Predicting Early Adolescent Gang Involvement From Middle School Adaptation

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This study examined the role of adaptation in the first year of middle school (Grade 6, age 11) to affiliation with gangs by the last year of middle school (Grade 8, age 13). The sample consisted of 714 European American (EA) and African American (AA) boys and girls. Specifically, academic grades, reports of antisocial behavior, and peer relations in 6th grade were used to predict multiple measures of gang involvement by 8th grade. The multiple measures of gang involvement included self-, peer, teacher, and counselor reports. Unexpectedly, self-report measures of gang involvement did not correlate highly with peer and school staff reports. The results, however, were similar for other and self-report measures of gang involvement. Mean level analyses revealed statistically reliable differences in 8th-grade gang involvement as a function of the youth gender and ethnicity. Structural equation prediction models revealed that peer nominations of rejection, acceptance, academic failure, and antisocial behavior were predictive of gang involvement for most youth. These findings suggest that the youth level of problem behavior and the school ecology (e.g., peer rejection, school failure) require attention in the design of interventions to prevent the formation of gangs among high-risk young adolescents.

Some argue that peer group socialization has the most powerful environmental effect on young adolescent social and emotional development (Harris, 1995). The support for this hypothesis perhaps is warranted most when considering the role of peers in the development of antisocial behavior (Dishion & Patterson, in press; Hartup, 1996). Without a doubt, a young adolescent’s tendency to spend time with peers who engage in deviant behaviors is the strongest correlate of delinquency, substance use, and other forms of problem behavior (Biglan, Brennan, Foster, & Holder, 2004; Elliott, Huizinga, & Ageton, 1985). The relation goes beyond a self-report bias: Direct observations of adolescents with their friends reveal that support for deviant talk within friendships predicts increases in adolescent problem behavior (Dishion, Eddy, Haas, Li, & Spracklen, 1997; Dishion, Spracklen, Andrews, & Patterson, 1996; Patterson, Dishion, & Yoerger, 2000). Moreover, intervention research reveals that, in some conditions, randomly assigning high-risk youth to interventions involving peers may actually lead to escalations in problem behavior (Dishion, McCord, & Poulin, 1999).

The most dramatic example of the potential deleterious effects of peers on behavior is the phenomenon of gangs. Gang involvement in adolescence can be seen as the extreme end of a progression of deviant peer involvement. As discussed by Cairns, Cadwallader, Estell, and Neckerman (1997), gang involvement does not materialize out of thin air. It is often part of a developmental trajectory in which children with a history of antisocial behavior form peer groups organized in deviant behavior. When youth spend a good deal of time with deviant peers, and clearly identify with the deviant nature of the group, influence is at its greatest (Kiesner, Cadinu, Poulin, & Bucci, 2002; Osgood, Wilson, Bachman, O’Malley, & Johnston, 1996). The work by Thornberry (1998) is noteworthy in demonstrating that gang involvement actually amplifies problem behavior among youth who were problematic previously and involved with deviant peers. Longitudinal analyses reveal that even when controlling for previous deviant peer involvement and delinquent behavior, an adolescent’s membership in a street gang is associated with marked increases in serious delinquent behavior (Battin, Hill, Abbott, Catalano, & Hawkins, 1998; Thornberry, Krohn, Lizotte, & Chard-Wierschem, 1993).

Programs designed to reduce gang involvement and gang-related criminal activities, once the gangs are es-
tablished, are often unsuccessful and sometimes are counterproductive (Klein, 1993). For this reason, it is important to both understand and prevent early adolescent gang involvement. Studying the development and ecology of problem outcomes can provide clues to intervention targets and risk factors (Cicchetti & Toth, 1992; Dishion & Patterson, 1999; Patterson, Reid, & Dishion, 1992). Given the importance of the public-school ecology for peer group formation, it is within such settings that preventive interventions can be localized. In this research, we focused on understanding the patterns of school adaptation that predicted movement into gangs by the last year of middle school among a multiethnic, urban sample of youth.

It is important to consider deviant peer and gang involvement within a broader framework describing the development of antisocial and problem behavior in adolescence (e.g., Cadwallader & Cairns, 2002). An overview of an ecological perspective on gang involvement is provided in Figure 1. This model draws heavily from an ecological perspective on the development of child and adolescent problem behavior (Dishion, French, & Patterson, 1995; Dishion & Patterson, in press; Patterson et al., 1992). As noted in Figure 1, a number of variables that are not studied in this report can affect the development of antisocial behavior and eventual involvement in deviant peers and gangs. For example, the general assumption is that the family context can be influential in the development of antisocial behavior and, indirectly, to the child’s peer environment (Dishion, 1990). Conditions such as parent psychopathology, substance use, and marital distress can disrupt parenting practices. This disruption of parenting can affect the development of antisocial behavior and deviant peer involvement. In addition, communities and schools can be influential in promoting peer dynamics conducive to gang involvement and antisocial behavior (Crone & Horner, 2003; D. Gottfredson, 1990). Poverty can disrupt families and change developmental trajectories (McLoyd, 1990), and neighborhoods can promote deviant peer involvement and problem behavior (Gorman-Smith & Tolan, 1998; Simcha-Fagan & Scwartz, 1986).

Of most interest, however, is adaptation to school and the emergence of gang involvement in early adolescence. The simplest explanation for the emergence of deviant peer groups is that antisocial youth “shop” for other children who are inclined similarly, in a process often referred to as homophily (Cairns, Cairns, Neckerman, Gest, & Gariépy 1988; Dishion et al., 1995; Lahey, Gordon, Loeber, Stouthamer-Loeber, & Farrington, 1999). Several studies now confirm the mutual attraction of antisocial youth into social networks and friendships (Hartup, 1996; Kandel, 1986; Poulin & Boivin, 2000; Vitaro, Tremblay, Kerr, Pagani, & Bukowski, 1997). The important issue is whether any school experiences amplify the natural tendency for high-risk youth to coalesce into groups.

There are data in support of the hypothesis that school failure in the domains of academics and peer relationships increases the likelihood of young adolescents seeking the company of deviant peers (Craig, Vitaro, Gagnon, & Tremblay, 2002; Patterson & Dishion, 1985; Patterson et al., 1992). Dishion, Patterson, Stoolmiller, and Skinner (1991) examined whether peer rejection (as measured by peer nominations) and academic failure at age 9 to 10 accounted for deviant peer involvement at age 11 to 12 in boys. Controlling for the boys’ antisocial behavior, both peer rejection and academic failure accounted for variation in deviant peer involvement. On the other hand, focusing on their longitudinal sample of New Zealand adolescent youth, Fergusson and Horwood (1999) did not find a direct effect of academic achievement and peer rejection on later deviant peer affiliation, once controlling for youth conduct problems and parent and family factors. The measure of peer rejection, however, was based on parent and teacher reports, which are correlated only moderately with peer nomination methods of peer rejection.

One of the major issues to confront us in the study of the development and ecology of gang involvement is that gangs often are predicated on the ethnicity and gender of their members (Maxson & Klein, 1995) and often are more prevalent among male adolescents within the minority culture (Lahey et al., 1999). Sampson and Laub (1994) made the same point when considering the role of community ecology in explaining the high rates of delinquency among Irish youth in a longitudinal sample of youth and families conducted in the 1930s.

Establishing the link between school failure, problem behavior, and increased likelihood of future gang involvement is important for two reasons. Theoretically, such findings are consistent with the general proposition that aggregation among deviant peers is a

![Figure 1. An ecological framework for the development of early adolescent gang involvement.](Image)
functional adaptation for high-risk youth (Dishion, Poulin, & Medici Skaggs, 2000; Dishion, Nelson, & Bullock, 2004). Youth who do poorly in public-school settings adapt by forming groups that uphold a “deviant” value system that has its own short- and long-term benefits. Second, identification of school adaptation in addition to general levels of problem behavior leads the way to expanding the focus of prevention of delinquency, violence, and other forms of problem behavior to target specific school experiences that may give rise to the proximal cause, namely, aggregation into deviant peer groups and gangs.

To establish the importance of school adaptation in gang formation, it is important to control for antisocial behavior. There has yet to be a longitudinal analysis of gang involvement in early adolescence that has integrated sociometric assessments, academic grades, and antisocial behavior in the first year of middle school as predictors of gang involvement by the last year of middle school. This research strategy is potentially useful for the design and evaluation of intervention programs to reduce gang involvement within a public-school environment.

To date, one of the shortcomings of the research on gang involvement is that investigators often rely exclusively on brief, self-report measures. Although self-reported gang involvement is a reasonable place to start, it is important to consider the possibility of a multi-agent, multimethod measure. One advantage of employing multiple measurements of gang involvement is that they allow evaluation of the construct viability, as well as the potential for disentangling measurement bias from patterns of findings (Bank, Dishion, Skinner, & Patterson, 1990).

This study focuses on sixth-grade peer relationships, academic adaptation, peer relations, and antisocial behavior in relation to early-adolescent gang involvement. This community sample was drawn from an ethnically diverse metropolitan area, representing all sixth-grade students in targeted middle schools ($N = 999$). In the sixth grade, we assessed the students’ sociometric status, antisocial behavior, and academic grades. In the eighth grade, we conducted a multigitant, multimethod assessment of gang involvement, based on teacher, school counselor, peer, and self-reports. Specifically we hypothesized that:

1. Peer nominations of peer relations and records of academic grades in the sixth grade would predict gang involvement in the eighth grade, after controlling for sixth-grade problem behavior.

2. The model for early gang involvement would be essentially the same for European American (EA) and African American (AA) boys and girls. Mean-level differences in early adolescent gang involvement would be explained by mean-level differences in risk factors associated with early gang involvement.

### Methods

**Participants**

Participants included 714 adolescents and their families, recruited in sixth grade from three middle schools within an ethnically diverse metropolitan community in the Northwest region of the United States. This subsample, self-identified as either EA or AA, was taken from a larger community sample. All sixth-grade students were approached for participation. The sample of 714 represents a 95% recruitment rate for Cohort 1 and an 83% recruitment rate for Cohort 2; 85% of Cohort 1 and 86% of Cohort 2 participated in all assessment waves (from Grades 6 to 9). Table 1 summarizes the demographic characteristics of the sample with respect to gender and ethnicity. Perusal of the table reveals that roughly half the sample was female (46.2%), 40.8% self-identified as AA, and 59.2% self-identified as EA.

### Assessment Procedures

Each year, as part of a longitudinal intervention study, student surveys were conducted primarily in the school context using an instrument developed and reported by colleagues at Oregon Research Institute (Irvine, Biglan, Smolkowski, & Ary, 1999). If students moved out of their original schools, we followed them to their new location. Students were paid $20 for completing each assessment wave.

Peer nominations were collected in the participating sixth-grade classrooms as part of the school-based assessment measures. Students chose from a roster of classmates participating in the study:

<table>
<thead>
<tr>
<th>Gender</th>
<th>European American</th>
<th>African American</th>
<th>Total</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>31.8%</td>
<td>22.0%</td>
<td>53.8%</td>
<td>384</td>
</tr>
<tr>
<td>Female</td>
<td>27.4%</td>
<td>18.8%</td>
<td>46.2%</td>
<td>330</td>
</tr>
<tr>
<td>Total</td>
<td>59.2%</td>
<td>40.8%</td>
<td>100.0%</td>
<td>714</td>
</tr>
</tbody>
</table>

Table 1. Demographics for Project Alliance Cohorts 1 and 2 European American and African American Subsample

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1The sample analyzed in this article was part of a randomized intervention study testing the effectiveness of the Adolescent Transitions Program in preventing and reducing adolescent problem behavior and substance use. For information on the intervention and its outcomes, see Dishion, Bullock, et al. (2002), Dishion and Kavanagh (2003), or Dishion, Kavanagh, Schneiger, Nelson, and Kaufman (2002).
people they liked, people they disliked, and people who best fit some behavioral descriptions (e.g., starts fights, hangs around with kids who get in trouble). They were allowed to choose as many same-grade classmates as they wished for each question. Similarly, students selected crowd nominations from a subsection of a roster that included a randomly selected group of participating classmates. They assigned each classmate to a particular crowd (e.g., crowd that is involved in music, crowd that is involved in gangs).

Academic grades for subjects also were collected as part of the school-based assessment measures in the sixth-grade classrooms. The public-school system computerized academic grades, from which grades were recorded for this sample. Each year, teachers completed a screening measure referred to as the Teacher Risk Screening Index (see Dishion & Kavanagh, 2003) to identify youth at risk for problem behavior in middle school. Behaviors included in the measure were: stubborn, dislikes school, doesn’t feel guilty, disliked by other students, associates with troublemakers, smokes or suspected of smoking, spends time with smokers, prefers older youth, argues a lot, and hums or makes noise in class. School counselors completed a measure similar to the crowd nominations, assigning students listed on a roster of names into particular crowds.

Data Reduction

Overview For this article, we created an eighth-grade gang involvement construct using items from several different measures and respondents. We also analyzed self-report indicators of antisocial behavior, peer reports of popularity, and school records from sixth grade as potential predictors of the gang construct. Means and standard deviations of all measures appear in Table 2. The gang construct and its reliability appear in Table 3.

Antisocial behavior (age 11, sixth grade). Antisocial behavior was measured averaging across eight items from a yearly self-report survey that assessed dimensions of (a) truancy (e.g., “Lied to parents about whereabouts or who you were with”); (b) property crime (e.g., “Purposefully damaged or tried to damage property”); and (c) aggressive behavior (e.g., “Intentionally hit or threatened someone at school”). Reliability of the antisocial behavior scale at sixth grade indicated an acceptable alpha of .74.

Peer relationships (age 11, sixth grade). Peer relationships were assessed using the peer nominations of liked (accepted) and disliked (rejected) classmates. Counts of these nominations for each youth provided scores of how liked and how disliked a youth was by school peers. Due to different classroom sizes, each youth received a proportion score, dividing the liked and disliked nominations received by the number of classmates. These proportion scores then were standardized to create rejection and acceptance indicators.

Academic success (age 11, sixth grade). Academic success was measured by each adolescent’s grade point average (GPA) at Grade 6, which was reported on a 4-point scale ranging from 1 (D or lower) to 4 (A– to A).

Gang involvement (age 13, eighth grade). To meet the goal of improving the measurement of gang involvement from a simple self-report measure, gang involvement was measured using five separate indexes. Self-reported gang involvement was derived from one question in the yearly self-report survey:

Table 2. Means and Standard Deviations of Gang Measures

<table>
<thead>
<tr>
<th>Measure (Scale)</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EA</td>
<td>AA</td>
</tr>
<tr>
<td></td>
<td>M  SD</td>
<td>M  SD</td>
</tr>
<tr>
<td>Sixth-Grade Adjustment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPA (0–4)</td>
<td>703</td>
<td>2.87 .88</td>
</tr>
<tr>
<td>Disliked*</td>
<td>695</td>
<td>.10 1.01</td>
</tr>
<tr>
<td>Liked*</td>
<td>695</td>
<td>−.19 .95</td>
</tr>
<tr>
<td>Antisocial (1–5)</td>
<td>702</td>
<td>1.34 .45</td>
</tr>
<tr>
<td>Eighth-Grade Gang Involvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crowd*</td>
<td>450</td>
<td>1.25 2.50</td>
</tr>
<tr>
<td>Peer*</td>
<td>450</td>
<td>.04 .06</td>
</tr>
<tr>
<td>Counselor Ratings (1–5)</td>
<td>462</td>
<td>1.10 .33</td>
</tr>
<tr>
<td>Teacher Ratings (1–5)</td>
<td>569</td>
<td>1.49 .76</td>
</tr>
<tr>
<td>Self-Report (1–5)</td>
<td>575</td>
<td>1.18 .76</td>
</tr>
</tbody>
</table>

Note: EA = European American; AA = African American; GPA = grade point average; * = standardized.
behavior, and academics) using multivariate analysis of variance. Next, we did the same with the impact of gender and ethnicity on the gang variables.²

We used structural equation modeling to create and test a model predicting eighth-grade gang involvement from sixth-grade adjustment and compared the fit of that model for AA and EA girls and boys. Because self-report did not correlate well with the other gang variables, we ran the structural equation models on both the other-report gang involvement construct and on the self-report gang involvement measure. We found the best fit for the predictive model, then used the Mplus program (Muthén & Muthén, 2000) multisample analysis technique to compare models with path coefficients constrained to be equal across ethnicity and gender, releasing constraints on these parameters one at a time to test for differences.

## Results

### Sixth-Grade Adjustment

Figure 2 provides scores on sixth-grade peer relations, antisocial behavior, and academic performance for EA and AA boys and girls. The correlation matrix (see Table 4) showed that these indexes of adjustment were related, so we employed multivariate analysis of variance to test the effects of gender and ethnicity on the combination of sixth-grade adjustment variables. Pillai’s criterion was used to determine if the multivariate differences across the groups were statistically reliable.

Ethnicity was associated reliably with the set of dependent variables measured in sixth grade, $V = .25$, $F(4, 672) = 55.56, p < .001$. GPA contributed the most to these observed differences, loading highly on the discriminant function (standardized discriminant function coefficient $\alpha = .91$). Antisocial behavior and liked-most nominations also contributed to the difference, but liked-least nominations did not differentiate between groups. EAs had higher GPAs, lower self-reports of antisocial behavior, and fewer liked-most nominations than AAs.

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²Because half the sample participated in an intervention between sixth and eighth grades as part of the larger longitudinal study, we tested for intervention effects on gang adjustment. Preliminary analyses indicated that adolescents in the intervention condition reported less gang involvement, $F(1, 573) = 11.57, p < .01$. However, differences in treatment condition did not affect the differences in level of gang involvement for gender or ethnicity, nor did it affect the correlations between sixth-grade adjustment and later gang involvement. Because intervention did not influence either the overall patterns of gang involvement by gender and ethnicity or the predictive model, we included both intervention and control adolescents in these analyses.
Gender also was associated with sixth-grade adjustment, $V = .06, F(4, 672) = 9.80, p < .001$. Again, GPA did the most to distinguish between the groups ($\alpha = .72$). Antisocial behavior and liked-least nomination also contributed to the discriminant function, but liked-most nominations did not. Girls had higher GPAs, lower self-reported antisocial behavior, and fewer liked-least nominations than boys. No significant statistical interaction occurred between gender and ethnicity on sixth-grade adjustment at the multivariate or univariate level.

Eighth-Grade Gang Involvement

Figure 3 shows gang involvement scores (both self-report and other report) for AA and EA boys and girls. Overall, as seen in Figure 3, AA boys scored highest on gang involvement, followed by AA girls. To test the effects of ethnicity and gender on all aspects of gang involvement, we again ran multivariate analyses of variance, this time on the individual indicators of the gang construct. Using listwise deletion, there was considerable missing data ($n = 439$).

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**Table 4. Measures: Zero-Order Correlation Matrix**

<table>
<thead>
<tr>
<th>GPA</th>
<th>Grade 6</th>
<th>Grade 8 Nomination</th>
<th>Grade 8 Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liked</td>
<td>$-20^{**}$</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Dislike</td>
<td>.09</td>
<td>.02</td>
<td>1.00</td>
</tr>
<tr>
<td>Antisocial</td>
<td>$-38^{**}$</td>
<td>.11*</td>
<td>.12*</td>
</tr>
<tr>
<td>Crowd Nomination</td>
<td>$-28^{**}$</td>
<td>.13**</td>
<td>$-.09$</td>
</tr>
<tr>
<td>Peer Nomination</td>
<td>$-32^{**}$</td>
<td>.32**</td>
<td>.35**</td>
</tr>
<tr>
<td>Teacher Ratings</td>
<td>$-36^{**}$</td>
<td>.11*</td>
<td>.08</td>
</tr>
<tr>
<td>Counselor Ratings</td>
<td>$-37^{**}$</td>
<td>.18**</td>
<td>.03</td>
</tr>
<tr>
<td>Self-report</td>
<td>$-21^{**}$</td>
<td>.07</td>
<td>.03</td>
</tr>
</tbody>
</table>

**Note:** GPA = grade point average. Listwise deletion; $n = 423$. $^{*}p < .05$. $^{**}p < .01$.

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3We decomposed the gang construct into its separate indicators for this analysis because of the possibility that specific reports (e.g., teacher assessments) might be more important than others in distinguishing between groups. This could be due to respondent bias or a number of other factors.

4One reason for missing data is that many students moved to new schools after the sixth-grade assessment. Participants with missing data by eighth grade did differ from those without missing data on sixth-grade adjustment, $V = .10, F(4, 674) = 18.23, p < .001$. Although this is not relevant to our analysis, it is important to note.
Indicators of eighth-grade involvement significantly distinguished between AAs and EAs, $V = .14$, $F(5, 431) = 14.27$, $p < .001$. All the indicators contributed to the distinction, but counselor ratings and peer nominations loaded most highly on the discriminant function. Crowd nominations showed the least loading on the discriminant function. AAs scored higher on all indicators of gang involvement than did EAs.

Gender also had a significant effect on gang involvement, $V = .09$, $F(5, 431) = 8.30$, $p < .001$. Peer nominations mainly accounted for this difference, self-report did not load at all on the discriminant function, and the other indicators contributed moderately. Boys scored higher than girls on all indicators. Again, the statistical interaction between gender and ethnicity on gang involvement was not statistically reliable.

**Prediction of Eighth-Grade Gang Involvement**

The correlations shown in Table 4 among the indicators for gang involvement also were run separately by ethnicity and gender. A Fisher’s $Z$ transformation was computed to evaluate whether observed differences in the zero-order correlations across subgroups were statistically reliable. None of these comparisons were statistically different. Because EA and AA boys and girls appeared to differ in their levels of gang involvement and their sixth-grade adjustment, we used a structural equation modeling framework to test whether prediction of eighth-grade gang involvement differed among these groups. We ran the model on the full sample to test fit, then ran a set of multigroup models, testing how the parameters varied by ethnicity and gender. Because of the low convergence between self- and other-report measures of gang involvement, these models were run on both the other-report gang involvement construct and the self-report gang involvement measure.

Specifically, as seen in Figure 4, we set up the model to predict the eighth-grade gang construct (represented by a single indicator—in the first set of analyses, the average of the other-report gang involvement variables; in the second set, the self-report indicator) from sixth-grade antisocial behavior, liked-most and liked-least nominations, and GPA. All variables were standardized to run the model. Missing data were imputed using the *Mplus* expectation maximization approach (Muthén & Muthén, 2000).

We ran the model on the overall sample, setting the intercepts at zero and allowing all other indexes to be estimated freely. Next, we ran a multigroup model across all four groups, allowing measurement parameters (intercepts and variances) and predictor covariances to vary across groups, constraining all...
paths from predictors to gang involvement to be equal across groups. We allowed the measurement parameters of the model to vary because they were not addressed specifically by our hypothesis and relaxing the constraints improved the model. Finally, we released the equality constraint on one predictor loading parameter at a time (e.g., allowing the relation between GPA and gang involvement to be different for each group) and tested both the change in model fit and the loading of the predictor for each group.

**Other report of gang involvement** For other reports of gang involvement, the overall model fit the data well. As seen in Figure 4, GPA, antisocial behavior, being liked, and being disliked all predicted later gang involvement. GPA was the strongest predictor (grades correlated negatively with the gang construct), followed by antisocial behavior (positive correlation with gang involvement) and being disliked and being liked (both positive correlations with gang involvement).

The multigroup model, with paths from predictors to gang involvement constrained to be equal across groups, fit the data marginally well, $\chi^2(15) = 33.48, p < .01$, root mean square error of approximation $= .08$, comparative fit index $= .96$. When the equality constraint on each predictor path was relaxed independently, none of the resulting models were an improvement in fit beyond the constrained model (see Table 5).

### Table 5. Gang Involvement: Parameter Constraints for European American and African American Girls and Boys

<table>
<thead>
<tr>
<th>Loading Allowed to Vary</th>
<th>Improvement From Constrained Model ($\chi^2$ Change)</th>
<th>Loading</th>
<th>MEA</th>
<th>FEA</th>
<th>MAA</th>
<th>FAA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other report</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On GPA</td>
<td>$\chi^2(3) = 1.91, p = ns$</td>
<td></td>
<td>.20</td>
<td>.20</td>
<td>.57</td>
<td>.32</td>
</tr>
<tr>
<td>On antisocial</td>
<td>$\chi^2(3) = 5.22, p = ns$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On like</td>
<td>$\chi^2(3) = 4.31, p = ns$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On dislike</td>
<td>$\chi^2(3) = 4.03, p = ns$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-report</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On GPA</td>
<td>$\chi^2(3) = 4.34, p = ns$</td>
<td></td>
<td>.20</td>
<td></td>
<td>.57</td>
<td>.32</td>
</tr>
<tr>
<td>On antisocial</td>
<td>$\chi^2(3) = 13.78, p &lt; .05$</td>
<td></td>
<td></td>
<td>.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On like</td>
<td>$\chi^2(3) = 4.07, p = ns$</td>
<td></td>
<td></td>
<td>.20</td>
<td>.57</td>
<td></td>
</tr>
<tr>
<td>On dislike</td>
<td>$\chi^2(3) = 5.01, p = ns$</td>
<td></td>
<td></td>
<td>.20</td>
<td>.32</td>
<td>.57</td>
</tr>
</tbody>
</table>

*Note:* MEA = male European American; FEA = female European American; MAA = male African American; FAA = female African American.

Grade point average.

*p < .05.*
**Self-report of gang involvement.** For self-report gang involvement, the overall model also fit the data well. As seen in Figure 4, only being disliked and antisocial behavior predicted self-report of later gang involvement. Antisocial behavior was the strongest predictor (correlating positively with the gang measure), followed by being disliked (also a positive correlation with gang involvement).

The multigroup model, with paths from predictors to gang involvement constrained to be equal across groups, fit the data marginally well, \( \chi^2(15) = 28.79, p < .05 \), root mean square error of approximation = .07, comparative fit index = .97. When the equality constraint on each predictor path was relaxed independently, the relaxation of the path from antisocial behavior to self-reported gang involvement improved the model fit significantly beyond the constrained model, \( \chi^2 \) change (15) = 13.78, \( p < .01 \). Antisocial behavior was a much stronger (positive) predictor of self-reported gang involvement for AA boys than for any other group (see Table 5).

**Discussion**

This study provided a rare opportunity to examine the role of school adaptation in the early emergence of gang involvement in adolescence. As expected, youth antisocial behavior predicted deviant peer affiliation and gang involvement. This is not a surprise and is predicted by most models of adolescent problem behavior, including control theory (M. R. Gottfredson & Hirschi, 1990). However, once controlling for antisocial behavior, there was clear evidence that “failure” in public middle school also was associated with the emergence of gang involvement. Of specific concern was the relatively robust prediction of gang involvement for peer rejection and academic failure. This finding replicates and extends our previous work on predicting deviant peer involvement in early adolescence (Dishion et al., 1991).

The picture is complex, however, as both peer rejection and acceptance predict gang involvement 2 years later, at least when the latter construct is comprised of teacher, peer, and school-staff ratings. This unexpected finding suggests that a more fine-grained analysis of peer social networks is in order, because it may well be that some antisocial youth are both liked and disliked by their various cliques across the network of sixth-grade students. For example, Stormshak et al. (1999) found that aggressive youth actually were well-liked in classrooms with other aggressive students. It seems that youth on the path to gang involvement are respected, liked, and disliked by many of their peers in school.

These data do support the hypothesis that school environments with high rates of failure and peer acrimony will serve as breeding grounds for deviant peer groups, gang involvement, and, consequently, high rates of serious problem behavior. If negative experiences in school are prognostic of gang involvement, the critical question becomes, what is the mechanism? Over the past 10 years, we have studied a process referred to as the “deviant friendship process” that may be relevant to understanding the mechanism linking failure to deviant peer aggregation. The idea is relatively straightforward: Through a process of selective reinforcements (i.e., “shopping”), young adolescents end up interacting with individuals who support their attitudes, values, and behaviors (Dishion, 1990; Patterson et al., 1992).

Poor grades and peer disdain are punishing experiences, indeed. The salience of peer reinforcement is amplified in youth with such experiences, and marginalized youth soon find each other. Topics of discussion that emerge as interesting for these youth are negative discussions of adults, teachers, prosocial peers, principals, and deviant behavior. Attention, laughter, and eventually peer respect reinforce and maintain increasingly more serious forms of problem behavior and a deep psychological sense of identification with deviance (Dishion, Nelson, Winter, & Bullock, 2004).

By way of extension, we expect that certain boys and girls in middle school increasingly will select friendships that support deviance, which, in turn, will be associated with increases in deviance, identification, involvement, and affiliation with deviant peer groups. Over the course of middle school, deviant peer groups will begin to coalesce. However, the more seriously deviant peer groups, those that identify as a gang, may not reside in the school setting. In fact, there is a need to conduct more careful peer relations research that establishes the geography of social networks as they emerge over time. An emerging area of study that seems particularly relevant to this issue is the finding that sibling problem behavior is as predictive of problematic outcomes as are deviant peer groups (Brook, Brook, & Whiteman, 1999; Patterson, 1984, 1986; Stormshak, Comeau, & Shepard, 2004). In fact, careful analyses of family dynamics suggest that siblings collude to undermine parents’ efforts to monitor and manage their young adolescents’ behavior (Bullock & Dishion, 2002).

The complexity of defining a peer group independent of other social groups may speak to the difficulty of defining a coherent gang construct. Klein (1993) discussed the conceptual complexities of defining a gang. The lack of convergence between our self-reported measure of gang involvement and those derived from peers, teachers, and school staff speak to this issue. This is particularly problematic for research on gang involvement, as much of the literature is based on self-report. We suggest that the self-report measure be expanded to include more items to increase its reliabil-
ity. One way to do this is to include attitudes toward gangs, and not simply whether the youth is involved in a gang. The work by Kiesner et al. (2002) underscored the importance of identification with a deviant peer group in the influence process.

The richness of the sample allowed us to consider whether the development and ecology of early gang involvement varied by gender and ethnicity. Although the adolescents differed by gender and ethnicity on measures of sixth-grade adjustment and eighth-grade gang involvement, we did not find major differences in the pattern of prediction of gang involvement when we used a conservative approach to examining model invariance. The conservative approach is one in which we allow the measurement of each of the constructs to vary by group but constrain the structural coefficients. Using this approach, the only statistically reliable difference we found was in the prediction of gang involvement from earlier antisocial behavior, which did vary modestly by subgroup.

Limitations exist to this research in addressing the hypothesis under consideration. First, the developmental age span is narrow, especially when considering gang involvement. Most studies of gang involvement suggest that gang involvement begins around age 13 and increases up to age 18 (Lahey et al., 1999; Thornberry et al., 1993). Certainly the dynamics of early gang involvement may be different from those of gang involvement later in adolescence. For one thing, we can be certain that many youth involved in gangs in later adolescence are less sensitive to school experiences simply because they no longer attend school.

Second, much of the research on adolescent problem behavior has used deviant peer group involvement as predictors of adolescent problem behavior. However, an ecological understanding of problem behavior may result from considering the developmental experiences that result in the formation of deviant peer groups, in general, and organized gangs, in particular. Research by Thornberry et al. (1993) and events over the past decade related to school shootings reveal that such deviant peer networks can have dramatic and tragic effects for all concerned.

We propose that future research continues to clarify the conditions conducive to gang involvement. We suggest an ecological framework in providing a broad perspective on the etiology and course of antisocial behavior and deviant peer clustering. A cornerstone on the ecological perspective is the central role of families as both a resource and a vulnerability factor. As a resource, the evidence suggests that parents can be mobilized as a countervailing force to the deviant peer group in early adolescence. For example, our analyses of the impact of our family-centered intervention revealed statistically reliable reductions in self-reported deviant peer involvement (Dishion, Bullock, & Granic, 2002) and self-reported gang involvement. However, other reports of gang involvement seemingly were unaffected by our family interventions (for details, see Dishion & Kavanagh, 2003).

If the findings linking academic failure and peer rejection to early gang involvement replicate, it would be useful to consider an integration between a family-centered intervention and those that focus on the school as a system (see Crone & Horner, 2003; D. C. Gottfredson, G. D. Gottfredson, & Hybl, 1993; Sugai, Horner, & Sprague, 1999). Improving the organization, structure, pedagogy, and behavior management practices may, in fact, make a difference with respect to the peer dynamics within a public-school environment. Such improvements, however, require an investment of resources in public education environments to enhance the ability of school professionals to address the changing needs of students and families.

References


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