

Violence Prevention: An Evaluation of Program Effects with Urban African American Students

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While many violence prevention programs have been developed to combat the problems of violence and aggression among youth, few programs have been evaluated. This study examines the impact of a violence prevention program among African American students in two inner-city schools in Chicago. Students in 5th through 8th grade participated in Second Step: A Violence Prevention Program, and completed surveys at pretest and posttest. Aggressive behavior and prosocial behavior were assessed through self-report, peer-report, and teacher-report. In addition, knowledge and skills related to violence, empathy, impulsivity, and sense of school membership were assessed. The findings revealed significant increases in self-reported knowledge and skills, self-reported empathy, and teacher-reported prosocial behavior. Increases in empathy significantly predicted less aggressive behavior. School setting influenced several outcomes, including sense of school membership. Implications for primary prevention and evaluation are discussed with a focus on the importance of context.

KEY WORDS: violence prevention; urban African American youth; program evaluation; Second Step; adolescents.

Youth violence has become a significant problem in the United States (Dahlberg & Potter, 2001). While recent trends suggest a decline in homicide rates among youth (Bureau of Justice Statistics, 2000), homicide remains one of the leading causes of death in the United States (Snyder & Sickmund, 1999). Youth are not only the victims of aggression, but are increasingly represented as the perpetrators of violence. Crime statistics indicate that 36% of the violent crime in the United States is committed by young people between the ages of 10 and 21

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(Federal Bureau of Investigation, 1995). Thus, it is clear that youth experience a significant degree of aggression and violence, both as victims and as perpetrators.

The experience of aggression and violence varies across social and cultural groups (Hill, Soriano, Chen, & LaFromboise, 1994). Researchers have demonstrated that youth who live in urban areas, especially ethnic minority youth, are at particular risk for experiencing aggression and violence, as they face numerous stressors, such as overcrowding, poverty, unemployment, crime, and gangs (Marsella, 1998; Sampson, 1993). African-American youth living in highly stressful, low-income urban environments demonstrate even greater levels of exposure to violence than other ethnic groups in similar environments (Selner-O'Hagan, Kindlon, Buka, Raudenbush, & Earls, 1998). The significant role of aggression and its associated risks underscore the need to understand the effects of interventions for urban African American youth.

Research demonstrates that being exposed to aggressive and violent behavior can lead to many psychological difficulties, including aggressive and violent behavior (Attar, Guerra, & Tolan, 1994; Farrell & Bruce, 1997). Youth who demonstrate elevated levels of aggression have also been shown to encounter numerous negative outcomes, including greater academic difficulties, involvement in the juvenile justice system, family dysfunction, substance abuse, interpersonal difficulties, peer rejection, and other mental health problems (Cantrell & Prinz, 1985; Coie, Lochman, Terry, Hyman, 1992). The effects of aggression are particularly important for low-income, urban youth, as the stressors of urban life have been shown to erode youth's resilience and parents' protective efforts, leaving urban youth vulnerable to increased behavioral and emotional problems (Eron, 1992). Further, research has consistently found a strong positive correlation between measures of early aggression and measures of later aggression (Farrington, 1991, 1994; Patterson, 1992), highlighting the need for interventions targeting youth.

Several models have been proposed for understanding aggressive behavior in youth; however the bulk of the current theoretical and empirical literature supports a cognitive understanding of aggression, in which aggressive children demonstrate deficits and distortions in perceiving, processing, and responding to social situations (Huesmann & Reynolds, 2001). Although cognitive models dominate the literature, taking into account affective components, such as empathy and impulsivity, can be important in understanding and addressing problems with aggression.

Contemporary definitions of empathy tend to integrate cognitive and affective components, by defining empathy as the ability to recognize emotional cues, take the perspective of another, and respond to the emotional state of another with an emotional experience (Feshbach, 1997). Empathy has been linked to decreases in aggressive behavior and increases in prosocial behavior (Eisenberg & Miller, 1987; Miller & Eisenberg, 1988). Feshbach (1997) theorizes that empathy acts to inhibit aggressive behavior, as the potential aggressor wishes to avoid experiencing the distressful affective response of the potential victim's pain. The

perspective-taking aspect of empathy has also been proposed to reduce aggressive behavior, in that perspective-taking allows for more situational and external attributions (Richardson, Hammock, Smith, Gardner, & Signo, 1994). In general, research has provided support for the theoretical connection between empathy and aggression with children (Ellis, 1982).

Difficulties in impulse control have also been implicated in aggressive behavior (Cherek, Moeller, Dougherty, & Rhoades, 1997). Self-control theory suggests that aggressive youth respond immediately to the first associative thought or impulse, rather than pausing to evaluate the best or socially appropriate choice of behavior (Gottfredson & Hirschi, 1990). In cognitive terms, children with poor impulse control respond to potentially threatening situations by activating a limited behavioral response repertoire that is congruent with their emotional state and often select aggressive behavior without fully evaluating it. Indeed, research has found that impulse control is primarily a component of reactive or hostile aggressive children, in which aggression becomes the end result of angry emotions (Atkins, Stoff, Osborne, & Brown, 1993).

When considering aggression, it is also important to take into account the ecology of the environment in which youth reside. School culture is one aspect of that larger ecology, and the norms of the school and larger community can influence the extent to which aggression is an acceptable form of behavior. School culture can be defined as “socially shared and transmitted knowledge of what is and what ought to be symbolized in act and artifact” (Hamilton & Richardson, 1995, p. 369). School culture transmits expectations and assumptions through tacit beliefs, norms and values shared by the students, teachers, administrators, parents, and/ or other staff in the school (Hamilton & Richardson, 1995; Fullan & Hargreaves, 1991; Joyce, et al., 1992). School culture, in addition to influencing student learning (Gaziel, 1997), can have a significant influence on the implementation of new programs with teachers and staff (Fullan & Hargreaves, 1991; Hamilton & Richardson, 1995; McLaughlin, 1990).

There is a clear need to address aggression among youth and to evaluate programs that seek to reduce and prevent violence and aggression. The cultural and social conditions of African American youth living in highly stressed, urban environments make them especially vulnerable to aggression. Efforts to prevent aggressive behavior have taken various forms, but have increasingly focused on schools, with over 150 different violence prevention programs available (Altman, 1996). While many programs are currently being utilized, only a handful of programs have been systematically evaluated. Few programs have documented empirical support (Altman, 1996; Drug Strategies, 1998), and few have examined social ecological differences (Tolan, 2001). A recent review of 84 school-based violence prevention programs found only 11 programs that have been evaluated and published in peer-review literature (Drug Strategies, 1998). Of the 17 programs in the elementary-middle school programs, Second Step (Committee for Children,

1997) was the only program to receive “very good” ratings on program quality, developmental appropriateness, and ease of administration.

The primary focus of this study is to examine the effectiveness of the *Second Step* program with low-income, urban African American youth. More specifically, this study proposes to examine the effectiveness of the *Second Step* program in increasing knowledge about violence, increasing prosocial behavior, and decreasing aggressive behavior. In addition, two theoretical components of the program, empathy and impulsivity, will be examined. Multiple sources of information will be used to examine the effects of the program, including self-report, peer-report, and teacher-report. The impact of school membership will also be explored.

Second Step has been the focus of four published studies (Grossman et al., 1997; McMahon, Washburn, Felix, Yakin, & Childrey, 2000; Orpinas, et al., 2000; Orpinas, Parcel, McAlister, & Frankowski, 1995). While some of these studies have demonstrated encouraging but modest results, only two of these studies were directed toward students in 6th through 8th grade (Orpinas, Parcel, McAlister, & Frankowski, 1995; Orpinas, et al., 2000). Orpinas and colleagues (1995, 2000) conducted two separate controlled evaluations of the *Grades 6–8* version of *Second Step* with primarily Latino students. In the Orpinas et al., (1995) study, results revealed some initial decreases in aggression, yet a three-month follow-up revealed a loss of gains in all areas. Noting some limitations in the design and methodology, the more recent Orpinas et al., (2000) study attempted to implement a multi-component violence prevention program. This study included School Health Promotion Councils for each of the eight participating schools to coordinate the implementation of the *Second Step* curriculum, two peer mediation programs, and a parent education newsletter. While the program was developed as a more holistic approach to violence prevention, little to no intervention effects were found with the outcome variables. The widespread popularity of the *Second Step* program, with over 17,000 kits of the middle-school curriculum sold (Committee for Children, personal communication, August 1, 2001), the high ratings the program has received through program reviews, and the limited empirical research on this program suggest the need to further evaluate this program.

METHOD

Community and Schools

Two elementary schools in an inner-city public housing community in Chicago requested violence prevention services through the local Community Mental Health Center for students in 5th through 8th grade (McMahon, Ribordy, & Washburn, 2002; McMahon & Washburn, 2002). Most residents face extreme poverty, with only 7% of residents employed, and 77% of residents with an annual income of less than \$8,000 (Chicago Housing Authority, 2001). The number of

violent criminal acts is disproportionately high in this public housing community in comparison to the surrounding district. For example, while the surrounding district was populated by 15 times as many residents in 1998, this community experienced twice as many murders and batteries, and three times as many criminal sexual assaults (Chicago Police Department, 2001). These statistics reveal the high levels of community poverty and violence and highlight the need for intervention.

Participants

There were 156 African American students participating in the violence prevention program who completed all or part of the pretest (School A = 103; School B = 53), and 149 participants completed all or part of the posttest.⁴ Participants were 64% female, in 5th through 8th grade, and ranged in age from 11 to 14, with a modal age of 13. As some participants did not fully complete the assessment, the sample size varied with each measure (See Table 1 for means and standard deviations). Passive parental consent and active student assent were required for participation in the evaluative component of the program.

Training and Implementation

All Chicago Public School (CPS) teachers and DePaul staff who implemented the program participated in four hours of training, conducted immediately prior to the implementation of the program, by three DePaul staff members with significant expertise in the curriculum. Implementation of the curriculum relied on a co-teaching model, in which CPS teachers were paired with a DePaul graduate student to teach the curriculum together, coordinating presentation of the lesson content and role-playing activities. The CPS teachers and DePaul staff met weekly or bi-weekly as a group to discuss the curriculum, address difficulties, share teaching techniques and ideas, plan for future lessons, and discuss the evaluation. The DePaul staff and CPS teachers co-taught the program for the first eight lessons of the *Second Step* program, and the teachers taught the remaining seven lessons with support from DePaul staff and graduate students (McMahon, Ribordy, & Washburn, 2002). Implementation began with School A at the beginning of the school year, and at School B after the public school winter vacation. The co-teaching model provided an opportunity for on-going support of the teachers in implementing the curriculum and transfer of training. That is, if the teachers are actively engaged in teaching the program, they are more likely to model the strategies. This model also provided an opportunity for the DePaul Community Mental Health Center to maximize its staff

⁴Three additional classes in School B originally planned to implement the program, so students in these classes completed the pretest for a total sample size of 209 at pretest. However, these classes did not implement the program, so they were not given the posttest, and are not represented in the data reported in this study.

Table I. Means, Standard Deviations, and Sample Sizes of Each Assessment Measure

Measure (<i>N</i>)	School A		School B		
	Mean	SD	Mean	SD	
I.	Knowledge & Skill Survey				
	Pretest (150)	4.89	2.28	4.17	1.89
	Posttest (138)	5.43	2.50	5.17	2.42
II.	Teacher Checklist- Aggression Subscale				
	Pretest (145)	2.45	1.05	2.55	1.32
	Posttest (155)	2.69	1.20	2.46	1.41
III.	Teacher Checklist- Prosocial Subscale				
	Pretest (145)	4.03	1.03	5.16	1.36
	Posttest (155)	4.11	1.00	5.62	1.35
IV.	Aggressive Behavior Scale				
	Pretest (149)	2.16	1.51	2.56	1.55
	Posttest (134)	2.29	1.37	2.15	1.60
V.	Peer Rating-Aggression				
	Pretest (139)	2.60	0.87	2.87	0.61
	Posttest (123)	2.58	1.04	2.62	0.61
VI.	Peer Rating-Prosocial				
	Pretest (139)	2.99	0.87	2.83	0.58
	Posttest (123)	2.87	1.08	3.14	0.89
VII.	Empathy				
	Pretest (119)	2.72	0.70	2.47	0.67
	Posttest (131)	2.71	0.78	2.69	0.74
VIII.	Impulsivity				
	Pretest (115)	2.84	0.99	2.80	0.98
	Posttest (131)	2.59	0.91	2.57	1.07

resources. By co-teaching for eight lessons and then moving to another school, the DePaul staff members were able to reach twice as many youth with essentially the same resources. An integrity check, consisting of a research assistant monitoring the quality of implementation, was conducted in each classroom to ensure that the curriculum was being implemented according to the *Second Step* protocol.

Curriculum

The *Second Step* program for 6th–8th grade students is composed of five units. The first unit, *Understanding the Problem*, frames the topic of interpersonal violence as a societal problem. Statistics are presented, and the general factors that contribute to and inhibit violence, as well as how youth behavior provides risk or protective factors for violence. The second unit, *Training for Empathy*, presents empathy as the basis for prosocial behavior. This unit provides a definition of empathy as a three stage process, in which an individual is able to correctly identify the emotional state of another individual, take the perspective of that individual, and respond emotionally to that individual. The third unit, *Anger Management*, provides a set of techniques to reduce stress and to deal with angry feelings in

a prosocial manner. This unit focuses on anger as an appropriate and potentially positive emotion, places an emphasis on the idea that anger does not have to lead to aggression, and presents alternative responses to aggression. The fourth unit, *Problem Solving*, focuses on students learning and practicing problem-solving strategies that include five steps: problem identification, solution generation, solution evaluation, choosing a solution, and evaluating the outcome of the solution. Students are also taught and encouraged to use self-instruction or verbal mediation when implementing the problem-solving strategy in resolving interpersonal problems. The last unit, *Applying Skills*, applies the knowledge and skills obtained in the first four units to specific situations. Vignettes are utilized to assist students in applying the skills to situations such as making complaints, dealing with peer pressure, resisting gang pressure, dealing with a bully, and diffusing a fight.

Assessment

The outcome measures were administered and the data were collected immediately prior to and following implementation of the curriculum. Aggression was measured via self-report, peer-ratings, and teacher-ratings, and prosocial behavior was assessed via peer-report and teacher-report. Empathy, impulsivity, and sense of school membership were assessed through student self-report.

Second Step Knowledge and Skill Survey

This 15-item multiple-choice survey was used to assess knowledge and skills related to the content of the program (Committee for Children, 1997). While this survey has been used in other studies (Orpinas et al., 1995), psychometrics have not been reported. Participants received one point for each correct response, and the items were summed. For the current study, the *Second Step Knowledge and Skill Survey* yielded moderate internal consistency (Alpha) (Pretest = .60, Posttest = .74).

Aggressive Behavior Scale

Participants completed this 11-item scale that examines the frequency of common aggressive behaviors, ranging from 0–6 or more times during the past week (Orpinas & Frankowski, 2001; Orpinas, Parcel, McAlister, & Frankowski, 1995). The Aggressive Behavior Scale demonstrates adequate reliability and construct validity with large urban, middle school populations (Orpinas & Frankowski, 1996; 2001). Scores on the aggressive behavior scale have been found to be correlated with fighting-related injuries, teacher-rated aggression, the number of days students carried weapons and drank alcohol, parental monitoring, and grades (Orpinas & Frankowski, 1996). The Aggressive Behavior Scale also demonstrates adequate

internal consistency, with a Cronbach's Alpha Coefficient of .88, and test-retest reliability, with one and two-year mean differences failing to reach statistical significance (Orpinas & Frankowski, 1996). The current study yielded a high level of internal consistency (Pretest = .88, Posttest = .86).

Peer Rating

Participants also completed ratings of their classmates' aggressive and prosocial behavior. For each child in their classroom, participants responded on a 5-point Likert scale to the question "Does NAME OF CHILD act out when she gets mad? For example, does she hit, yell, do mean things?" and to the question "Does NAME OF CHILD get along with others? For example, does she share, help others, do nice things?" Each subscale of the Peer Rating measure consisted of the mean rating of responses, from 1 (never) to 5 (all of the time) for each child by his/her classmates.

Teacher Checklist

Teachers completed this 13-item scale, ranging from 1 (never) to 7 (almost always), on each child in his/her class (Coie, Terry, Underwood, and Dodge, 1990). The first subscale, Aggression (8 items) provides a measure of proactive and reactive aggression. Proactive aggression is purposeful aggression enacted with the anticipation of some reward. Reactive aggression is a more automatic and emotional reaction that results from a loss of control (Dodge, 1991). The second subscale, Prosocial Behavior (5 items) provides a measure of behaviors that facilitate positive interpersonal relationships. Evidence supports the validity and reliability of this measure with African-American youth (Coie, Terry, Underwood, & Dodge, 1990; Dodge & Coie, 1987). For example, the subscales demonstrate sufficient internal consistency, as measured by a coefficient Alpha of .91 for the proactive aggressive subscale, .90 for the reactive aggressive subscale, and .82 for the prosocial subscale (Coie, Terry, Underwood, & Dodge, 1990). Evidence for convergent validity is provided by correlations with direct observations and theoretically-related constructs. Alpha coefficients for the Teacher Checklist in the current study were good (Pretest = .79, Posttest = .76).

Psychological Sense of School Membership Questionnaire (PSSM)

The 5-item PSSM assesses participants' sense of personal belonging, respect, and support felt at school (Goodenow, 1993), with responses ranging from 1 (strongly disagree) to 5 (strongly agree). The PSSM has been shown to be positively correlated with academic motivation, grades, teacher-rated effort (Goodenow, 1993), internal locus of control, educational aspiration, and ratings of school

climate (Hagborg, 1994; 1998). Previous research has demonstrated the PSSM has adequate internal consistency (.77-.88; Goodenow, 1993), yet the Alpha coefficients for the current study were low (Pretest = .35, Posttest = .40).

Theory-Based Outcome Measures

In Theory-Based Program Evaluation, measures are selected that provide data concerning the outcome of the program and the theoretical processes that produce the outcome (Valente & Dodge, 1997). The responses for each of these measures range from 1 (never) to 5 (always).

Empathy Scale

This 5-item measure (Bosworth & Espelage, 1995) assesses the student's ability to listen, care, and trust others. In previous research, the empathy measure demonstrated adequate internal consistency (.62), however Alpha coefficients for the current study were somewhat lower (Pretest = .58, Posttest = .54).

Impulsivity Scale

This 4-item measure (Bosworth & Espelage, 1995) assesses the frequency of impulsive behaviors, including lack of self-control, difficulty sitting still, and trouble finishing tasks. The impulsivity measure demonstrates adequate internal consistency (.62), and in the current study, Alpha coefficients were slightly higher (Pretest = .67, Posttest = .68).

RESULTS

Missing Data

Completion rates varied by measure, with the Peer Rating measure yielding the lowest completion rates and the Teacher Checklist yielding the highest completion rates. Missing data analyses, including statistical difference testing, indicated random missing data on all scales except the Peer Rating scale. The high rate of missing data on the Peer Rating scale was due to the inclusion of students on the survey when they had been transferred to a different class or school. These students were deleted from further analyses. Further analysis of missing data on the Peer Rating scale suggested a pattern in which the more aggressive and less prosocial students had higher rates of partially completed self and teacher-report measures of aggression.

Participant data on specific measures were deleted from further analyses when more than 15% of the measure was not completed (Raymond, 1986). For

participants who partially completed a measure (85% or more), listwise deletion, case mean imputation, or variable mean imputation were used, depending on the number of participants with missing data on a particular measure (Newton & Rudestam, 1999; Raymond, 1986). The listwise deletion method was utilized with the Empathy, Impulsivity, and Teacher Checklist measures, as few participants were missing data on these scales. The case mean imputation method, which uses the mean of the participant's existing responses for imputation, was used for the Aggressive Behavior Scale, due to the larger percentage of participants with missing data and the high internal consistency of this scale. The variable mean imputation method was used for the Peer Rating Scale, which uses the mean of all the other participants for imputation. Finally, missing values in the Second Step Knowledge and Skill Survey were replaced with the score of 0, suggesting missing values were "incorrect" responses.

Preliminary Analyses

Preliminary analyses were conducted in order to examine potential differences in pretest outcome measures with demographic characteristics. Multivariate analysis of variance (MANOVAs) and analysis of variance (ANOVAs) were conducted to examine the effects of participants' school, gender, and grade, by the pretest dependent variables. For Second Step, ANOVA results suggest that knowledge and skills differed significantly by grade ($F(2, 145) = 9.05, p = .000$). In terms of aggressive behavior (Peer Rating-aggression, Aggressive Behavior Scale, and Teacher Checklist-aggression), MANOVA results demonstrated significant differences for grade (Wilk's $\Lambda = .87, F(6, 230) = 2.65, p = .017$) and gender (Wilk's $\Lambda = .93, F(3, 114) = 2.99, p = .034$). For prosocial behavior (Peer Rating-prosocial and Teacher Checklist-prosocial), a MANOVA showed significant differences for school (Wilk's $\Lambda = .88, F(2, 122) = 8.63, p = .000$) and grade (Wilk's $\Lambda = .67, F(4, 244) = 13.38, p = .000$). Regarding empathy and impulsivity, ANOVA revealed only grade as a significant predictor for impulsivity ($F(2, 110) = 3.85, p = .024$). In general, Bonferroni pairwise comparisons suggested that peer-rated and teacher-rated prosocial behavior, knowledge and skills related to violence, and impulsivity increased with grade level, while peer rated aggressive behavior decreased as grade level increased. Teacher-rated prosocial behavior differed significantly by school, suggesting that teachers at School B reported higher prosocial scores on the Teacher Checklist for their students than School A. Given that preliminary analyses suggested that school affiliation, grade, and gender were all significantly related to some of the dependent measures, all analyses were conducted taking into account gender, school, and grade.

Bivariate correlations between the measures were conducted to provide evidence of scale validity. In general, the correlations among the measures provide

Table II. Correlations Between Measures at Time 1

	Correlations among primary and theoretical outcome measures ^a							
	SS	ABS	PR-A	PR-P	TCL-A	TCL-P	EMP	IMP
SS	1.00	-0.14	-0.19 ^b	0.09	-0.14	0.20 ^b	0.06	-0.04
ABS		1.00	0.0	0.2	0.30 ^c	-0.09	-0.02	0.23 ^b
PR-A			1.00	0.14	0.15	0.13	0.10	0.18
PR-P				1.00	-0.18 ^b	0.00	0.29 ^c	-0.9
TCL-A					1.00	-0.26 ^c	-0.10	0.13
TCL-P						1.00	0.14	-0.02
EMP							1.00	0.17
IMP								1.00

^aPR-A, Peer Rating—Aggression; PR-P, Peer Rating- Prosocial; TCL-A, Teacher Checklist—Aggression; TCL-P, Teacher Checklist—Prosocial; IMP, Impulsivity Scale; EMP, Empathy Scale, SS, *Second Step* Knowledge and Skill Survey; ABS, Aggressive Behavior Scale.

^bCorrelation is significant at the 0.05 level (2-tailed).

^cCorrelation is significant at the 0.01 level (2-tailed).

support for construct validity, as the correlations are theoretically consistent. For instance, participants rated as more aggressive by their teachers demonstrated less knowledge of violence prevention skills, were rated by their teachers as demonstrating less prosocial behavior, and rated themselves as more aggressive and impulsive. Additionally, participants rated by their teachers as demonstrating more prosocial behavior rated themselves as having higher empathy. Finally, participants identified by their peers as more aggressive also rated themselves as more aggressive and less knowledgeable of violence prevention skills. The only significant correlation that was not theoretically consistent was the positive correlation of the Prosocial Peer Rating measure with the Aggressive Behavior Scale, suggesting that participants rated by their peers as demonstrating more prosocial behavior rated themselves as more aggressive. However, this finding is consistent with research suggesting that aggressive children also tend to be rated as popular by their peers (e.g., Dodge, Coie, Pettit, & Price, 1990). In summary, the scale correlations provide evidence generally supporting the construct validity of the scales utilized in this study (See Table 2).

Knowledge and Skills

It was hypothesized that participants would demonstrate significant increases from pre to posttesting in their knowledge about violence, the consequences of violence, and violence prevention skills. A repeated-measures ANOVA was conducted to examine the effects of time, school affiliation, grade level, and gender on participants' *Second Step* Knowledge and Skill Survey scores. There was a significant univariate main effect for time, Wilk's $\Lambda = .93$, $F(1, 123) = 8.73$, $p = .004$, which indicated that participants gained knowledge concerning violence, the

consequences of violence, and violence prevention skills. There was also a significant between subjects effect of grade ($F(2, 123) = 12.22, p = .000$), suggesting that older students reported more knowledge and skills.

Aggressive Behavior

It was hypothesized that participants would demonstrate significant decreases from pre- to posttesting in their self, peer, and teacher-reported aggressive behavior. A repeated-measures MANOVA was conducted to examine the effects of time, school affiliation, grade level, and gender on the multiple aggression measures, including the Teacher Checklist Aggression subscale, the Aggressive Behavior Scale, and the Peer Rating measure. There was no significant multivariate main effect for time; however, there was a multivariate interaction effect of time and grade (Wilk's $\Lambda = .81, F(6, 142) = 2.62, p = .019$). Within subjects contrasts showed that peer ratings made a significant contribution to the multivariate interaction of time and grade ($F(2, 73) = 6.44, p = .003$), suggesting that peer ratings of aggression increased for grade eight, decreased slightly for grade seven, and demonstrated no change for grades five and six. A multivariate trend was also demonstrated for the interaction of time by school (Wilk's $\Lambda = .90, F(3, 71) = 2.71, p = .052$), suggesting that teacher ratings at School B tended to decrease from pretest to posttest, while teacher ratings of aggression at School A tended to increase ($F(1, 73) = 6.58, p = .012$).

Prosocial Behavior

It was hypothesized that students would demonstrate significant increases from pre to posttesting in their peer and teacher-reported prosocial behavior. A repeated-measures MANOVA was conducted to examine the effects of time, school affiliation, grade level, and gender on the two prosocial measures, the Teacher Checklist Prosocial subscale and the Peer Rating Prosocial subscale. A significant multivariate main effect was found for time, Wilk's $\Lambda = .88, F(2, 85) = 5.74, p = .005$. In addition, there was a significant interaction between time and school (Wilk's $\Lambda = .93, F(2, 85) = 3.21, p = .045$). Univariate analyses revealed that the main effect of time ($F(1, 86) = 7.88, p = .006$) and the time by school interaction ($F(1, 86) = 5.70, p = .019$) were significant for the Teacher Checklist. The Peer rating was not a significant contributor to either of the multivariate effects. These results suggest that teachers at School B rated their students more favorably than teachers at School A, in general, and their ratings increased across time, while teacher ratings of prosocial behavior at School A remained the same.

Empathy and Impulsivity

It was hypothesized that students would demonstrate significant increases in self-reported empathy and decreases in impulsivity across time. Repeated-measures ANOVAs were conducted to examine the effects of time, school affiliation, grade level, and gender on empathy and impulsivity. Regarding empathy, there was a significant main effect for time ($F(1, 90) = 4.13, p = .045$), and a significant interaction for time and school ($F(1, 90) = 6.69, p = .011$). The findings suggest that participants' self-reported ratings of empathy significantly increased from pre- to posttest, and this increase was significantly greater for students in School B, compared to students in School A. There were no significant effects for impulsivity.

Given that empathy changed significantly across time and the importance that some theorists have placed on the role of empathy in reducing aggressive behavior (Committee for Children, 1997; Richardson, et al., 1992), change in empathy was examined in relation to aggression. A multiple regression was conducted examining the impact of change in empathy on self-reported aggression. A significant relation was found ($R^2 = .22, F(2, 91) = 13.07, p = .020$), suggesting that an increase in empathy from pretest to posttest was predictive of lower self-reported aggression at posttest, taking into account pretest aggression scores.

Psychological Sense of School Membership

A repeated measures ANOVA was conducted to evaluate the effect of time on school membership scores, with the setting as a between groups variable. The main effect of time on school membership was not significant, suggesting that the mean of the entire sample did not vary from pre to posttest. However, the interaction of time and setting was significant, $F(1, 86) = 6.384, p = .013$, suggesting that school membership varied as a function of setting. Specifically, while school membership was almost equal at pretest (School A = 18.03, School B = 17.82), school membership decreased for School A to 17.29, and increased for School B to 19.45. It is possible that the differences in sense of school membership reflect differences in the school culture over the year, and may provide some explanation as to the difference in pre to posttest changes between the schools.

DISCUSSION

This study examined the impact of the *Second Step* program on knowledge about violence and violence prevention skills, aggressive behavior, and prosocial behavior with a sample of fifth through eighth grade students from a highly-stressed, urban, African American population. In general, the results suggest that

participants demonstrated a significant increase in self-reported knowledge and skills, in self-reported empathy, and in teacher-reported prosocial behavior. There were significant differences by school setting in relation to prosocial behavior and empathy, and change in aggression varied by grade. Sense of school membership increased in one school and decreased in the other school, and these findings are consistent with teacher ratings of aggressive and prosocial behavior.

The results of this study provide mixed evidence for the utility of the *Second Step* program with this sample of urban African American youth. Specifically, the findings replicate previous research (e.g., Orpinas, et al., 1995), providing modest support for the effectiveness of the *Second Step* program with increasing knowledge concerning the consequences of violence, problem-solving skills, and anger management techniques. The positive changes across time in empathy, knowledge and skills, and prosocial behavior suggest that the *Second Step* program is successful in teaching these components. The lack of overall changes in aggressive behavior and impulsivity suggest that although students may learn the concepts in the program, the strong environmental norms supporting aggression in the community may interfere with the program goals of reducing aggression. It is also possible that changes in behavior were not captured through paper and pencil measures. For example, in other *Second Step* evaluation studies that have used multiple indicators of behavior change, changes were only detected through observational methods (Grossman, et al., 1997; McMahon, Washburn, Felix, Yakin, & Childrey, 2000).

It is interesting to note the significant association between change in empathy and aggressive behavior. Empathy is considered to be a core component of the *Second Step* curriculum, and these findings suggest that empathy did increase across time, and that increases in empathy were predictive of lower aggression scores at posttest, taking into account initial aggression levels. Given the stability of aggression over time (Farrington, 1991; 1994, Patterson, 1992), and the lack of overall changes across time in aggression in this study, these findings suggest that empathy may play a key role in decreasing aggressive behavior. That is, those who are able to improve their abilities to understand others' perspectives (Richardson et al., 1992) may aggress less against others.

In terms of contextual or demographic variables, participants' school affiliation had the most consistent impact on the changes in outcome measures. The results suggest School B showed a significant increase in teacher-rated prosocial behavior and self-reported empathy, whereas these factors remained the same for School A. Sense of school membership also increased for School B, while it decreased for School A. It is difficult to precisely delineate the factors causing the differential response to the program based on school affiliation. School statistics suggest School A and School B share similar school district conditions, as well as many student characteristics. The only obvious differences between the schools are the percentage of chronic truants, which is four times higher for School A than School B. What is less clear, however, is how the schools compare in regard to the teacher characteristics and within school conditions, which underscores the need

for assessing teacher and school variables. While numerous factors may have affected the ability of the students to use the skills in the program, including parents, peers, teachers, schools, and individual factors (Centra & Potter, 1980), differences in school culture may partially explain this finding.

A related implication of this study is the importance of considering the teachers' use and integration of program concepts in the academic curriculum. The school-dependent outcome results of this study suggest that the effectiveness of the *Second Step* program may be related to the extent to which teachers practice and reinforce curriculum concepts during the course of the week. System-level change may be necessary to maximize teacher training. For example, attempts by the DePaul staff to increase teacher training and consultation were limited by teachers' availability. Teachers in highly stressed, urban schools face numerous stressors, including academic probation, large class sizes, demands from additional supportive programs, lack of resources (i.e., teacher's aides, books, substitutes), and/or students with special needs. It is possible that more teacher training and consultation would assist teachers in more successfully applying the *Second Step* principles in their classrooms.

Strengths and Limitations

The current study had numerous strengths and limitations that should be noted. First, this study was implemented in a community that places youth at particular risk for demonstrating aggressive behaviors, and few evaluations of violence prevention programs have focused on high-risk populations. Second, this study utilized multiple reporters to gather data from several perspectives on the same phenomena, thereby increasing the ability to identify the effects of the program (Rosenthal & Rosnow, 1991). Third, this study included assessment of theory-based outcomes, such as empathy and impulsivity.

This study was limited by several methodological difficulties, including the lack of a control group, missing data, and concerns with the measurement of constructs. While the findings suggest significant gains in knowledge and skills and empathy after exposure to the *Second Step* program, the lack of a control group precludes the establishment of the *Second Step* program as the cause of that change (Rosenthal & Rosnow, 1991). It is possible that the significant changes at posttest resulted from alternative influences, such as normal development and maturation or development of friendship with other participants, or establishment and respect of teacher's authority. While a control group was not utilized in this design, it is important to note that previous intervention research found either no change or an increase in aggressive behavior in control groups over the course of an academic year (Aber, Jones, Brown, Chaudry, & Samples, 1998; Dryfoos, 1990; Farrell & Meyer, 1997; Grossman et al., 1997; Guerra et al., 1997; Reid & Eddy, 1997; Orpinas et al., 2000). Additionally, attributing *any* cause in this study is complicated

by the significant impact of school differences. Even with a hypothetical control group that demonstrated no change or increased aggression, the significant school effects found in this study would contribute to the complexities in interpreting causality. In sum, the design of the current study may not have been robust enough to detect change, so findings should be interpreted with caution.

Related concerns include missing data and measurement issues. Even though attempts were made to minimize the impact of missing data, such as make-up testing and monitoring during administration of the measures, the final sample resulted in a relatively high number of missing data. The high truancy and mobility rates of the participants most likely contributed to the missing data. Considering the limitations and biases of paper-and-pencil measures (Rosenthal & Rosnow, 1991; Loeber & Farrington, 1994), multiple assessment modalities, such as audio-video taping or observation, would have provided a more comprehensive evaluation of the program effects. Additionally, some measures in this study had low internal consistency with this population, particularly empathy and sense of school membership, and reliability estimates of the peer rating were not available. Given the significant findings related to empathy and sense of school membership, these findings are probably conservative estimates of the “real” effects if more reliable measures had been used. Reliable, valid, and age-appropriate instruments for assessing empathy, impulsivity, problem solving, anger management, and contextual factors are needed for diverse populations.

Implications and Suggestions for Future Research

The findings from this study have several implications for future implementation and research with the *Second Step* program. The significant influences of participants’ school affiliation on the results of this study are notable, suggesting the need for considering school and teacher variables in future studies. Researchers have identified several factors that may be helpful in understanding the impact of school culture on the implementation of programs, including norms of collegiality versus congeniality (i.e., encouragement of teachers entering the rooms of colleagues, promotion of questioning about classroom practices, and support for the constructive criticism of colleagues), experimentation, collaboration, and commitment to change (Little, 1987; Rosenholtz, 1989).

Future research may also benefit from exploring and integrating ecological factors into the implementation of the *Second Step* program. Thus far, published studies evaluating *Second Step* have only implemented the program in select grade levels, yet implementing the program school-wide can assist in the integration of program principles into school codes of conduct (Grossman, et al., 1997; Beland, 1996). In addition, including parents, community members, and community service personnel (i.e., police, youth services), could maximize positive change among youth (Orpinas, et al., 2000).

The ecology of the neighborhood also needs to be considered. For example, the *Second Step* program's emphasis on intra-individual skills deficits (i.e., empathy, problem-solving, impulse control) may be ignoring systemic influences on aggressive behavior as well as the potential to build upon cultural strengths. For example, a strong sense of ethnic and racial identity has been associated with less aggression among urban African American youth (e.g., McMahon & Watts, 2002). Incorporating ideas related to cultural pride and ethnic identity may contribute positively to violence prevention interventions.

Research also suggests that aggressive behavior may be influenced by the "Code of the Streets," which refers to a set of rules for public interpersonal behavior among some members of primarily low-income, urban, African American communities (Anderson, 1997). The rules are often centered around obtaining and maintaining personal "respect," sometimes through violent behavior (White & Cones, 1999). By not addressing the particular "Code of the Streets" that may exist for the program participants, the effectiveness of any violence prevention program with this population may be limited. Addressing cultural and societal factors associated with violence may improve the effectiveness of programs for inner-city youth.

In conclusion, the results of this study provide mixed support for the continued use and study of the *Second Step* program for urban African American youth. While methodological concerns limit the generalizability of this study, the results highlight several important issues. There is a need to systematically study contextual factors, in order to understand how the program is influenced by school, teacher, and community variables. Additionally, there is a need to understand the causal mechanisms of violence prevention programs by developing and using more effective measures of theoretical and outcome variables. Finally, we need to explore the effectiveness of adjunctive culturally and community-specific components to the program. By addressing these needs, the *Second Step* program will come closer to its goals of decreasing aggressive and violent behavior among youth.

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