lower mean levels of competent strategies at Time 2 than they did at Time 1. Thus, children's levels of aggressive cognitions, behaviors, and symptomatology increased while their levels of competent behavior decreased over the course of the school year, each by between 0.15 and 0.20 of a standard deviation. Children's mean levels of aggressive cognitions, behaviors, and symptomatology also increased with grade level, indicating that the time effect is not due to a possible measurement bias.

Structure of intervention components. Zero-order correlations were conducted to examine the directions and strengths of the relationships among the RCCP intervention components. As shown in Table 4, classroom instruction in RCCP was strongly positively related to teacher training and coaching ($r = .66$) such that children who had many lessons in the RCCP curriculum also had teachers who received a high amount of staff development. In addition, the percentage of peer mediators in the classroom was positively related to classroom instruction ($r = .11$) and to teacher training and coaching ($r = .08$).

Originally, hierarchical linear regressions were used to test the separate and combined influence of the RCCP intervention components on change over time in the developmental process and outcome variables. The high positive correlation between classroom instruction and teacher training and coaching, yet their opposite relationships with change in the developmental process and outcome variables,[7] suggested this was not the best struc-

7. A series of preliminary hierarchical linear regressions revealed that the more classroom instruction children had in the RCCP, the *slower* their growth over time in aggressive fantasies, their hostile attributional biases, and their use of aggressive strategies to resolve conflicts. In addition, the more classroom instruction children had in the RCCP, the *slower* their decrease over time in their use of competent strategies in solving

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Table 3. *Developmental process and outcome variables means* (*SD*) *at Time 1 and Time 2*

	Cognitions		Behaviors		
	Aggressive Fantasies***	Hostile Attributional Bias***	INS Aggressive***	INS Competent***	Symptomatology: Conduct Problems***
Time 1 (Fall 1994)	1.95 (0.49)	0.40 (0.32)	0.28 (0.35)	0.52 (0.22)	1.52 (0.36)
Time 2 (Spring 1995)	2.02 (0.47)	0.46 (0.35)	0.35 (0.39)	0.49 (0.22)	1.60 (0.39)

Note: Significance tests correspond to the time effect.
*$p < .05$. **$p < .01$. ***$p < .001$.

ture for and test of the impact of the RCCP. Extensive discussions of this finding with the RCCP program staff resulted in exploring an idiographic approach to the overall structure of the three intervention components rather than a straight nomothetic approach. In other words, the research team decided to explore the *pattern* of implementation of the intervention components across classrooms. Thus, the three exposure variables for the 289 teachers/classrooms were subjected to a *k*-means iterative clustering procedure. To select an appropriate number of clusters, the three exposure variables were first submitted to an agglomerative hierarchical clustering procedure (Rapkin & Luke, 1993). After examining the hierarchical tree diagram, a three cluster solution appeared to provide the optimal solution. The centroids from the hierarchical solution were entered as initial cluster centers in the final *k*-means iterative procedure. The three profiles of exposure to the RCCP are depicted in Figure 1.

The first cluster includes approximately 18% ($n = 51$) of the teachers and is characterized by the highest number of lessons ($\gtrsim 2$ *SD* above the grand mean) and a moderate amount of teacher training and coaching ($\lesssim 1$ *SD* above the grand mean). The teachers in this cluster also had the lowest percentages of peer mediators in their classrooms ($\lesssim .5$ *SD* below the grand mean). The second cluster includes the most teachers in the sample ($n = 186$) and is characterized by virtually no lessons ($\lesssim .6$ *SD* below the grand mean) and virtually no teacher training and coaching ($\lesssim .6$ below the grand mean) and an average percentage of peer mediators in the classrooms. The third cluster, like the first cluster, includes 18% of the teachers. It is characterized by the most teacher training and coaching (~ 1 *SD* above the grand mean), a low number of lessons ($\lesssim 1$ *SD* above the grand mean), and the highest percentage of peer mediators in the classroom ($\sim .5$ *SD* above the grand mean). Mean levels of the exposure variables between clusters were significantly different from each other (Classroom Instruction $F(2, 288) = 1685$, $p < .001$; Teacher Training and Coaching $F(2, 288) = 400$, $p < .001$; % Peer Mediators $F(2, 288) = 3.994$, $p < .05$) with the following exception: the percentage of peer mediators in the classroom was not significantly different between profiles 1 and 2. Thus, there are three distinct profiles of implementation of the RCCP by teachers: (a) High Lessons—teachers who gave many lessons (raw scores between 5 and 80, $M = 23$) and received a moderate amount of training and coaching (raw scores between 0 and 16 units, $M = 3$), (b) No Lessons—almost all of teachers gave no lessons in the curriculum and had no training and coaching (only three teachers in this profile gave some lessons and received some staff development), and (c) Low Lessons—teachers who gave few lessons (raw scores between 0 and 10, $M = 2$), but re-

problems. However, the results also revealed that after controlling for its shared variance with classroom instruction, teacher training and coaching in the RCCP was related to an increase over time in children's aggressive cognitions and behaviors as well as to a decrease over time in their use of competent strategies. The percentage of peer mediators in the classroom was not related to change in the developmental process and outcome variables.

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Table 4. *Correlations among RCCP intervention components and developmental process and outcome variables*

	1	2	3	4	5	6	7	8	9	10
1. Neighborhood violence/poverty		.081*	.141*	–.020	.067*	–.003	.043*	.013	–.096*	.022
2. Classroom nomative beliefs	.081*		.011	–.062*	–.287*	–.210*	–.101*	–.174*	.099*	–.076*
3. Classroom instruction	.141*	.011		.666*	.113*	.032*	–.010	–.008	.049*	.017
4. Teacher training and coaching	–.020	–.062*	.666*		.088*	.082*	.039*	.051*	.010	.041*
5. % Peer mediators	.067*	–.287*	.113*	.088*		.136*	.058*	.075*	.016	.028
6. Aggressive fantasies	–.026	–.244*	.031*	.067*	.121*		.252*	.362*	–.169*	.352*
7. Hostile attributional bias	.034*	–.064*	–.058*	–.044*	–.055	.164*		.671*	–.386*	.171*
8. INS aggressive	.049*	–.197*	–.050*	–.007	.047*	.290*	.613*		–.458*	.272*
9. INS competent	–.088*	.138*	.035*	.039*	.009	–.123*	–.322*	–.383*		–.173*
10. Conduct problems	–.011	–.131*	.032*	.078*	.054*	.391*	.168*	.260*	–.151*	

Note: Time 1 correlations are below the diagonal; Time 2 correlations are above the diagonal.
*Indicates significance at or below .05.

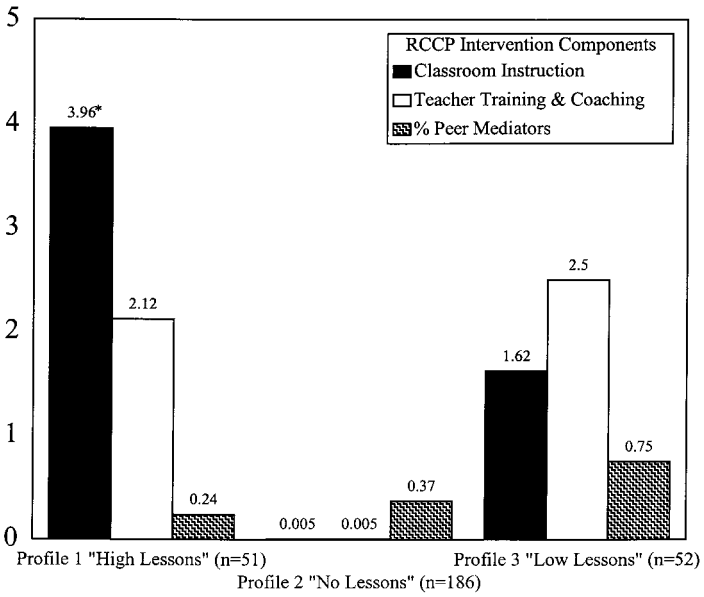


Figure 1. Profiles of RCCP intervention components. *Raw score ranges and means for the three RCCP components by cluster are reported in the text.

ceived a high level of training and coaching (raw scores between 0 and 20, $M = 4$).

Structure of developmental process and outcome variables. In order to simplify the next phase of analysis and because of their high intercorrelations within time (see Table 4), the five developmental process and outcome variables were submitted to a within time principal components factor analysis with varimax rotation. The results of the factor analysis were nearly identical for Times 1 and 2; therefore, only the results from Time 1 will be described. Both the scree plot and Kaiser's criteria suggested a 2-factor solution. The two factors accounted for 56% of the total variance and all variables loaded on their respective factors at or above .7 at Times 1 and 2. Factor I, which accounted for 37% of the total variance, included children's hostile attributional bias, aggressive interpersonal negotiation strategies, and competent interpersonal negotiation strategies. Factor II, which accounted for 19% of the total variance, included children's aggressive fantasies and conduct problems. This underlying structure of the developmental process and outcome variables is used to organize the dependent variables into multivariate groups for the next phase of analysis.

Main analyses

Repeated measures multivariate analyses of covariance (MANCOVA) were used to evaluate (a) the impact of the profiles of RCCP intervention components on change over Year 1 in children's developmental process and outcome variables; (b) differences in this relationship by child gender, grade, and risk status; and (c) main effects of classroom and neighborhood context on development as well as on the impact of the intervention on development. Based on the results of the factor analysis described above, the developmental process and outcomes variables were analyzed in two separate groups. Group 1 included hostile attributional bias, INS aggressive, and INS competent. Group 2 included aggressive fantasies and conduct problems. In each analysis an Intervention Profile (High Lessons, Low Lessons, No Lessons) × Time (Time 1, Time 2) × Subgroup (gender, grade, risk status) or context (classroom, neighborhood) repeated measures design was used. Because key demographic characteristics of

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the children such as race/ethnicity, gender, age,[8] and school lunch status have been found to influence children's developmental process and outcome variables (Brown, 1997; Brown & Chaudry, 1996), they were controlled for in all analyses. In the analyses we were interested in the within-subjects main effect for time, the Time × Intervention profile interaction, and the Time × Profile × Subgroup/Context interactions and *not* in the between-subjects main effects.[9] When a statistically significant multivariate[10] effect for time, or any interaction of Time × Profile or Time × Profile × Subgroup/Context occurred, the univariate and then individual pairwise analyses were examined.

Impact of intervention profiles on change in developmental processes and outcomes. The Time 1 and Time 2 means (adjusted for the covariates) and standard deviations of the two groups of developmental process and outcome variables by intervention profile are presented in Table 5.

Attributional bias and interpersonal negotiation strategies. The multivariate main effect for time was not significant. However, the multivariate Time × Intervention Profile interaction was significant, $F(6, 2056) = 2.991$, $p < .006$, $\eta^2 = .004$. Follow-up univariate Time × Intervention Profile interaction effects revealed significant differences by intervention profile in change over time in children's hostile attributional biases, $F(2, 2056) = 4.873$, $p < .01$, $\eta^2 = .005$, their aggressive interpersonal negotiation strategies, $F(2, 2056) = 5.202$, $p < .01$, $\eta^2 = .005$, and their competent interpersonal negotiation strategies, $F(2, 2056) = 4.064$, $p < .05$, $\eta^2 = .004$. As shown in Figure 2 (see Table 5 for actual means) growth over the school year in children's hostile attributional biases is significantly slowed for those children in Intervention Profile 1 (High Lessons: high classroom instruction and moderate teacher training and coaching) compared to the other two groups of children. In addition, children in the High Lessons profile do not show a significant decrease over time in their use of competent interpersonal negotiation strategies. In contrast, children's hostile attributional biases and their use of competent negotiation strategies worsen significantly over time in both Intervention Profiles 2 (No Lessons: very little or no classroom instruction and teacher training and coaching) and 3 (Low Lessons: little classroom instruction and high teacher training and coaching), with those in the Low Lessons profile increasing the most (hostile attributional bias) or decreasing the most (INS competent) over time. For example, for hostile attributional bias, children were not significantly different by intervention profile at Time 1, but at Time 2 children in the Low Lessons profile had a significantly higher mean ($M = .47$) than those in the High Lessons profile ($M = .42$). The pattern for aggressive interpersonal negotiation strategies is similar, with those in the High Lessons profile having the slowest growth over time and those in the Low Lessons profile the greatest. Children in the Low Lessons profile had significantly higher mean levels of aggressive strategies ($M = .39$) at Time 2 than those in the High and No Lessons profiles ($M = .30$, $M = .32$, respectively).

Aggressive fantasies and conduct disorder. The multivariate main effect of time was not significant and the multivariate effect for the Time × Intervention Profile interaction was not significant. However, for exploratory purposes and because of the strictness of the multivariate test, follow-up univariate tests were examined. There was a univariate trend for the Time × Intervention Profile interaction on aggressive fantasies, $F(2, 2021) = 2.151$, $p < .1$, $\eta^2 = .002$, such that children's aggressive fantasies did not significantly increase over time for those children in the High Lessons profile, whereas children in the other two pro-

8. Child gender was not controlled in the gender subgroup analysis. Child age at Time 1 was controlled in the grade subgroup analysis to account for age variation within grade.
9. We do describe main effects of classroom and neighborhood context; however, for a full description of results of between-subjects main effects and all two-way interaction effects, please contact the first author.
10. For exploratory purposes and because of the strictness of the omnibus F tests, multivariate and univariate effects falling at $p \leq .1$ were also examined.

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Table 5. *Developmental process and outcome variables means (SD) at Time 1 and Time 2 by intervention profile*

	Profile 1—High Lessons				
	Group 1			Group 2	
	Hostile Attributional Bias	INS Aggressive**	INS Competent	Aggressive Fantasies	Conduct Problems***
Time 1 (Fall 1994)	.39 (.31)	.26 (.32)	.53 (.22)	1.92 (0.50)	1.51 (0.33)
Time 2 (Spring 1995)	.42 (.34)	.30 (.36)	.51 (.23)	1.97 (0.48)	1.59 (0.39)
	Profile 2—No Lessons				
	Group 1			Group 2	
	Hostile Attributional Bias***	INS Aggressive***	INS Competent***	Aggressive Fantasies***	Conduct Problems***
Time 1 (Fall 1994)	.40 (.32)	.26 (.35)	.52 (.21)	1.90 (0.49)	1.48 (0.35)
Time 2 (Spring 1995)	.45 (.35)	.32 (.38)	.50 (.22)	1.97 (0.47)	1.58 (0.39)
	Profile 3—Low Lessons				
	Group 1			Group 2	
	Hostile Attributional Bias***	INS Aggressive***	INS Competent***	Aggressive Fantasies***	Conduct Problems***
Time 1 (Fall 1994)	.37 (.31)	.27 (.33)	.55 (.21)	1.91 (0.49)	1.52 (0.37)
Time 2 (Spring 1995)	.47 (.34)	.39 (.40)	.49 (.21)	2.02 (0.48)	1.61 (0.40)

Note: Significance tests correspond to the time effect.
*$p < .05$. **$p < .01$. ***$p < .001$.

files had significant growth in aggressive fantasies with those in the Low Lessons profile having the most growth. Children in the Low Lessons profile had significantly higher mean levels of aggressive fantasies ($M = 2.02$) at Time 2 than those in the High and No Lessons profiles ($M = 1.97$, $M = 1.97$, respectively).

Tests of differential intervention effects by gender, grade, and risk subgroups[11]

Attributional bias and interpersonal negotiation strategies. The multivariate Time × Intervention Profile × Gender effect was significant at the trend level, $F(6, 2108) = 1.760$, $p < .1$, $\eta^2 = .003$. Follow-up univariate tests revealed a significant difference between boys and girls in the Time × Intervention Profile interaction on children's use of competent strategies, $F(2, 2108) = 3.162$, $p < .05$, $\eta^2 = .003$. Boys in the High Lessons profile did not have a significant decrease over time in competent strategies, whereas girls showed a slightly significant decrease over time. Both boys and girls in the other two profiles had significant decreases over time in their competent strategies, with boys having the largest decrease.

Neither the multivariate Time × Intervention Profile × Grade nor the Time × Intervention Profile × Risk Status (depression and academic underachievement) interactions were significant.

11. Complete tables of means and standard deviations for these and subsequent analyses are available from the first author upon request.

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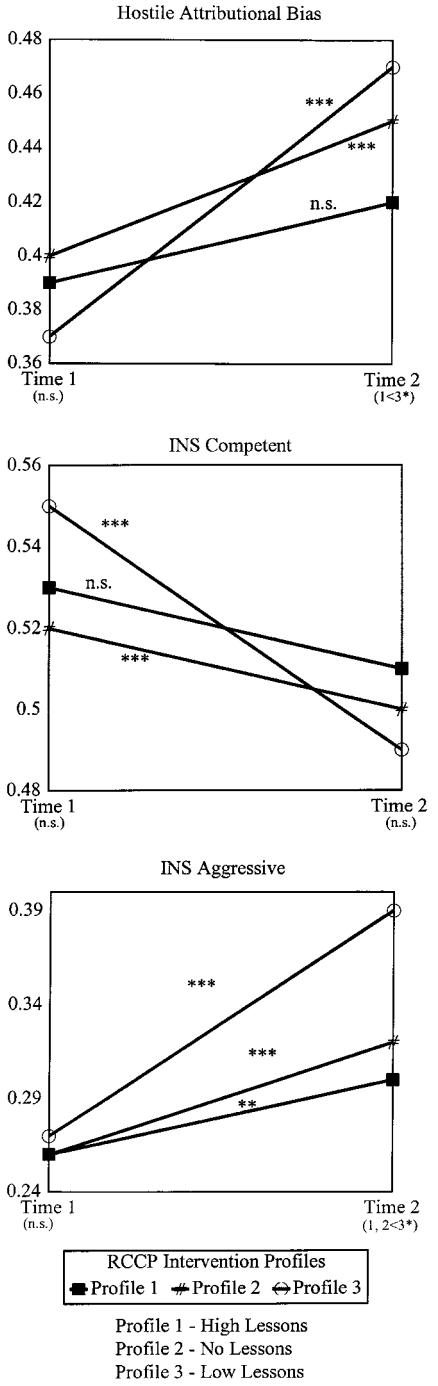


Figure 2. The interaction of time by intervention profile on children's hostile attributional bias and their competent and aggressive interpersonal negotiation strategies. *Please note that for ease of visual interpretation, these and subsequent graphs are not on the same scale. We have listed any significant differences between groups within time for comparison across figures.

Aggressive fantasies and conduct disorder. The multivariate tests of Time × Intervention Profile × Gender, Time × Intervention Profile × Grade, and Time × Intervention Profile × Risk Status interactions were all nonsignificant.

Based upon these subgroups analyses, the Time × Intervention Profile findings described above (refer to Figure 2) appear to be robust across gender, grade, and risk status subgroups, with the possible exception of gender. However, the gender finding is marginally significant and only evident for one of five dependent variables.

Tests of differential intervention effects by classroom and neighborhood contexts

Classroom context: classroom normative beliefs about aggression

Main Effects. There were significant multivariate main effects for classroom normative beliefs about aggression for both the Attributional Bias and Interpersonal Negotiation Strategies, $F(3, 2108) = 14.920$, $p < .001$, $\eta^2 = .021$, and the Aggressive Fantasies and Conduct Problems, $F(2, 2073) = 14.519$, $p < .001$, $\eta^2 = .014$, groups of dependent variables. As predicted, follow-up univariate tests revealed that children in the low normative beliefs classrooms (use of aggression is "perfectly OK") had higher average levels of hostile attributional biases, $F(1, 2108) = 16.275$, $p < .001$, $\eta^2 = .008$, aggressive interpersonal negotiation strategies, $F(1, 2108) = 36.5$, $p < .001$, $\eta^2 = .017$, and aggressive fantasies, $F(1, 2073) = 28.759$, $p < .001$, $\eta^2 = .014$, than those in the high normative beliefs classrooms. In addition, those in low normative beliefs classrooms had lower average levels of competent strategies, $F(2, 2108) = 28.382$, $p < .001$, $\eta^2 = .013$. No differences were found for self-reported conduct problems.

Interaction Effects. ***Attributional bias and interpersonal negotiation strategies.*** The multivariate Time × Intervention Profile × Classroom Normative Beliefs effect was significant at the trend level, $F(6, 2108) = 1.838$, $p < .1$, $\eta^2 = .003$. Follow-up univariate tests revealed a different Time × Intervention Profile Interaction for hostile attributional bias between classrooms with less normative be-

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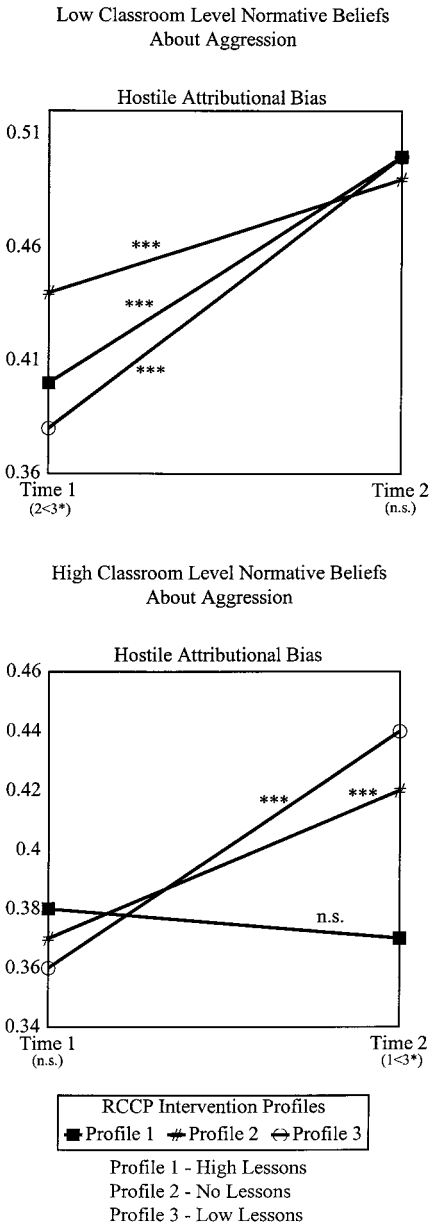


Figure 3. The interaction of time by intervention profile by classroom normative beliefs on children's hostile attributional bias.

liefs about aggression and those with more normative beliefs about aggression, $F(2, 2108) = 3.425$, $p < .05$, $\eta^2 = .003$. As shown in Figure 3, children in classrooms in which the prevailing norm is more likely to be that the use of aggression is "perfectly OK" (low normative beliefs) show significant increases over time in their hostile attributional biases across all three intervention profiles. In contrast, for children in classrooms in which the prevailing norm is more likely to be that the use of aggression is "really wrong" (high normative beliefs), the pattern of change varies by intervention profile. In the High Lessons profile, children's hostile attributional biases do not change significantly over time, whereas significant increases in hostile attributional biases were found for children in the other two intervention profiles.

Further examination of the means indicates that in all but a few instances, children in the high normative beliefs classrooms both begin and end the school year with significantly lower mean levels of hostile attributional biases than those in the low normative beliefs classrooms.

Aggressive fantasies and conduct problems. The multivariate Time × Intervention Profile × Classroom Normative Beliefs effect was significant, $F(4, 2073) = 4.132$, $p < .01$, $\eta^2 = .004$. Follow-up univariate tests revealed a different Time × Intervention Profile interaction for aggressive fantasies between classrooms with less normative beliefs about aggression and those with more normative beliefs about aggression, $F(2, 2073) = 7.870$, $p < .001$, $\eta^2 = .008$. As shown in Figure 4, children in classrooms characterized by low classroom level normative beliefs (use of aggression is "perfectly OK") show significant increases over time in their aggressive fantasies across all three intervention profiles. In contrast, in children in classrooms characterized by high classroom level normative beliefs (use of aggression is "really wrong"), the pattern of change again varies by intervention profile. Children in the High Lessons profile, show no change in their aggressive fantasies over time, whereas in the other two intervention profiles, aggressive fantasies significantly increase over time.

Again, further examination of the means indicates that in all but a few instances, children in the high normative beliefs classrooms both begin and end the school year with significantly lower mean levels of aggressive fantasies than those in the low normative beliefs classrooms.

Neighborhood context: neighborhood violence and poverty.

Main Effects. The multivariate main effect

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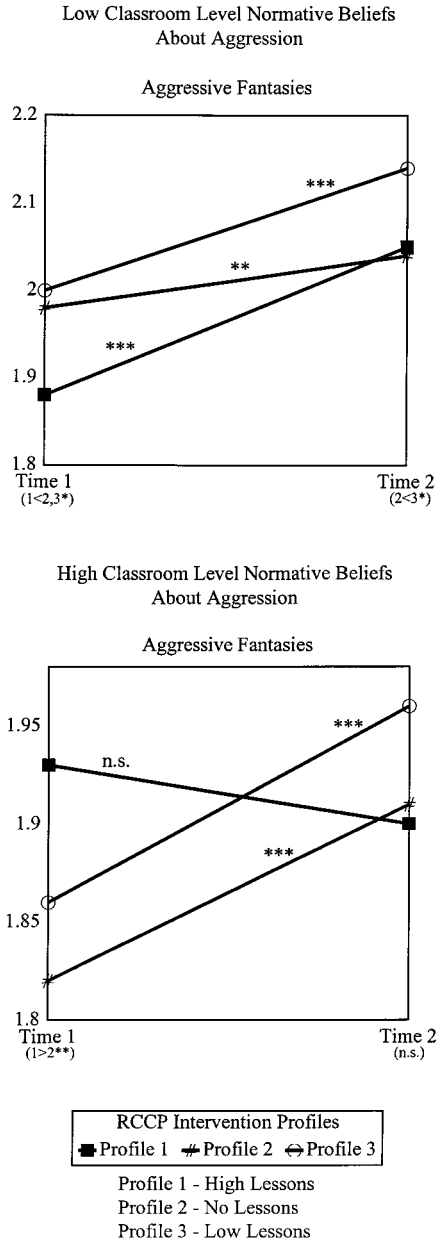


Figure 4. The interaction of time by intervention profile by classroom normative beliefs on children's aggressive fantasies.

for neighborhood violence and poverty for the Attributional Bias and Interpersonal Negotiation Strategies group of variables was not significant. However, there was a significant multivariate main effect for the Aggressive Fantasies and Conduct Problems, $F(2, 2073) = 2.406$, $p < .05$, $\eta^2 = .002$, group of dependent variables. Follow-up univariate tests revealed that children living in neighborhoods characterized by low homicide and low poverty had significantly lower average levels of aggressive fantasies, $F(1, 2073) = 3.242$, $p < .05$, $\eta^2 = .003$, than those living in either the medium homicide/poverty or high homicide/poverty neighborhoods.

Interaction Effects. ***Attributional bias and interpersonal negotiation strategies***. The multivariate Time × Intervention Profile × Neighborhood Homicide/Poverty effect was not significant.

Aggressive fantasies and conduct problems. The multivariate Time × Intervention Profile × Neighborhood Homicide/Poverty effect was significant, $F(8, 2073) = 2.240$, $p < .05$, $\eta^2 = 004$. Follow-up univariate tests revealed a different Time × Intervention Profile interaction for aggressive fantasies between the three categories of neighborhood homicide/poverty, $F(4, 2073) = 3.246$, $p < .01$, $\eta^2 = .006$. As shown in Figure 5, in the context of neighborhoods characterized either by low homicide and low poverty or by medium levels of homicide and poverty (refer to Table 2 for approximate values within these categories), children in the High Lessons profile did not report significant growth over time in their aggressive fantasies. Children in the No Lessons and the Low Lessons profiles both have significant increases over time in aggressive fantasies. In contrast, under conditions of high homicide and poverty, children in the High Lessons profile have a significant increase over time in aggressive fantasies, whereas those in the Low Lessons profile do not have a significant increase over time. In fact, children in the High Lessons profile had a significantly lower mean at Time 1 ($M = 1.80$) than those in the Low Lessons profile ($M = 1.98$), but were not different at Time 2, indicating a possible ceiling effect for children living in neighborhoods characterized by high levels of homicide and poverty.

In summary, there appear to be clear differential effects of the RCCP intervention on children's change over time in two developmental process variables (hostile attributional bias and aggressive fantasies) by the proximal context of classroom normative beliefs about aggression. Specifically, the Time × Intervention Profile effect on children's hostile attri-

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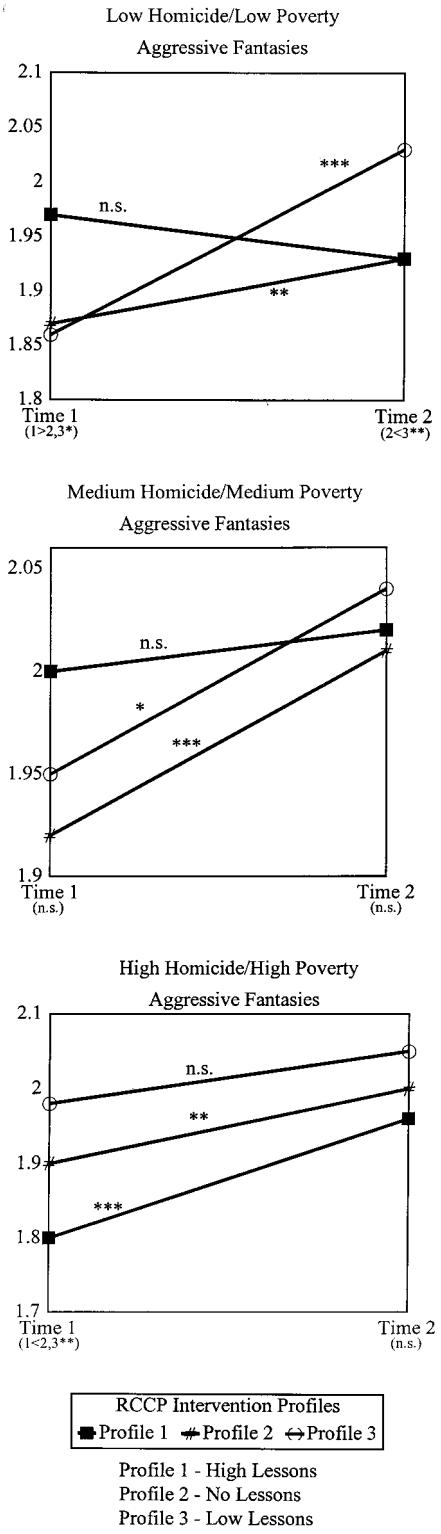


Figure 5. The interaction of time by intervention profile by neighborhood homicide and poverty on children's aggressive fantasies.

butional biases and aggressive fantasies is restricted to those classrooms where the norm is that the use of aggression is "really wrong." The impact of the distal context of neighborhood violence and poverty is less clear as it only appears for children's aggressive fantasies.

Discussion

In this study, we sought to evaluate the short term effects of a school-based violence prevention program in New York City on several developmental processes known to lead to aggression and conduct disorder and to place children at risk for future violence and antisocial behavior. After examining change in these developmental processes over the course of a school year, we tested whether variations in children's exposure to RCCP affected their rates of change over time. We also examined the robustness of the intervention effects across subgroups of children and, of particular relevance to the theme of this Special Issue, across classroom and neighborhood contexts.

Developmental change and intervention effects

Consistent with prior research (Dryfoos, 1990; Farrell & Meyer, 1997; Grossman et al., 1997; Metropolitan Area Child Study Research Group, 1997), we found that over the course of the school year, children reported significantly higher levels of hostile attributional biases, aggressive interpersonal negotiation strategies, aggressive fantasies, and conduct problems and significantly lower levels of competent interpersonal negotiation strategies. It appears that this sample of urban elementary school children experiences growth in several processes that place them at risk for future aggression and violence.

However, not all children are on this same developmental trajectory. Results of repeated measures MANCOVAs indicate that children's exposure to different intervention profiles affects the rate of change in development from fall to spring. We will first describe the different intervention profiles and then ex-

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plain how children exposed to each profile change.

An unanticipated discovery of this study is that while two important features of RCCP—Teacher Training and Coaching, and Classroom Instruction—are (almost by definition) highly correlated, they co-occur in different profiles or patterns of great significance to the development of children. Cluster analysis of classroom scores on intervention components revealed that one subgroup of teachers conducted more lessons for the children in their classrooms and received moderate training and coaching from RCCP's staff developers (High Lessons). In contrast, the other subgroup of participating teachers conducted few lessons and received more training and coaching (Low Lessons). The High Lessons group also contained fewest peer mediators in the classrooms; the Low Lessons group had the highest number of peer mediators. These two different profiles of implementation of RCCP, while not hypothesized a priori, are consistent with the voluminous intervention literature on fidelity of treatment and variation in program implementation (Shadish, Cook, & Leviton, 1991). Despite very similar training, there are important differences among teachers in how they implement RCCP in their classrooms.

While teachers select into their intervention profile, children do not. Thus, our estimates of the impact of intervention profiles (High Lessons vs. Low Lessons vs. No Lessons) on change in children's developmental processes and outcomes are unbiased (independent of children's selection processes). These analyses revealed that for all three dependent variables in Group 1, (a) children exposed to High Lessons do better than children exposed to Low Lessons or No Lessons, and (b) children in Low Lessons appear to fare worse than children who receive No Lessons. Specifically, increases over the course of the school year in children's hostile attributional biases and aggressive interpersonal negotiation strategies and decreases in competent interpersonal negotiation strategies are significantly slower for children in the High Lessons profile, and significantly faster for children in the Low Lessons profile. The rate of change for children whose teachers were not trained and/or taught no lessons fell in between the rates for children in the High and Low Lessons groups (see Figure 2).

While there was no significant overall effect of intervention profile on the dependent variables in Group 2 (aggressive fantasies and conduct disorder), there was a trend for aggressive fantasies resembling the patterns of change for the group one variables. The growth in aggressive fantasies appears somewhat slower for children in the High Lessons group.

These results highlight both the strengths and weaknesses of the quasiexperimental research design employed in this study. The strengths include evaluation of the program as actually implemented at scale (which improves the external validity of the evaluation and increases our confidence in the generalizability of the findings to RCCP's implementation in other schools) and reasonable confidence that children's exposure to the various intervention profiles is causally related to change in their development over the course of the year (since children were "arbitrarily" assigned to classrooms independent of teachers' participation in RCCP). The greatest weakness is that we cannot be sure why children in the High Lessons group fare better than children in the Low Lessons group. The interpretation most consistent with RCCP's program theory is that the more lessons children receive, the greater the positive impact on their development. But, since teacher assignment to profile is not random, and since the High Lessons profile also includes less teacher training and coaching and less peer mediation than the Low Lessons profile, there are several other viable interpretations that should be considered. These include the possibilities that Low Lessons teachers are less skilled at teaching Resolving Conflict Creatively, are less committed to the program, or face greater administrative hurdles and receive less administrative and parent support than High Lessons teachers do.[12]

12. To date, several of these possibilities have been preliminarily tested. Analyses of post hoc ratings of principal commitment to RCCP, newness of teacher, and teacher–child discrepancy of ratings of child aggres-

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In any case, it appears that in classrooms where teachers "take more initiative" (teach more lessons on the basis of less reported training and coaching during Year 1, and teach proportionately more lessons than children experience peer mediation), the developmental trajectories of the children toward aggression and violence are clearly different. Unlike children in the Low Lessons and No Lessons group, children in the High Lessons group showed virtually no increase in risk over the school year. Expressed differently, 1 year of participation in a High Lessons RCCP classroom appears to have the effect of slowing down by an entire year of otherwise normal developmental growth, children's hostile attributional biases and aggressive interpersonal negotiation strategies, and their decline in competent interpersonal negotiation strategies. Because of the clear positive value of children's exposure to the High Lessons profile (and the clear negative value of children's exposure to Low Lessons), future research should be directed at testing these alternative explanations of the High Lessons vs. Low Lessons effect. This research will prove invaluable to RCCP as it proceeds to replicate and revise its program.

Robustness of RCCP across subgroups of children and across classroom and neighborhood contexts

In addition to addressing the question of "what works?" intervention research should endeavor to explain "for whom?" and "under what conditions?" Previous evaluations of school-based preventive interventions suggest that they may be effective for boys, not girls, (Farrell & Meyer, 1997) and for fourth to sixth graders, not second and third graders (Metropolitan Area Child Study Research Group, 1997). We found very little evidence that the positive effects of High Lessons were restricted by gender or grade. Only for competent interpersonal negotiation strategies did it appear that High Lessons was a bit more effective for boys in arresting its decline. Thus, based on these short-term impacts, we tentatively conclude that RCCP has developed an intervention which appears effective for boys and girls, and for younger and older elementary school children.

Probably the most important subgroup analyses are the tests of whether the effects of intervention profiles on children's development varied by children's risk status. Does RCCP work equally well for high-risk and low-risk children? It has been widely reported that conduct disordered children who are also undersocialized (delinquent, not depressed) and/or academic underachievers are at higher risk for future antisocial behavior and aggression/violence (Reid, 1993). We found no evidence that the effects of High Lessons on development was weaker depending on children's risk status (as operationalized by low depression and low academic achievement scores). But in light of findings from other research teams demonstrating such effects, we believe that we should pursue more in-depth subgroup analyses before we conclude that these positive effects of High Lessons are robust across subgroups of children defined by risk status.

The feature of this study most relevant to this Special Issue is the estimation of context effects. Does RCCP operate equally effectively for children who attend tougher classrooms (defined in this study as classrooms in which children believe it is OK to resolve conflicts through aggression) and who reside in tougher neighborhoods (defined in this study as higher levels of poverty and violence in their census tract of residence)? We had hypothesized that the positive effects RCCP would be dampened for children in classrooms with low normative beliefs about aggression and in neighborhoods with relatively higher poverty and homicide rates. The findings indicate partial support of our hypotheses.

First, there were several main effects for classroom context. Children in classrooms where the prevailing norm was that the use of aggression was "perfectly OK" reported higher average levels of hostile attributional bias, aggressive strategies, aggressive fantasies, and lower levels of competent strategies.

sion and social competence revealed no significant differences between profiles.

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Further, while there were no classroom context moderator effects on children's aggressive and competent interpersonal negotiation strategies, there were classroom context moderator effects for children's hostile attributional biases and aggressive fantasies. The data presented in Figures 3 and 4 clearly reveal that the positive effects of High Lessons on children's social cognitions were greater in classrooms where normative beliefs against the use of aggression were higher. Future studies should test whether classroom normative beliefs about aggression and other features of the "culture of the classroom" have a greater influence in moderating the impact of RCCP on how children think rather than on their interpersonal negotiation styles.

There was only one main effect for neighborhood context. Children living in the least distressed neighborhoods reported lower average levels of aggressive fantasies than children living in either the medium or highly distressed neighborhoods. There were no neighborhood context moderator effects on children's aggressive and competent interpersonal negotiation strategies, nor on their hostile attributional biases. There was a neighborhood context effect for aggressive fantasies. As Figure 5 indicates, the positive effect of High Lessons was again dampened in the highest risk context of neighborhoods with high poverty and high homicide rates. We conclude that the positive effects of High Lessons is robust across classroom and neighborhood contexts for changes in how children interact (their interpersonal negotiations strategies) but not for how they think (their aggressive fantasies, and perhaps their hostile attributions). How children think in and about aggressive situations appears harder for RCCP to change in tougher classrooms and neighborhoods. Clearly, our tests of classroom and neighborhood context effects presented in this study are restricted to only a few of the theoretically relevant features of classrooms and neighborhoods and on only some of the key developmental processes thought to place children at risk for future aggression and violence. For these reasons, we urge other designers and evaluators of preventive interventions to explicitly formulate and test hypotheses about how contexts may moderate the effects of interventions on children's development (Aber, 1993).

Limitations of current research and implications for future research

In addition to the major limit already noted, that the quasiexperimental design of this study does not permit us to identify the active feature of the High Lessons and Low Lessons profiles that cause changes in children's developmental trajectories, there are several other important limitations that must be noted. First, several of the measures of important developmental processes demonstrated relatively low reliabilities. While this may have led us to underestimate the effect of intervention profiles on development, we view this limit as a necessary cost of conducting a large scale evaluation. Nonetheless, future studies should endeavor to develop and employ more reliable measures of key constructs appropriate for use in large-scale field research studies (Aber & Jones, 1997). Second, the size of the effects of the intervention profiles were "small" in absolute terms (as indicated by the η^2) and so the clinical significance of the changes in risk for violence are uncertain. This is not surprising since children's developmental trajectories toward aggression and violence are multiply determined and RCCP targets only some of the many causal factors (Dodge, 1993; Reid, 1993). On a relative basis, however, the effect sizes can be judged to be highly significant, since they are the equivalent of preventing a year of decline in these processes. As noted, if the positive effects of High Lessons can be maintained over time through continued participation in RCCP, they would ultimately lead to very large differences in children's developmental trajectories and so would be of considerable public health significance.

This comment raises another major limitation, that this study has only estimated the very short-term effects of RCCP. Future research must examine longer term effects, both on intermediate-term change in the same developmental processes and very long-term change in future risk for aggression and vio-

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lence during adolescence. They must also use more powerful statistical techniques appropriate to the study of these developmental processes (e.g., growth curve modeling) in context (e.g., hierarchical linear modeling) over time (Willett, Singer, & Martin, 1998). We will be able to model the influence of RCCP on developmental change over 2 years (four waves) of data to address the issue of intermediate-term change. While developmental psychopathologists and interventionists may be convinced by short-term changes in processes known to lead to future maladaptation, policymakers and the public are most convinced by long-term changes in actual aggressive and violent behavior at the age of peak incidence, the teen years. Thus, long-term follow-up studies are vitally needed.

Despite these limits, the results of the current evaluation of RCCP are promising. We were able to identify two patterns of RCCP program implementation, referred to as intervention profiles, that had clear effects on children's social-cognitive and interpersonal-behavioral development. These intervention profiles describe different types of "classroom contexts" for learning how to resolve conflict. We were able to test the robustness of these intervention profiles across subgroups of children and across contexts. If this evaluation had not explicitly conceptualized context effects and included theoretically relevant measures of classrooms and neighborhoods, we could not evaluate under what conditions High Lessons appears to have had its positive effects. Our major conclusion, that the High Lessons version of RCCP appears to be equally effective in deflecting children's interpersonal/behavioral trajectories, but not their social-cognitive trajectories, in both tougher and easier classrooms and neighborhoods, has potentially important implications, both for the replication and revision of RCCP and for the advancement of theory in developmental psychopathology.

Implications for theory and practice

The contextual analyses presented in this study raise two major questions for RCCP's practice.

First, to foster long-term change, is it important for RCCP to change how kids think (their hostile attributional biases and aggressive fantasies) in high-risk classrooms and neighborhoods, or is it enough to change their interpersonal negotiation strategies? If it is necessary to change how they think to maintain changes in how they interact, what must RCCP do differently in tough classrooms and neighborhoods to be equally effective in promoting positive developmental change? In short, how must the intervention be adapted for maximum effectiveness across classroom and neighborhood context?

Second, perhaps most importantly, what explains why some teachers and classrooms "select into" the High Lessons profile and others into the Low Lessons profile? How can RCCP (and school administrations) increase the proportion of its teachers/classes that are High Lessons types rather than Low Lessons types? Depending on the answers to these questions, is it appropriate to continue to view RCCP as a prevention program, or should it be conceptualized as a strategy in school reform? It appears that teachers' opportunities to learn and master features of the curriculum emphasized to children may be a common element to many of the successful variants of school reform (Consortium for Policy Research in Education, 1997). Creating a context for teachers that enables them to reflect on their own professional development, and their role in actively fostering their students interpersonal competence and skills, is believed to be an essential aspect of interventions seeking to promote children's social, moral, and emotional growth (Adalbjarnardottir & Selman, in press). And schools are increasingly urged to focus on children's social-emotional development as well as their cognitive-intellectual development (CASEL Research and Guidelines Committee, 1997).

Regarding the advancement of theory in developmental psychopathology, this study demonstrates Cicchetti's notion that "developmentally based preventive interventions with high-risk . . . populations may serve as a means for testing developmental theory, and that, conversely, strategies for prevention and intervention can be based on normal onto-

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genic principles" (Cicchetti, 1993, p. 428). From a developmental psychopathology point of view, RCCP can be viewed as a "phase-specific intervention," which targets stage-salient developmental processes of middle childhood to interrupt the developmental course from early risk in the toddler and preschool years (e.g., oppositional disruptive disorder; harsh, punitive parenting) to later maladaptation (specifically, violence and antisocial behavior in adolescence). As a wealth of prior theory and research indicates, this developmental course is very complex and multidetermined.

The High Lessons form of RCCP has demonstrated the ability to help deflect elementary school children's trajectories from this course. RCCP appears to have evolved through practice what some researchers have evolved through theory, the notions of targeting multiple processes in multiple domains (thinking, feeling, acting) and creating contexts of support for change in these processes (teachers, other children, school administrators). It seems likely to us that the short-term success of RCCP/High Lessons is due to targeting several critical and mutually reinforcing processes and to charging teachers and classmates to create a context of support for change in development.

References

Aber, J. L. (1993, November). *The effects of poor neighborhoods on children, youth and families: Theory, research and policy implications*. Paper presented at the "Policy Conference on Persistent Urban Poverty," sponsored by the Social Science Research Council's Committee for Research on the Urban Underclass, Washington, DC.

Aber, J. L., Brown, J., Chaudry, N., Jones, S., & Samples, F. (1996). The evaluation of the Resolving Conflict Creatively Program: An overview. *American Journal of Preventive Medicine, Youth Violence Prevention: Description and Baseline Data from 13 Evaluation Projects*, Suppl. to *12*(5), 82–90.

Aber, J. L. Gephart, M., Brooks–Gunn, J., Connell, J., & Spencer, M. (1997). Neighborhood, family, and individual processes as they influence child and adolescent outcomes. In J. Brooks–Gunn, G. Duncan, & J. L. Aber (Eds.), *Neighborhood poverty: Context and consequences for children: Vol. 1. Six studies of children in families in neighborhoods*. New York: Russell Sage.

Aber, J. L., & Jones, S. M. (1998). Neighborhood influences on adolescent antisocial behavior and psychological symptoms. Manuscript in preparation.

Aber, J. L., & Jones, S. M. (1997). Indicators of positive development in early childhood: Improving concepts and measures. In R. Hauser, B. Brown, W. Prosser, & M. Stagner (Eds.), *Indicators of children's well-being* (pp. 395–408). New York: Russell Sage.

Adalbjarnardottir, S., & Selman, R. L. (in press). "I feel I have received a new vision": An analysis of teachers' professional development as they work with students on interpersonal issues. *Teaching and Teacher Education.*

Blumstein, A. (1995). Youth violence, guns, and the illicit-drug industry. In R. Block & C. Block (Eds.), *Trends, risks, and interventions: Proceedings of the Third Annual Spring Symposium of the Homicide Research Working Group* (pp. 3–16). Washington, DC: U.S. Department of Justice.

Brooks–Gunn, J., Duncan, G., & Aber, J. L. (1997). *Neighborhood poverty: Context and consequences for children*. New York: Russell Sage.

Brooks–Gunn, J., Duncan, G., Klebanov, P. K., & Sealand, N. (1993). Do neighborhoods influence child and adolescent development? *American Journal of Sociology, 99*(2), 353–395.

Brown, J. L. (1997, April). *Classroom context: Children's cognitions, interpersonal negotiation strategies, psychological symptomatology, and conduct problems*. Paper presented at the Biennial Meeting of the Society for Research in Child Development, Washington, D.C.

Brown, J. L., & Chaudry, N. C. (1996, March). *The relationship between children's aggressive cognitions, behaviors, and psychological symptomatology: Targeting processes for intervention*. Paper presented at the Sixth Biennial Meeting of the Society for Research in Adolescence, Boston, MA.

CASEL Research and Guidelines Committee (1997). *Promoting social and emotional learning: Guidelines for educators.* Association for Supervision and Curriculum Development, Alexandria, VA.

Cicchetti, D. (1993). Developmental psychopathology: Reactions, reflections, projections. *Developmental Review, 13,* 471–502.

Cicchetti, D., & Toth S. L. (1992). The role of developmental theory in prevention and intervention. *Development and Psychpathology, 4*(4), 489–493.

Cicchetti, D., & Toth, S. L. (1998). Perspectives on research and practice in developmental psychopathology. In W. Damon (Series Ed.), *Handbook of child psychology* (5th ed., Vol. 4, pp. 479–583). New York: Wiley.

Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In N. Eisenberg (Ed.), *Handbook of child psychology: Vol 3. Social, emotional, and personality development*. New York: Wiley.

Coie, J. D., & Jacobs, M. R. (1993). The role of social context in the prevention of conduct disorder. *Development and Psychopathology, 5*(1/2), 263–275.

Consortium for Policy Research in Education (1997). Graduate School of Education, University of Pennsylvania, Philadelphia, PA.

Dahlberg, L. L., Toal, S. B., & Behrens, C. B. (1996). *The measurement of violence-related attitudes, be-*

https://doi.org/10.1017/S0954579498001576 Published online by Cambridge University Press

liefs, knowledge, and behavior among youth: A compendium of instruments. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

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

Dodge, K. A. (1993). The future of research on the treatment of conduct disorder. *Development and Psychopathology, 5*(1/2), 311–319.

Dodge, K. A., McClaskey, C. L., & Feldman, E. (1985). A situational approach to the assessment of social competence in children. *Journal of Consulting and Clinical Psychology, 53,* 344–353.

Dodge, K. A., Murphy, R. R., & Buchsbaum, K. (1984). The assessment of intention-cue detection skills in children: Implications for developmental psychopathology. *Child Development, 55,* 163–173.

Dodge, K. A., Pettit, G. S., Bates, J. E., & Valente, E. (1995). Social information-processing patterns partially mediate the effect of early physical abuse on later conduct problems. *Journal of Abnormal Psychology, 104*(4), 632–643.

Dodge, K. A., Pettit, G. S., McClaskey, C. L., & Brown, M. (1986). Social competence in children. *Monographs of the Society for Research in Child Development, 44,* (2, Serial No. 213).

Dryfoos, J. (1990). *Adolescents at risk: Prevalence and prevention*. New York: Oxford University Press.

Duncan, G., & Aber, J. L. (1997). Neighborhood models and measures. In J. Brooks–Gunn, G. Duncan, & J. L. Aber (Eds.), *Neighborhood poverty: Context and consequences for children: Vol. 1. Six studies of children in families in neighborhoods* (pp. 62–78). New York: Russell Sage.

Duncan, G., Brooks–Gunn, J., & Klebanov, P. K. (1994). Economic deprivation and early childhood development. *Child Development, 65*(2), 296–318.

Farrell, A. D., & Meyer, A. L. (1997). The effectiveness of a school-based curriculum for reducing violence among urban sixth-grade students. *American Journal of Public Health, 87*(6), 979–984.

Federal Bureau of Investigation. (1997). *Crime in the United States—1996.* Washington, DC: United States Department of Justice.

Fox, J. A. (1996) *Trends in juvenile violence: A report to the United States Attorney General on current and future rates of juvenile offending*. Prepared for the Bureau of Justice Statistics, United States Department of Justice, Washington, DC.

Greenberg, M. T. (1994). *Draft manual for the Seattle Personality Inventory–Revised: A self-report measure of child symptomatology*. Unpublished manuscript, University of Washington.

Grossman, D. C., Neckerman, H. J., Koepsell, T. D., Ping–Yu, L., Asher, K. N., Beland, K., Frey, K., & Rivera, F. R. (1997). Effectiveness of a violence prevention curriculum among children in elementary school: A randomized controlled trial. *Journal of the American Medical Association, 277*(20), 1605–1611.

Guerra, N. G., Huesmann, L. R., & Hanish, L. (1995). The role of normative beliefs in children's social behavior. In N. Eisenberg (Ed.), *Review of personality and social psychology, development and social psychology: The interface* (pp. 140–158). London: Sage.

Huesmann, L. R. (1986). Psychological processes promoting the relation between exposure to media violence and aggressive behavior by the viewer. *Journal of Social Issues, 42*(3), 125–139.

Huesmann, L. R., & Eron, L. D. (1984). Cognitive processes and the persistence of aggressive behavior. *Aggressive Behavior, 10,* 243–251.

Huesmann, L. R., & Eron, L. D. (1986). *Television and the aggressive child: A cross-national comparison*. Hillsdale, NJ: Erlbaum.

Huesmann, L. R., & Guerra, N. G. (1997). Children's normative beliefs about aggression and aggressive behavior. *Journal of Personality and Social Psychology, 72*(2), 408–419.

Huesmann, L. R., Guerra, N. G., Miller, L., & Zelli, A. (1992). The role of social norms in the development of aggression. In H. Zumkley & A. Fraczek (Eds.), *Socialization and aggression* (pp. 139–151). New York: Springer–Verlag.

Kazdin, A. E. (1985). *Treatment of antisocial behavior in children and adolescents*. Homewood, IL: Dorsey Press.

Kazdin, A. E. (1993). Treatment of conduct disorder: Progress and directions in psychotherapy research. *Development and Psychopathology, 5*(1/2), 277–310.

Kellam, S. G., & Rebok, G. W. (1992). Building developmental and etiological theory through epidemiologically based preventive intervention trials. In J. McCord & R. E. Tremblay (Eds.), *Preventing antisocial behavior: Interventions from birth through adolescence* (pp. 162–195). New York: Guilford.

Kellam, S. G., Ling, X., Merisca, R., Brown, C. H., & Ialongo, N. (1998). The effect of level of aggression in the first grade classroom on the course and malleability of aggressive behavior into middle school. *Development and Psychopathology, 10*(2), 165–185.

Lochman, J. E., & Dodge, K. A. (1994). Social-cognitive processes of severely violent, moderately aggressive, and nonaggressive boys. *Journal of Consulting and Clinical Psychology, 62*(2), 366–374.

Lochman, J. E., Meyer, B. L., Rabiner, D. L., & White, K. J. (1991). Parameters influencing social problem-solving of aggressive children. In R. J. Prinz (Ed.), *Advances in behavior assessment of children and families, 5,* 31–63.

Loeber, R. (1991). Antisocial behavior: More enduring than changeable? *Journal of the American Academy of Child and Adolescent Psychiatry, 30,* 393–397.

Mercy, J. A., & Potter, L. B. (1996). Combining analysis and action to solve the problem of youth violence. *American Journal of Preventive Medicine, Youth Violence Prevention: Description and Baseline Data from 13 Evaluation Projects,* Suppl. to *12*(5), 1–2.

Metropolitan Area Child Study Research Group (1998). A cognitive–ecological approach to preventing aggression in urban and inner-city settings: Preliminary outcomes. *Child Development*. Manuscript submitted for publication.

Quiggle, N. L., Garber, J., Panak, W. F., & Dodge, K. A. (1992). Social information processing in aggressive and depressed children. *Child Development, 63,* 1305–1320.

Rapkin, B. D., & Luke, D. A. (1993). Cluster analysis in community research: Epistemology and practice. *American Journal of Community Psychology, 21,* 247–277.

Reid, J. B. (1993). Prevention of conduct disorder before and after school entry: Relating interventions to developmental findings. *Development and Psychopathology, 5*(1/2), 243–262.

https://doi.org/10.1017/S0954579498001576 Published online by Cambridge University Press

Richters, J., & Cicchetti, D. (1993). Mark Twain meets DSM-III-R: Conduct disorder, development, and the concept of harmful dysfunction. *Development and Psychopathology, 5*(1/2), 5–29.

Samples, F. L., & Aber, J. L. (in press). An evaluation of school-based violence prevention programs. In D. S. Elliot, B. A. Hamburg, & K. R. Williams (Eds.), *Youth violence: New perspectives for schools and communities*. Cambridge, MA: Cambridge University Press.

Selman, R. L., Beardslee, W., Schultz, L. H., Krupa, M., & Podoresky, D. (1986). Assessing adolescent interpersonal negotiation strategies: Toward the integration of structural and functional models. *Developmental Psychology, 22*, 450–459.

Shadish, W. R., Cook, T. D., & Leviton, L.,C. (Eds.) (1991). *Foundations of program evaluation: Theories of practice.* Newbury Park, CA: Sage Publications.

Sullivan, M. L. (1998). Integrating qualitative and quantitative methods in the study of developmental psychopathology in context. *Development and Psychopathology, 10*(2), 377–393.

Susman, E. J. (1993). Psychological, contextual, and psychobiological interactions: A developmental perspective on conduct disorder. *Development and Psychopathology, 5*(1/2), 181–189.

Tolan, P. H., & Guerra, N. G. (1994a). *What works in reducing adolescent violence: An empirical review of the field*. Center for the Study and Prevention of Violence, University of Colorado at Boulder, Boulder, CO.

Tolan, P. H., & Guerra, N. G. (1994b). Prevention of delinquency: Current status and issues. *Applied and Preventive Psychology, 3*, 251–273.

Werthamer–Larsson, L., Kellam, S. G., & Wheeler, L. (1991). Effect of first-grade classroom environment on shy behavior, aggressive behavior, and concentration problems. Special Issue: Preventive Intervention Research Centers. *American Journal of Community Psychology, 19*(4), 585–602.

White, J. L., Moffitt, T. E., Earls, F., Robins, L., & Silva, P. A. (1990). How early can we tell?: Predictors of childhood conduct disorder and adolescent delinquency. *Criminology, 28*(4), 507–533.

Willett, J. B., Singer, J. D., & Martin, N. C. (1998). The design and analysis of longitudinal studies of development in context: Statistical models and methodological recommendations. *Development and Psychopathology, 10*(2), 395–426.

Wilson, W. J. (1987). *The truly disadvantaged: The inner-city, the underclass and public policy*. Chicago: University of Chicago Press.

https://doi.org/10.1017/S0954579498001576 Published online by Cambridge University Press